The Exchange at Gwinnett
DRI 2834

Addendum 1

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Executive Summary

This Addendum is for the Gwinnett Exchange – GRTA DRI 2834. This addendum is in response two comments raised primarily from Gwinnett County. The major comments included the inclusion and diversion of existing / background vehicle trips to the proposed Gravel Springs Interchange, reworking internal circulation, re-distribution of generated vehicle trips to Laurel Crossing Pkwy to include a signalized intersection, and restriping SR 20 for a continuous deceleration lane. Due to the updated site plan there are some minor land-use changes which nets to a slight reduction in vehicle trips.

An aerial of the proposed development is shown in Figure i. The full site plan can be found in Appendix A. The study area is shown in Figure ii. The proposed development trip generation is summarized in Table i.

Figure i: Site Aerial

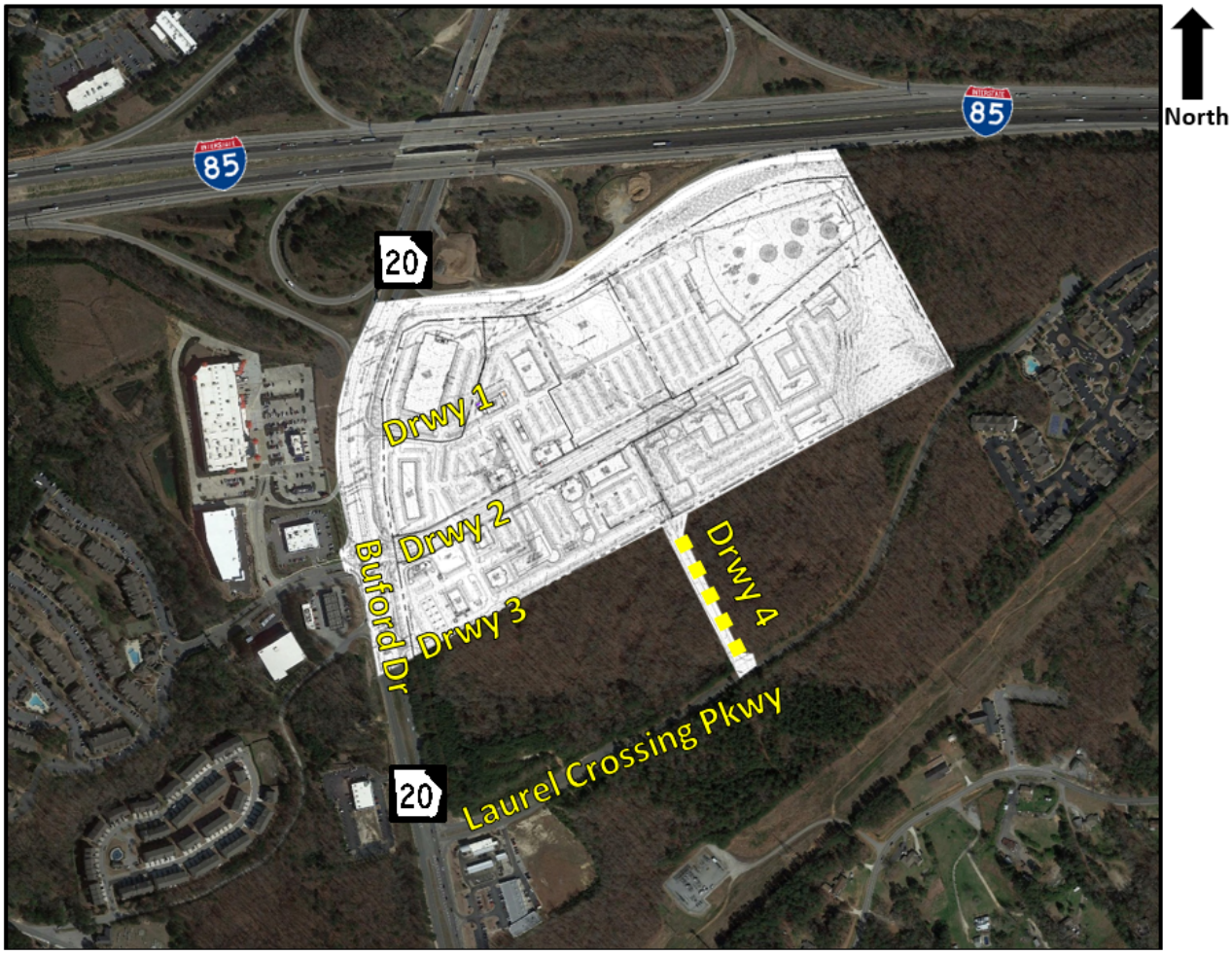


Figure ii: Study Network

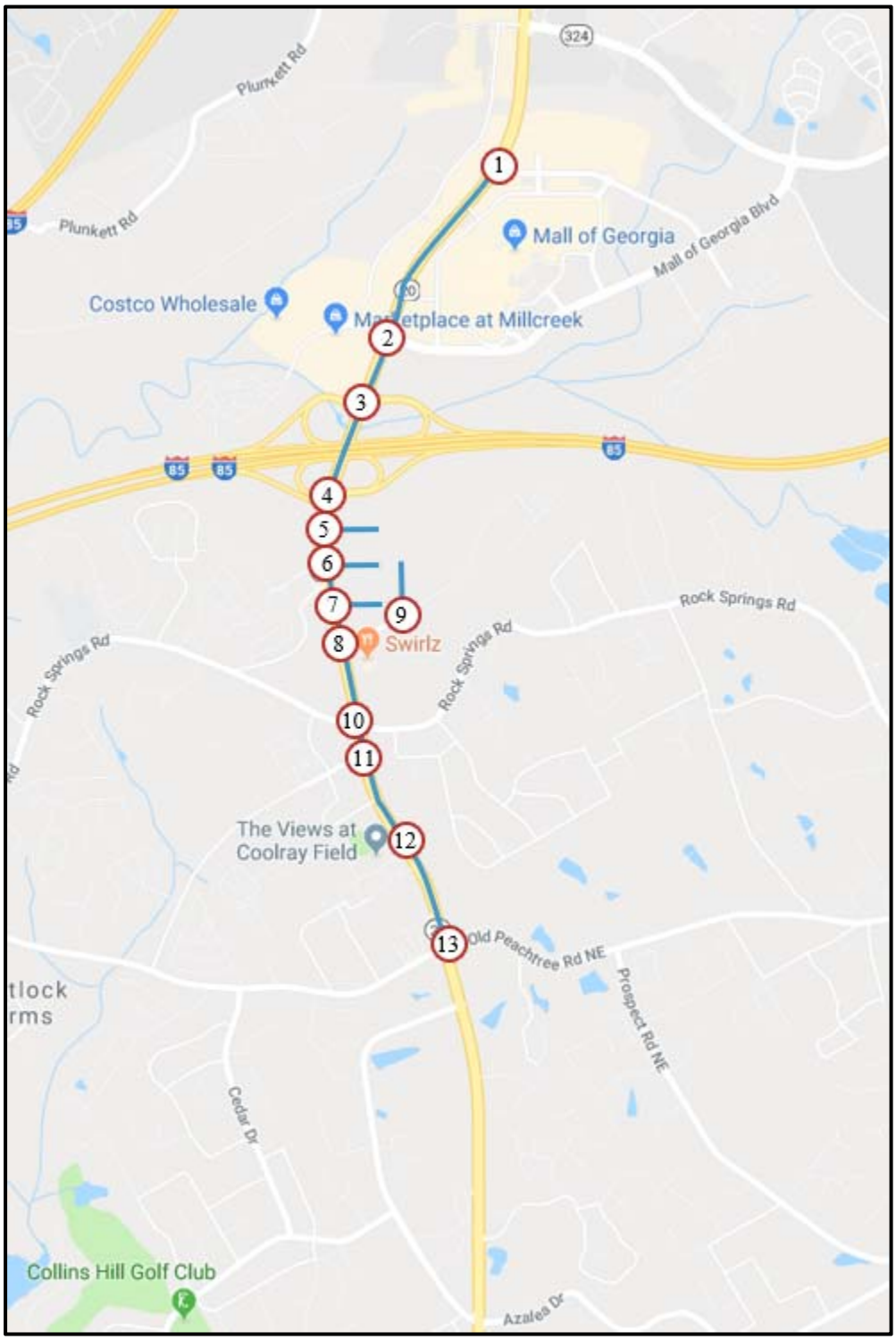


Table i: Site Trip Generation

ITE Code	Project Land Use	Density	Variable	Daily			AM Peak Hour			PM Peak Hour		
				Total	In	Out	Total	In	Out	Total	In	Out
960	Super Convenience Market / Gas Station	20	Pumps	4,610	2,305	2,305	562	281	281	459	230	229
937	Coffee/Doughnut Shop with Drive-Through Window	2,500	1000 S.F.	2,051	1,026	1,025	222	113	109	108	54	54
820	Shopping Center	130,312	1000 S.F.	7,198	3,599	3,599	217	135	82	661	317	344
890	Furniture Store	56,032	1000 S.F.	336	168	168	14	10	4	26	12	14
310	Hotel	123	Rooms	962	481	481	56	33	23	66	34	32
435	Multipurpose Recreational Facility	87,000	1000 S.F.	1,037	519	518	10	8	2	311	171	140
N/A	Golf Driving Range (Non ITE Trip Generation)	1	Unit	2,495	1,248	1,247	32	28	4	183	91	92
221	Multifamily Housing (Mid-Rise)	500	Dwelling Units	2,723	1,362	1,361	166	43	123	208	127	81
			Total Trips	21,412	10,708	10,704	1,279	651	628	2,022	1,036	986
			Reductions for Internal Capture	6,455	3,227	3,228	193	96	97	448	224	224
			Reductions for Modal Split	300	149	151	22	12	10	32	16	16
			Reductions for Pass-By Trips	3,997	2,045	1,952	407	203	204	427	215	212
			Total Net New Project Trips	**10,660**	**5,287**	**5,373**	**657**	**340**	**317**	**1,115**	**581**	**534**

The proposed development is anticipated to generate 21,412 daily vehicle trips (10,708 inbound, 10,704 outbound) with 1,279 AM peak hour vehicle trips (651 inbound, 628 outbound), and 2,022 PM peak hour trips (1,0136 inbound, 986 outbound). After vehicle trip reductions the net anticipated daily vehicle volume impacting the external roadway network is 10,660 vehicle trips (5,287 inbound, 5,373 outbound) with an AM peak hour vehicle volume of 657 vehicles (340 inbound, 317 outbound), and a PM peak hour vehicle volume of 1,115 vehicles (581 inbound, 534 outbound).

A comparison on intersection capacity Level of Service (LOS) for Existing, Background and Build is shown for signalized intersections in Table ii, unsignalized intersections in Table iii, proposed site driveways in Table iv, and signalized intersections with required improvements in Table v.

Table ii: Signalized Intersection Capacity Analysis Comparison

Signalized Intersection	Existing		Background		Build	
	AM	PM	AM	PM	AM	PM
Buford Dr NE at Woodward Crossing Blvd	B	C	B	C	B	C
Buford Dr NE at Mall of Georgia Blvd	C	D	D	C	D	D
Buford Dr NE at I-85 SB Ramps	-	-	A	A	A	A
Buford Dr NE at Brand Smart Way/Driveway 2	A	B	A	B	C	D
Buford Dr NE at Rock Springs Rd	D	B	B	A	C	A
Buford Dr NE at Tech Center Pkwy NE	A	A	A	A	A	A
Buford Dr NE at Braves Ave	A	A	A	A	A	A
Buford Dr NE at Old Peachtree Rd NE	E	D	E	E	E	E

Table iii: Laurel Crossing at SR 20 Capacity Analysis Comparison

Intersection	Lane Group Movement	Existing				Background				Build (Signalized)			
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
		Delay (s)	LOS	Delay (s)	LOS	Delay (s)	LOS	Delay (s)	LOS	Delay (s)	LOS	Delay (s)	LOS
SR 20 @ Laurel Crossing Pkwy	WBL	3068.6	F	8746.6	F	1638.4	F	5710.3	F	74.7	E	104.4	F
	WBR	32.6	D	30.6	D	26.4	D	28.6	D	0.0	A	0.0	A
	NBT	0.0	A	0.0	A	0.0	A	0.0	A	11.2	B	2.3	A
	NBR	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A
	SBL	21.7	C	31.4	D	18.5	C	28.6	D	19.6	B	50.3	D
	SBT	0.0	A	0.0	A	-	A	0.0	A	1.0	A	9.9	A
	Intersection	**29.3**	**-**	**47.5**	**-**	**17.0**	**-**	**33.5**	**-**	**8.7**	**A**	**10.4**	**B**

Table iv: Proposed Driveway Capacity Analysis

Intersection	Lane Group Movement	Build			
		AM Peak Hour		PM Peak Hour	
		Delay (s)	LOS	Delay (s)	LOS
SR 20 @ Driveway 1	NBT	0.0	A	0.0	A
	NBR	0.0	A	0.0	A
	WBR	46.6	E	118.2	F
	SBT	0.0	A	0.0	A
	Intersection	**1.1**	**-**	**2.8**	**-**
SR 20 @ Driveway 3	NBT	0.0	A	0.0	A
	NBR	0.0	A	0.0	A
	WBR	39.2	E	88.4	F
	SBT	0.0	A	0.0	A
	Intersection	**1.0**	**-**	**2.1**	**-**
Laurel Crossing Pkwy @ Driveway 4	EB	7.6	A	7.6	A
	WB	0.0	A	0.0	A
	SB	9.4	A	9.4	A
	Intersection	**4.6**	**-**	**4.9**	**-**

Table v: Improved Intersection Capacity Analysis

Signalized Intersection	Background		Build	
	AM	PM	AM	PM
Buford Dr NE at Old Peachtree Rd NE	D	D	E	D

The conclusions and recommendations of this report by intersection are as follows.

Woodward Crossing Blvd at SR 20

- Existing signalized intersection
- The intersection operates at a level of service (LOS) of B and C for all analysis conditions

Mall of Georgia Blvd at SR 20

- Existing signalized intersection
- The intersection operates at LOS D or better for all analysis conditions

I-85 SB at SR 20

- The existing intersection becomes signalized in background conditions
- The intersection operates at LOS A for both AM and PM peak hours

Brand Smart Way / Driveway 2 at SR 20

- A fourth leg is added to the existing signalized intersection under build conditions
- In build conditions the intersection operates at LOS C for the AM peak hour and D for the PM peak hour
- Dual southbound left-turn lanes are recommended and should be able to contain the 366 foot 95th percentile queue
    - Minimum GDOT required length is 235 feet of storage and a 100-foot taper
- A northbound right-turn deceleration lane should be added consisting of 175 feet of full width storage and a 100-foot taper
    - Per Gwinnett County the northbound right turn should be signalized with a no right on red

Laurel Crossing Way at SR 20

- Existing side-street stop-controlled intersection
- A traffic signal is warranted for build conditions
- When signalized the intersection operates at LOS A for the AM peak hour and LOS B for the PM peak hour
- All turn-lanes are currently provided at the intersection

Rock Springs Rd at SR 20

- Existing signalized intersection
- The intersection operates at LOS C or better for all analysis conditions

Tech Center Pkwy at SR 20

- Existing signalized intersection
- The intersection operates at LOS A for all analysis conditions

Braves Ave at SR 20

- Existing signalized intersection
- The intersection operates at LOS A for all analysis conditions

Old Peachtree Rd NE at SR 20

- Existing signalized intersection
- Intersection LOS drops to LOS E during background conditions for the PM peak hour
- Significant geometric improvements are needed to improve LOS since no modification to signal timing can be made for this analysis
    - Added northbound through lane
    - Added eastbound through lane
- It is recommended that signal timing changes be made in lieu of major geometric changes and adopting the AM LOS of E to the PM peak hour.

Driveway 1 at SR 20

- Proposed right-in / right-out driveway approximately 325 feet to the north of the intersection with Brandsmart Way
- Vehicles exiting the development during the AM and PM peak hour experience a failing LOS, however if queueing and delay are excessive, it is expected that drivers will utilize the other site driveways / signalized access
- A northbound right-turn deceleration lane is warranted and should be constructed to include 175 feet of full width storage and a 100-foot taper

Driveway 3 at SR 20

- Proposed right-in / right-out driveway approximately 250 feet to the south of the intersection with Brandsmart Way
- Vehicles exiting the development during the AM and PM peak hour experience a failing LOS, however if queueing and delay are excessive, it is expected that drivers will utilize the other site driveways / signalized access
- A northbound right-turn deceleration lane is warranted and should be constructed to include 175 feet of full width storage and a 100-foot taper

Driveway 4 at Laurel Crossing Pkwy

- Proposed full-access driveway
- Intersection operates at LOS A or better for all peak hours
- No turn-lanes are warranted for the intersection

1 Addendum Introduction

This report addendum serves and an update for the Gwinnett Exchange DRI #2834. Additional analysis was required as part of the DRI review. Gwinnett County provided the majority of the comments which this addendum addresses. As part of these comments changes to the internal circulation were made in collaboration with the county, as such an updated site plan is included as part of this addendum. Due to the size and nature of the proposed development several of the land-uses changed in type and intensity. The overall characteristics of the site have remained the same and the net number of vehicles trips remains similar. For a detailed explanation of changes please refer to the Trip Generation update section of this report. Additional comments included re-distributing the expected vehicle trips from the Gravel Springs interchange, re-distributing traffic volumes to the Laurel Crossing Pkwy at SR 20 intersection, and having a continuous right-turn deceleration lane on SR 20 northbound.

1.1 Site Plan Changes and Land-Use Update

The proposed site land-uses are summarized in Table 1. Additional detail of land-use changes is located in section 3.1. A full site plan is included in Appendix A.

Table 1: Land-uses

ITE Code	Project Land Use	Density	Variable
960	Super Convenience Market / Gas Station	20	Pumps
937	Coffee/Doughnut Shop with Drive-Through Window	2,500	1000 S.F.
820	Shopping Center	130,312	1000 S.F.
890	Furniture Store	56,032	1000 S.F.
310	Hotel	123	Rooms
435	Multipurpose Recreational Facility	87,000	1000 S.F.
N/A	Golf Driving Range (Non ITE Trip Generation)	1	Unit
221	Multifamily Housing (Mid-Rise)	500	Dwelling Units

1.2 Site Access

Site access remains unchanged from the preliminary DRI Report submittal.

1.3 Nearby Project

The proposed interchange at I-85 and Gravel Springs was updated to be complete by the project build-out year and is anticipated to reduce traffic volumes in the study area due to vehicles accessing the existing interchange at SR 20 to be re-routed to the new interchange. The proposed projects located in and around the study per to ARC's Transportation Improvement Program, Gwinnett County Comprehensive Transportation Plan, Gwinnett County SPLOST, and GDOT's Construction Work Program, are shown in Table 2. The roadway plans including proposed interchange volumes are shown in Appendix B.

Table 2: Projects in Study Network

Roadway	Project #	Estimated	Project Description
Rock Springs Rd	M-1076	2017-2023	Intersection Improvement at Spriggs Rd
Old Peachtree Rd	SPLOST T2	unknown	Widening from 2 to 3/4 lanes - Collins Hill Rd to Rock Springs Rd
SR 20 @ Financial Center Way	SPLOST T2	unknown	Intersection Improvement
I-85 SB Ramp	Gwinnett	2018-2020	Install traffic signal at I-85 SB Ramps @ SR 20
Gravel Springs Rd	Gwinnett	2020	New interchange with I-85

2 Background Conditions

2.1 Gravel Springs Interchange

The proposed Gravel Springs Interchange is anticipated to be complete prior to the full-build of the proposed Gwinnett Exchange DRI. Proposed interchange plans including projected traffic volumes are provided in Appendix B.

After coordination with Gwinnett County the proposed vehicle trips accessing the new interchange were reduced from the existing interchange at SR 20 and carried through the study network. In general, it is anticipated that 60-80% of the trips accessing the new interchange will be reduced from the existing interchange. The vehicle trips were distributed to the existing DRI study network, the reduction was around 80% of the vehicles from the north and 60% of the vehicles from the south. Vehicle trips were distributed based on the existing turning movements accessing the study network intersections with care taken to not reduce existing vehicle turning movements dramatically. The reduction traffic volumes were then grown by 2% for one year from the 2020 interchange project volumes to the background 2021 conditions.

The proposed reduction volumes were approved by Gwinnett County and included in the Background Conditions Analysis. Reduction volumes and adjusted background traffic volumes are shown in Figure 1 and Figure 2.

2.2 Background Lane Geometry

Background lane geometry remains unchanged from the DRI Report.

2.3 Background Capacity Analysis

The background traffic volumes were analyzed using a Synchro 10.0 model to determine the capacity of the AM and PM peak hours. The results are shown by lane group movement and total intersection capacity. Average vehicular delays are shown in seconds, level of service (LOS) is a grading system as defined by the Highway Capacity Manual (HCM) where A is best, and F is worst. Where possible the HCM 6th Edition was used for analysis, however due to some intersection configurations or signal phasing HCM 2000 for several intersections. Vehicle 95th percentile queueing is shown in feet and is from a SimTraffic 10.0 model analysis. Synchro and SimTraffic output files are included in Appendix C.

All traffic signal timings remain the same as in existing conditions. The new traffic signal located at the intersection of I-85 SB ramps with SR 20 was analyzed using the same cycle length as other signals in the study network. The signal configuration signalized the east side of the intersection stopping the westbound traveling vehicles and northbound traveling vehicles, southbound and eastbound vehicles are unsignalized free flow movements. Traffic signal timings used in analysis are shown in Appendix C.

Figure 1: Gravel Springs Interchange Reduction Volumes

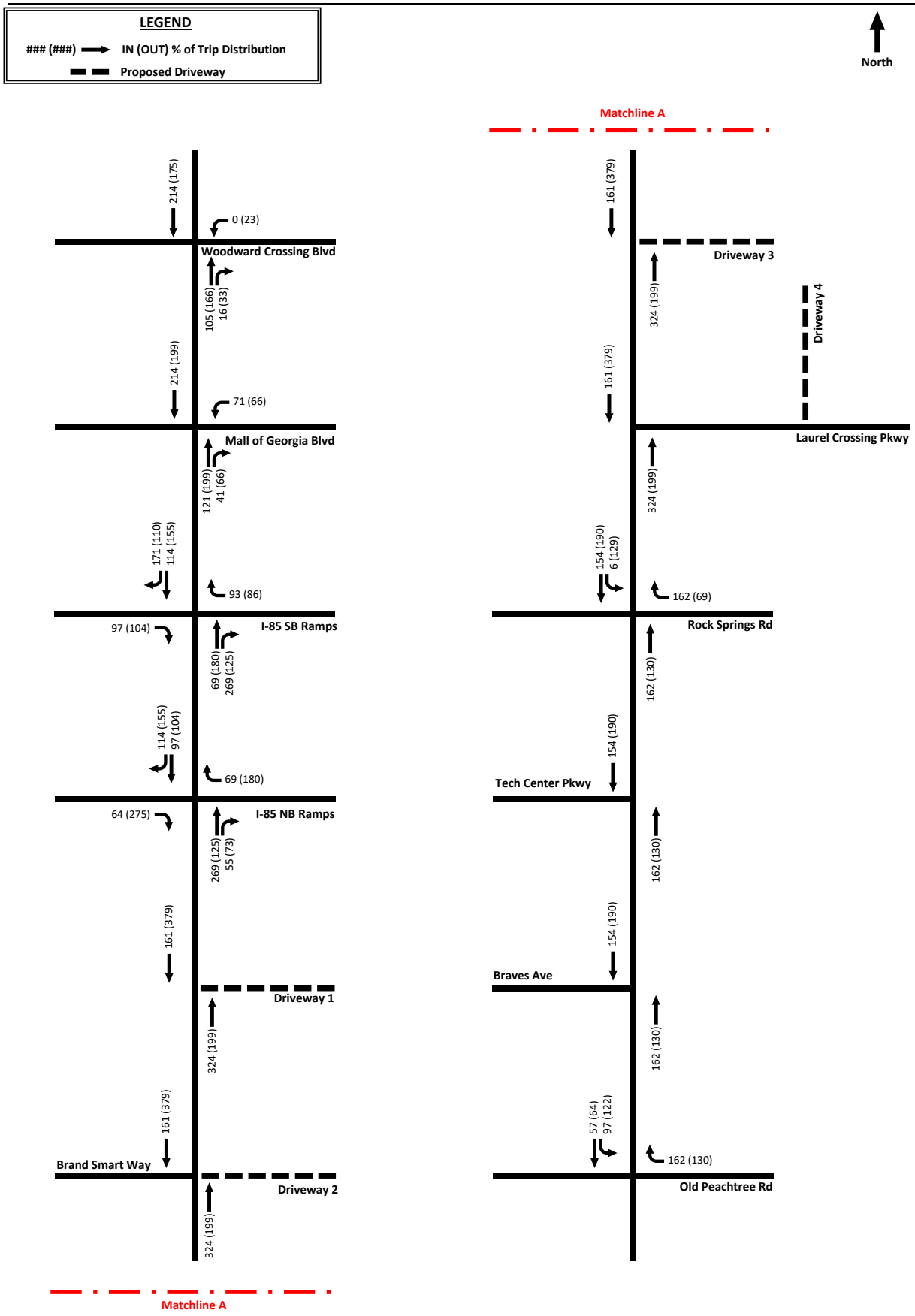


Figure 2: Adjusted Background (2021) Traffic Volumes

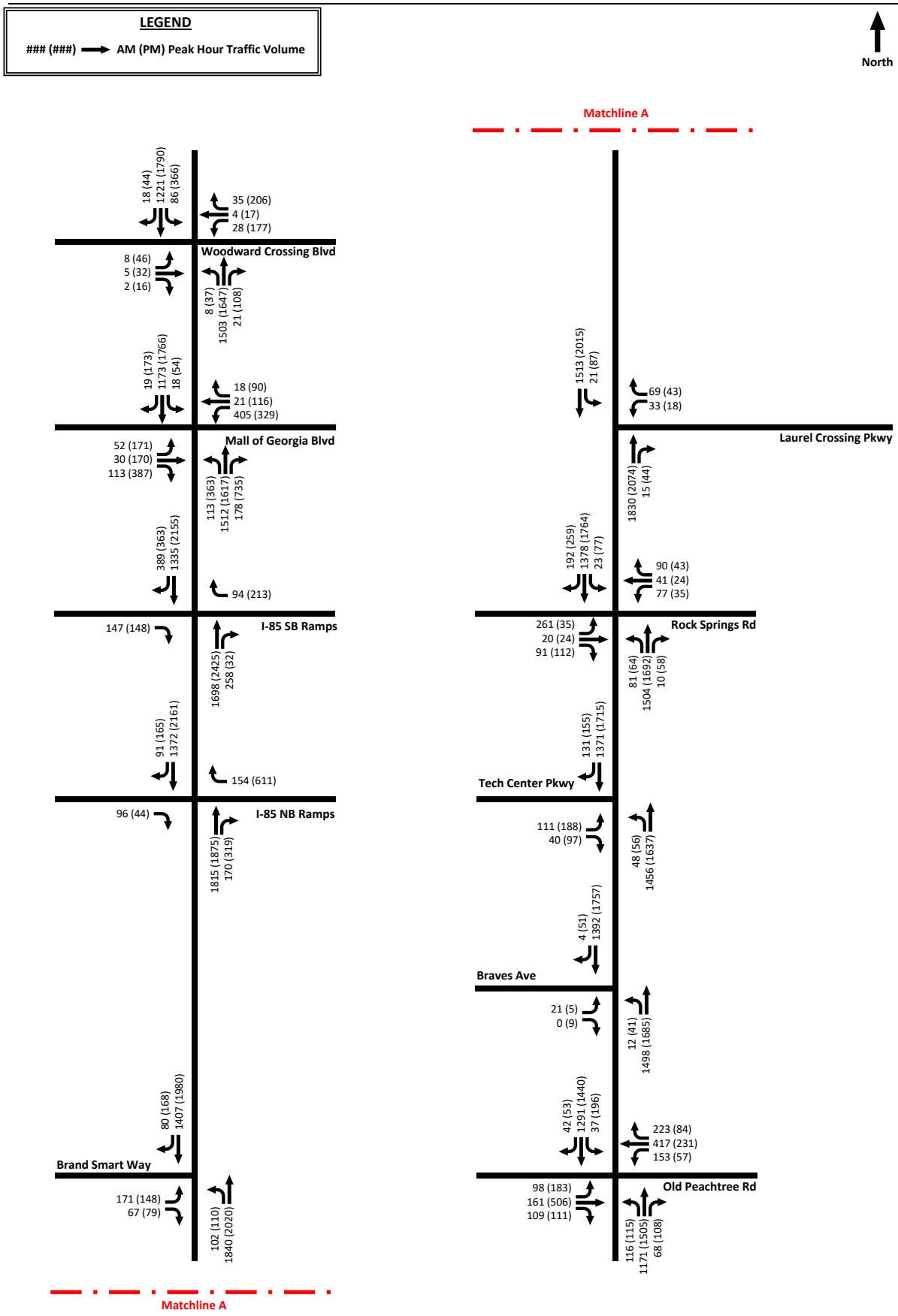


Table 3: Background Conditions Capacity Analysis

Intersection	Control	Lane Group Movement	AM Peak Hour			PM Peak Hour		
			Delay (s)	LOS	95th% Queue (ft)	Delay (s)	LOS	95th% Queue (ft)
SR 20 @ Woodward Crossing Blvd	Signal Control	EBL	66.4	E	35	87.9	F	105
		EBT	71.9	E	21	100.9	F	80
		EBR	67.1	E	16	91.5	F	37
		WBL	63.4	E	70	91.2	F	224
		WBT/R	66.9	E	51	95.2	F	174
		WBR	65.9	E	34	91.0	F	113
		NBL	46.3	D	200	73.5	E	95
		NBT/R	5.6	A	227	10.9	B	179
		SBL	64.0	E	116	93.7	F	309
		SBT/R	8.6	A	158	18.0	B	371
		Intersection	**10.8**	**B**	**-**	**30.9**	**C**	**-**
SR 20 @ Mall of Georgia Blvd	Signal Control	EBL	52.3	D	73	77.7	E	214
		EBT	69.4	E	57	126.8	F	367
		EBR	0.0	A	-	0.0	A	473
		WBL	70.4	E	291	105.1	F	317
		WBT	66.9	E	42	102.0	F	232
		WBR	48.8	D	30	66.1	E	68
		NBL	72.5	E	98	95.6	F	290
		NBT/R	50.2	D	218	0.8	A	420
		NBR	0.0	A	236	0.0	A	353
		SBL	40.5	F	43	80.7	F	95
		SBT/R	0.8	A	235	4.0	A	454
		SBR	1.4	A	205	7.8	A	427
		Intersection	**35.5**	**D**	**-**	**27.5**	**C**	**-**
SR 20 @ I-85 SB	Signal Control	EBR	1.6	A	-	0.0	A	-
		WBR	64.4	E	-	96.3	F	1036
		NBT	1.3	A	-	6.2	A	-
		NBR	1.0	A	-	3.4	A	-
		SBT	0.8	A	-	0.7	A	326
		SBR	0.4	A	-	0.1	A	-
		Intersection	**2.8**	**A**	**-**	**6.9**	**A**	**-**
SR 20 @ Brand Smart Way	Signal Control	EBL	64.0	E	138	95.4	F	158
		EBR	58.0	E	19	86.2	F	60
		NBL	41.4	D	95	74.9	E	192
		NBT	3.3	A	188	2.3	A	267
		SBT	5.8	A	216	16.1	B	625
		SBR	2.6	A	-	10.2	B	-
		Intersection	**9.0**	**A**	**-**	**15.2**	**B**	**-**
SR 20 @ Laurel Crossing Pkwy	Minor Road Stop Control	WBL	1638.4	F	104	5710.3	F	117
		WBR	26.4	D	-	28.6	D	61
		NBT	0.0	A	-	0.0	A	-
		NBR	0.0	A	-	0.0	A	-
		SBL	18.5	C	51	28.6	D	160
		SBT	-	A	-	0.0	A	-
		Intersection	**17.0**	**-**	**-**	**33.5**	**-**	**-**

SR 20 @ Rock Springs Rd	Signal Control	EBL	51.5	D	151	85.7	F	43
		EBT	40.0	D	34	80.5	F	61
		EBR	0.0	A	73	0.0	A	89
		WBL	61.8	E	117	93.7	F	94
		WBT/R	109.7	F	181	132.9	F	111
		NBL	12.1	B	92	5.9	A	172
		NBT	2.7	A	203	1.2	A	539
		NBR	0.0	A	-	0.0	A	112
		SBL	12.7	B	28	6.0	A	273
		SBT	2.2	A	597	1.5	A	662
		SBR	0.0	A	231	0.0	A	235
		Intersection	**13.4**	**B**	**-**	**6.5**	**A**	**-**
SR 20 @ Tech Center Pkwy	Signal Control	EBL	69.8	E	85	100.8	F	242
		EBR	0.0	A	19	0.0	A	53
		NBL	2.4	A	79	3.0	A	90
		NBT	0.5	A	62	0.6	A	178
		SBT	0.5	A	131	0.8	A	407
		SBR	0.0	A	-	0.0	A	141
		Intersection	**3.6**	**A**	**-**	**6.4**	**A**	**-**
SR 20 @ Braves Ave	Signal Control	EBL	69.7	E	53	98.5	F	26
		EBR	0.0	A	-	96.0	F	-
		NBL	99.8	F	40	90.9	F	64
		NBT	1.3	A	20	4.0	A	40
		SBT	6.5	A	192	3.6	A	175
		SBR	5.3	A	-	2.6	A	-
		Intersection	**4.9**	**A**	**-**	**5.2**	**A**	**-**
SR 20 @ Old Peachtree Rd NE	Signal Control	EBL	48.8	D	132	55.6	E	223
		EBT	46.3	D	161	112.5	F	761
		EBR	45.3	D	82	55.1	E	364
		WBL	41.7	D	365	67.0	E	162
		WBT	98.8	F	757	68.5	E	364
		WBR	52	D	585	62.3	E	134
		NBL	83.8	F	176	128.2	F	596
		NBT	29.9	C	387	63.9	E	981
		NBR	19.1	B	28	30.8	C	602
		SBL	73.1	E	50	93.4	F	465
		SBT	67.8	E	598	19.6	B	811
		SBR	35.7	D	107	4.0	A	43
		Intersection	**55.3**	**E**	**-**	**56.0**	**E**	**-**

Woodward Crossing Blvd at SR 20

- There is no change in intersection LOS from existing conditions

Mall of Georgia Blvd at SR 20

- LOS during the AM peak hour drops from LOS C to LOS D. Due to reduction of vehicles from the Gravel Springs interchange the LOS in the PM peak hour drops from LOS D to LOS C.

I-85 SB at SR 20

- The intersection is assumed to be signalized under background conditions

- The intersection operates at LOS A for both AM and PM peak hours

Brand Smart Way at SR 20

- There is no change in intersection LOS from existing conditions

Laurel Crossing Pkwy at SR 20

- Dues to the issues of Synchro modeling outlined in existing conditions the minor road stop-controlled movements experience additional delay and queueing. The WBL continues to error out and is showing a queue not representative of the delay.

Rock Springs Rd at SR 20

- Due to the reduction of vehicles at the intersection due to the Gravel Springs interchange the LOS drops from LOS D in the AM peak hour to LOS B and from LOS B in the PM peak hour to LOS A.

Tech Center Pkwy at SR 20

- There is no change in intersection LOS from existing conditions

Braves Ave at SR 20

- There is no change in intersection LOS from existing conditions

Old Peachtree Rd NE at SR 20

- The intersection remains at LOS E during the AM peak hour
- During the PM peak hour, the LOS drops from LOS D to LOS E

2.4 Background Conditions Required Improvements

The following improvements were made to improve intersection LOS to the accepted LOS standard. Per GRTA Technical Guidelines Section 4-115.A.2 "Changes to signal timing splits or cycle lengths should not be considered mitigation".

Old Peachtree Rd at SR 20

- LOS standard is LOS E during the AM peak hour and LOS D during the PM peak hour
- Significant geometric improvements are needed to improve LOS since no modification to signal timing can be made for this analysis
    - Added northbound through lane
    - Added eastbound through lane
- LOS improves to LOS D during the AM peak hour and is improved to LOS D during the PM peak hour
- It is recommended that signal timing changes be made in lieu of major geometric changes and adopting the AM LOS of E to the PM peak hour.

Table 4: Background Conditions Capacity Analysis with Required Improvement

Intersection	Control	Lane Group Movement	AM Peak Hour			PM Peak Hour		
			Delay (s)	LOS	95th% Queue (ft)	Delay (s)	LOS	95th% Queue (ft)
SR 20 @ Old Peachtree Rd NE	Signal Control	EBL	48.8	D	142	55.6	E	229
		EBT	46.3	D	168	112.5	F	960
		EBR	45.3	D	80	55.1	E	433
		WBL	41.7	D	363	67.0	E	149
		WBT	98.8	F	1388	68.5	E	337
		WBR	52.0	D	640	62.3	E	109
		NBL	83.8	F	133	128.2	F	788
		NBT	24.4	C	246	42.3	D	1061
		NBR	19.1	B	29	30.8	C	654
		SBL	73.1	E	39	92.6	F	505
		SBT	67.8	E	651	18.8	B	946
		SBR	35.7	D	85	3.9	A	117
		Intersection	**53.7**	**D**	-	**48.8**	**D**	-

2.5 Background Segment Capacity Analysis

A segment capacity analysis was performed for all study roadway segments using HCS 7. The results of the segment analysis are summarized in Table 5.

Table 5: Background Segment Capacity Analysis

				AM		PM	
#	**Segment**	**From**	**To**	NB	SB	NB	SB
1	SR 20	Woodward Crossing Blvd	Mall of Georgia Blvd	B	A	B	B
2	SR 20	Mall of Georgia Blvd	Ramp N. of 85	B	B	C	C
3	SR 20	Ramp N. of 85	Ramp S. of 85	B	B	B	B
4	SR 20	Ramp S. of 85	Brand Smart Way	D	B	D	C
5	SR 20	Brand Smart Way	Rock Springs Rd	D	C	D	D
6	SR 20	Rock Springs Rd	Tech Center Pkwy NE	C	C	C	C
7	SR 20	Tech Center Pkwy NE	Braves Ave	C	C	C	C
8	SR 20	Braves Ave	Old Peachtree Rd NE	C	C	C	C

Due to the re-routing of vehicle traffic to the proposed Gravel Springs Interchange, several segments improved in LOS, no segments experience a worse LOS than existing conditions.

3 Future Conditions

3.1 Trip Generation

A trip generation for the proposed development was created using the Institute of Traffic Engineers (ITE) Trip Generation Manual 10th Edition, 2017. There are some minor changes to the trip generation based on the updated site plan provided in Appendix A. Due to the comments by Gwinnett County an updated site plan was required which has updated some of the building layouts. The changes to the land-uses are as follows:

- Health / Fitness Club – Removed and changed to Shopping Center land-use
- Shopping Center – Overall SF increased / changed from 87,200 SF to 130,312 SF
- Furniture Store – 56,000 SF increased to 56,032 SF
- Multipurpose Recreational Facility – 90,000 SF reduced to 87,000 SF
- Senior Adult Housing – Changed to Multifamily Housing (380 units to 500 units)

In the previous site plan the shopping center land-use was localized around the main thoroughfare of the development, in the updated site plan this has been broken up into several individual building some of which are shown as restaurants and a larger building showing both retail and office. Due to the nature of the development planning process it is still undetermined if those will be the final land-uses and locations, however based on the ITE 10th Edition description of the shopping center the shopping center land-use will provide an accurate representation of the proposed trip generation. The Golf Range land-use is expected to generate more traffic volume than a normal Golf Range, as such a survey of an existing development was completed to estimate the trip generation for the proposed land-use.

The net new vehicle trips for the proposed development have only changed slightly after all changes are made. The daily combined inbound and outbound net daily trips decreased by 1,368, the AM peak hour has increased by 118, and the PM peak hour decreased by 86.

The summarized trip generation is shown in Table 6. The data use for analysis is included in Appendix D.

Table 6: Trip Generation Summary

ITE Code	Project Land Use	Density	Variable	Daily			AM Peak Hour			PM Peak Hour		
				Total	In	Out	Total	In	Out	Total	In	Out
960	Super Convenience Market / Gas Station	20	Pumps	4,610	2,305	2,305	562	281	281	459	230	229
937	Coffee/Doughnut Shop with Drive-Through Window	2,500	1000 S.F.	2,051	1,026	1,025	222	113	109	108	54	54
820	Shopping Center	130,312	1000 S.F.	7,198	3,599	3,599	217	135	82	661	317	344
890	Furniture Store	56,032	1000 S.F.	336	168	168	14	10	4	26	12	14
310	Hotel	123	Rooms	962	481	481	56	33	23	66	34	32
435	Multipurpose Recreational Facility	87,000	1000 S.F.	1,037	519	518	10	8	2	311	171	140
N/A	Golf Driving Range (Non ITE Trip Generation)	1	Unit	2,495	1,248	1,247	32	28	4	183	91	92
221	Multifamily Housing (Mid-Rise)	500	Dwelling Units	2,723	1,362	1,361	166	43	123	208	127	81
			Total Trips	21,412	10,708	10,704	1,279	651	628	2,022	1,036	986
			Reductions for Internal Capture	6,455	3,227	3,228	193	96	97	448	224	224
			Reductions for Modal Split	300	149	151	22	12	10	32	16	16
			Reductions for Pass-By Trips	3,997	2,045	1,952	407	203	204	427	215	212
			Total Net New Project Trips	**10,660**	**5,287**	**5,373**	**657**	**340**	**317**	**1,115**	**581**	**534**

The proposed development is anticipated to generate 21,412 daily vehicle trips (10,708 inbound, 10,704 outbound) with 1,279 AM peak hour vehicle trips (651 inbound, 628 outbound), and 2,022 PM peak hour trips (1,0136 inbound, 986 outbound). After vehicle trip reductions the net anticipated daily vehicle volume impacting the external roadway network is 10,660 vehicle trips (5,287 inbound, 5,373 outbound) with an AM peak hour vehicle volume of 657 vehicles (340 inbound, 317 outbound), and a PM peak hour vehicle volume of 1,115 vehicles (581 inbound, 534 outbound).

3.1.1 Internal Capture Reduction

Mixed-use developments that contain residential, retail, and entertainment land-uses will generate trips that satisfy the total development's trip generation but will not access the site via the external roadway network. Internal trip capture is calculated using the guidance set forth in the ITE Trip Generation Handbook 3rd Edition, 2017 which utilizes the NCHRP 8-51 Internal Trip Capture Estimation tool. AM and PM peak hour trips utilize their respective tools, however to estimate the daily internal capture the PM worksheets were used with the daily traffic volumes. The total internal capture reduction is approximately 15% of the AM volumes, and 22-30% of the PM and daily volumes.

The internal capture reduction is 6,455 daily vehicle trips (3,227 inbound, 3,228 outbound) with an AM peak hour vehicle volume of 193 vehicles (96 inbound, 97 outbound), and a PM peak hour vehicle volume of 448 vehicles (224 inbound, 224 outbound). NCHRP worksheets are included in Appendix D.

3.1.2 Reductions for Modal Split

Due to the addition of bicycle and pedestrian facilities by the development and anticipated future connections to the external network a number of trips are anticipated to utilize these facilities and will not have an impact on the external roadway network. A 2% reduction for modal split was discussed and agreed upon at the methodology meeting.

The modal split reduction is 300 daily vehicle trips (149 inbound, 151 outbound) with an AM peak hour vehicle volume of 22 vehicles (12 inbound, 10 outbound), and a PM peak hour vehicle volume of 32 vehicles (16 inbound, 16 outbound).

3.1.3 Pass-by Trip Reduction

Several of the proposed land-uses are expected to attract trips as intermediate stops on the way from an origin to a primary trip destination without a route diversion. The pass-by trip generation rate is based on the ITE Trip Generation Handbook 3rd Edition, 2017. The handbook does not always provide rates for AM and daily pass-by trip generation. Where applicable the rates not provided were estimated based on the

PM peak hour rate. The ITE 10th Edition provides furniture store rates which was used in analysis for the proposed furniture store land-use.

The pass-by trip reduction is 3,997 daily vehicle trips (2,045 inbound, 1,952 outbound) with an AM peak hour vehicle volume of 407 vehicles (203 inbound, 204 outbound), and a PM peak hour vehicle volume of 427 vehicles (215 inbound, 212 outbound).

3.2 Trip Distribution

Due to comments received by Gwinnett County the trip distribution was updated at the site driveways, the overall endpoint distributions remained the same. Gwinnett County has expressed that a dual-left exiting the development at the main signalized intersection is not desired and has requested that the trip distribution / internal circulation be modified to push additional vehicles to the Laurel Crossings Pkwy intersection. The trip distribution is shown graphically in Figure 3. Pass-by trip distribution is shown in Figure 4. Total project trips are shown in Figure 6**.**

3.3 Build Traffic Volumes

Build traffic volumes include background volumes and project trips that will be generated by the proposed development. Total build year traffic volumes are shown graphically in Figure 7**.**

3.4 Turn Lane Warrant Analysis

A turn lane warrant analysis for the proposed driveways accessing the external roadway network was performed per GDOT's Regulations for Driveway and Encroachment Control Chapter 4, Tables 4-6 and 4-7 for driveways located along SR 20. For Driveway 4 the NCHRP 457: Evaluating Intersection Improvement Recommendations was used.

GDOT turn lane warrants state that for a roadway with greater than 10,000 AADT and a speed limit of 45 mph the daily right-turn volume needed is 75 vehicles and the daily left-turn volume is 250 vehicles. All turn-lanes are warranted along SR 20 based on peak hour traffic volumes.

- Driveway 1
  - Right-turn deceleration lane **Warranted**
- Driveway 2
  - Right-turn deceleration lane **Warranted**
  - Left-turn deceleration lane **Warranted**
- Driveway 3
  - Right-turn deceleration lane **Warranted**

The NCHRP turn-lane warrants analyze the need for a turn lane by comparing the amount of turning vehicles with opposing and advancing traffic volumes. Full NCHRP worksheets are included in Appendix E.

- Driveway 4
  - Right-turn deceleration lane **Not Warranted**
  - Left-turn deceleration lane **Not Warranted**
  - Minor Road approach **Single Lane**

3.4.1 Turn Lane Required Lengths

Per GDOT's Regulations for Driveway and Encroachment Control Chapter 4, Table 4-8.

- All right-turn deceleration lanes on SR 20 should be designed to include a 175-foot full length storage and a 100-foot taper
- The left-turn deceleration lane into Driveway 2 should at a minimum include a 235-foot full length storage and 100-foot taper
    - The existing turn-lane is approximately 275 feet with a 90-foot taper
    - Based on the 95th percentile queue in Table 7 the required queue length is 366 feet

3.5 Signal Warrant Analysis

Due to the update trip distribution for the proposed development the signal warrant analysis at SR 20 and Laurel Crossing Pkwy was updated to reflect the new proposed traffic volumes at the intersection.

The signal warrant was analyzed per the Manual on Uniform Traffic Control Devices (MUTCD) traffic signal warrant guidelines. A twelve-hour turning movement count was performed for the intersection and traffic volumes were grown to the build year based on the methodology previously stated. The project trip generated traffic volumes were distributed to the intersection based on the ITE Trip Generation Manual 10th Edition daily distribution for ITE Code 221. The shopping center ITE 820 daily distribution was used in analysis. The signal warrant analysis does not include the reduction of through traffic due to the Gravel Springs Interchange, the through vehicle volume is well above the major street threshold for all warrants.

Traffic signal warrants were analyzed using 100% traffic volume, as well as a right-turn reduction for vehicles turning from Laurel Crossing Pkwy. Based on the analysis a traffic signal is **Warranted** for Warrants 1, and 2. Full traffic signal warrant analysis including the daily distribution of project trips at the study intersection is provided in Appendix F.

Figure 3: Trip Distribution

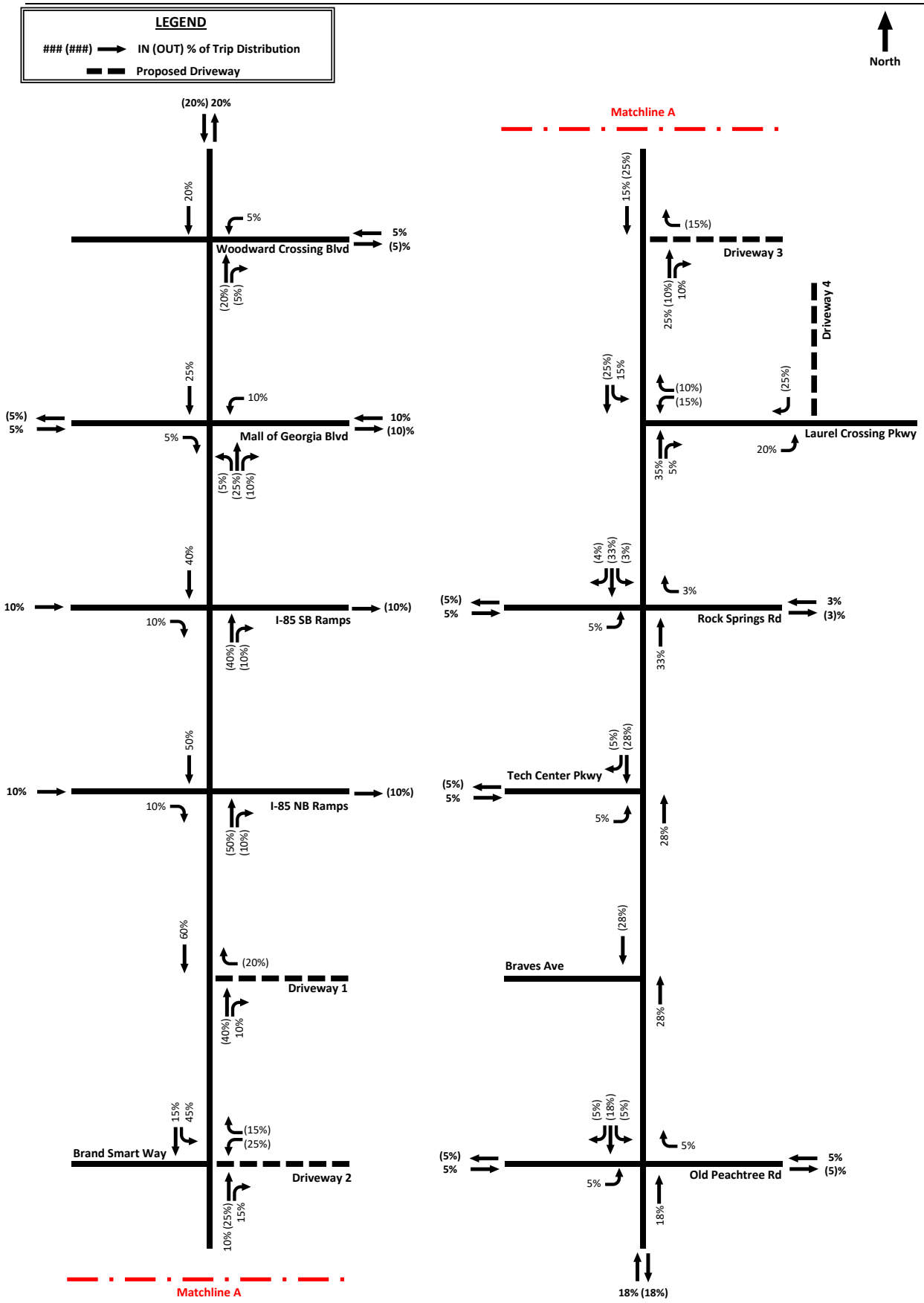


Figure 4: Pass-By Trip Distribution AM

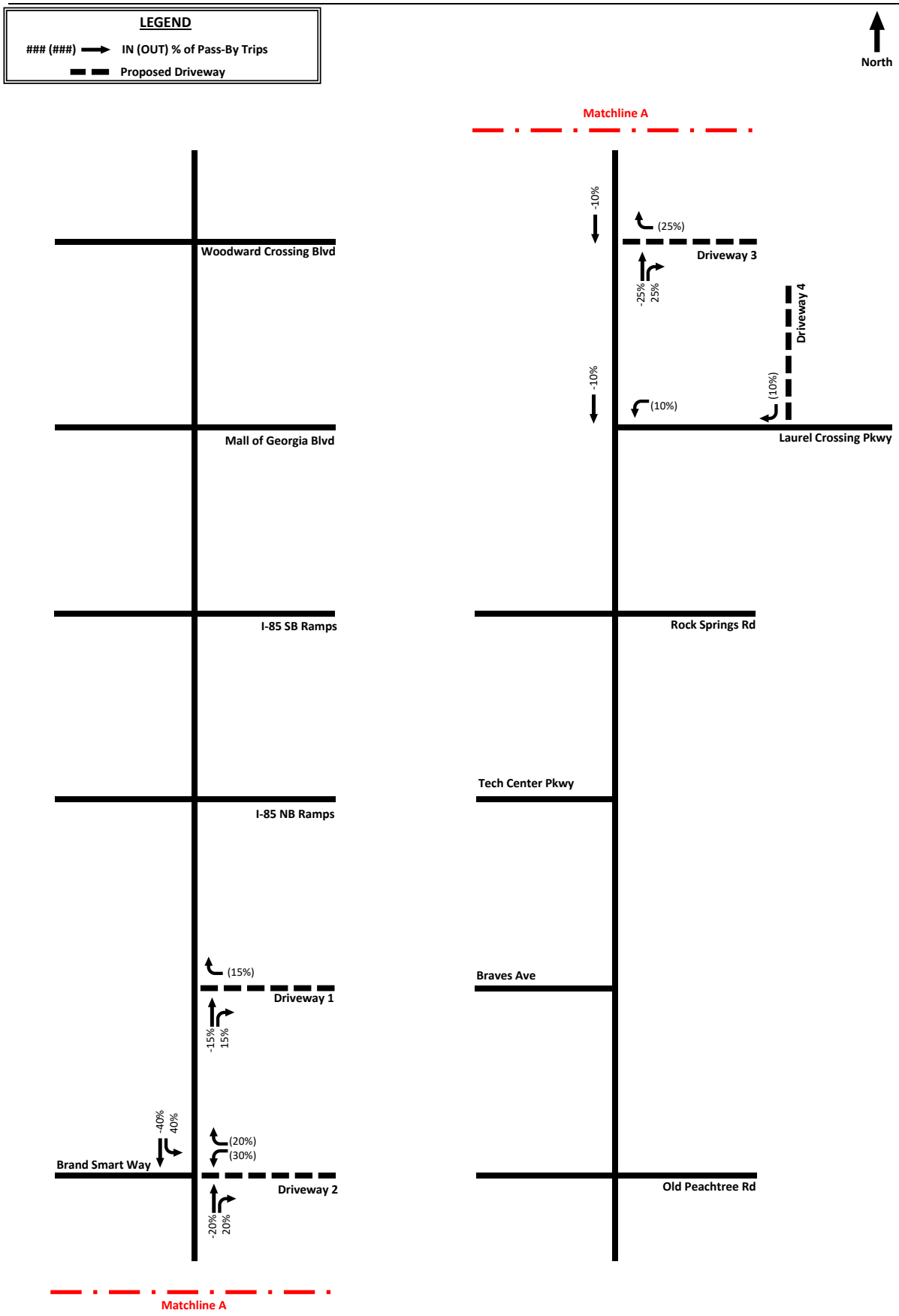


Figure 5: Pass-By Trip Distribution PM

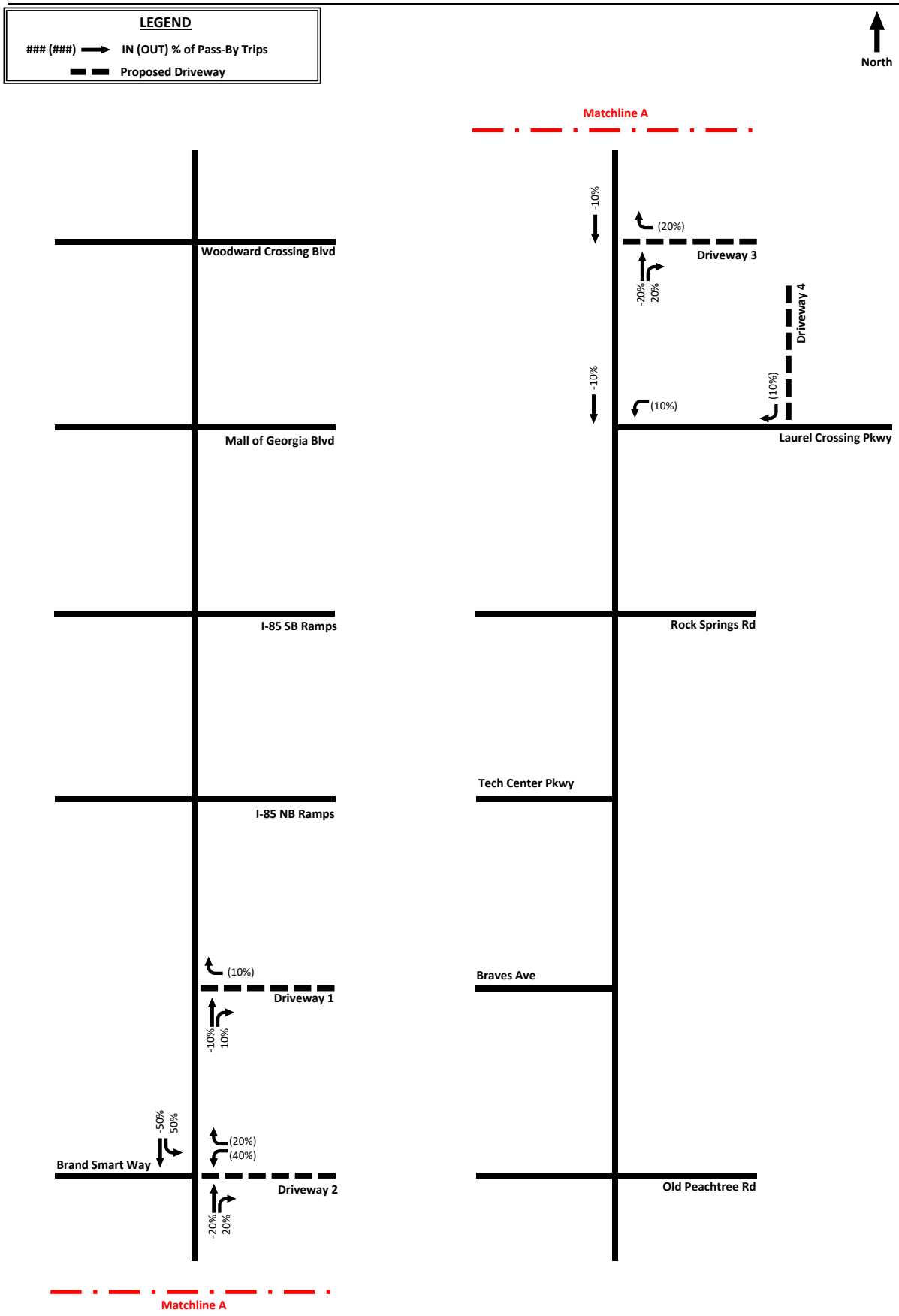


Figure 6: Project Trips

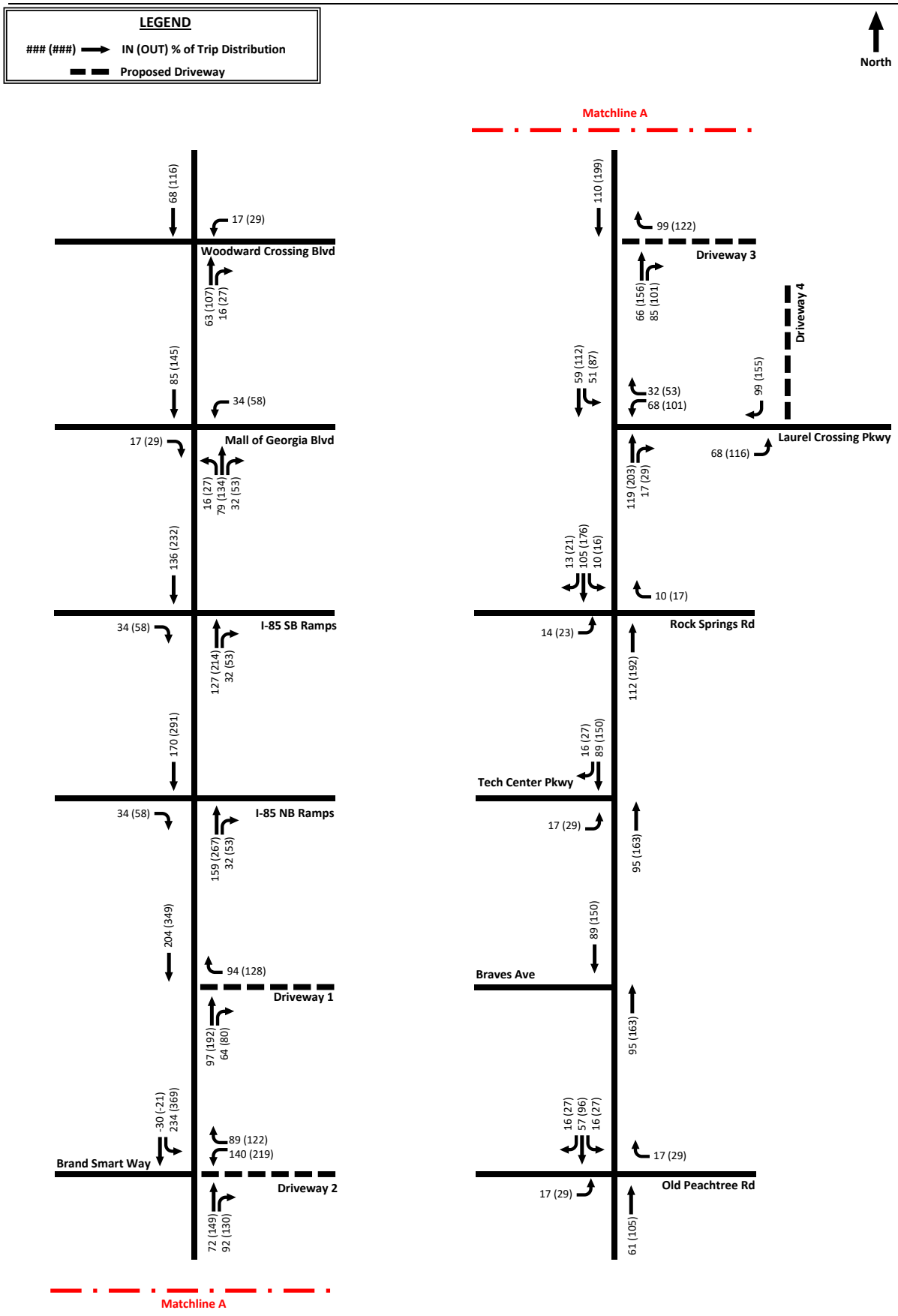


Figure 7: Build (2021) Traffic Volumes

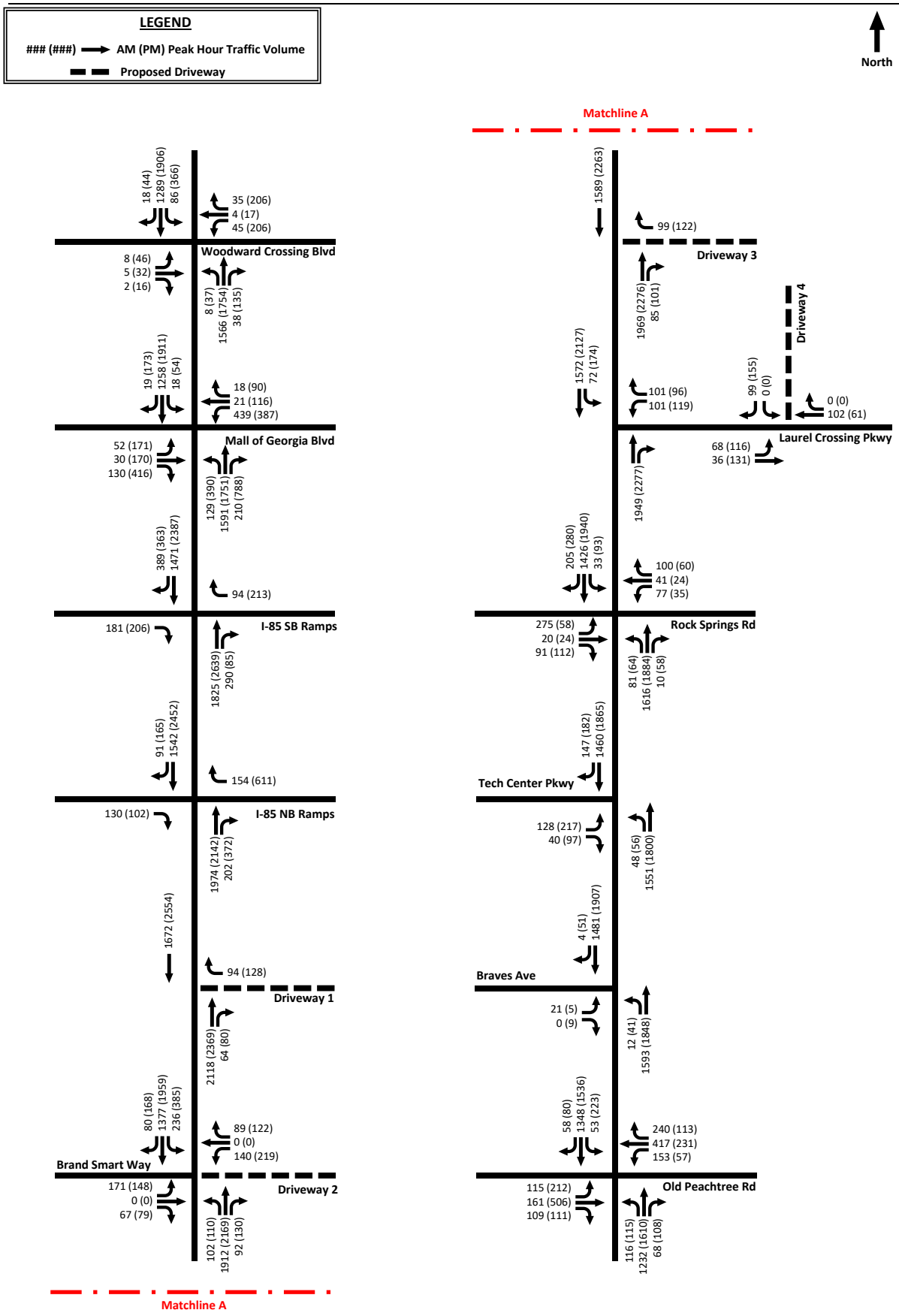
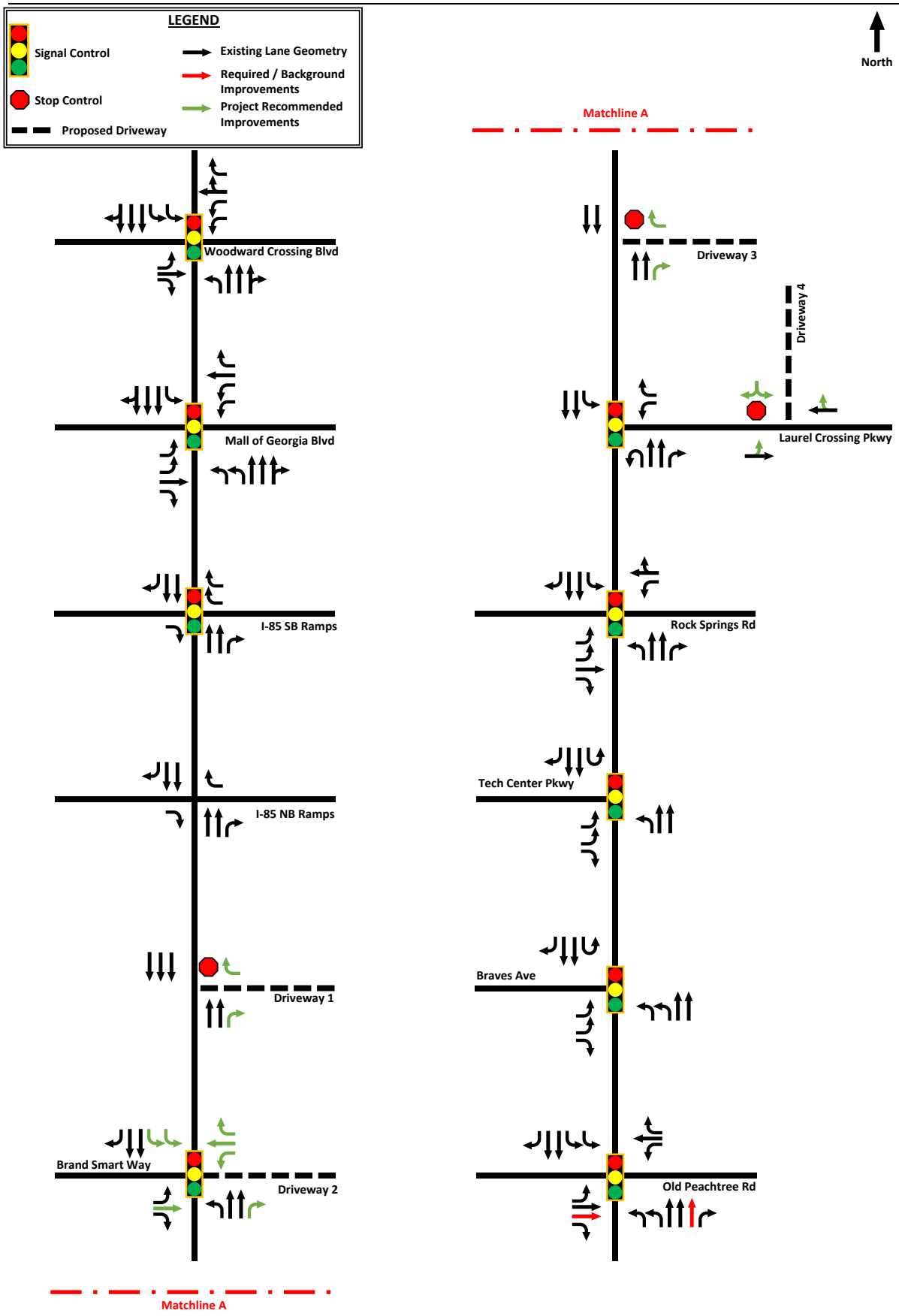


Figure 8 Build (2021) Lane Geometry



3.6 Build Capacity Analysis

The build traffic volumes were analyzed using a Synchro 10.0 model to determine the capacity of the AM and PM peak hours. The results are shown by lane group movement and total intersection capacity. Average vehicular delays are shown in seconds, level of service (LOS) is a grading system as defined by the Highway Capacity Manual (HCM) where A is best, and F is worst. Where possible the HCM 6th Edition was used for analysis, however due to some intersection configurations or signal phasing HCM 2000 for several intersections. Vehicle 95th percentile queueing is shown in feet and is from a SimTraffic 10.0 model analysis. Synchro and SimTraffic output files are included in Appendix C.

All traffic signal timings remain the same as in background conditions. Traffic signal timings used in analysis are shown in Appendix C.

Table 7: Build Conditions Capacity Analysis

Intersection	Control	Lane Group Movement	AM Peak Hour			PM Peak Hour		
			Delay (s)	LOS	95th% Queue (ft)	Delay (s)	LOS	95th% Queue (ft)
SR 20 @ Woodward Crossing Blvd	Signal Control	EBL	66.1	E	16	89.9	F	102
		EBT	71.9	E	11	99.8	F	74
		EBR	67.1	E	16	87.4	F	32
		WBL	62.4	E	53	97.1	F	201
		WBT/R	65.3	E	42	94.6	F	141
		WBR	64.7	E	19	91.5	F	111
		NBL	50.7	D	32	68.9	E	107
		NBT/R	7.9	A	228	11.8	B	219
		SBL	64.0	E	113	93.5	F	324
		SBT/R	9.4	A	237	21.3	C	396
		Intersection	**12.4**	**B**	**-**	**33.2**	**C**	**-**
SR 20 @ Mall of Georgia Blvd	Signal Control	EBL	51.1	D	74	74.5	E	173
		EBT	69.4	E	81	133.6	F	337
		EBR	0.0	A	34	0.0	A	515
		WBL	71.9	E	289	108.4	F	341
		WBT	66.9	E	55	102.2	F	177
		WBR	48.2	D	19	65.2	E	69
		NBL	72.3	E	135	94.6	F	344
		NBT/R	51.3	D	233	0.9	A	723
		NBR	0.0	A	68	0.0	A	290
		SBL	42.3	D	42	91.4	F	338
		SBT/R	0.9	A	364	41.8	D	1171
		SBR	1.7	A	209	50.7	D	-
		Intersection	**36.1**	**D**	**-**	**43.5**	**D**	**-**
SR 20 @ I-85 SB	Signal Control	EBR	1.8	A	-	0.0	A	-
		WBR	64.4	E	-	95.1	F	784
		NBT	3.5	A	-	8.7	A	-
		NBR	6.7	A	-	5.0	A	-
		SBT	0.9	A	-	1.0	A	335
		SBR	0.4	A	-	0.0	A	-
		Intersection	**3.7**	**A**	**-**	**8.2**	**A**	**-**
SR 20 @ Brand Smart Way	Signal Control	EBL	68.9	E	232	88.9	F	266
		EBT	0.0	A	-	0.0	A	-
		EBR	0.0	A	57	0.0	A	169
		WBL	59.9	E	175	136.3	F	189
		WBT	0.0	A	67	0.0	A	717
		WBR	0.0	A	106	0.0	A	158
		NBL	14.3	B	113	64.4	E	273
		NBT	18.5	B	399	37.3	F	510
		NBR	4.3	A	176	0.3	A	255
		SBL	66.7	E	168	79.6	F	366
		SBT	14.2	B	223	17.0	B	752
		SBR	0.0	A	-	0.0	A	-
		Intersection	**22.9**	**C**	**-**	**37.7**	**D**	**-**
SR 20 @ Laurel Crossing Pkwy	Minor Road Stop Control	WBL	11672.5	F	1115	***	F	72
		WBR	37.9	E	1268	59.6	F	66
		NBT	0.0	A	-	0.0	A	-
		NBR	0.0	A	-	0.0	A	-
		SBL	25.4	D	112	139.1	F	489
		SBT	0.0	A	-	0.0	A	825
		Intersection	**325.6**	**-**	**-**	***	**-**	**-**

SR 20 @ Rock Springs Rd	Signal Control	EBL	53.0	D	141	85.0	F	55
		EBT	39.5	D	34	78.4	E	48
		EBR	0.0	A	82	0.0	A	70
		WBL	61.8	E	125	93.2	F	88
		WBT/R	131.9	F	176	203.4	F	111
		NBL	28.7	C	151	6.7	A	156
		NBT	4.2	A	348	1.5	A	506
		NBR	0.0	A	-	0.0	A	138
		SBL	13.3	B	171	7.0	A	280
		SBT	51.7	D	532	2.3	A	694
		SBR	0.0	A	248	0.0	A	154
		Intersection	**34.3**	**C**	**-**	**9.5**	**A**	**-**
SR 20 @ Tech Center Pkwy	Signal Control	EBL	69.4	E	130	105.2	F	220
		EBR	0.0	A	-	0.0	A	88
		NBL	2.6	A	85	3.6	A	104
		NBT	0.6	A	103	0.8	A	200
		SBT	0.5	A	142	0.9	A	319
		SBR	0.0	A	-	0.0	A	122
		Intersection	**3.8**	**A**	**-**	**7.6**	**A**	**-**
SR 20 @ Braves Ave	Signal Control	EBL	69.7	E	50	98.5	F	21
		EBR	0.0	A	-	96.1	F	-
		NBL	99.1	F	47	88.7	F	65
		NBT	1.4	A	18	5.0	A	58
		SBT	7.8	A	234	5.5	A	164
		SBR	5.9	A	-	4.7	A	-
		Intersection	**5.5**	**A**	**-**	**6.5**	**A**	**-**
SR 20 @ Old Peachtree Rd NE	Signal Control	EBL	53.3	D	109	63.5	E	240
		EBT	45.3	D	159	112.5	F	801
		EBR	44.3	D	99	55.1	E	412
		WBL	41.1	D	348	67.0	E	132
		WBT	98.8	F	1169	68.5	E	316
		WBR	54.2	D	657	63.8	E	115
		NBL	83.8	F	183	128.2	F	593
		NBT	33.1	C	449	86.0	F	1412
		NBR	20.1	C	45	31.8	C	587
		SBL	73.2	E	70	92.7	F	658
		SBT	78.7	E	557	34.0	F	895
		SBR	36.9	D	108	4.0	A	110
		Intersection	**59.9**	**E**	**-**	**67.5**	**E**	**-**
SR 20 @ Driveway 1	Minor Road Stop Control	NBT	0.0	A	-	0.0	A	-
		NBR	0.0	A	-	0.0	A	-
		WBR	46.6	E	117	118.2	F	251
		SBT	0.0	A	-	0.0	A	437
		Intersection	**1.1**	**-**	**-**	**2.8**	**-**	**-**
SR 20 @ Driveway 3	Minor Road Stop Control	NBT	0.0	A	28	0.0	A	315
		NBR	0.0	A	-	0.0	A	143
		WBR	39.2	E	497	88.4	F	878
		SBT	0.0	A	-	0.0	A	433
		Intersection	**1.0**	**-**	**-**	**2.1**	**-**	**-**
Laurel Crossing Pkwy @ Driveway 4	Minor Road Stop Control	EB	7.6	A	21	7.6	A	19
		WB	0.0	A	-	0.0	A	511
		SB	9.4	A	54	9.4	A	585
		Intersection	**4.6**	**-**	**-**	**4.9**	**-**	**-**

*** Movement exceeds synchro's ability to calculate delay and returns an error of 0 seconds

Woodward Crossing Blvd at SR 20

- There is no change in intersection LOS from background conditions

Mall of Georgia Blvd at SR 20

- The PM peak hour degrades from LOS C to LOS D

I-85 SB at SR 20

- There is no change in intersection LOS from background conditions

Brand Smart Way at SR 20

- A fourth leg is added to the intersection under build conditions
- AM peak hour LOS degrades from LOS A to LOS C
- PM peak hour LOS degrades from LOS B to LOS D
    - Due to the additional volume at the intersection LOS degrades at the study intersection
    - Dual southbound left-turn lanes are proposed
    - Per Gwinnett County Comments, the NBR is a signalized movement with no right-turn on red

Laurel Crossing Pkwy at SR 20

- Due to the issues of Synchro modeling outlined in existing conditions the minor road stop-controlled movements experience additional delay and queueing.
- A traffic signal is warranted for the intersection and is shown in Build Improved Conditions

Rock Springs Rd at SR 20

- The intersection drops from LOS B to LOS C during the AM peak hour

Tech Center Pkwy at SR 20

- There is no change in intersection LOS from background conditions

Braves Ave at SR 20

- There is no change in intersection LOS from background conditions

Old Peachtree Rd NE at SR 20

- There is no change in intersection LOS from background conditions

Driveway 1 at SR 20

- The WBR movement operates at LOS E during the AM peak hour and F during the PM peak hour
- If queueing becomes excessive at the proposed driveway location drivers will utilize the other site driveways

Driveway 3 at SR 20

- The WBR movement operates at LOS E during the AM peak hour and F during the PM peak hour
- If queueing becomes excessive at the proposed driveway location drivers will utilize the other site driveways

Driveway 4 at Laurel Crossing Pkwy

- The intersection movements operate at LOS A or better for all peak hours

3.7 Build Conditions Required Improvements

- **Laurel Crossing Pkwy at SR 20**
    - The addition of a traffic signal at the intersection greatly improves operation, delay and queueing bringing the intersection LOS to LOS A for AM peak and LOS B for the PM peak
- **Old Peachtree Rd at SR 20**
    - Improvements made for Background Improved conditions are sufficient for build conditions
    - It is recommended that signal timing changes be made in lieu of major geometric changes and adopting the AM LOS of E to the PM peak hour.

Table 8: Build Conditions Capacity Analysis with Required Improvements

Intersection	Control	Lane Group Movement	AM Peak Hour			PM Peak Hour		
			Delay (s)	LOS	95th% Queue (ft)	Delay (s)	LOS	95th% Queue (ft)
SR 20 @ Laurel Crossing Pkwy	Minor Road Stop Control	WBL	74.7	**E**	224	104.4	**F**	224
		WBR	0.0	A	161	0.0	A	161
		NBT	11.2	B	517	2.3	A	517
		NBR	0.0	A	154	0.0	A	154
		SBL	19.6	B	245	50.3	D	245
		SBT	1.0	A	251	9.9	A	251
		Intersection	**8.7**	**A**	-	**10.4**	**B**	-
SR 20 @ Old Peachtree Rd NE	Signal Control	EBL	53.3	D	250	63.5	E	250
		EBT	45.3	D	811	112.5	F	811
		EBR	44.3	D	366	55.1	E	366
		WBL	41.1	D	178	67.0	E	178
		WBT	98.8	F	293	68.5	E	293
		WBR	54.2	D	115	63.8	E	115
		NBL	83.8	F	767	128.2	F	767
		NBT	26.3	C	1514	45.5	D	1540
		NBR	20.1	C	656	31.8	C	656
		SBL	72.8	E	397	92.7	F	397
		SBT	77.7	E	795	34.0	F	795
		SBR	36.9	D	124	4.0	A	124
		Intersection	**57.6**	**E**	-	**54.5**	**D**	-

3.8 Build Segment Capacity Analysis

A segment capacity analysis was performed for all study roadway segments using HCS 7. The results of the segment analysis are summarized in Table 9.

Table 9: Build Segment Capacity Analysis

				AM		PM	
#	Segment	From	To	NB	SB	NB	SB
1	SR 20	Woodward Crossing Blvd	Mall of Georgia Blvd	B	B	B	C
2	SR 20	Mall of Georgia Blvd	Ramp N. of 85	B	B	C	C
3	SR 20	Ramp N. of 85	Ramp S. of 85	B	B	C	C
4	SR 20	Ramp S. of 85	Brand Smart Way	D	B	D	C
5	SR 20	Brand Smart Way	Rock Springs Rd	D	C	D	D
6	SR 20	Rock Springs Rd	Tech Center Pkwy NE	C	C	D	D
7	SR 20	Tech Center Pkwy NE	Braves Ave	C	C	C	C
8	SR 20	Braves Ave	Old Peachtree Rd NE	C	C	C	D

All segment LOS remains within the acceptable range. In the previous submittal segment 4 required improvement, however due to the rerouted trips to Gravel Springs the segment operates at an acceptable LOS.

3.9 Interchange Limited Access

Per comments received during the DRI Review Report review, the proposed Driveway 1 was checked to determine if it is planned to be located inside of interstate limited access ROW. Per the exhibit shown in Appendix G, the proposed driveway location is located outside of the limited access zone for the interchange of SR 20 at I-85.

4 Recommendations and Conclusions

A mixed-use development is planned for the eastern side of SR 20 south of I-85 in Gwinnett County, GA. The proposed development is projected to be complete in 2021 and a full build analysis was completed as part of this report. The development will access the external roadway network via four proposed driveway locations. The results of the analysis and recommendations for mitigation are summarized as follows:

Woodward Crossing Blvd at SR 20

- Existing signalized intersection
- The intersection operates at a level of service (LOS) of B and C for all analysis conditions

Mall of Georgia Blvd at SR 20

- Existing signalized intersection
- The intersection operates at LOS D or better for all analysis conditions

I-85 SB at SR 20

- The existing intersection becomes signalized in background conditions
- The intersection operates at LOS A for both AM and PM peak hours

Brand Smart Way / Driveway 2 at SR 20

- A fourth leg is added to the existing signalized intersection under build conditions
- In build conditions the intersection operates at LOS C for the AM peak hour and D for the PM peak hour
- Dual southbound left-turn lanes are recommended and should be able to contain the 366 foot 95th percentile queue
    - Minimum GDOT required length is 235 feet of storage and a 100-foot taper
- A northbound right-turn deceleration lane should be added consisting of 175 feet of full width storage and a 100-foot taper
    - Per Gwinnett County the northbound right turn should be signalized with a no right on red

Laurel Crossing Way at SR 20

- Existing side-street stop-controlled intersection
- A traffic signal is warranted for build conditions
- When signalized the intersection operates at LOS A for the AM peak hour and LOS B for the PM peak hour
- All turn-lanes are currently provided at the intersection

Rock Springs Rd at SR 20

- Existing signalized intersection
- The intersection operates at LOS C or better for all analysis conditions

Tech Center Pkwy at SR 20

- Existing signalized intersection
- The intersection operates at LOS A for all analysis conditions

Braves Ave at SR 20

- Existing signalized intersection
- The intersection operates at LOS A for all analysis conditions

Old Peachtree Rd NE at SR 20

- Existing signalized intersection
- Intersection LOS drops to LOS E during background conditions for the PM peak hour

- Significant geometric improvements are needed to improve LOS since no modification to signal timing can be made for this analysis
    - Added northbound through lane
    - Added eastbound through lane
- It is recommended that signal timing changes be made in lieu of major geometric changes and adopting the AM LOS of E to the PM peak hour.

Driveway 1 at SR 20

- Proposed right-in / right-out driveway approximately 325 feet to the north of the intersection with Brandsmart Way
- Vehicles exiting the development during the AM and PM peak hour experience a failing LOS, however if queueing and delay are excessive, it is expected that drivers will utilize the other site driveways / signalized access
- A northbound right-turn deceleration lane is warranted and should be constructed to include 175 feet of full width storage and a 100-foot taper
- The proposed intersection is located outside the limited access extents of the adjacent interchange

Driveway 3 at SR 20

- Proposed right-in / right-out driveway approximately 250 feet to the south of the intersection with Brandsmart Way
- Vehicles exiting the development during the AM and PM peak hour experience a failing LOS, however if queueing and delay are excessive, it is expected that drivers will utilize the other site driveways / signalized access
- A northbound right-turn deceleration lane is warranted and should be constructed to include 175 feet of full width storage and a 100-foot taper

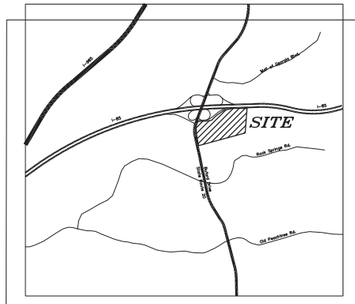
Driveway 4 at Laurel Crossing Pkwy

- Proposed full-access driveway
- Intersection operates at LOS A or better for all peak hours
- No turn-lanes are warranted for the intersection

Appendix A: Site Plan

DRI # 2834

MU-R (Regional Mixed-Use District)
GROSS ACREAGE = 64.156 acres-2,794,650 s.f.
TOTAL BUILDING AREA = 892,732 s.f.
F.A.R.=0.319
COMMON AREA=16.82 a.c.-26.2%
RESIDENTIAL DENSITY= 7.79 units/acre

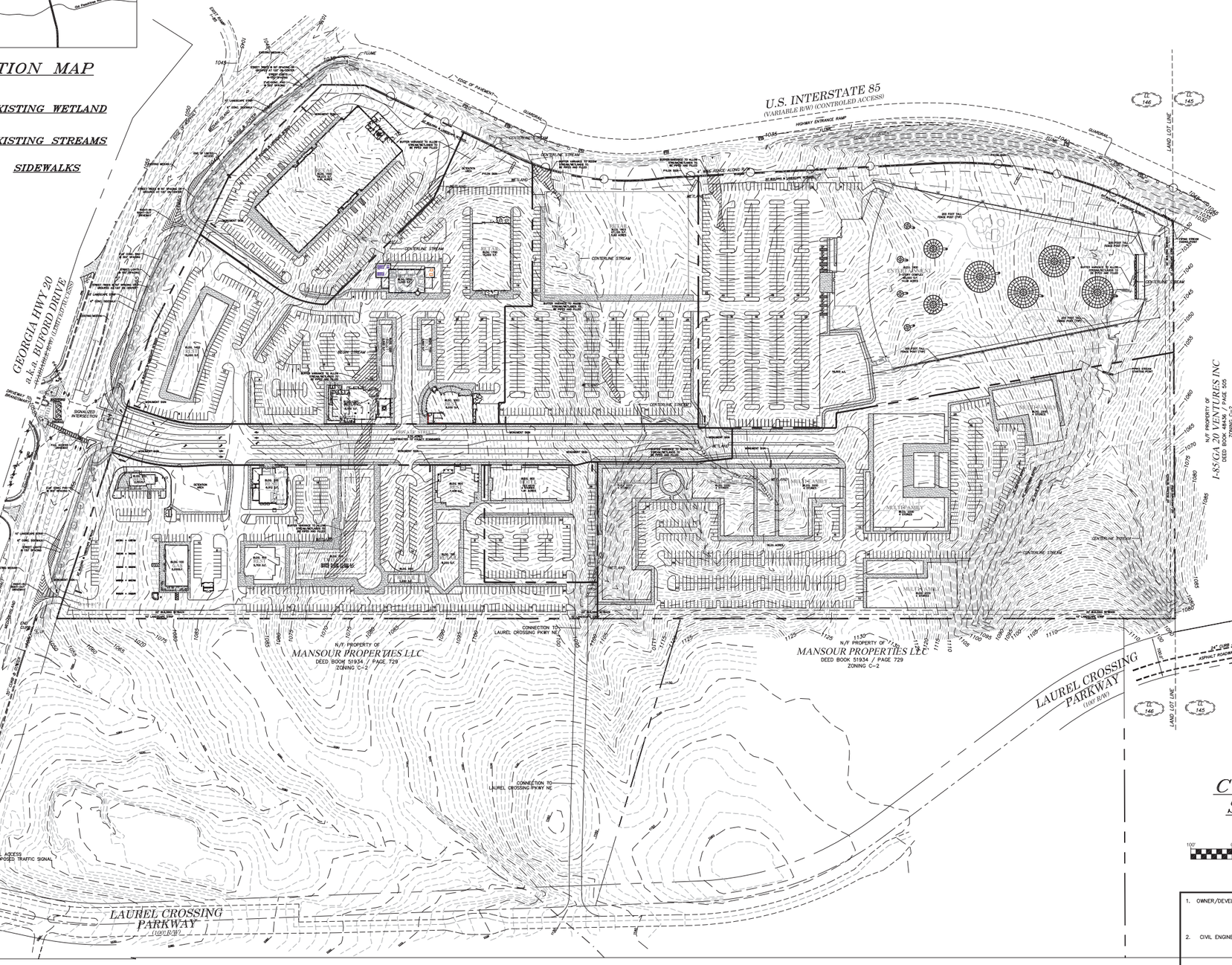


LOCATION MAP

EXISTING WETLAND

EXISTING STREAMS

SIDEWALKS



PARKING STATISTICS				
USE	BLDG. AREA	MINIMUM PARKING SPACES	MAXIMUM PARKING SPACES	PARKING PROVIDED
BLDG. 100				
CONVENIENCE STORE	5,000 s.f.	10	20	20
BLDG. 200				
RESTAURANT	2,500 s.f.	17	33	33
BLDG. 300				
RESTAURANT	6,012 s.f.	40	80	45
BLDG. 400				
RESTAURANT	5,700 s.f.	38	76	55
BLDG. 500				
SHOPS	17,200 s.f.	34	86	34
OFFICE	28,600 s.f.	57	127	57
BLDG. 600				
RETAIL	1,200 s.f.	3	6	6
BLDG. 700				
RETAIL	8,200 s.f.	16	41	25
BLDG. 800				
RESTAURANT	7,400 s.f.	49	99	64
BLDG. 900				
HOTEL	123 KEYS	123	246	123
BLDG. 1000				
RESTAURANT	8,000 s.f.	53	107	89
BLDG. 1100				
RESTAURANT	2,500 s.f.	17	33	30
BLDG. 1200				
RESTAURANT	2,500 s.f.	17	33	25
BLDG. 1300				
RETAIL	8,000 s.f.	16	40	112
BLDG. 1400				
RESTAURANT	15,000 s.f.	100	200	114
BLDG. 1500				
RETAIL	56,032 s.f.	112	280	241
BLDG. 1600				
RETAIL	5,000 s.f.	17	50	30
BLDG. 1700				
RETAIL	15,000 s.f.	30	75	59
BLDG. 1800				
RECREATION	87,000 s.f.	290	870	295
BLDG. 1900				
RECREATION	60,000 s.f.	200	600	541
BLDG. 2000				
MULTI-FAMILY	500 UNITS	750	1,500	489
TOTAL	N/A	1,989	4,602	2,487

GWINNETT COUNTY PARKING:

CONVENIENCE STORE	=MIN. 1sp/500 s.f. – MAX. 1sp/250 s.f.
RETAIL	=MIN. 1sp/500 s.f. – MAX. 1sp/200 s.f.
RESTAURANT	=MIN. 1sp/150 s.f. – MAX. 1sp/75 s.f.
RECREATION	=MIN. 1sp/300 s.f. – MAX. 1sp/100 s.f.
OFFICE	=MIN. 1sp/500 s.f. – MAX. 1sp/225 s.f.
HOTEL	=MIN. 1sp/unit – MAX. 2sp/unit
RESIDENTIAL	=MIN. 1.5sp/unit – MAX. 3sp/unit

CONCEPTUAL SITE PLAN

GRAPHIC SCALE

100' 0 100' 200' 400'

(IN FEET)
1 Inch = 100 ft.

1. OWNER/DEVELOPER — FUQUA DEVELOPMENT, LP
Greer Scoggins
3575 Piedmont Rd., NE, Suite 800
Atlanta, Georgia 30305
(404) 907-1709

2. CIVIL ENGINEER — *HAINES, GIPSON & ASSOCIATES, INC.*
Stoney S. Abercrombie
1550 NORTH BROWN ROAD, SUITE 100
LAWRENCEVILLE, GA 30043
(770) 491-7550

3. TRAFFIC ENGINEER — *LOWE ENGINEERS*
Someer Parthanker
990 HAMMOND DRIVE, SUITE 900
ATLANTA, GA 30328
(770) 857-8100

HAINES GIPSON & ASSOCIATES
CONSULTING ENGINEERS
CIVIL & STRUCTURAL SERVICES
1550 NORTH BROWN ROAD, SUITE 100
LAWRENCEVILLE, GEORGIA 30043
PHONE: (770) 491-7550
FAX: (770) 491-7760

SEAL

FUQUA DEVELOPMENT

DRI# 2834
THE EXCHANGE
@ Gwinnett
GWINNETT COUNTY, GEORGIA

NO.	BY	DATE	DESCRIPTION

DRAWN BY: SCA
CHECKED BY: ---

DATE: 10/22/18

SHEET TITLE: PLAN

SHEET NUMBER: SP-46

HGA JOB No. 2016-020

Appendix B: Gravel Springs Interchange Plans

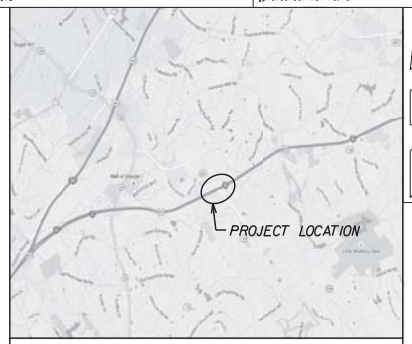
12/8/2017 farmera | GPLOT-V8 gplotborder-V8I-PO.tbl | 0012698_01-0001.dgn GRMCOV | GDOT | P. I. No. 0012698

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

PLAN AND PROFILE OF PROPOSED
GRAVEL SPRINGS ROAD / SR 324
@ I-85 / SR 403 INTERCHANGE

FEDERAL AID PROJECT
PI# 0012698
GWINNETT COUNTY

FEDERAL ROUTE * I-85
STATE ROUTE * 324 & 403
P.I.NO.0012698



LOCATION SKETCH

DESIGN DATA: I-85/SR 403
TRAFFIC A.D.T.: 45,775 (2020)
TRAFFIC A.D.T.: 112,100 (2040)
TRAFFIC D.H.V.: 8,685 (2040)
DIRECTIONAL DIST: 50/50
% TRUCKS: 19%
24 HR. TRUCKS %: 19%
SPEED DESIGN: I-85/SR 403: 70mph
SPEED DESIGN: Gravel Springs Rd./ SR 324: 45 mph
[SPEED DESIGN: Ramps: 60 mph/45 mph]

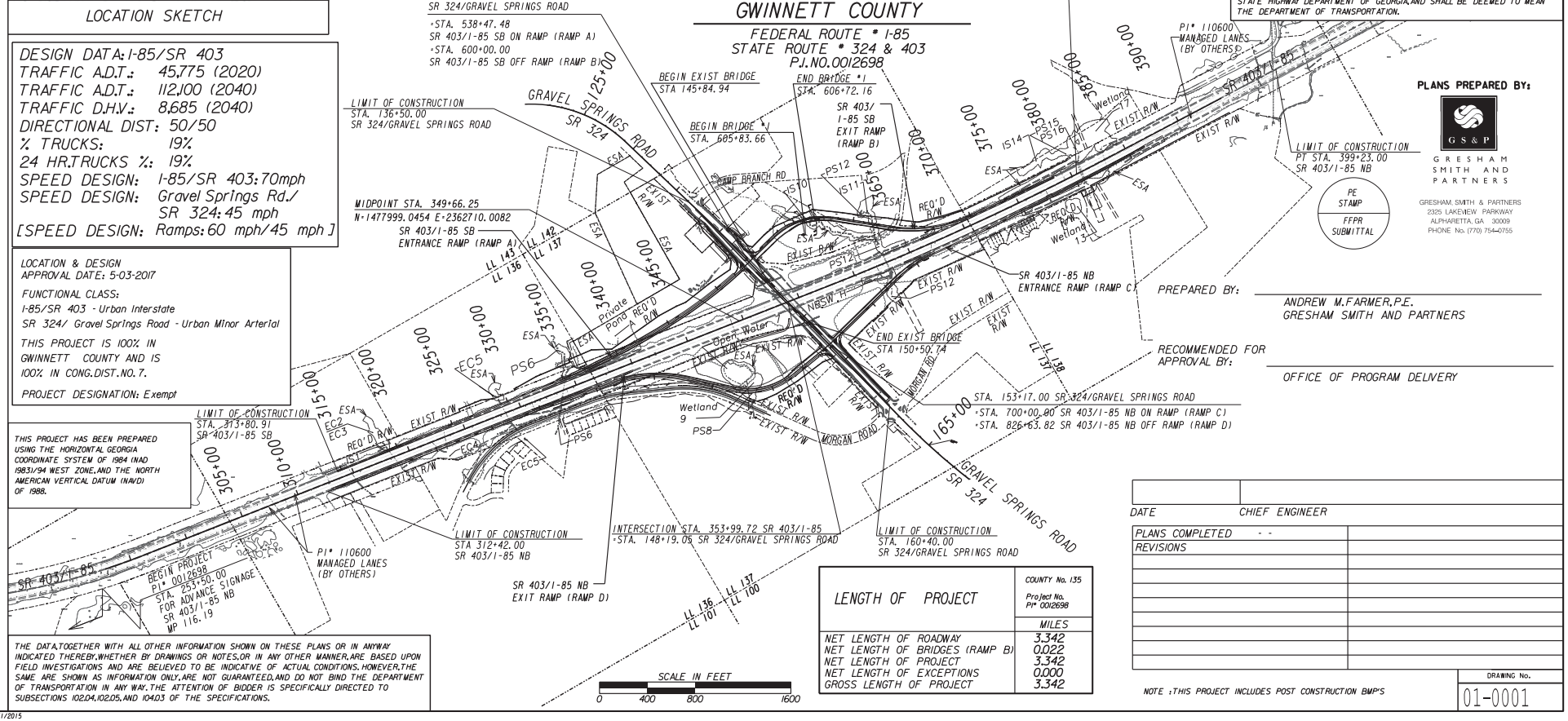
LOCATION & DESIGN APPROVAL DATE: 5-03-2017

FUNCTIONAL CLASS:
I-85/SR 403 - Urban Interstate
SR 324/ Gravel Springs Road - Urban Minor Arterial

THIS PROJECT IS 100% IN GWINNETT COUNTY AND IS 100% IN CONG.DIST.NO. 7.

PROJECT DESIGNATION: Exempt

THIS PROJECT HAS BEEN PREPARED USING THE HORIZONTAL GEORGIA COORDINATE SYSTEM OF 1984 (NAD 1983)/94 WEST ZONE, AND THE NORTH AMERICAN VERTICAL DATUM (NAVD) OF 1988.



NOTE :
ALL REFERENCES IN THIS DOCUMENT, WHICH INCLUDES ALL PAPERS, WRITINGS, DOCUMENTS, DRAWINGS, OR PHOTOGRAPHS USED, OR TO BE USED IN CONNECTION WITH THIS DOCUMENT, TO "STATE HIGHWAY DEPARTMENT OF GEORGIA", "STATE HIGHWAY DEPARTMENT", GEORGIA STATE HIGHWAY DEPARTMENT", "HIGHWAY DEPARTMENT", OR "DEPARTMENT" WHEN THE CONTEXT THEREOF MEANS THE STATE HIGHWAY DEPARTMENT OF GEORGIA, AND SHALL BE DEEMED TO MEAN THE DEPARTMENT OF TRANSPORTATION.

PLANS PREPARED BY:

GRESHAM SMITH AND PARTNERS
GRESHAM, SMITH & PARTNERS
2325 LAKEVIEW PARKWAY
ALPHARETTA, GA 30009
PHONE No. (770) 754-0755

PE STAMP
FFPR SUBMITTAL

PREPARED BY: ANDREW M. FARMER, P.E.
GRESHAM SMITH AND PARTNERS

RECOMMENDED FOR APPROVAL BY: OFFICE OF PROGRAM DELIVERY

DATE CHIEF ENGINEER

LENGTH OF PROJECT	COUNTY No. 135 Project No. PI# 0012698 MILES
NET LENGTH OF ROADWAY	3.342
NET LENGTH OF BRIDGES (RAMP B)	0.022
NET LENGTH OF PROJECT	3.342
NET LENGTH OF EXCEPTIONS	0.000
GROSS LENGTH OF PROJECT	3.342

PLANS COMPLETED - -	
REVISIONS	

NOTE : THIS PROJECT INCLUDES POST CONSTRUCTION BMP'S

DRAWING No. 01-0001

THE DATA, TOGETHER WITH ALL OTHER INFORMATION SHOWN ON THESE PLANS OR IN ANYWAY INDICATED THEREBY, WHETHER BY DRAWINGS OR NOTES, OR IN ANY OTHER MANNER, ARE BASED UPON FIELD INVESTIGATIONS AND ARE BELIEVED TO BE INDICATIVE OF ACTUAL CONDITIONS. HOWEVER, THE SAME ARE SHOWN AS INFORMATION ONLY, ARE NOT GUARANTEED, AND DO NOT BIND THE DEPARTMENT OF TRANSPORTATION IN ANY WAY. THE ATTENTION OF BIDDER IS SPECIFICALLY DIRECTED TO SUBSECTIONS 102.04, 102.05, AND 104.03 OF THE SPECIFICATIONS.

GRMCOV 07/31/2015

DRAWING NO.	DESCRIPTION
1-0001	COVER SHEET
2-0001 TO 2-0002	INDEX SHEET
3-0001	REVISION SUMMARY
4-0001 TO 4-0009	GENERAL NOTES
5-0001 TO 5-0007	TYPICAL SECTIONS
6-0001 TO 6-0009	SUMMARY OF QUANTITIES
7-0001	QUANTITIES BY AMENDMENT
8-0001	QUANTITIES ON CONSTRUCTION
10-0001 TO 10-0003	TRAFFIC DIAGRAMS
11-0001 TO 11-0002	CONSTRUCTION LAYOUT
13-0001 TO 13-0054	MAINLINE ROADWAY PLAN
15-0001 TO 15-0013	MAINLINE ROADWAY PROFILE
16-0001 TO 16-0015	CROSSROAD PROFILE
17-0001 TO 17-0002	DRIVEWAY PROFILES
18-0001 TO 18-0003	SPECIAL GRADING PLANS
19-0001 TO 19-0094	CONSTRUCTION STAGING PLANS
21-0001 TO 21-0004	DRAINAGE AREA MAP
22-0001 TO 22-0012	DRAINAGE PROFILES
23-0001 TO 23-0122	CROSS-SECTIONS
24-0000 TO 24-0054	UTILITY PLANS
26-0001 TO 26-0054	SIGNING AND MARKING PLANS
27-0001 TO 27-0007	SIGNAL PLANS
28-0001 TO 28-0012	ATMS/ITS PLANS
31-0001 TO 31-0003	RETAINING WALL ENVELOPES
32-0001 TO 32-0006	RETAINING WALL PLANS
33-0001 TO 33-0003	NOISE BARRIER ENVELOPES
35-0001 TO 35-0016	BRIDGE PLANS
38-0001 TO 38-0005	SPECIAL CONSTRUCTION DETAILS
40-0001 TO 40-0065	CONSTRUCTION DETAILS (NOT INCLUDED)
41-0001 TO 41-0061	GEORGIA STANDARDS (NOT INCLUDED)
50-0000	EROSION COVER SHEET
51-0001 TO 51-0004	ESPC GENERAL NOTES SHEET
52-0001 TO 52-0007	EROSION CONTROL LEGEND
53-0001 TO 53-0003	ESPCP DRAINAGE AREA MAP
54-0001 TO 54-0112	BMP LOCATION DETAILS
55-0001	EROSION CONTROL WATERSHED MAP-SITE MONITORING
56-0001 TO 56-0017	CONSTRUCTION STANDARDS & DETAILS FOR EROSION CONTROL ONLY
60-0001 TO 60-0040	RIGHT-OF-WAY PLANS
	CONSTRUCTION DETAILS
40-0001	A-1 DRIVEWAYS WITH TAPERED ENTRANCES CONCRETE VALLEY GUTTERS (7-21-11)
40-0002	A-3 CONCRETE SIDEWALK DETAILS CURB CUT (WHEELCHAIR) RAMPS (9-15-16)
40-0003	A-4 DETECTABLE WARNING SURFACE TRUNCATED DOME SIZE, SPACING & ALIGNMENT REQUIREMENTS (6-18-09)
40-0004	D-4 DITCH DROP INLET WITH FABRICATED SAFETY GRATE AND WEIR OPENINGS (10-00)
40-0005	D-5 HEADWALLS, SAFETY INLETS WITH GRATES (6-21-95)
40-0006	D-6 FABRICATION DETAILS FOR SAFETY GRATES (ALL KINDS AND SIZES) (10-72)
40-0007	D-7 BERM DITCHES, SIDE DITCHES, SURFACE DITCHES (7-80)
40-0008	D-8 INLET DRAINAGE STRUCTURE AT SURFACE DITCHES (5-76)
40-0009	D-15 TYPICAL SKEWED CULVERT ENDS (12-83)
40-0010	D-33 TYPE "V" INLET "V" GUTTER DETAILS (8-16-13)
40-0011	D-34 PIPE/BOX CULVERT COLLAR CONNECTION DETAIL (3-1-88)
40-0012	D-54 SOD INSTALLATION (4-22-16)
40-0013	F-2 GATE DETAILS FOR CHAIN LINK & WOVEN WIRE FENCE (1-88)
40-0014	F-4 TYPICAL DETAILS FOR FIELD FENCING (2-8-88)
40-0015	M-2 SUBBASES FOR APPROACH SLABS (3-28-06)
40-0016	M-3A MEDIAN CROSSOVERS (4-2010)

DRAWING NO.	DESCRIPTION
	CONSTRUCTION DETAILS (CONTINUED)
40-0017	N-1A FOUNDATION AND POSTS DETAILS (4-22-14)
40-0018	N-1B FOUNDATION AND POSTS DETAILS (4-22-15)
40-0019	N-3 SPREAD FOOTING ALTERNATE FOR SOUND BARRIER WALL (3-23-09)
40-0020	N-4 SOUND BARRIER , TYPE B, INTERLOCKING STEEL PANELS (8-14-15)
40-0021	N-5 SOUND BARRIER , TYPE C, PRECAST CONCRETE PANELS (8-14-15)
40-0022	P-7 PAVEMENT EDGE TREATMENT ASPHALT AND CONCRETE PAVEMENT (11-17-11)
40-0023	R-1 EXIT RAMPS FOR INTERCHANGES PARALLEL TYPE (4-13-11)
40-0024	S-4 SHOULDER PAVING AND SURFACING AT GUARDRAIL (4-19-16)
40-0025	S-7 SERRATED SLOPE DETAIL/ BENCHING DETAIL (6-18-09)
40-0026	ITS-04 CCTV/VDS/IVDS ASSEMBLY AND TYPICAL ERECTION DETAIL (3-3-16)
40-0027	ITS-05 PLATFORM DETAILS (6-1-05)
40-0028	ITS-07 CONDUIT AND CONDUIT DUCT BANK TYPE 3 INSTALLATION DETAILS (10-1-06)
40-0029	ITS-09 CONDUIT INSTALLATION AT DRAINAGE STRUCTURES (9-1-05)
40-0030	ITS-12 ELECTRICAL SERVICE DETAIL (9-1-05)
40-0031	ITS-51 RAMP METER INSTALLATION DETAIL 1 OF 2 (4-11-11)
40-0032	ITS-52 RAMP METER INSTALLATION DETAIL 2 OF 2 (4-11-11)
40-0033	ITS-54 RAMP METER SIGNAL SUPPORT STRUCTURES DETAIL (12-14-06)
40-0034	T-1 DETAILS OF SIGN PLATES (1-00)
40-0035	T-2 DETAILS FOR TYPICAL FRAMING (3-1-00)
40-0036	T-3A TYPE 7, 8, AND 9 SQUARE TUBE POST INSTALLATION DETAIL (7-02)
40-0037	T-3B DETAILS OF SQUARE TUBE POST (BREAKAWAY SUPPORT) (7-02)
40-0038	T-11A DETAILS OF PAVEMENT MARKING PLACEMENT ON NON-LIMITED ACCESS ROADWAY (9-15-16)
40-0039	T-11B DETAILS OF PAVEMENT MARKING PLACEMENT ON LIMITED ACCESS ROADWAY (9-15-16)
40-0040	T-12A DETAILS OF PAVEMENT MARKING ARROW LOCATION (1-00)
40-0041	T-12B DETAILS OF PAVEMENT MARKINGS-ARROWS (4-01-00)
40-0042	T-13A DETAILS OF PAVEMENT MARKING WORDS (SHEET 1 OF 2) (9-15-16)
40-0043	T-13B DETAILS OF PAVEMENT MARKING WORDS (SHEET 2 OF 2) (9-15-16)
40-0044	T-13C DETAILS OF PAVEMENT MARKING WORDS PLACEMENT (9-15-16)
40-0045	T-14 DETAIL OF PAVEMENT MARKING HATCHING (11-21-08)
40-0046	T-15A DETAIL OF RAISED PAVEMENT MARKER LOCATION NON-LIMITED ACCESS ROADWAY(9-15-16)
40-0047	T-15B DETAIL OF RAISED PAVEMENT MARKER LOCATION LIMITED ACCESS ROADWAY(9-15-16)
40-0048	T-15C DETAIL OF RAISED PAVEMENT MARKERS (9-22-11)
40-0049	T-19 DETAILS AND PLACEMENT OF RUMBLE STRIPS (4-01-03)
40-0050	TS-01 INDUCTIVE-LOOP DETECTOR INSTALLATION (4-10)
40-0051	TS-02 PULLBOX ASSEMBLY AND INSTALLATION (4-10)
40-0052	TS-03 CABINET BASE DETAIL (4-10)
40-0053	TS-03A PEDESTRIAN FACILITIES INSTALLATION DETAILS (4-10)
40-0054	TS-04 DETAILS OF METAL TRAFFIC SIGNAL SUPPORT STRUCTURES (4-10)
40-0055	TS-05 DETAILS OF CONCRETE POLES (4-10)
40-0056	TS-06 DETAILS OF STRAIN POLE AND MAST ARM FOUNDATIONS (4-10)
40-0057	TS-07 GROUNDING DETAILS FOR TRAFFIC SIGNAL SUPPORT STRUCTURES (4-10)
40-0058	TS-08 UTILITY CLEARANCE DETAIL (4-10)
40-0059	TS-09 STANDARD GUYING DETAILS (4-10)
40-0060	TS-10 FIBER OPTICS DETAILS SHEET 1 OF 2 (4-10)
40-0061	TS-11 FIBER OPTICS DETAILS 2 OF 2 (4-10)
40-0062	TS-13 COAXIAL VIDEO CABLE TERMINATION PANEL (3-3-16)
40-0063	TS-13A COAXIAL BLOCK DIAGRAM/POWER TERMINATION PANEL (3-3-16)
40-0064	TS-13B VIDEO CAMERA SENSOR MOUNTING WITH COAXIAL VIDEO CABLE AND JUNCTION BOX (3-3-16)
40-0065	TS-13C VIDEO CAMERA SENSOR MOUNTING WITH COAXIAL AND ETHERNET CABLE (3-3-16)

GRESHAM SMITH AND PARTNERS

REVISION DATES

INDEX

SR 324 @ I-85 INTERCHANGE

COUNTY: GWINNETT

CHECKED:		DATE:		DRAWING No.
BACKCHECKED:		DATE:		
CORRECTED:		DATE:		02-0001
VERIFIED:		DATE:		

7/31/2015 GPLN

DRAWING NO.	DESCRIPTION
	GEORGIA STANDARDS
41-0001	1011A BRICK MANHOLES (10-81)
41-0002	1011AP PRECAST REINFORCED CONCRETE MANHOLE (6-1-75)
41-0003	1019A DROP INLETS (BUILT-IN-PLACE) (8-99)
41-0004	1019AP PRECAST DROP INLETS (8-99)
41-0005	1030D CONCRETE & METAL PIPE CULVERTS, SHEET 1 OF 3, (TRENCH CONSTRUCTION, BEDDING, BACKFILLING) (9-01)
41-0006	1030D CONCRETE & METAL PIPE CULVERTS, SHEET 2 OF 3, (FILL HEIGHTS FOR CONCRETE & CORRGATED METAL PIPE) (9-26-01)
41-0007	1030D CONCRETE & METAL PIPE CULVERTS, SHEET 3 OF 3, (FILL HEIGHTS FOR SPIRAL RIB METAL PIPE & FOR PIPE ARCH (9-01)
41-0008	1033D CATCH BASINS (FOR USE WITH 6" OR 8"HT. CURB & GUTTER) (8-1-82)
41-0009	1033DP PRECAST CATCH BASINS (FOR USE WITH 6" OR 8" PRECAST HT. CURB & GUTTER) (9-1-82)
41-0010	1033F CATCH BASINS (FOR USE WITH HEADER OR INTEGRAL CURBS 4",6",8" OR 10"HT.) (8-82)
41-0011	1033FP PRECAST CATCH BASINS (FOR USE WITH HEADER OR INTEGRAL CURBS 4",6",8" OR 10"HT.) (9-82)
41-0012	1034D CATCH BASINS (FOR USE WITH 6" OR 8"HT. CURB & GUTTER IN SAGS OR LOW POINTS) (8-1-82)
41-0013	1034DP PRECAST CATCH BASINS (FOR USE W/6" OR 8" PRECAST HT. CURB & GUTR IN SAGS OR LOW PNTS) (9-1-82)
41-0014	1120 FLARED END SECTIONS FOR PIPES (6-9-06)
41-0015	1122 (SHEET 1 OF 3) SAFETY END SECTION (METAL) (FOR SIDE DRAIN PIPE-OR FOR STORM DRAIN PIPE PARALLEL TO MAINLINE) ALTERNATE 1 (1-28-05)
41-0016	1122 (SHEET 2 OF 3) SAFETY END SECTION (METAL) (FOR SIDE DRAIN PIPE-OR FOR STORM DRAIN PIPE PARALLEL TO MAINLINE) ALTERNATE 2 (1-05)
41-0017	1122 (SHEET 3 OF 3) SAFETY END SECTION (CONCRETE) (FOR SIDE DRAIN PIPE-OR FOR STORM DRAIN PIPE PARALLEL TO MAINLINE) ALTERNATE 3 (1-28-05)
41-0018	1125 TAPERED INLET HEADWALL-OUTLET HEADWALL (BUILT-IN-PLACE) (10-99)
41-0019	2317 DETAILS OF EXTENDING BOX CULVERTS (1-1-66)
41-0020	2400-1 INDEX OF REINFORCED CONCRETE BOX CULVERTS (SHEET 1 OF 1) 11-27-17
41-0021	2401-2-A REINFORCED CONCRETE SINGLE BOX CULVERT 4'X3', 4'X4', 4'X5' AND 4'X6'(SHEET 2-A OF 3 (11-27-17)
41-0022	2401-2-G REINFORCED CONCRETE SINGLE BOX CULVERT 7'X5', 7'X6', 7'X7' AND 7'X8'(SHEET 2-G OF 3 (11-27-17)
41-0023	2402-2-E REINFORCED CONCRETE DOUBLE BOX CULVERT 6'X5', 6'X6', 6'X7' AND 6'X8'(SHEET 2-E OF 3 (11-27-17)
41-0024	2403-2-F REINFORCED CONCRETE TRIPLE BOX CULVERT 7'X4'(SHEET 2-F OF 3 (11-27-17)
41-0025	2404-1 REINFORCED CONCRETE WINGWALLS, TOEWALLS AND PARAPETS FOR CULVERT BOX CULVERTS (SHEET 1 OF 1 (11-27-17)
41-0026	2405-1 REINFORCED CONCRETE SKEWED WINGWALLS, TOEWALLS AND PARAPETS FOR 75 DEG, 60 DEG, AND 45 DEG SKEWS (SHEET 1 OF 3 (11-27-17)
41-0027	2405-2 REINFORCED CONCRETE SKEWED WINGWALLS, TOEWALLS AND PARAPETS FOR 75 DEG AND 60 DEG SKEWS (SHEET 2 OF 3 (11-27-17)
41-0028	2405-3 REINFORCED CONCRETE SKEWED WINGWALLS, TOEWALLS AND PARAPETS FOR 45 DEG SKEW (SHEET 3 OF 3 (11-27-17)
41-0029	CONCRETE BOX CULVERT APRONS AND BAFFLES DETAIL (SHEET 1 OF 2) 11/27/17
41-0030	CONCRETE BOX CULVERT APRONS AND BAFFLES DETAIL (SHEET 2 OF 2) 11/27/17
41-0031	3054 END POST AND END POST GUARDRAIL ATTACHMENT DETAIL (9/30/02)
41-0032	3901 BAR BENDING DETAILS (8/1/69)
41-0033	4000W GUARDRAIL WARRANT GUIDES LENGTHS OF ADVANCEMENT, CLEAR ZONE DISTANCES, FILL HEIGHT EMBANKMENTS (1-29-16)
41-0034	4360 REFLECTORIZED GUARDRAIL WASHERS AND ANCHORAGE NOSE STRIPING (10-22-14)
41-0035	4380 "W" BEAM GUARDRAIL, 31 INCH GUARDRAIL HEIGHT (1-29-16)
41-0036	4381 POSTS AND OFFSET BLOCKS FOR "W" (1-29-16)
41-0037	4382 GUARDRAIL CONNECTION AT BRIDGE END OR AT CONCRETE BARRIER END FOR 31 INCH HIGH GUARDRAIL (1-29-16)
41-0038	4383 GUARDRAIL ANCHORAGE TYPE 1, 31 INCH GUARDRAIL HEIGHT (8-11)
41-0039	4384 GUARDRAIL TERMINALS, TYPE 12A, 12B, AND 12C 31 INCH GUARDRAIL HEIGHT (1-29-16)
41-0040	4385 "T" BEAM GUARDRAIL CONNECTION TO 31 INCH GUARDRAIL HEIGHT "W" BEAM (8-11)
41-0041	4386 GUARDRAIL LOCATIONS IN MEDIANS, GUARDRAIL LOCATIONS AT TURNOUTS, 31 INCH GUARDRAIL HEIGHT (1-29-16)
41-0042	4387 GUARDRAIL LOCATION DETAILS FOR MULTI-LANE DIVIDED HIGHWAYS (WITH SHOULDERS ADJACENT TO ROADWAY) 31 INCH GUARDRAIL HEIGHT (1-29-16)
41-0043	4388 GUARDRAIL LOCATION DETAILS FOR UNDIVIDED HIGHWAYS AND ROADS (WITH SHOULDERS ADJACENT TO ROADWAY) 31 INCH GUARDRAIL HEIGHT (1-29-16)

DRAWING NO.	DESCRIPTION
	GEORGIA STANDARDS (CONTINUED)
41-0044	4390 "W" BEAM GUARDRAIL TRANSITION 27 INCH GUARDRAIL TO 31 INCH GUARDRAIL HEIGHT (1-29-16)
41-0045	4391 "W" GUARDRAIL LOCATION (ON ROADS WITH CURB & GUTTER, HEADER CURB OR INTEGRAL CURB) 31 INCH GUARDRAIL HEIGHT (1-29-16)
41-0046	4948B CONCRETE SIDE BARRIER TYPES 2, 2A, 2B & 2C (1-25-07)
41-0047	5046H JOINT DETAILS FOR PLAIN PORTLAND CEMENT CONCRETE PAVING (1-25-07)
41-0048	9003 FEDERAL AID AND STATE PROJECT MARKERS; RIGHT OF WAY MARKERS; COUNTY LINE MARKER (4-10-06)
41-0049	9013 CONCRETE SPILLWAYS (TYPICAL USE: ALONG ROADWAY AT END OF CURB) (2-81)
41-0050	9017J CONCRETE SPILLWAYS (ADJACENT TO APPROACH SLABS) (2-28-95)
41-0051	9017M REINFORCED CONCRETE APPROACH SLAB 30 FT. LENGTH (WITH CONCRETE BARRIER) (6-28-93)
41-0052	9031H DETAIL FOR PLUGGING DRILLED WELL, STATIONING OF CONCRETE PAVEMENT, CONCRETE SLAB WELL COVER, DETAIL OF TURNOUTS - RURAL (10-7-87)
41-0053	9031L GRAVITY WALL TYPICAL SECTIONS, RAISING HEADWALL, AND TYPICAL PIPE PLUG (9-30-16)
41-0054	9031L (SHEET 2 OF 2) STANDARD DETAILS OF: CATCH BASIN MODIFIED FOR DOUBLE GRATE, DROP INLET MODIFIED FOR DOUBLE GRATE, CONCRETE SPRING BOX, CONCRETE STEPS, CATCH BASIN OR DROP INLET CONNECTION TO CONCRETE BOX CULVERT CAPPING EXISTING DROP INLET (6-30-98)
41-0055	9031N CHAIN LINK FENCE(8-85)
41-0056	9031U PRECAST OR BUILT-IN-PLACE JUNCTION BOXES, PIPE COLLARS, PIPE ELBOW & PIPE CURVED ALIGNMNT(7-85)
41-0057	9032B CONCRETE CURB & GUTTER, CONCRETE CURBS, CONCRETE MEDIANS (11-15-11)
41-0058	9033 MILEPOSTS (3-30-06)
41-0059	9100 TRAFFIC CONTROL GENERAL NOTES, STANDARD LEGEND, MISCELLANEOUS DETAILS (3-30-06)
41-0060	9102 TRAFFIC CONTROL DETAIL FOR LANE CLOSURE ON TWO-LANE HIGHWAY(3-30-06)
41-0061	9121 TAPERS, SIGNS, AND MARKINGS FOR PASSING LANES(3-30-06)
	EROSION CONTROL LEGEND AND UNIFORM CODE SHEETS
52-0001	EC-L1 EROSION CONTROL LEGEND AND UNIFORM CODE SHEET (SHEET 1 OF 7) (3-2-17)
52-0002	EC-L2 EROSION CONTROL LEGEND AND UNIFORM CODE SHEET (SHEET 2 OF 7) (3-2-17)
52-0003	EC-L3 EROSION CONTROL LEGEND AND UNIFORM CODE SHEET (SHEET 3 OF 7) (3-2-17)
52-0004	EC-L4 EROSION CONTROL LEGEND AND UNIFORM CODE SHEET (SHEET 4 OF 7) (3-2-17)
52-0005	EC-L5 EROSION CONTROL LEGEND AND UNIFORM CODE SHEET (SHEET 5 OF 7) (3-2-17)
52-0006	EC-L6 EROSION CONTROL LEGEND AND UNIFORM CODE SHEET (SHEET 6 OF 7) (3-2-17)
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	EROSION DETAILS
56-0001	D-19 TEMPORARY PIPE SLOPE DRAIN WITH DRAIN INLET (2-25-00)
56-0002	D-20 SILT CONTROL GATES FOR STRUCTURES TYPE-1, 2, AND 3 (4-22-16)
56-0003	D-22A TEMPORARY SEDIMENT BASIN WITH CONVENTIONAL PRINCIPAL SPILLWAY (6-2-14)
56-0004	D-22B SKIMMER AND RISER PIPE PRINCIPAL SPILLWAY FOR TEMPORARY SEDIMENT BASIN (6-14)
56-0005	D-24A TEMPORARY SILT FENCE (SHEET 1 OF 4) (01-11)
56-0006	D-24B TEMPORARY SILT FENCE, BERM DITCH, INSTALLATION, BRUSH BARRIER (SHEET 2 OF 4) (01-11)
56-0007	D-24C TEMPORARY SILT FENCE J-HOOK, INLET SEDIMENT TRAPS (SHEET 3 OF 4) (01-11)
56-0008	D-24D TEMPORARY SILT FENCE FABRIC CHECK DAM (SHEET 4 OF 4) (7-15)
56-0009	D-25 EROSION CONTROL CHECK DAMS (05-14-93)
56-0010	D-35 PERMANENT SOIL REINFORCING MAT (TURF REINFORCING MATS) INSTALLATION ON DITCHES (01-19-11)
56-0011	D-41 CONSTRUCTION EXIT (4-22-16)
56-0012	D-43 ROCK FILTER DAM (4-22-16)
56-0013	D-44 RETROFITTING STRUCTURE FOR TEMPORARY SEDIMENT FILTER PERFORATED HALF-ROUND PIPE WITH STONE FILTER (5-08)
56-0014	D-54 SOD INSTALLATION (4-22-16)
56-0015	D-55A RIPRAP OUTLET PROTECTION (SHEET 1 OF 2) (4-22-16)
56-0016	D-55B RIPRAP OUTLET PROTECTION (SHEET 2 OF 2) (4-22-16)
56-0017	LS-1 LEVEL SPREADER

GRESHAM SMITH AND PARTNERS

REVISION DATES

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SR 324 @ I-85 INTERCHANGE

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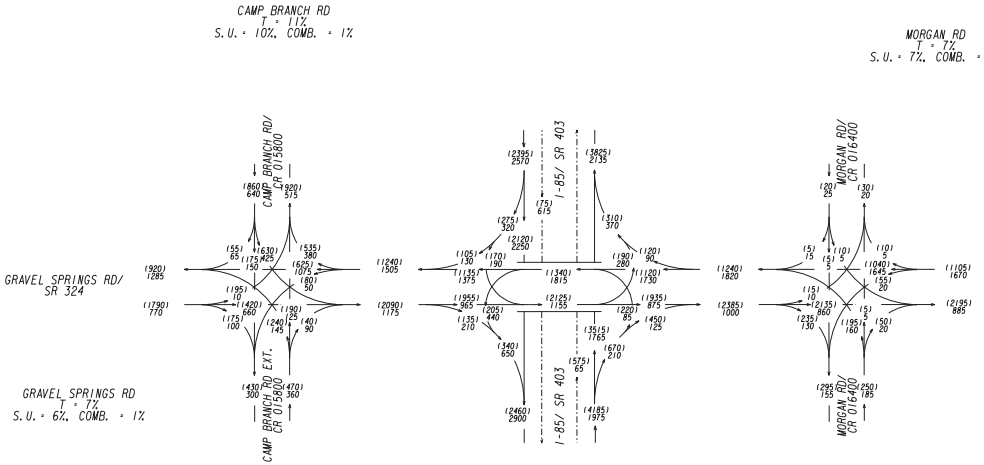
P. I. NO: 0012698



MAINLINES, RAMPS, AND ARTERIALS

MANAGED LANES

HNTB

I-85 VOLUMES UPDATED 01/17

2020 BUILD PM DHV= (000)
2020 BUILD AM DHV= 000

GRESHAM SMITH AND PARTNERS

REVISION DATES

TRAFFIC DIAGRAM
I-85 @ SR 324 INTERCHANGE
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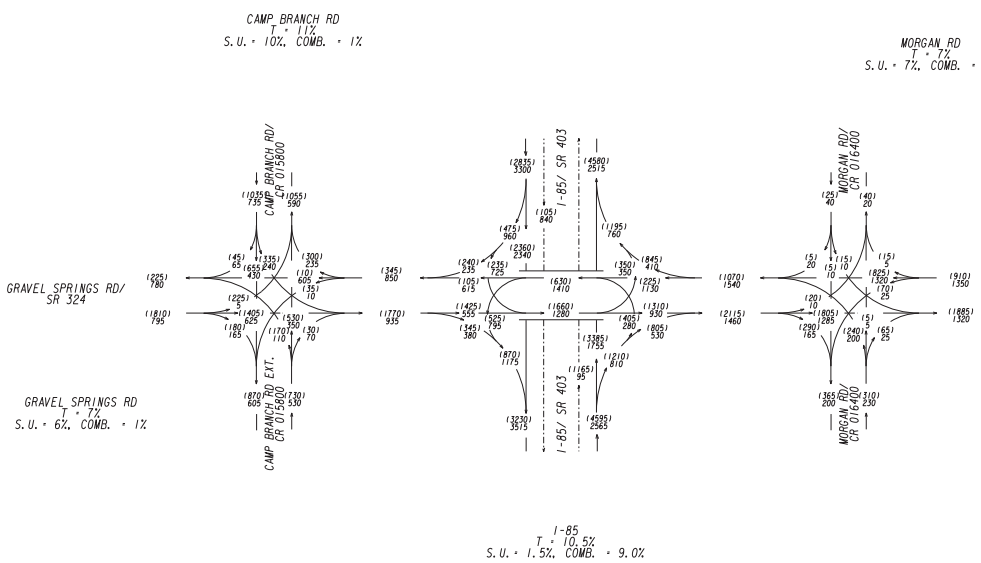
10/23/2015 GPLN

P. I. NO: 0012698



MAINLINES, RAMPS, AND ARTERIALS

MANAGED LANES

HNTB

I-85 VOLUMES UPDATED 01/17

2040 BUILD PM DHV= (000)
2040 BUILD AM DHV= 000

GRESHAM SMITH AND PARTNERS

REVISION DATES

TRAFFIC DIAGRAM
I-85 @ SR 324 INTERCHANGE
COUNTY: GWINNETT

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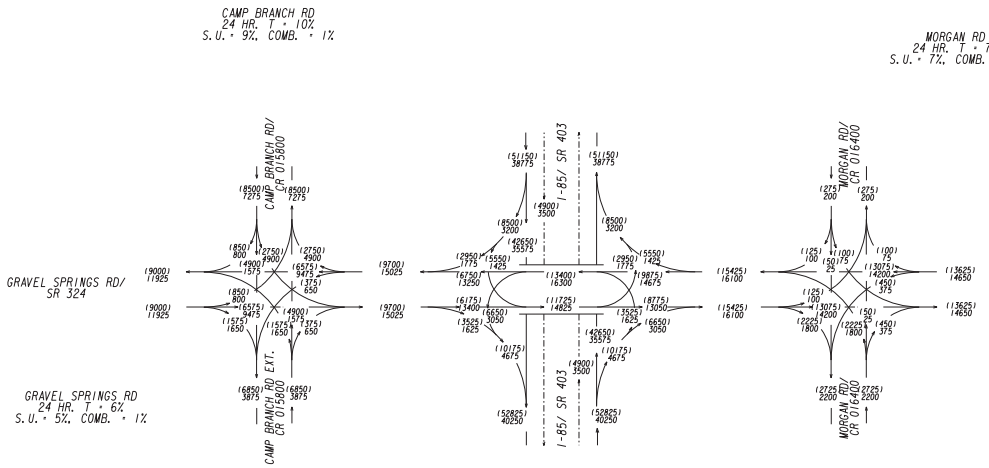

MAINLINES, RAMPS, AND ARTERIALS

MANAGED LANES

I-85 VOLUMES UPDATED 01/17

2040 BUILD AADT= (000)
2020 BUILD AADT= 000

GRESHAM SMITH AND PARTNERS

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TRAFFIC DIAGRAM
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EXISTING SIGNAL

- CONTROLLER CABINET
- STRAIN POLE
- TIMBER POLE
- DOWN GUY
- MAST ARM
- STREET LIGHT
- 3 SECTION HEAD
- 4 SECTION HEAD W/BACKPLATE
- 4/5 SECTION HEAD (CLUSTER/T-SHAPE) HEAD
- OVERHEAD SIGN
- PEDESTAL POLE
- PED SIGNAL HEAD
- CURB CUT RAMP
- PB PULLBOX,(TYPE TO BE CALLED OUT))
- 6x6 PULSE LOOP
- 6x18 CALL LOOP
- 6x40 PRESENCE LOOP (DIPOLE)
- 6x40 PRESENCE LOOP (QUADRUPOLE)
- CONDUIT
- RAILROAD CONTROLLER
- SIGN POST

PROPOSED SIGNAL

- CONTROLLER CABINET
- STRAIN POLE
- TIMBER POLE
- DOWN GUY
- MAST ARM
- STREET LIGHT
- 3 SECTION HEAD
- 3 SECTION HEAD W/ BACKPLATE
- 4 SECTION HEAD
- 4/5 SECTION HEAD (CLUSTER/T-SHAPE) HEAD
- OVERHEAD SIGN
- PEDESTAL POLE
- PED SIGNAL HEAD
- CURB CUT RAMP -(SEE ADA DETAIL)
- PB PULLBOX,(TYPE TO BE CALLED OUT))
- 6x6 PULSE LOOP
- 6x18 CALL LOOP
- 6x40 PRESENCE LOOP (DIPOLE)
- 6x40 PRESENCE LOOP (QUADRUPOLE)
- CONDUIT,(TYPE TO BE CALLED OUT))
- RIGID CONDUIT
- RAILROAD CONTROLLER
- SIGN POST
- RADAR DETECTION DEVICE
- MAGNETOMETER DETECTION DEVICE
- VIDEO DETECTION CAMERA
- VIRTUAL DETECTION ZONE (RADAR,VIDEO,ETC.)

PROPERTY AND EXISTING R/W LINE —— — P/L —	BEGIN LIMIT OF ACCESS.....BLA
REQUIRED R/W LINE ——	END LIMIT OF ACCESS.....ELA
CONSTRUCTION LIMITS — C — F —	LIMIT OF ACCESS —ooo—ooo—
EASEMENT FOR CONSTRUCTION & MAINTANENCE OF SLOPES	REQ'D R/W AND LIMIT OF ACCESS —||—||—
EASEMENT FOR CONSTR OF SLOPES	
EASEMENT FOR CONSTR OF DRIVES	

GRESHAM SMITH AND PARTNERS (GS&P)

REVISION DATES

SIGNAL PLANS

PROJECT: PI *0012698

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TRAFFIC SIGNAL GENERAL NOTES

1. THE COMPLETE SIGNAL INSTALLATION SHALL CONFORM TO ALL APPROPRIATE PARTS OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, CURRENT EDITION, INCLUDING SUBSEQUENT PUBLISHED RULINGS.

2. ALL MATERIALS AND WORK SHALL BE IN ACCORDANCE WITH THE GEORGIA DEPARTMENT OF TRANSPORTATION CURRENT STANDARD AND SUPPLEMENTAL SPECIFICATIONS AND STANDARD DETAILS FOR TRAFFIC SIGNAL INSTALLATION (WITH EXCEPTIONS AS DIRECTED BY THESE PLANS OR GWINNETT COUNTY D.O.T.). INSTALLATION SHALL MEET CURRENT NFPA NATIONAL ELECTRICAL CODE AND ANSI NATIONAL ELECTRICAL SAFETY CODE.

3. MATERIAL CERTIFICATION IS REQUIRED PRIOR TO BEGINNING ANY SIGNAL INSTALLATION WORK. THE CONTRACTOR SHALL FOLLOW PROCEDURES OUTLINED IN THE SPECIAL PROVISIONS.

4. CONTRACTOR SHALL SUBMIT LOAD CALCULATIONS, SHOP DRAWINGS AND FOUNDATION DIMENSIONS OF POLES AND CATALOG CUTS OF PROPOSED SIGNAL EQUIPMENT AND ELECTRICAL/LINE HARDWARE MATERIALS TO THE PROJECT ENGINEER FOR APPROVAL.

5. FOR STRAIN POLE FOUNDATION SIZE AND REINFORCEMENT, SEE STRAIN POLE AND MAST ARM POLE FOUNDATION SHEET.

6. THE CONTRACTOR SHALL LOCATE UNDERGROUND UTILITIES IN THE VICINITY OF NEW TRAFFIC SIGNAL POLES BEFORE INSTALLATION. MINOR SHIFTS (UP TO A MAXIMUM OF 5 FEET) IN LOCATION OF NEW SIGNAL POLES, AT THE DISCRETION OF THE ENGINEER, ARE ACCEPTABLE TO AVOID UNDERGROUND UTILITIES. MINIMUM CLEARANCES FROM EDGE OF PAVEMENT SHALL BE MAINTAINED. PLACEMENT OF THE SIGNAL HEADS MUST BE RETAINED AS SHOWN ON THE PLANS.

7. SIGNAL HEADS SHALL BE ERECTED TO PROVIDE AT LEAST 17 FEET BUT NO MORE THAN 19 FEET CLEARANCE FROM BOTTOM OF SIGNAL HEADS TO TOP OF ROAD SURFACE AND A MINIMUM OF 8 FEET MEASURED HORIZONTALLY BETWEEN CENTERS OF SIGNAL FACES.

8. THE CONTRACTOR SHALL MAINTAIN EXISTING TRAFFIC SIGNALS DURING CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TRAFFIC SIGNAL AND/OR CONTROL SYSTEM ADJUSTMENTS, INCLUDING TEMPORARY SUPPORT POLE LOCATION(S) REQUIRED BY THE PROJECT DURING THE INTERIM PERIOD THROUGH INSTALLATION OF NEW SIGNAL EQUIPMENT. AT NO TIME SHALL THE CONTRACTOR CAUSE ANY PART OF THE SIGNAL OPERATION TO BE INOPERABLE.

9. WHEN APPLICABLE TO THE PLANS, THE CONTRACTOR MUST INSTALL AND TEST ALL NEW SIGNAL ITEMS PRIOR TO REMOVING EXISTING SIGNALS FROM SERVICE.

10. WHEN APPLICABLE TO THE PLANS, CONTRACTOR WILL BE REQUIRED TO PROVIDE A NEW RISER, CONDUIT, CONDUCTORS AND DISCONNECT TO PROVIDE POWER SERVICE INTO THE CONTROLLER CABINET.

11. THE CONTRACTOR WILL BE RESPONSIBLE FOR ALL NEW GUYS ON EXISTING POLES WHEN ATTACHING SPAN WIRE OR FIBER OPTIC INTERCONNECT CABLE TO THE POLES, WHEN REQUIRED, AS DIRECTED BY THE ENGINEER.

12. SHIELDED CABLE SHALL BE USED FOR DETECTOR RUNS, AS SHOWN ON THE DETAIL SHEET. DETECTORS SHALL HAVE SEPARATE LEAD-INS TO THE CONTROLLER CABINET. LOOP AND PEDESTRIAN DETECTOR CABLES SHALL BE 14 AWG IMSA 50-2 3-PAIR EQUIVALENT CABLE.

13. ENSURE DETECTION LOOPS ARE INSTALLED PROMPTLY. FAILURE TO DO SO WILL RESULT IN ASSESSMENT OF LIQUIDATED DAMAGES IN ACCORDANCE WITH SECTION 150.08 OF THE SPECIFICATIONS.

14. CONDUIT UNDER DRIVEWAYS AND ROADWAYS SHALL BE TYPE 3 (SDR 11 HDPE), RIGID METAL OR ENCASED IN CONCRETE. ALL CONDUIT RUNS GREATER THAN 50 FEET IN LENGTH SHALL BE BURIED TO A MINIMUM DEPTH OF 48 INCHES. UNLESS APPROVED BY THE ENGINEER.

15. WHEN APPLICABLE TO THE PLANS, DETECTABLE MARKING TAPE LABELED "GWINNETT DOT CALL (770) 822-7474" SHALL BE INSTALLED DIRECTLY ABOVE ALL UNDERGROUND CONDUIT CONTAINING FIBER OPTIC INTERCONNECT CABLE. AN INSULATED TRACING WIRE, GROUNDED ON ONE END, SHALL BE INSTALLED INSIDE A CONDUIT SEPARATE FROM THE FIBER OPTIC INTERCONNECT CABLE.

16. SIGNAL HEADS ON MAST ARMS SHALL HAVE BACK PLATES AND BE RIGID MOUNTED.

17. VEHICLE AND PEDESTRIAN SIGNAL HEADS AND HARDWARE SHALL BE ALL BLACK IN COLOR. VEHICLE SIGNAL HEADS SHALL HAVE TUNNEL VISORS AND SHALL BE MADE OF POLYCARBONATE MATERIAL. VEHICLE SIGNAL HEADS SHALL BE EQUIPPED WITH LED MODULES.

18. PEDESTRIAN SIGNAL HEADS ATTACHED TO PEDESTAL POLES AND STEEL STRAIN POLES SHALL BE MOUNTED WITH "CLAMSHELL" TYPE BRACKET ASSEMBLIES. ALL PEDESTRIAN SIGNAL HEADS ATTACHED TO CONCRETE STRAIN POLES SHALL BE MOUNTED WITH ONE-WAY SIDE-OF-POLE ALUMINUM BRACKETS. PEDESTRIAN SIGNAL HEADS SHALL BE EQUIPPED WITH COUNTDOWN, UNIFORM APPEARANCE, FULL HAND/MAN/NUMERAL LED MODULES.

19. PUSHBUTTON STATIONS THAT ARE INSTALLED ON A PEDESTAL POLE FOR TWO PERPENDICULAR CROSSINGS SHALL BE MOUNTED ON A "DOUBLE PUSHBUTTON STATION ADAPTER. PEDESTRIAN PUSHBUTTONS SHALL BE INSTALLED WITHIN 10" OF SIDEWALK WITH SIGN ARROW INDICATING THE CROSSING DIRECTION. PEDESTRIAN PUSHBUTTONS SHALL BE VANDAL RESISTANT WITH A PIEZO SWITCH, LED INDICATION AND AUDIBLE FEEDBACK.

20. ONLY THE MODELS OF VEHICLE SIGNAL MODULES, PEDESTRIAN SIGNAL MODULES, AND PUSHBUTTONS THAT HAVE BEEN TESTED AND PRE-APPROVED BY GWINNETT COUNTY DOT SHALL BE USED. CONTACT GWINNETT COUNTY DOT FOR A LIST OF APPROVED ITEMS OR TO SUBMIT ITEMS FOR TESTING AND APPROVAL, CONTACT GWINNETT COUNTY DOT AT (770) 822-7474.

21. ONE 7- CONDUCTOR, 14 AWG, STRANDED CABLE AND ONE 3-PAIR DETECTOR CABLE FOR PROPOSED AND FUTURE PEDESTRIAN SIGNALS SHALL BE INSTALLED AT EACH STRAIN POLE. A MINIMUM OF ONE 7-CONDUCTOR, 14 AWG, STRANDED SIGNAL CABLE FOR PROPOSED AND FUTURE VEHICLE SIGNALS SHALL BE INSTALLED ON ALL FOUR SIDES OF THE INSTALLATION.

22. LOOP DETECTOR UNIT SHALL ENERGIZE ITS INDIVIDUAL LOOP CHANNELS NONCONCURRENTLY. DETECTOR UNIT SHALL BE FAIL SAFE (PROVIDE A CONSTANT CALL TO THE CONTROLLER IF LOOP FAILURE OCCURS).

23. CONTROLLER SHALL INCLUDE 5-VOLT 2 MB DATA KEY AND SHALL HAVE THE CURRENT GDOT LICENSE INTERSECTION SOFTWARE INSTALLED AND OPERATIONAL.

24. HOT DIP GALVANIZED WELDLESS RINGS SHALL BE USED FOR SPAN WIRE JUNCTIONS. GUY ANCHORS SHALL BE GALVANIZED.

25. GWINNETT COUNTY D.O.T. WILL BE RESPONSIBLE FOR PROGRAMMING OF SIGNAL TIMING AND "TURN-ON" OF ALL NEW SIGNALS.

26. GWINNETT COUNTY DOT IS NOT ON THE ONE-CALL SYSTEM. CALL (770) 822-7474 WHEN LOCATING UTILITIES FOR CONSTRUCTION.

GRESHAM SMITH AND PARTNERS

REVISION DATES

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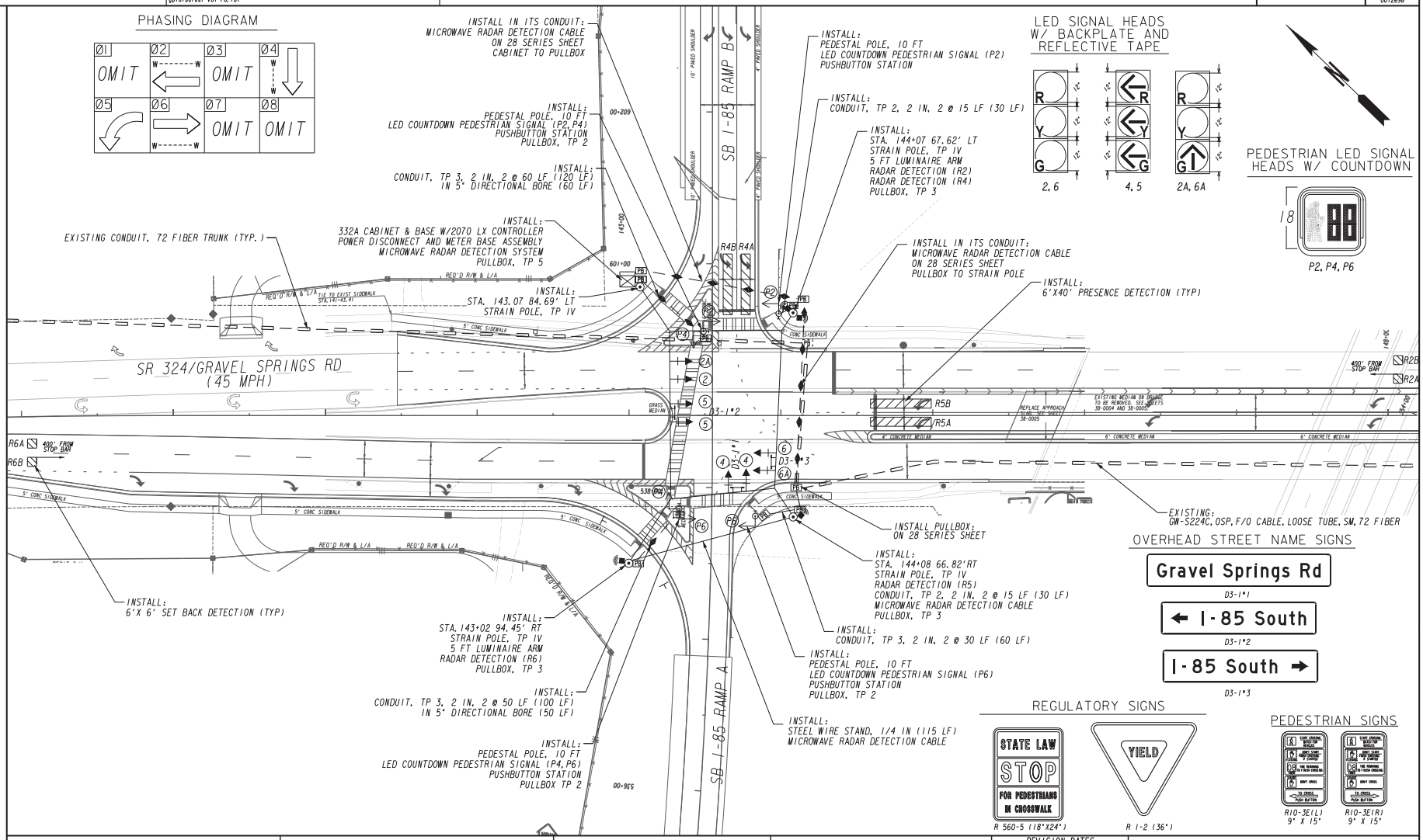

SIGNAL LEGEND

- PROPOSED SIGNAL HEAD
- EXISTING SIGNAL HEAD
- RELOCATED SIGNAL HEAD
- PROPOSED 4-SECTION SIGNAL HEAD
- PROPOSED 5-SECTION (CLUSTER) SIGNAL HEAD
- PEDESTRIAN SIGNAL HEAD

DETECTION LEGEND

- PROPOSED VIRTUAL DETECTION ZONE
- PROPOSED INDUCTIVE LOOP
- PROPOSED VIDEO DETECTION CAMERA
- PROPOSED MAGNETOMETER
- PROPOSED RADAR

GRESHAM SMITH AND PARTNERS

SCALE IN FEET
0 30 60 120

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LIST OF MATERIALS

LIST OF MATERIALS	UNIT	QUANTITY
CONTROLLER CABINET ASSEMBLIES		
A. CONTROLLER UNIT, MODEL 2070 LX	EA	1
E. CABINET ASSEMBLY, MODEL 332A	EA	1
F. SWITCH PACK (Load Switch)	EA	7
G. DC ISOLATOR	EA	3
K. 2010 SIGNAL MONITOR, TYPE B (ETHERNET)	EA	1
332 PREFABRICATED CONTROLLER CABINET BASE	EA	1
LOOP/PED LEAD-IN WIRE (SHIELDED, TWISTED/1000 FT); 3 PAIR, 14 AWG	REEL	2
SIGNAL CABLE (14 AWG); 7 CONDUCTOR, PER 1000 FT.	REEL	3
ONE-WAY, 3-SECTION, 12" LED SIGNAL HEAD, PLASTIC WITH INCANDESCENT LOOK MODULES	EA	8
1-SECTION, 16" x 18" LED COUNTDOWN PEDESTRIAN SIGNAL HEAD, FULL HAND/MAN OVERLAP		
9" HIGH, Numbers & 12" Symbols	EA	6
PEDESTRIAN PUSHBUTTON STATION ADAPTERS (ONLY)		
9" x 15", Double Push Button Station Adapter for 4" Dia Pedestrian Pole, Adjustable	EA	2
PEDESTRIAN PUSHBUTTONS STATIONS, w/BUTTONS and SIGNS:		
9" x 15", R10-3e, (L)eft or (R)ight, Countdown	EA	6
BACK PLATE FOR ONE-WAY, 3-SECTION, 12" SIGNAL HEAD, ABS PLASTIC, BLACK w/ 2" RETROREFLECTIVE STRIP	EA	8
HARDWARE FOR SPANWIRE MOUNTING (3 or 4 Section Signals)	EA	8
HARDWARE FOR SIDE-OF-POLE MOUNTING FOR 18" PEDESTRIAN SIGNAL HEAD, CLAMSHELL	EA	6
PEDESTAL POLE & SQUARE BASE	EA	4
PULL BOX, PB-2	EA	3
PULL BOX, PB-3	EA	3
CONDUIT, 1"	LF	30
CONDUIT, 2"	LF	130
MISCELLANEOUS MATERIALS NEEDED TO COMPLETE INSTALLATION	LUMP	LUMP

LIST OF MATERIALS IS FOR INFORMATION PURPOSES ONLY. THE CONTRACTOR SHALL FIELD VERIFY ALL MATERIALS AND QUANTITIES REQUIRED FOR INSTALLATION.

PAY ITEMS

636-1045	HIGHWAY SIGNS, TP2 MATL, REFL SHEETING, TP 11	SF	35
639-2001	STEEL WIRE STRAND CABLE, 1 /4 IN	LF	115
639-2002	STEEL WIRE STRAND CABLE, 3 /8 IN	LF	740
639-4004	STRAIN POLE, TP IV	EA	4
647-1000	TRAFFIC SIGNAL INSTALLATION NO. 1	LUMP	LUMP
647-2151	PULLBOX, PB-5	EA	1
682-6233	CONDUIT, NONMETAL, TP 3, 2 IN	LF	280
682-8500	ELECTRICAL POWER SERVICE ASSEMBLY (AERIAL SERVICE POINT)	EA	1
682-9950	DIRECTIONAL BORE, 5"	LF	110
937-6000	MICROWAVE RADAR DETECTION ASSEMBLY	EA	4
937-8020	TESTING MICROWAVE RADAR DETECTION ASSEMBLY	LUMP	LUMP

332 CABINET INPUT ASSIGNMENT

SLOT	1	2	3	4	5	6	7	8	9	10	11	12	13	14

UPPER INPUT FILE

	TYPE	DET	DET	DET	DET	DET	DET	DET	DET	DET	TBA	TBA	DC	DC	DC
	CARD		RADAR				RADAR						DC ISO	DC ISO	DC ISO
CHANNEL 1	C1 PIN	56	39	63	47	58	41	65	49	60		80	67	68	81
	FUNCTION		R2A				R4A						Ø2 PED	Ø6 PED	FLASH
	FIELD TERM	TB2 1,2	TB2 5,6	TB2 9,10	TB4 1,2	TB4 5,6	TB4 9,10	TB6 1,2	TB6 5,6	TB6 9,10			TB8 4,6	TB8 7,9	N/C
CHANNEL 2	C1 PIN	56	43	76	47	58	45	78	49	62		53	69	70	82
	FUNCTION		R2B				R4B						Ø4 PED		STOP TIME
	FIELD TERM	TB2 3,4	TB2 7,8	TB2 11,12	TB4 3,4	TB4 7,8	TB4 11,12	TB6 3,4	TB6 7,8	TB6 11,12			TB8 5,6	TB8 8,9	N/C

LOWER INPUT FILE

	TYPE	DET	DET	DET	DET	DET	DET	DET	DET	DET	TBA	TBA	DC	DC	DC
	CARD	RADAR	RADAR												
CHANNEL 1	C1 PIN	55	40	64	48	57	42	66	50	59		54	71	72	51
	FUNCTION	R5A	R6A												
	FIELD TERM	TB3 1,2	TB3 5,6	TB3 9,10	TB5 1,2	TB5 5,6	TB5 9,10	TB7 1,2	TB7 5,6	TB7 9,10			TB9 4,6	TB9 7,9	TB9 10,12
CHANNEL 2	C1 PIN	55	44	77	48	57	46	79	50	61		75	73	74	52
	FUNCTION	R5B	R6B												
	FIELD TERM	TB3 3,4	TB3 7,8	TB3 11,12	TB5 3,4	TB5 7,8	TB5 11,12	TB7 3,4	TB7 7,8	TB7 11,12			TB9 5,6	TB9 8,9	TB9 11,12

GRESHAM SMITH AND PARTNERS

REVISION DATES

SIGNAL PLANS

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VERIFIED:		DATE:	

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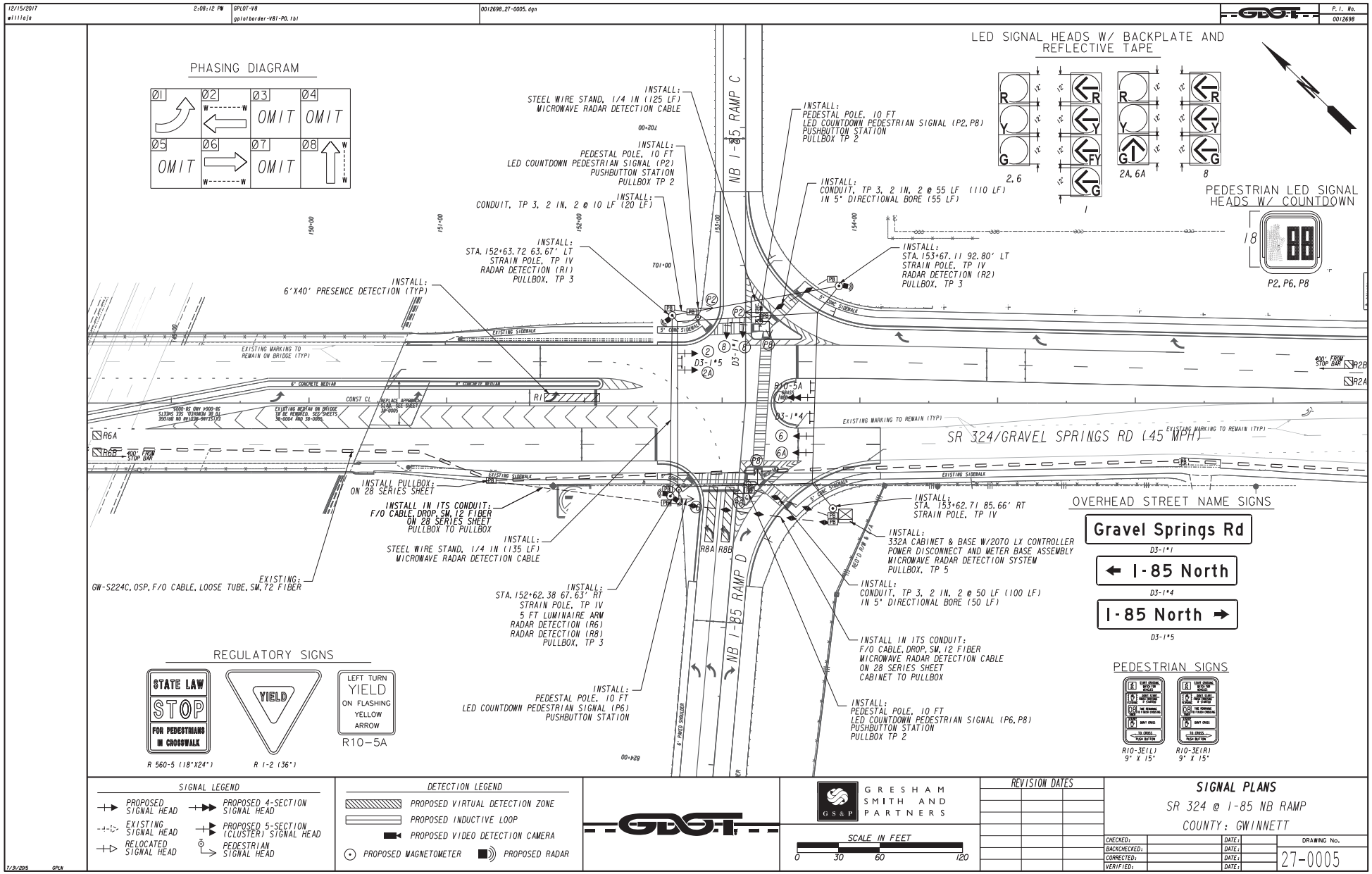
PHASING DIAGRAM
Ø1
Ø2
Ø3
Ø4
OMIT
OMIT
Ø5
Ø6
Ø7
Ø8
OMIT
OMIT
LED SIGNAL HEADS W/ BACKPLATE AND REFLECTIVE TAPE
2, 6
2A, 6A
8
1
PEDESTRIAN LED SIGNAL HEADS W/ COUNTDOWN
18
P2, P6, P8
INSTALL: STEEL WIRE STAND, 1/4 IN (125 LF) MICROWAVE RADAR DETECTION CABLE
INSTALL: PEDESTAL POLE, 10 FT LED COUNTDOWN PEDESTRIAN SIGNAL (P2) PUSHBUTTON STATION PULLBOX TP 2
INSTALL: CONDUIT, TP 3, 2 IN, 2 @ 10 LF (20 LF)
INSTALL: STA. 152+63.72 63.67' LT STRAIN POLE, TP IV RADAR DETECTION (R1) PULLBOX, TP 3
INSTALL: 6'X40' PRESENCE DETECTION (TYP)
INSTALL: PEDESTAL POLE, 10 FT LED COUNTDOWN PEDESTRIAN SIGNAL (P2, P8) PUSHBUTTON STATION PULLBOX TP 2
INSTALL: CONDUIT, TP 3, 2 IN, 2 @ 55 LF (110 LF) IN 5" DIRECTIONAL BORE (55 LF)
INSTALL: STA. 153+67.11 92.80' LT STRAIN POLE, TP IV RADAR DETECTION (R2) PULLBOX, TP 3
NB I-85 RAMP C
NB I-85 RAMP D
SR 324/GRAVEL SPRINGS RD (45 MPH)
EXISTING SIDEWALK
5' CONC SIDEWALK
6' CONCRETE MEDIAN
EXISTING MARKING TO REMAIN ON BRIDGE (TYP)
EXISTING MARKING TO REMAIN (TYP)
CONST CL
R1
R6A
R6B
400' FROM STOP BAR
R2B
R2A
R8A
R8B
D3-1*5
D3-1*4
R10-5A
INSTALL PULLBOX: ON 28 SERIES SHEET
INSTALL IN ITS CONDUIT: F/O CABLE, DROP SM, 12 FIBER ON 28 SERIES SHEET PULLBOX TO PULLBOX
INSTALL: STEEL WIRE STAND, 1/4 IN (135 LF) MICROWAVE RADAR DETECTION CABLE
EXISTING: GW-S224C, OSP, F/O CABLE, LOOSE TUBE, SM, 72 FIBER
INSTALL: STA. 152+62.38 67.63' RT STRAIN POLE, TP IV 5 FT LUMINAIRE ARM RADAR DETECTION (R6) RADAR DETECTION (R8) PULLBOX, TP 3
INSTALL: PEDESTAL POLE, 10 FT LED COUNTDOWN PEDESTRIAN SIGNAL (P6) PUSHBUTTON STATION
INSTALL: STA. 153+62.71 85.66' RT STRAIN POLE, TP IV
INSTALL: 332A CABINET & BASE W/2070 LX CONTROLLER POWER DISCONNECT AND METER BASE ASSEMBLY MICROWAVE RADAR DETECTION SYSTEM PULLBOX, TP 5
INSTALL: CONDUIT, TP 3, 2 IN, 2 @ 50 LF (100 LF) IN 5" DIRECTIONAL BORE (50 LF)
INSTALL IN ITS CONDUIT: F/O CABLE, DROP, SM, 12 FIBER MICROWAVE RADAR DETECTION CABLE ON 28 SERIES SHEET CABINET TO PULLBOX
INSTALL: PEDESTAL POLE, 10 FT LED COUNTDOWN PEDESTRIAN SIGNAL (P6, P8) PUSHBUTTON STATION PULLBOX TP 2
OVERHEAD STREET NAME SIGNS
Gravel Springs Rd
D3-1*1
← I-85 North
D3-1*4
I-85 North →
D3-1*5
REGULATORY SIGNS
STATE LAW
STOP
FOR PEDESTRIANS IN CROSSWALK
R 560-5 (18"X24")
YIELD
R 1-2 (36")
LEFT TURN YIELD ON FLASHING YELLOW ARROW
R10-5A
PEDESTRIAN SIGNS
R10-3E(L) 9" X 15"
R10-3E(R) 9" X 15"
SIGNAL LEGEND
PROPOSED SIGNAL HEAD
EXISTING SIGNAL HEAD
RELOCATED SIGNAL HEAD
PROPOSED 4-SECTION SIGNAL HEAD
PROPOSED 5-SECTION (CLUSTER) SIGNAL HEAD
PEDESTRIAN SIGNAL HEAD
DETECTION LEGEND
PROPOSED VIRTUAL DETECTION ZONE
PROPOSED INDUCTIVE LOOP
PROPOSED VIDEO DETECTION CAMERA
PROPOSED MAGNETOMETER
PROPOSED RADAR
GRESHAM SMITH AND PARTNERS
SCALE IN FEET
0 30 60 120
REVISION DATES
SIGNAL PLANS
SR 324 @ I-85 NB RAMP
COUNTY: GWINNETT
CHECKED:
BACKCHECKED:
CORRECTED:
VERIFIED:
DATE:
DRAWING No.
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P.I. No.
0012698
7/31/2015
GPLN

LIST OF MATERIALS

LIST OF MATERIALS	UNIT	QUANTITY
CONTROLLER CABINET ASSEMBLIES		
A. CONTROLLER UNIT, MODEL 2070 LX	EA	1
E. CABINET ASSEMBLY, MODEL 332A	EA	1
F. SWITCH PACK (Load Switch)	EA	7
G. DC ISOLATOR	EA	3
K. 2010 SIGNAL MONITOR, TYPE B (ETHERNET)	EA	1
M. AUXILLARY OUTPUT FILE	EA	1
332 PREFABRICATED CONTROLLER CABINET BASE	EA	1
LOOP/PED LEAD-IN WIRE (SHIELDED, TWISTED/1000 FT); 3 PAIF, 14 AWG	REEL	2
SIGNAL CABLE (14 AWG), 7 CONDUCTOR, PER 1000 FT.	REEL	2
ONE-WAY, 3-SECTION, 12" LED SIGNAL HEAD, PLASTIC WITH INCANDESCENT LOOK MODULES	EA	6
ONE-WAY, 4-SECTION, 12" LED SIGNAL HEAD, PLASTIC WITH INCANDESCENT LOOK MODULES	EA	1
1-SECTION, 16" x 18" LED COUNTDOWN PEDESTRIAN SIGNAL HEAD, FULL HAND/MAN OVERLAP		
9" HIGH, Numbers & 12" Symbols	EA	6
PEDESTRIAN PUSHBUTTON STATION ADAPTERS (ONLY)		
9" x 15", Double Push Button Station Adapter for 4" Dia Pedestrian Pole, Adjustable	EA	2
PEDESTRIAN PUSHBUTTONS STATIONS, w/BUTTONS and SIGNS:		
9" x 15", R10-3e, (L)eft or (R)ight, Countdown	EA	6
BACK PLATE FOR ONE-WAY, 3-SECTION, 12" SIGNAL HEAD, ABSPLASTIC, BLACK w/ 2" RETROREFLECTIVE STRIP	EA	6
BACK PLATE FOR ONE-WAY, 4-SECTION, 12" SIGNAL HEAD, ABSPLASTIC, BLACK w/ 2" RETROREFLECTIVE STRIP	EA	1
HARDWARE FOR SPANWIRE MOUNTING (3 or 4 Section Signals)	EA	7
HARDWARE FOR SIDE-OF-POLE MOUNTING FOR 18" PEDESTRIAN SIGNAL HEAD, CLAMSHELL	EA	6
PEDESTAL POLE & SQUARE BASE	EA	4
PULL BOX, PB-2	EA	3
PULL BOX, PB-3	EA	3
CONDUIT, 1"	LF	30
CONDUIT, 2"	LF	70
MISCELLANEOUS MATERIALS NEEDED TO COMPLETE INSTALLATION	LUMP	LUMP

LIST OF MATERIALS IS FOR INFORMATION PURPOSES ONLY. THE CONTRACTOR SHALL FIELD VERIFY ALL MATERIALS AND QUANTITIES REQUIRED FOR INSTALLATION.

PAY ITEMS

636-1045	HIGHWAY SIGNS, TP2 MATL, REFL SHEETING, TP 11	SF	35
639-2001	STEEL WIRE STRAND CABLE, 1 /4 IN	LF	260
639-2002	STEEL WIRE STRAND CABLE, 3 /8 IN	LF	900
639-4004	STRAIN POLE, TP IV	EA	4
647-1000	TRAFFIC SIGNAL INSTALLATION NO. 2	LUMP	LUMP
647-2151	PULLBOX, PB-5	EA	1
682-6233	CONDUIT, NONMETAL, TP 3, 2 IN	LF	210
682-8500	ELECTRICAL POWER SERVICE ASSEMBLY (AERIAL SERVICE POINT)	EA	1
682-9950	DIRECTIONAL BORE, 5"	LF	230
937-6000	MICROWAVE RADAR DETECTION ASSEMBLY	EA	4
937-8020	TESTING MICROWAVE RADAR DETECTION ASSEMBLY	LUMP	LUMP

332 CABINET INPUT ASSIGNMENT

SLOT		1	2	3	4	5	6	7	8	9	10	11	12	13	14
UPPER INPUT FILE															
	TYPE	DET	DET	DET	DET	DET	DET	DET	DET	DET	TBA	TBA	DC	DC	DC
	CARD	RADAR	RADAR										DC ISO	DC ISO	DC ISO
	C1 PIN	56	39	63	47	58	41	65	49	60		80	67	68	81
CHANNEL 1	FUNCTION	R1	R2A										Ø2 PED	Ø6 PED	FLASH
	FIELD TERM	TB2 1,2	TB2 5,6	TB2 9,10	TB4 1,2	TB4 5,6	TB4 9,10	TB6 1,2	TB6 5,6	TB6 9,10			TB8 4,6	TB8 7,9	N/C
	C1 PIN	56	43	76	47	58	45	78	49	62		53	69	70	82
CHANNEL 2	FUNCTION		R2B										Ø8 PED	Ø8 PED	STOP TIME
	FIELD TERM	TB2 3,4	TB2 7,8	TB2 11,12	TB4 3,4	TB4 7,8	TB4 11,12	TB6 3,4	TB6 7,8	TB6 11,12			TB8 5,6	TB8 8,9	N/C
LOWER INPUT FILE															
	TYPE	DET	DET	DET	DET	DET	DET	DET	DET	DET	TBA	TBA	DC	DC	DC
	CARD		RADAR				RADAR								
	C1 PIN	55	40	64	48	57	42	66	50	59		54	71	72	51
CHANNEL 1	FUNCTION		R6A				R8A								
	FIELD TERM	TB3 1,2	TB3 5,6	TB3 9,10	TB5 1,2	TB5 5,6	TB5 9,10	TB7 1,2	TB7 5,6	TB7 9,10			TB9 4,6	TB9 7,9	TB9 10,12
	C1 PIN	55	44	77	48	57	46	79	50	61		75	73	74	52
CHANNEL 2	FUNCTION		R6B				R8B								
	FIELD TERM	TB3 3,4	TB3 7,8	TB3 11,12	TB5 3,4	TB5 7,8	TB5 11,12	TB7 3,4	TB7 7,8	TB7 11,12			TB9 5,6	TB9 8,9	TB9 11,12

GRESHAM SMITH AND PARTNERS

REVISION DATES

SIGNAL PLANS

SR 324 @ I-85 NB RAMP

COUNTY: GWINNETT

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VERIFIED:		DATE:	

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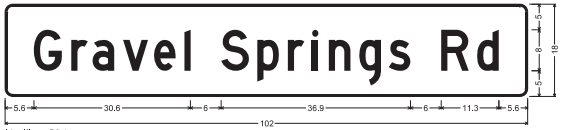
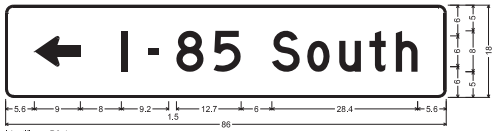
D3-1 OVERHEAD STREET NAME SIGN DETAILS (GW-DOT D-SPEC)



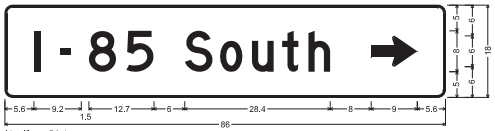
Identifier : D3-1;
1.5" Radius, 0.5" Border, White on Green;
[Gravel] D Georgia 90% spacing; [Springs] D Georgia 90% spacing; [Rd] D Georgia;

D3-1 #1 (2 EA)



Identifier : D3-1;
1.5" Radius, 0.5" Border, White on Green;
Standard Arrow Custom 9.0" X 6.0" 180"; [I-] D Georgia; [85] D Georgia; [South] D Georgia;

D3-1 #2 (1 EA)



Identifier : D3-1;
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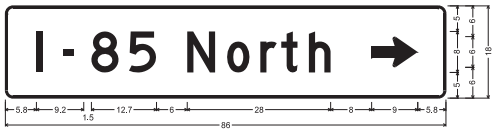
[I-] D Georgia; [85] D Georgia specified length; [South] D Georgia specified length;
Standard Arrow Custom 9.0" X 6.0" 0";

D3-1 #3 (1 EA)

Identifier : D3-1;
1.5" Radius, 0.5" Border, White on Green;
Standard Arrow Custom 9.0" X 6.0" 180"; [I-] D Georgia; [85] D Georgia specified length;
[North] D Georgia specified length;

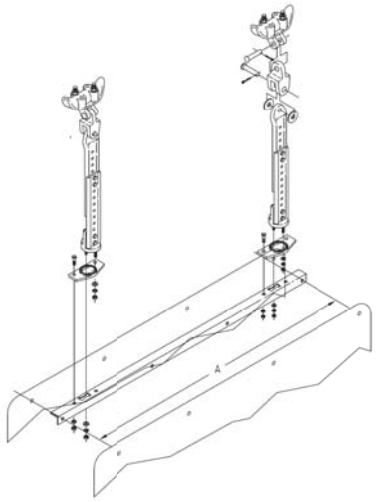
D3-1 #4 (1 EA)



Identifier : D3-1;
1.5" Radius, 0.5" Border, White on Green;
[I-] D Georgia; [85] D Georgia specified length; [North] D Georgia specified length;
Standard Arrow Custom 9.0" X 6.0" 0";

D3-1 #5 (1 EA)

D-SPEC SIGNS
SPANWIRE BRACKET ASSEMBLY



1. MINIMUM OF TWO HANGERS PER D-SPEC SIGN.
2. ALL LETTERS TO BE 8" UPPERCASE & 8" LOWERCASE SERIES "D". ALL ARROWS TO BE 6" TALL & 9" LONG.
3. BORDER SHALL BE 1/2". RADIUS SHALL BE 1 1/2". SIGN PANELS SHALL BE FABRICATED OF ONE CONTINUOUS PIECE OF ALUMINUM. SPLICING OF ALUMINUM PANELS SHALL NOT BE PERMITTED.
5. ALL SIGNS SHALL BE WHITE REFLECTORIZED LEGEND AND BORDER ON STANDARD INTERSTATE GREEN REFLECTORIZED BACKGROUND.

GRESHAM SMITH AND PARTNERS (GS&P)

REVISION DATES

SIGNAL PLANS
SR 324 @ I-85 SB RAMP
COUNTY: GWINNETT

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VERIFIED:		DATE:		

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ATMS LEGEND

- PROPOSED 6 X 40 QUADROPOLE DETECTOR LOOP
- PROPOSED 6 X 6 DETECTOR LOOP
- EXISTING CCTV CAMERA
- PROPOSED CCTV CAMERA
- EXISTING VIDEO DETECTION SYSTEM CAMERA AND ZONE
- PROPOSED VIDEO DETECTION CAMERA AND ZONE
- EXISTING RADAR DETECTION SYSTEM
- PROPOSED RADAR DETECTION SYSTEM
- EXISTING CMS
- PROPOSED 3X21 CMS
- PROPOSED 3X15 CMS
- O/H EXISTING OVERHEAD SIGN
- EXISTING WOOD POLE
- EXISTING STRAIN POLE
- PROPOSED TYPE IV STRAIN POLE
- PROPOSED MAST ARM STRAIN POLE
- PROPOSED PEDESTAL POLE
- EXISTING EXTENSION POLE
- PROPOSED EXTENSION POLE
- EXISTING AERIAL OR UNDERGROUND SERVICE POINT LOCATION
- PROPOSED AERIAL OR UNDERGROUND SERVICE POINT LOCATION
- EJB PROPOSED ELECTRICAL JUNCTION BOX
- EXISTING ELECTRICAL COMMUNICATION BOX
- PROPOSED ELECTRICAL COMMUNICATION BOX
- PROPOSED 3 SECTION TRAFFIC SIGNAL HEAD
- PROPOSED MAST ARM

- EXISTING PULL BOX
- PROPOSED PULL BOX
- EXISTING CABINET
- PROPOSED GROUND-MOUNTED CABINET
- PROPOSED POLE-MOUNTED CABINET
- PROPOSED GUARDRAIL
- EXISTING GUARDRAIL
- PROPOSED GUARDRAIL LEADING EDGE TREATMENT
- PROPOSED GUARDRAIL TRAILING EDGE TREATMENT
- C.B. EXISTING CATCH BASIN
- D.I. EXISTING DROP INLET
- PROPOSED ADVANCE WARNING FLASHER
- PROPOSED GROUND-MOUNTED SIGN
- EXISTING SIGN
- EXISTING BRIDGE ATTACHED CONDUIT DUCT BANK
- PROPOSED CONDUIT - DIRECTIONAL BORE
- EXISTING CONDUIT DUCT BANK
- PROPOSED CONDUIT - TRENCH
- PROPOSED CONDUIT ROUTING
- DITCH LINE OR EDGE OF WATER
- CONCRETE DITCH
- EDGE OF PAVEMENT
- SOLID TRAFFIC STRIPE
- SKIP TRAFFIC STRIPE
- SKIP STRIPE (2' STRIPE, 6' GAP)
- BARRIER WALL
- RETAINING WALL/ABUTMENT WALL
- WOODS LINE

GRESHAM SMITH AND PARTNERS

REVISION DATES

LEGEND

SR 324 @ I-85 SB RAMP

COUNTY: GWINNETT

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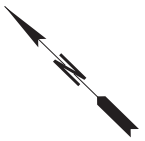

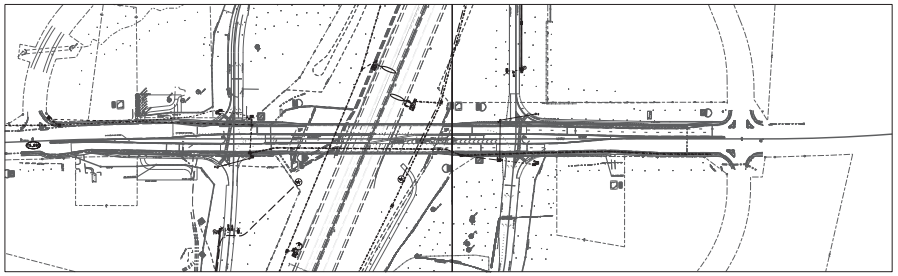

GRESHAM SMITH AND PARTNERS

SCALE IN FEET
0 200 400 800

REVISION DATES

ITS LAYOUT

SR 324 @ I-85 SB RAMP

COUNTY: GWINNETT

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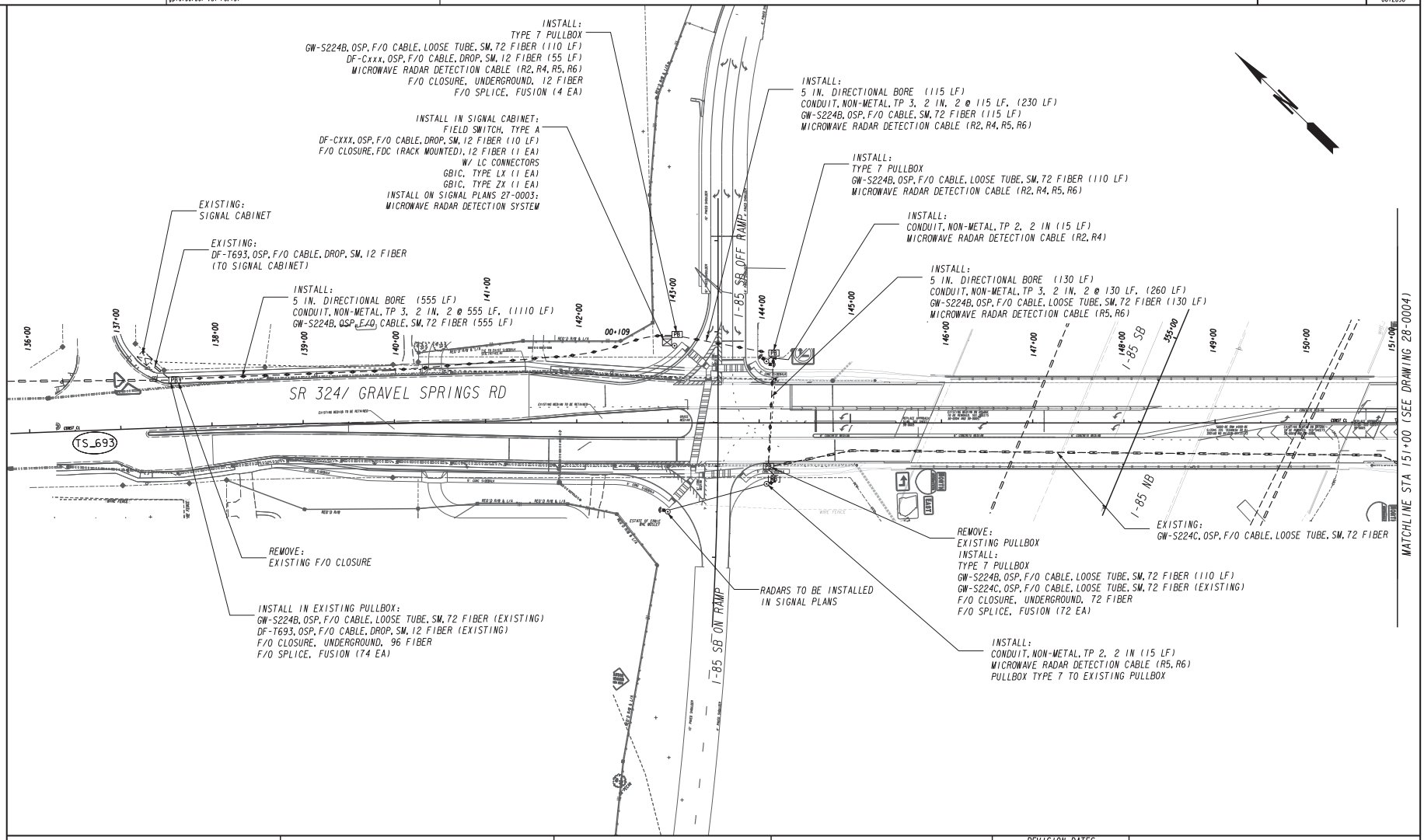

GRESHAM SMITH AND PARTNERS

SCALE IN FEET
0 50 100 200

REVISION DATES

ITS PLANS
SR 324 @ I-85 SB RAMP
COUNTY: GWINNETT

CHECKED:		DATE:	DRAWING No.
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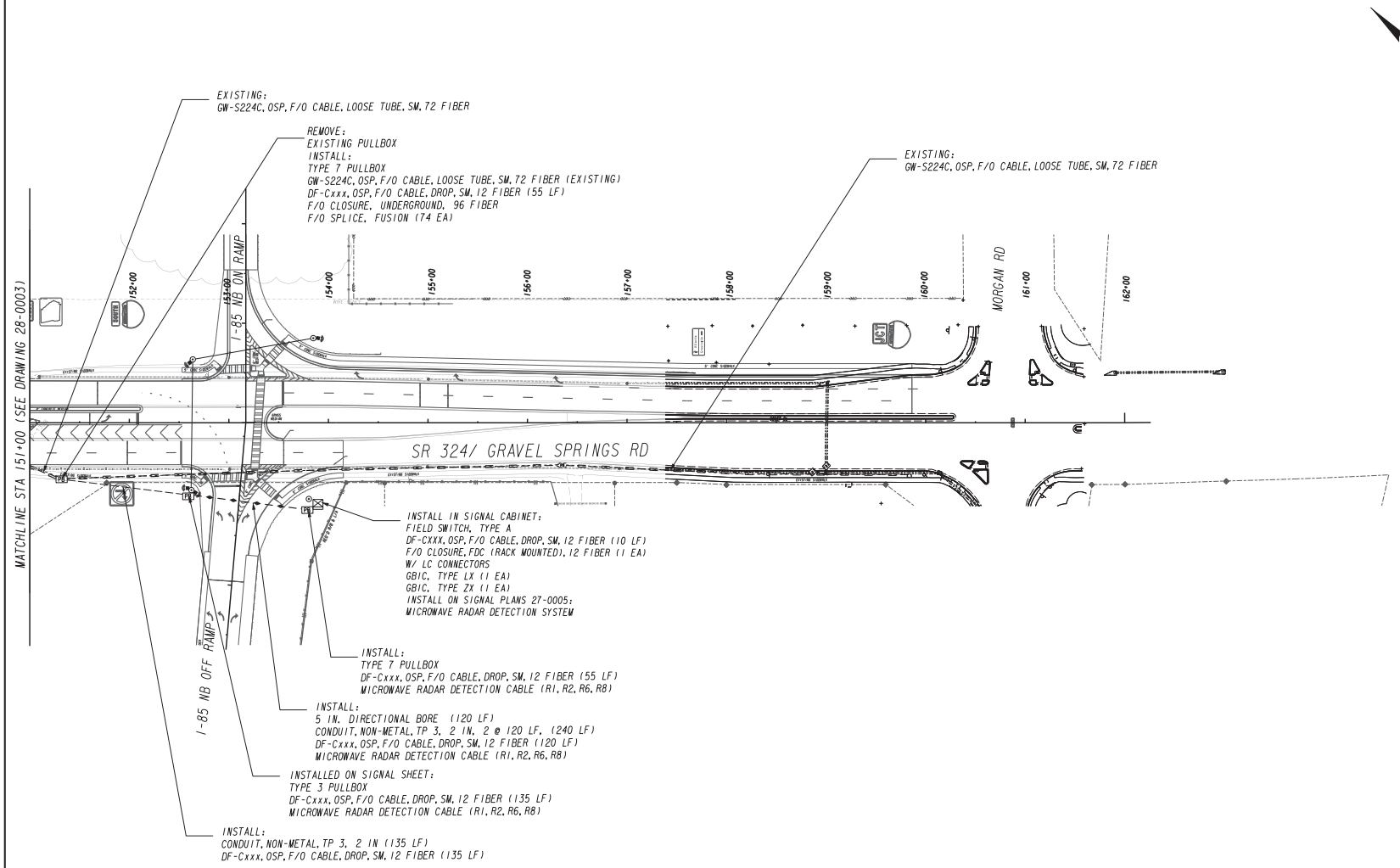

GRESHAM SMITH AND PARTNERS

SCALE IN FEET
0 50 100 200

REVISION DATES

ITS PLANS

SR 324 @ I-85 SB RAMP

COUNTY: GWINNETT

CHECKED:		DATE:	DRAWING No.
BACKCHECKED:		DATE:	
CORRECTED:		DATE:	28-0004
VERIFIED:		DATE:	

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SUMMARY OF QUANTITIES

ITEM CODE	ITEM DESCRIPTION	UNIT	TOTALS	28-003	28-004
150-1000	TRAFFIC CONTROL	LS	LS		
682-9950	DIRECTIONAL BORE, 5 IN	LF	920	800	120
647-2170	PULL BOX, PB-7	EA	5	3	2
682-6222	CONDUIT, NONMETL, TP 2, 2 IN	LF	30	30	
682-6233	CONDUIT, NONMETL, TP 3, 2 IN	LF	1,975	1600	375
935-1116	OSP FIBER OPTIC CABLE, LOOSE TUBE, SINGLE MODE, 72 FIBER	LF	1,130	1130	0
935-1512	OSP FIBER OPTIC CABLE, DROP, SINGLE MODE, 12 FIBER	LF	495	65	430
935-3102	FIBER OPTIC CLOSURE, UNDERGROUND, 12 FIBER	EA	1	1	0
935-3106	FIBER OPTIC CLOSURE, UNDERGROUND, 72 FIBER	EA	1	1	
935-3107	FIBER OPTIC CLOSURE, UNDERGROUND, 96 FIBER	EA	2	1	1
935-3502	FIBER OPTIC CLOSURE, FDC (WALL MOUNTED), 12 FIBER W/ LC CONNECTORS	EA	2	1	1
935-4010	FIBER OPTIC SPLICE, FUSION	EA	224	150	74
935-8000	TESTING - FIBER OPTIC	LS	LS		
939-2230	GBIC, TYPE LX*	EA	2	1	1
939-2235	GBIC, TYPE ZX*	EA	2	1	1
939-2300	FIELD SWITCH, TYPE A	EA	2	1	1
939-8000	TESTING - COMMUNICATION AND ELECTRONIC EQUIPMENT	LS	LS		
939-8500	TRAINING - COMMUNICATION AND ELECTRONIC EQUIPMENT	LS	LS		

GRESHAM SMITH AND PARTNERS

REVISION DATES

ITS PLANS
SUMMARY OF QUANTITIES
SR 324/ GRAVEL SPRINGS RD
COUNTY: GWINNETT

CHECKED: DATE:
BACKCHECKED: DATE:
CORRECTED: DATE:
VERIFIED: DATE:

DRAWING No. 28-0005

7/31/2015 GPLN

Appendix C: Synchro, HCS, and Signal Timing

HCS7 Multilane Highway Report

Project Information

Analyst	Lowe Engineers	Date	9/14/2018
Agency		Analysis Year	2021
Jurisdiction	Gwinnett County	Time Period Analyzed	Background AM
Project Description	DRI 2834 - The Exchange at Gwinnett - Segment 1		

Direction 1 Geometric Data

Direction 1	NB		
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	50.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Left-Side Lateral Clearance (LC_R), ft	6
Median Type	Divided	Total Lateral Clearance (TLC), ft	12.00
Access Point Density, pts/mi	10.0	Free-Flow Speed (FFS), mi/h	47.5

Direction 1 Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Driver Population SAF	1.000	Final Capacity Adjustment Factor (CAF)	1.000
Driver Population CAF	1.000		

Direction 1 Demand and Capacity

Volume(V) veh/h	1533	Heavy Vehicle Adjustment Factor (f_{HV})	0.956
Peak Hour Factor	0.96	Flow Rate (V_p), pc/h/ln	557
Total Trucks, %	4.64	Capacity (c), pc/h/ln	1950
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	1950
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.29

Direction 1 Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	47.5
Total Lateral Clearance Adj. (f_{LLC})	0.0	Density (D), pc/mi/ln	11.7
Median Type Adjustment (f_M)	0.0	Level of Service (LOS)	B
Access Point Density Adjustment (f_A)	2.5		

Direction 1 Bicycle LOS

Flow Rate in Outside Lane (v_{OL}),veh/h	532	Effective Speed Factor (S_t)	4.62
Effective Width of Volume (W_v), ft	18	Bicyle LOS Score (BLOS)	3.53
Average Effective Width (W_e), ft	24	Bicycle Level of Service (LOS)	D

HCS7 Multilane Highway Report

Project Information

Analyst	Lowe Engineers	Date	9/14/2018
Agency		Analysis Year	2021
Jurisdiction	Gwinnett County	Time Period Analyzed	Background AM
Project Description	DRI 2834 - The Exchange at Gwinnett - Segment 1		

Direction 2 Geometric Data

Direction 2	SB		
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	50.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Left-Side Lateral Clearance (LC_R), ft	6
Median Type	Divided	Total Lateral Clearance (TLC), ft	12.00
Access Point Density, pts/mi	20.0	Free-Flow Speed (FFS), mi/h	45.0

Direction 2 Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Driver Population SAF	1.000	Final Capacity Adjustment Factor (CAF)	1.000
Driver Population CAF	1.000		

Direction 2 Demand and Capacity

Volume(V) veh/h	1210	Heavy Vehicle Adjustment Factor (f_{HV})	0.956
Peak Hour Factor	0.87	Flow Rate (V_p), pc/h/ln	485
Total Trucks, %	4.64	Capacity (c), pc/h/ln	1900
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	1900
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.26

Direction 2 Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	45.0
Total Lateral Clearance Adj. (f_{LLC})	0.0	Density (D), pc/mi/ln	10.8
Median Type Adjustment (f_M)	0.0	Level of Service (LOS)	A
Access Point Density Adjustment (f_A)	5.0		

Direction 2 Bicycle LOS

Flow Rate in Outside Lane (v_{OL}),veh/h	464	Effective Speed Factor (S_t)	4.62
Effective Width of Volume (W_v), ft	18	Bicyle LOS Score (BLOS)	3.46
Average Effective Width (W_e), ft	24	Bicycle Level of Service (LOS)	C

HCS7 Multilane Highway Report

Project Information

Analyst	Lowe Engineers	Date	9/14/2018
Agency		Analysis Year	2021
Jurisdiction	Gwinnett County	Time Period Analyzed	Background PM
Project Description	DRI 2834 - The Exchange at Gwinnett - Segment 1		

Direction 1 Geometric Data

Direction 1	NB		
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	50.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Left-Side Lateral Clearance (LC_R), ft	6
Median Type	Divided	Total Lateral Clearance (TLC), ft	12.00
Access Point Density, pts/mi	10.0	Free-Flow Speed (FFS), mi/h	47.5

Direction 1 Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Driver Population SAF	1.000	Final Capacity Adjustment Factor (CAF)	1.000
Driver Population CAF	1.000		

Direction 1 Demand and Capacity

Volume(V) veh/h	1792	Heavy Vehicle Adjustment Factor (f_{HV})	0.956
Peak Hour Factor	0.90	Flow Rate (V_p), pc/h/ln	694
Total Trucks, %	4.64	Capacity (c), pc/h/ln	1950
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	1950
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.36

Direction 1 Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	47.5
Total Lateral Clearance Adj. (f_{LLC})	0.0	Density (D), pc/mi/ln	14.6
Median Type Adjustment (f_M)	0.0	Level of Service (LOS)	B
Access Point Density Adjustment (f_A)	2.5		

Direction 1 Bicycle LOS

Flow Rate in Outside Lane (v_{OL}),veh/h	664	Effective Speed Factor (S_t)	4.62
Effective Width of Volume (W_v), ft	18	Bicyle LOS Score (BLOS)	3.64
Average Effective Width (W_e), ft	24	Bicycle Level of Service (LOS)	D

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Project Information

Analyst	Lowe Engineers	Date	9/14/2018
Agency		Analysis Year	2021
Jurisdiction	Gwinnett County	Time Period Analyzed	Background PM
Project Description	DRI 2834 - The Exchange at Gwinnett - Segment 1		

Direction 2 Geometric Data

Direction 2	SB		
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	50.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Left-Side Lateral Clearance (LC_R), ft	6
Median Type	Divided	Total Lateral Clearance (TLC), ft	12.00
Access Point Density, pts/mi	20.0	Free-Flow Speed (FFS), mi/h	45.0

Direction 2 Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Driver Population SAF	1.000	Final Capacity Adjustment Factor (CAF)	1.000
Driver Population CAF	1.000		

Direction 2 Demand and Capacity

Volume(V) veh/h	1993	Heavy Vehicle Adjustment Factor (f_{HV})	0.956
Peak Hour Factor	0.87	Flow Rate (V_p), pc/h/ln	799
Total Trucks, %	4.64	Capacity (c), pc/h/ln	1900
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	1900
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.42

Direction 2 Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	45.0
Total Lateral Clearance Adj. (f_{LLC})	0.0	Density (D), pc/mi/ln	17.8
Median Type Adjustment (f_M)	0.0	Level of Service (LOS)	B
Access Point Density Adjustment (f_A)	5.0		

Direction 2 Bicycle LOS

Flow Rate in Outside Lane (v_{OL}),veh/h	764	Effective Speed Factor (S_t)	4.62
Effective Width of Volume (W_v), ft	18	Bicyle LOS Score (BLOS)	3.71
Average Effective Width (W_e), ft	24	Bicycle Level of Service (LOS)	D

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Project Information

Analyst	Lowe Engineers	Date	9/14/2018
Agency		Analysis Year	2021
Jurisdiction	Gwinnett County	Time Period Analyzed	Background AM
Project Description	DRI 2834 - The Exchange at Gwinnett - Segment 2		

Direction 1 Geometric Data

Direction 1	NB		
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	50.0	Total Ramp Density (TRD), ramps/mi	-
Lane Width, ft	-	Left-Side Lateral Clearance (LC_R), ft	-
Median Type	-	Total Lateral Clearance (TLC), ft	-
Access Point Density, pts/mi	-	Free-Flow Speed (FFS), mi/h	50.0

Direction 1 Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Driver Population SAF	1.000	Final Capacity Adjustment Factor (CAF)	1.000
Driver Population CAF	1.000		

Direction 1 Demand and Capacity

Volume(V) veh/h	1803	Heavy Vehicle Adjustment Factor (f_{HV})	0.956
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	669
Total Trucks, %	4.64	Capacity (c), pc/h/ln	2000
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2000
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.33

Direction 1 Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	50.0
Total Lateral Clearance Adj. (f_{LLC})	-	Density (D), pc/mi/ln	13.4
Median Type Adjustment (f_M)	-	Level of Service (LOS)	B
Access Point Density Adjustment (f_A)	-		

Direction 1 Bicycle LOS

Flow Rate in Outside Lane (v_{OL}),veh/h	639	Effective Speed Factor (S_t)	4.62
Effective Width of Volume (W_v), ft	18	Bicyle LOS Score (BLOS)	3.62
Average Effective Width (W_e), ft	24	Bicycle Level of Service (LOS)	D

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Project Information

Analyst	Lowe Engineers	Date	9/14/2018
Agency		Analysis Year	2021
Jurisdiction	Gwinnett County	Time Period Analyzed	Background AM
Project Description	DRI 2834 - The Exchange at Gwinnett - Segment 2		

Direction 2 Geometric Data

Direction 2	SB		
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	50.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Left-Side Lateral Clearance (LC_R), ft	6
Median Type	Divided	Total Lateral Clearance (TLC), ft	12.00
Access Point Density, pts/mi	0.0	Free-Flow Speed (FFS), mi/h	50.0

Direction 2 Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Driver Population SAF	1.000	Final Capacity Adjustment Factor (CAF)	1.000
Driver Population CAF	1.000		

Direction 2 Demand and Capacity

Volume(V) veh/h	1724	Heavy Vehicle Adjustment Factor (f_{HV})	0.956
Peak Hour Factor	0.85	Flow Rate (V_p), pc/h/ln	707
Total Trucks, %	4.64	Capacity (c), pc/h/ln	2000
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2000
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.35

Direction 2 Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	50.0
Total Lateral Clearance Adj. (f_{LLC})	0.0	Density (D), pc/mi/ln	14.1
Median Type Adjustment (f_M)	0.0	Level of Service (LOS)	B
Access Point Density Adjustment (f_A)	0.0		

Direction 2 Bicycle LOS

Flow Rate in Outside Lane (v_{OL}),veh/h	676	Effective Speed Factor (S_t)	4.62
Effective Width of Volume (W_v), ft	18	Bicyle LOS Score (BLOS)	3.65
Average Effective Width (W_e), ft	24	Bicycle Level of Service (LOS)	D

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Project Information

Analyst	Lowe Engineers	Date	9/14/2018
Agency		Analysis Year	2021
Jurisdiction	Gwinnett County	Time Period Analyzed	Background PM
Project Description	DRI 2834 - The Exchange at Gwinnett - Segment 2		

Direction 1 Geometric Data

Direction 1	NB		
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	50.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Left-Side Lateral Clearance (LC_R), ft	6
Median Type	Divided	Total Lateral Clearance (TLC), ft	12.00
Access Point Density, pts/mi	5.0	Free-Flow Speed (FFS), mi/h	48.8

Direction 1 Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Driver Population SAF	1.000	Final Capacity Adjustment Factor (CAF)	1.000
Driver Population CAF	1.000		

Direction 1 Demand and Capacity

Volume(V) veh/h	2715	Heavy Vehicle Adjustment Factor (f_{HV})	0.956
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	996
Total Trucks, %	4.64	Capacity (c), pc/h/ln	1976
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	1976
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.50

Direction 1 Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	48.8
Total Lateral Clearance Adj. (f_{LLC})	0.0	Density (D), pc/mi/ln	20.4
Median Type Adjustment (f_M)	0.0	Level of Service (LOS)	C
Access Point Density Adjustment (f_A)	1.3		

Direction 1 Bicycle LOS

Flow Rate in Outside Lane (v_{OL}),veh/h	953	Effective Speed Factor (S_t)	4.62
Effective Width of Volume (W_v), ft	18	Bicyle LOS Score (BLOS)	3.83
Average Effective Width (W_e), ft	24	Bicycle Level of Service (LOS)	D

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Project Information

Analyst	Lowe Engineers	Date	9/14/2018
Agency		Analysis Year	2021
Jurisdiction	Gwinnett County	Time Period Analyzed	Background PM
Project Description	DRI 2834 - The Exchange at Gwinnett - Segment 2		

Direction 2 Geometric Data

Direction 2	SB		
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	50.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Left-Side Lateral Clearance (LC_R), ft	6
Median Type	Divided	Total Lateral Clearance (TLC), ft	12.00
Access Point Density, pts/mi	0.0	Free-Flow Speed (FFS), mi/h	50.0

Direction 2 Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Driver Population SAF	1.000	Final Capacity Adjustment Factor (CAF)	1.000
Driver Population CAF	1.000		

Direction 2 Demand and Capacity

Volume(V) veh/h	2518	Heavy Vehicle Adjustment Factor (f_{HV})	0.956
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	924
Total Trucks, %	4.64	Capacity (c), pc/h/ln	2000
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2000
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.46

Direction 2 Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	50.0
Total Lateral Clearance Adj. (f_{LLC})	0.0	Density (D), pc/mi/ln	18.5
Median Type Adjustment (f_M)	0.0	Level of Service (LOS)	C
Access Point Density Adjustment (f_A)	0.0		

Direction 2 Bicycle LOS

Flow Rate in Outside Lane (v_{OL}),veh/h	884	Effective Speed Factor (S_t)	4.62
Effective Width of Volume (W_v), ft	18	Bicyle LOS Score (BLOS)	3.79
Average Effective Width (W_e), ft	24	Bicycle Level of Service (LOS)	D

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Project Information

Analyst	Lowe Engineers	Date	9/14/2018
Agency		Analysis Year	2021
Jurisdiction	Gwinnett County	Time Period Analyzed	Background AM
Project Description	DRI 2834 - The Exchange at Gwinnett - Segment 3		

Direction 1 Geometric Data

Direction 1	NB		
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	50.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Left-Side Lateral Clearance (LC_R), ft	6
Median Type	Divided	Total Lateral Clearance (TLC), ft	12.00
Access Point Density, pts/mi	0.0	Free-Flow Speed (FFS), mi/h	50.0

Direction 1 Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Driver Population SAF	1.000	Final Capacity Adjustment Factor (CAF)	1.000
Driver Population CAF	1.000		

Direction 1 Demand and Capacity

Volume(V) veh/h	1956	Heavy Vehicle Adjustment Factor (f_{HV})	0.956
Peak Hour Factor	0.90	Flow Rate (V_p), pc/h/ln	758
Total Trucks, %	4.64	Capacity (c), pc/h/ln	2000
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2000
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.38

Direction 1 Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	50.0
Total Lateral Clearance Adj. (f_{LLC})	0.0	Density (D), pc/mi/ln	15.2
Median Type Adjustment (f_M)	0.0	Level of Service (LOS)	B
Access Point Density Adjustment (f_A)	0.0		

Direction 1 Bicycle LOS

Flow Rate in Outside Lane (v_{OL}),veh/h	724	Effective Speed Factor (S_t)	4.62
Effective Width of Volume (W_v), ft	18	Bicyle LOS Score (BLOS)	3.69
Average Effective Width (W_e), ft	24	Bicycle Level of Service (LOS)	D

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Project Information

Analyst	Lowe Engineers	Date	9/14/2018
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Jurisdiction	Gwinnett County	Time Period Analyzed	Background AM
Project Description	DRI 2834 - The Exchange at Gwinnett - Segment 3		

Direction 2 Geometric Data

Direction 2	SB		
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	50.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Left-Side Lateral Clearance (LC_R), ft	6
Median Type	Divided	Total Lateral Clearance (TLC), ft	12.00
Access Point Density, pts/mi	0.0	Free-Flow Speed (FFS), mi/h	50.0

Direction 2 Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Driver Population SAF	1.000	Final Capacity Adjustment Factor (CAF)	1.000
Driver Population CAF	1.000		

Direction 2 Demand and Capacity

Volume(V) veh/h	1463	Heavy Vehicle Adjustment Factor (f_{HV})	0.956
Peak Hour Factor	0.82	Flow Rate (V_p), pc/h/ln	622
Total Trucks, %	4.64	Capacity (c), pc/h/ln	2000
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2000
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.31

Direction 2 Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	50.0
Total Lateral Clearance Adj. (f_{LLC})	0.0	Density (D), pc/mi/ln	12.4
Median Type Adjustment (f_M)	0.0	Level of Service (LOS)	B
Access Point Density Adjustment (f_A)	0.0		

Direction 2 Bicycle LOS

Flow Rate in Outside Lane (v_{OL}),veh/h	595	Effective Speed Factor (S_t)	4.62
Effective Width of Volume (W_v), ft	18	Bicyle LOS Score (BLOS)	3.59
Average Effective Width (W_e), ft	24	Bicycle Level of Service (LOS)	D

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Project Information

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Jurisdiction	Gwinnett County	Time Period Analyzed	Background PM
Project Description	DRI 2834 - The Exchange at Gwinnett - Segment 3		

Direction 1 Geometric Data

Direction 1	NB		
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	50.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Left-Side Lateral Clearance (LC_R), ft	6
Median Type	Divided	Total Lateral Clearance (TLC), ft	12.00
Access Point Density, pts/mi	0.0	Free-Flow Speed (FFS), mi/h	50.0

Direction 1 Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Driver Population SAF	1.000	Final Capacity Adjustment Factor (CAF)	1.000
Driver Population CAF	1.000		

Direction 1 Demand and Capacity

Volume(V) veh/h	2457	Heavy Vehicle Adjustment Factor (f_{HV})	0.956
Peak Hour Factor	0.97	Flow Rate (V_p), pc/h/ln	883
Total Trucks, %	4.64	Capacity (c), pc/h/ln	2000
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2000
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.44

Direction 1 Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	50.0
Total Lateral Clearance Adj. (f_{LLC})	0.0	Density (D), pc/mi/ln	17.7
Median Type Adjustment (f_M)	0.0	Level of Service (LOS)	B
Access Point Density Adjustment (f_A)	0.0		

Direction 1 Bicycle LOS

Flow Rate in Outside Lane (v_{OL}),veh/h	844	Effective Speed Factor (S_t)	4.62
Effective Width of Volume (W_v), ft	18	Bicyle LOS Score (BLOS)	3.77
Average Effective Width (W_e), ft	24	Bicycle Level of Service (LOS)	D

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Project Information

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Jurisdiction	Gwinnett County	Time Period Analyzed	Background PM
Project Description	DRI 2834 - The Exchange at Gwinnett - Segment 3		

Direction 2 Geometric Data

Direction 2	SB		
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	50.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Left-Side Lateral Clearance (LC_R), ft	6
Median Type	Divided	Total Lateral Clearance (TLC), ft	12.00
Access Point Density, pts/mi	0.0	Free-Flow Speed (FFS), mi/h	50.0

Direction 2 Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Driver Population SAF	1.000	Final Capacity Adjustment Factor (CAF)	1.000
Driver Population CAF	1.000		

Direction 2 Demand and Capacity

Volume(V) veh/h	2326	Heavy Vehicle Adjustment Factor (f_{HV})	0.956
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	863
Total Trucks, %	4.64	Capacity (c), pc/h/ln	2000
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2000
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.43

Direction 2 Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	50.0
Total Lateral Clearance Adj. (f_{LLC})	0.0	Density (D), pc/mi/ln	17.3
Median Type Adjustment (f_M)	0.0	Level of Service (LOS)	B
Access Point Density Adjustment (f_A)	0.0		

Direction 2 Bicycle LOS

Flow Rate in Outside Lane (v_{OL}),veh/h	825	Effective Speed Factor (S_t)	4.62
Effective Width of Volume (W_v), ft	18	Bicyle LOS Score (BLOS)	3.75
Average Effective Width (W_e), ft	24	Bicycle Level of Service (LOS)	D

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Project Information

Analyst	Lowe Engineers	Date	9/14/2018
Agency		Analysis Year	2021
Jurisdiction	Gwinnett County	Time Period Analyzed	Background AM
Project Description	DRI 2834 - The Exchange at Gwinnett - Segment 4		

Direction 1 Geometric Data

Direction 1	NB		
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	45.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Left-Side Lateral Clearance (LC_R), ft	6
Median Type	Divided	Total Lateral Clearance (TLC), ft	12.00
Access Point Density, pts/mi	0.0	Free-Flow Speed (FFS), mi/h	45.0

Direction 1 Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Driver Population SAF	1.000	Final Capacity Adjustment Factor (CAF)	1.000
Driver Population CAF	1.000		

Direction 1 Demand and Capacity

Volume(V) veh/h	1985	Heavy Vehicle Adjustment Factor (f_{HV})	0.927
Peak Hour Factor	0.90	Flow Rate (V_p), pc/h/ln	1190
Total Trucks, %	7.91	Capacity (c), pc/h/ln	1900
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	1900
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.63

Direction 1 Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	45.0
Total Lateral Clearance Adj. (f_{LLC})	0.0	Density (D), pc/mi/ln	26.4
Median Type Adjustment (f_M)	0.0	Level of Service (LOS)	D
Access Point Density Adjustment (f_A)	0.0		

Direction 1 Bicycle LOS

Flow Rate in Outside Lane (v_{OL}),veh/h	1103	Effective Speed Factor (S_t)	4.62
Effective Width of Volume (W_v), ft	18	Bicyle LOS Score (BLOS)	4.94
Average Effective Width (W_e), ft	24	Bicycle Level of Service (LOS)	E

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Project Information

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Jurisdiction	Gwinnett County	Time Period Analyzed	Background AM
Project Description	DRI 2834 - The Exchange at Gwinnett - Segment 4		

Direction 2 Geometric Data

Direction 2	SB		
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	45.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Left-Side Lateral Clearance (LC_R), ft	6
Median Type	Divided	Total Lateral Clearance (TLC), ft	12.00
Access Point Density, pts/mi	5.0	Free-Flow Speed (FFS), mi/h	43.8

Direction 2 Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Driver Population SAF	1.000	Final Capacity Adjustment Factor (CAF)	1.000
Driver Population CAF	1.000		

Direction 2 Demand and Capacity

Volume(V) veh/h	1489	Heavy Vehicle Adjustment Factor (f_{HV})	0.927
Peak Hour Factor	0.84	Flow Rate (V_p), pc/h/ln	637
Total Trucks, %	7.91	Capacity (c), pc/h/ln	1900
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	1900
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.34

Direction 2 Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	43.8
Total Lateral Clearance Adj. (f_{LLC})	0.0	Density (D), pc/mi/ln	14.5
Median Type Adjustment (f_M)	0.0	Level of Service (LOS)	B
Access Point Density Adjustment (f_A)	1.3		

Direction 2 Bicycle LOS

Flow Rate in Outside Lane (v_{OL}),veh/h	591	Effective Speed Factor (S_t)	4.62
Effective Width of Volume (W_v), ft	18	Bicyle LOS Score (BLOS)	4.62
Average Effective Width (W_e), ft	24	Bicycle Level of Service (LOS)	E

HCS7 Multilane Highway Report

Project Information

Analyst	Lowe Engineers	Date	9/14/2018
Agency		Analysis Year	2021
Jurisdiction	Gwinnett County	Time Period Analyzed	Background PM
Project Description	DRI 2834 - The Exchange at Gwinnett - Segment 4		

Direction 1 Geometric Data

Direction 1	NB		
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	45.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Left-Side Lateral Clearance (LC_R), ft	6
Median Type	Divided	Total Lateral Clearance (TLC), ft	12.00
Access Point Density, pts/mi	0.0	Free-Flow Speed (FFS), mi/h	45.0

Direction 1 Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Driver Population SAF	1.000	Final Capacity Adjustment Factor (CAF)	1.000
Driver Population CAF	1.000		

Direction 1 Demand and Capacity

Volume(V) veh/h	2194	Heavy Vehicle Adjustment Factor (f_{HV})	0.927
Peak Hour Factor	0.96	Flow Rate (V_p), pc/h/ln	1232
Total Trucks, %	7.91	Capacity (c), pc/h/ln	1900
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	1900
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.65

Direction 1 Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	45.0
Total Lateral Clearance Adj. (f_{LLC})	0.0	Density (D), pc/mi/ln	27.4
Median Type Adjustment (f_M)	0.0	Level of Service (LOS)	D
Access Point Density Adjustment (f_A)	0.0		

Direction 1 Bicycle LOS

Flow Rate in Outside Lane (v_{OL}),veh/h	1143	Effective Speed Factor (S_t)	4.62
Effective Width of Volume (W_v), ft	18	Bicyle LOS Score (BLOS)	4.95
Average Effective Width (W_e), ft	24	Bicycle Level of Service (LOS)	E

HCS7 Multilane Highway Report

Project Information

Analyst	Lowe Engineers	Date	9/14/2018
Agency		Analysis Year	2021
Jurisdiction	Gwinnett County	Time Period Analyzed	Background PM
Project Description	DRI 2834 - The Exchange at Gwinnett - Segment 4		

Direction 2 Geometric Data

Direction 2	SB		
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	45.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Left-Side Lateral Clearance (LC_R), ft	6
Median Type	Divided	Total Lateral Clearance (TLC), ft	12.00
Access Point Density, pts/mi	5.0	Free-Flow Speed (FFS), mi/h	43.8

Direction 2 Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Driver Population SAF	1.000	Final Capacity Adjustment Factor (CAF)	1.000
Driver Population CAF	1.000		

Direction 2 Demand and Capacity

Volume(V) veh/h	2164	Heavy Vehicle Adjustment Factor (f_{HV})	0.927
Peak Hour Factor	0.93	Flow Rate (V_p), pc/h/ln	837
Total Trucks, %	7.91	Capacity (c), pc/h/ln	1900
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	1900
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.44

Direction 2 Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	43.8
Total Lateral Clearance Adj. (f_{LLC})	0.0	Density (D), pc/mi/ln	19.1
Median Type Adjustment (f_M)	0.0	Level of Service (LOS)	C
Access Point Density Adjustment (f_A)	1.3		

Direction 2 Bicycle LOS

Flow Rate in Outside Lane (v_{OL}),veh/h	776	Effective Speed Factor (S_t)	4.62
Effective Width of Volume (W_v), ft	18	Bicyle LOS Score (BLOS)	4.76
Average Effective Width (W_e), ft	24	Bicycle Level of Service (LOS)	E

HCS7 Multilane Highway Report

Project Information

Analyst	Lowe Engineers	Date	9/14/2018
Agency		Analysis Year	2021
Jurisdiction	Gwinnett County	Time Period Analyzed	Background AM
Project Description	DRI 2834 - The Exchange at Gwinnett - Segment 5		

Direction 1 Geometric Data

Direction 1	NB		
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	45.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Left-Side Lateral Clearance (LC_R), ft	6
Median Type	Divided	Total Lateral Clearance (TLC), ft	12.00
Access Point Density, pts/mi	4.0	Free-Flow Speed (FFS), mi/h	44.0

Direction 1 Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Driver Population SAF	1.000	Final Capacity Adjustment Factor (CAF)	1.000
Driver Population CAF	1.000		

Direction 1 Demand and Capacity

Volume(V) veh/h	1942	Heavy Vehicle Adjustment Factor (f_{HV})	0.927
Peak Hour Factor	0.90	Flow Rate (V_p), pc/h/ln	1164
Total Trucks, %	7.91	Capacity (c), pc/h/ln	1900
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	1900
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.61

Direction 1 Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	44.0
Total Lateral Clearance Adj. (f_{LLC})	0.0	Density (D), pc/mi/ln	26.5
Median Type Adjustment (f_M)	0.0	Level of Service (LOS)	D
Access Point Density Adjustment (f_A)	1.0		

Direction 1 Bicycle LOS

Flow Rate in Outside Lane (v_{OL}),veh/h	1079	Effective Speed Factor (S_t)	4.62
Effective Width of Volume (W_v), ft	18	Bicyle LOS Score (BLOS)	4.93
Average Effective Width (W_e), ft	24	Bicycle Level of Service (LOS)	E

HCS7 Multilane Highway Report

Project Information

Analyst	Lowe Engineers	Date	9/14/2018
Agency		Analysis Year	2021
Jurisdiction	Gwinnett County	Time Period Analyzed	Background AM
Project Description	DRI 2834 - The Exchange at Gwinnett - Segment 5		

Direction 2 Geometric Data

Direction 2	SB		
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	45.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Left-Side Lateral Clearance (LC_R), ft	6
Median Type	Divided	Total Lateral Clearance (TLC), ft	12.00
Access Point Density, pts/mi	4.0	Free-Flow Speed (FFS), mi/h	44.0

Direction 2 Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Driver Population SAF	1.000	Final Capacity Adjustment Factor (CAF)	1.000
Driver Population CAF	1.000		

Direction 2 Demand and Capacity

Volume(V) veh/h	1536	Heavy Vehicle Adjustment Factor (f_{HV})	0.927
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	882
Total Trucks, %	7.91	Capacity (c), pc/h/ln	1900
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	1900
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.46

Direction 2 Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	44.0
Total Lateral Clearance Adj. (f_{LLC})	0.0	Density (D), pc/mi/ln	20.0
Median Type Adjustment (f_M)	0.0	Level of Service (LOS)	C
Access Point Density Adjustment (f_A)	1.0		

Direction 2 Bicycle LOS

Flow Rate in Outside Lane (v_{OL}),veh/h	817	Effective Speed Factor (S_t)	4.62
Effective Width of Volume (W_v), ft	18	Bicyle LOS Score (BLOS)	4.78
Average Effective Width (W_e), ft	24	Bicycle Level of Service (LOS)	E

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Project Information

Analyst	Lowe Engineers	Date	9/14/2018
Agency		Analysis Year	2021
Jurisdiction	Gwinnett County	Time Period Analyzed	Background PM
Project Description	DRI 2834 - The Exchange at Gwinnett - Segment 5		

Direction 1 Geometric Data

Direction 1	NB		
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	45.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Left-Side Lateral Clearance (LC_R), ft	6
Median Type	Divided	Total Lateral Clearance (TLC), ft	12.00
Access Point Density, pts/mi	4.0	Free-Flow Speed (FFS), mi/h	44.0

Direction 1 Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Driver Population SAF	1.000	Final Capacity Adjustment Factor (CAF)	1.000
Driver Population CAF	1.000		

Direction 1 Demand and Capacity

Volume(V) veh/h	2130	Heavy Vehicle Adjustment Factor (f_{HV})	0.927
Peak Hour Factor	0.96	Flow Rate (V_p), pc/h/ln	1196
Total Trucks, %	7.91	Capacity (c), pc/h/ln	1900
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	1900
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.63

Direction 1 Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	44.0
Total Lateral Clearance Adj. (f_{LLC})	0.0	Density (D), pc/mi/ln	27.2
Median Type Adjustment (f_M)	0.0	Level of Service (LOS)	D
Access Point Density Adjustment (f_A)	1.0		

Direction 1 Bicycle LOS

Flow Rate in Outside Lane (v_{OL}),veh/h	1109	Effective Speed Factor (S_t)	4.62
Effective Width of Volume (W_v), ft	18	Bicyle LOS Score (BLOS)	4.94
Average Effective Width (W_e), ft	24	Bicycle Level of Service (LOS)	E

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Project Information

Analyst	Lowe Engineers	Date	9/14/2018
Agency		Analysis Year	2021
Jurisdiction	Gwinnett County	Time Period Analyzed	Background PM
Project Description	DRI 2834 - The Exchange at Gwinnett - Segment 5		

Direction 2 Geometric Data

Direction 2	SB		
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	45.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Left-Side Lateral Clearance (LC_R), ft	6
Median Type	Divided	Total Lateral Clearance (TLC), ft	12.00
Access Point Density, pts/mi	4.0	Free-Flow Speed (FFS), mi/h	44.0

Direction 2 Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Driver Population SAF	1.000	Final Capacity Adjustment Factor (CAF)	1.000
Driver Population CAF	1.000		

Direction 2 Demand and Capacity

Volume(V) veh/h	2100	Heavy Vehicle Adjustment Factor (f_{HV})	0.927
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	1205
Total Trucks, %	7.91	Capacity (c), pc/h/ln	1900
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	1900
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.63

Direction 2 Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	44.0
Total Lateral Clearance Adj. (f_{LLC})	0.0	Density (D), pc/mi/ln	27.4
Median Type Adjustment (f_M)	0.0	Level of Service (LOS)	D
Access Point Density Adjustment (f_A)	1.0		

Direction 2 Bicycle LOS

Flow Rate in Outside Lane (v_{OL}),veh/h	1117	Effective Speed Factor (S_t)	4.62
Effective Width of Volume (W_v), ft	18	Bicyle LOS Score (BLOS)	4.94
Average Effective Width (W_e), ft	24	Bicycle Level of Service (LOS)	E

HCS7 Multilane Highway Report

Project Information

Analyst	Lowe Engineers	Date	9/14/2018
Agency		Analysis Year	2021
Jurisdiction	Gwinnett County	Time Period Analyzed	Background AM
Project Description	DRI 2834 - The Exchange at Gwinnett - Segment 6		

Direction 1 Geometric Data

Direction 1	NB		
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	45.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Left-Side Lateral Clearance (LC_R), ft	6
Median Type	Divided	Total Lateral Clearance (TLC), ft	12.00
Access Point Density, pts/mi	0.0	Free-Flow Speed (FFS), mi/h	45.0

Direction 1 Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Driver Population SAF	1.000	Final Capacity Adjustment Factor (CAF)	1.000
Driver Population CAF	1.000		

Direction 1 Demand and Capacity

Volume(V) veh/h	1595	Heavy Vehicle Adjustment Factor (f_{HV})	0.927
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	906
Total Trucks, %	7.91	Capacity (c), pc/h/ln	1900
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	1900
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.48

Direction 1 Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	45.0
Total Lateral Clearance Adj. (f_{LLC})	0.0	Density (D), pc/mi/ln	20.1
Median Type Adjustment (f_M)	0.0	Level of Service (LOS)	C
Access Point Density Adjustment (f_A)	0.0		

Direction 1 Bicycle LOS

Flow Rate in Outside Lane (v_{OL}),veh/h	839	Effective Speed Factor (S_t)	4.62
Effective Width of Volume (W_v), ft	18	Bicyle LOS Score (BLOS)	4.80
Average Effective Width (W_e), ft	24	Bicycle Level of Service (LOS)	E

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Project Information

Analyst	Lowe Engineers	Date	9/14/2018
Agency		Analysis Year	2021
Jurisdiction	Gwinnett County	Time Period Analyzed	Background AM
Project Description	DRI 2834 - The Exchange at Gwinnett - Segment 6		

Direction 2 Geometric Data

Direction 2	SB		
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	45.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Left-Side Lateral Clearance (LC_R), ft	6
Median Type	Divided	Total Lateral Clearance (TLC), ft	12.00
Access Point Density, pts/mi	5.0	Free-Flow Speed (FFS), mi/h	43.8

Direction 2 Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Driver Population SAF	1.000	Final Capacity Adjustment Factor (CAF)	1.000
Driver Population CAF	1.000		

Direction 2 Demand and Capacity

Volume(V) veh/h	1504	Heavy Vehicle Adjustment Factor (f_{HV})	0.927
Peak Hour Factor	0.88	Flow Rate (V_p), pc/h/ln	922
Total Trucks, %	7.91	Capacity (c), pc/h/ln	1900
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	1900
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.49

Direction 2 Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	43.8
Total Lateral Clearance Adj. (f_{LLC})	0.0	Density (D), pc/mi/ln	21.1
Median Type Adjustment (f_M)	0.0	Level of Service (LOS)	C
Access Point Density Adjustment (f_A)	1.3		

Direction 2 Bicycle LOS

Flow Rate in Outside Lane (v_{OL}),veh/h	855	Effective Speed Factor (S_t)	4.62
Effective Width of Volume (W_v), ft	18	Bicyle LOS Score (BLOS)	4.81
Average Effective Width (W_e), ft	24	Bicycle Level of Service (LOS)	E

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Project Information

Analyst	Lowe Engineers	Date	9/14/2018
Agency		Analysis Year	2021
Jurisdiction	Gwinnett County	Time Period Analyzed	Background PM
Project Description	DRI 2834 - The Exchange at Gwinnett - Segment 6		

Direction 1 Geometric Data

Direction 1	NB		
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	45.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Left-Side Lateral Clearance (LC_R), ft	6
Median Type	Divided	Total Lateral Clearance (TLC), ft	12.00
Access Point Density, pts/mi	0.0	Free-Flow Speed (FFS), mi/h	45.0

Direction 1 Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Driver Population SAF	1.000	Final Capacity Adjustment Factor (CAF)	1.000
Driver Population CAF	1.000		

Direction 1 Demand and Capacity

Volume(V) veh/h	1814	Heavy Vehicle Adjustment Factor (f_{HV})	0.927
Peak Hour Factor	0.91	Flow Rate (V_p), pc/h/ln	1075
Total Trucks, %	7.91	Capacity (c), pc/h/ln	1900
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	1900
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.57

Direction 1 Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	45.0
Total Lateral Clearance Adj. (f_{LLC})	0.0	Density (D), pc/mi/ln	23.9
Median Type Adjustment (f_M)	0.0	Level of Service (LOS)	C
Access Point Density Adjustment (f_A)	0.0		

Direction 1 Bicycle LOS

Flow Rate in Outside Lane (v_{OL}),veh/h	997	Effective Speed Factor (S_t)	4.62
Effective Width of Volume (W_v), ft	18	Bicyle LOS Score (BLOS)	4.89
Average Effective Width (W_e), ft	24	Bicycle Level of Service (LOS)	E

HCS7 Multilane Highway Report

Project Information

Analyst	Lowe Engineers	Date	9/14/2018
Agency		Analysis Year	2021
Jurisdiction	Gwinnett County	Time Period Analyzed	Background PM
Project Description	DRI 2834 - The Exchange at Gwinnett - Segment 6		

Direction 2 Geometric Data

Direction 2	SB		
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	45.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Left-Side Lateral Clearance (LC_R), ft	6
Median Type	Divided	Total Lateral Clearance (TLC), ft	12.00
Access Point Density, pts/mi	5.0	Free-Flow Speed (FFS), mi/h	43.8

Direction 2 Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Driver Population SAF	1.000	Final Capacity Adjustment Factor (CAF)	1.000
Driver Population CAF	1.000		

Direction 2 Demand and Capacity

Volume(V) veh/h	1873	Heavy Vehicle Adjustment Factor (f_{HV})	0.927
Peak Hour Factor	0.89	Flow Rate (V_p), pc/h/ln	1135
Total Trucks, %	7.91	Capacity (c), pc/h/ln	1900
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	1900
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.60

Direction 2 Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	43.8
Total Lateral Clearance Adj. (f_{LLC})	0.0	Density (D), pc/mi/ln	25.9
Median Type Adjustment (f_M)	0.0	Level of Service (LOS)	C
Access Point Density Adjustment (f_A)	1.3		

Direction 2 Bicycle LOS

Flow Rate in Outside Lane (v_{OL}),veh/h	1052	Effective Speed Factor (S_t)	4.62
Effective Width of Volume (W_v), ft	18	Bicyle LOS Score (BLOS)	4.91
Average Effective Width (W_e), ft	24	Bicycle Level of Service (LOS)	E

HCS7 Multilane Highway Report

Project Information

Analyst	Lowe Engineers	Date	9/14/2018
Agency		Analysis Year	2021
Jurisdiction	Gwinnett County	Time Period Analyzed	Background AM
Project Description	DRI 2834 - The Exchange at Gwinnett - Segment 7		

Direction 1 Geometric Data

Direction 1	NB		
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	45.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Left-Side Lateral Clearance (LC_R), ft	6
Median Type	Divided	Total Lateral Clearance (TLC), ft	12.00
Access Point Density, pts/mi	0.0	Free-Flow Speed (FFS), mi/h	45.0

Direction 1 Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Driver Population SAF	1.000	Final Capacity Adjustment Factor (CAF)	1.000
Driver Population CAF	1.000		

Direction 1 Demand and Capacity

Volume(V) veh/h	1504	Heavy Vehicle Adjustment Factor (f_{HV})	0.927
Peak Hour Factor	0.97	Flow Rate (V_p), pc/h/ln	836
Total Trucks, %	7.91	Capacity (c), pc/h/ln	1900
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	1900
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.44

Direction 1 Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	45.0
Total Lateral Clearance Adj. (f_{LLC})	0.0	Density (D), pc/mi/ln	18.6
Median Type Adjustment (f_M)	0.0	Level of Service (LOS)	C
Access Point Density Adjustment (f_A)	0.0		

Direction 1 Bicycle LOS

Flow Rate in Outside Lane (v_{OL}),veh/h	775	Effective Speed Factor (S_t)	4.62
Effective Width of Volume (W_v), ft	18	Bicyle LOS Score (BLOS)	4.76
Average Effective Width (W_e), ft	24	Bicycle Level of Service (LOS)	E

HCS7 Multilane Highway Report

Project Information

Analyst	Lowe Engineers	Date	9/14/2018
Agency		Analysis Year	2021
Jurisdiction	Gwinnett County	Time Period Analyzed	Background AM
Project Description	DRI 2834 - The Exchange at Gwinnett - Segment 7		

Direction 2 Geometric Data

Direction 2	SB		
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	45.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Left-Side Lateral Clearance (LC_R), ft	6
Median Type	Divided	Total Lateral Clearance (TLC), ft	12.00
Access Point Density, pts/mi	3.3	Free-Flow Speed (FFS), mi/h	44.2

Direction 2 Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Driver Population SAF	1.000	Final Capacity Adjustment Factor (CAF)	1.000
Driver Population CAF	1.000		

Direction 2 Demand and Capacity

Volume(V) veh/h	1396	Heavy Vehicle Adjustment Factor (f_{HV})	0.927
Peak Hour Factor	0.86	Flow Rate (V_p), pc/h/ln	876
Total Trucks, %	7.91	Capacity (c), pc/h/ln	1900
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	1900
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.46

Direction 2 Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	44.2
Total Lateral Clearance Adj. (f_{LLC})	0.0	Density (D), pc/mi/ln	19.8
Median Type Adjustment (f_M)	0.0	Level of Service (LOS)	C
Access Point Density Adjustment (f_A)	0.8		

Direction 2 Bicycle LOS

Flow Rate in Outside Lane (v_{OL}),veh/h	812	Effective Speed Factor (S_t)	4.62
Effective Width of Volume (W_v), ft	18	Bicyle LOS Score (BLOS)	4.78
Average Effective Width (W_e), ft	24	Bicycle Level of Service (LOS)	E

HCS7 Multilane Highway Report

Project Information

Analyst	Lowe Engineers	Date	9/14/2018
Agency		Analysis Year	2021
Jurisdiction	Gwinnett County	Time Period Analyzed	Background PM
Project Description	DRI 2834 - The Exchange at Gwinnett - Segment 7		

Direction 1 Geometric Data

Direction 1	NB		
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	45.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Left-Side Lateral Clearance (LC_R), ft	6
Median Type	Divided	Total Lateral Clearance (TLC), ft	12.00
Access Point Density, pts/mi	0.0	Free-Flow Speed (FFS), mi/h	45.0

Direction 1 Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Driver Population SAF	1.000	Final Capacity Adjustment Factor (CAF)	1.000
Driver Population CAF	1.000		

Direction 1 Demand and Capacity

Volume(V) veh/h	1693	Heavy Vehicle Adjustment Factor (f_{HV})	0.927
Peak Hour Factor	0.96	Flow Rate (V_p), pc/h/ln	951
Total Trucks, %	7.91	Capacity (c), pc/h/ln	1900
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	1900
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.50

Direction 1 Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	45.0
Total Lateral Clearance Adj. (f_{LLC})	0.0	Density (D), pc/mi/ln	21.1
Median Type Adjustment (f_M)	0.0	Level of Service (LOS)	C
Access Point Density Adjustment (f_A)	0.0		

Direction 1 Bicycle LOS

Flow Rate in Outside Lane (v_{OL}),veh/h	882	Effective Speed Factor (S_t)	4.62
Effective Width of Volume (W_v), ft	18	Bicyle LOS Score (BLOS)	4.82
Average Effective Width (W_e), ft	24	Bicycle Level of Service (LOS)	E

HCS7 Multilane Highway Report

Project Information

Analyst	Lowe Engineers	Date	9/14/2018
Agency		Analysis Year	2021
Jurisdiction	Gwinnett County	Time Period Analyzed	Background PM
Project Description	DRI 2834 - The Exchange at Gwinnett - Segment 7		

Direction 2 Geometric Data

Direction 2	SB		
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	45.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Left-Side Lateral Clearance (LC_R), ft	6
Median Type	Divided	Total Lateral Clearance (TLC), ft	12.00
Access Point Density, pts/mi	3.3	Free-Flow Speed (FFS), mi/h	44.2

Direction 2 Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Driver Population SAF	1.000	Final Capacity Adjustment Factor (CAF)	1.000
Driver Population CAF	1.000		

Direction 2 Demand and Capacity

Volume(V) veh/h	1813	Heavy Vehicle Adjustment Factor (f_{HV})	0.927
Peak Hour Factor	0.97	Flow Rate (V_p), pc/h/ln	1008
Total Trucks, %	7.91	Capacity (c), pc/h/ln	1900
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	1900
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.53

Direction 2 Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	44.2
Total Lateral Clearance Adj. (f_{LLC})	0.0	Density (D), pc/mi/ln	22.8
Median Type Adjustment (f_M)	0.0	Level of Service (LOS)	C
Access Point Density Adjustment (f_A)	0.8		

Direction 2 Bicycle LOS

Flow Rate in Outside Lane (v_{OL}),veh/h	935	Effective Speed Factor (S_t)	4.62
Effective Width of Volume (W_v), ft	18	Bicyle LOS Score (BLOS)	4.85
Average Effective Width (W_e), ft	24	Bicycle Level of Service (LOS)	E

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Project Information

Analyst	Lowe Engineers	Date	9/14/2018
Agency		Analysis Year	2021
Jurisdiction	Gwinnett County	Time Period Analyzed	Background AM
Project Description	DRI 2834 - The Exchange at Gwinnett - Segment 8		

Direction 1 Geometric Data

Direction 1	NB		
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	45.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Left-Side Lateral Clearance (LC_R), ft	6
Median Type	Divided	Total Lateral Clearance (TLC), ft	12.00
Access Point Density, pts/mi	0.0	Free-Flow Speed (FFS), mi/h	45.0

Direction 1 Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Driver Population SAF	1.000	Final Capacity Adjustment Factor (CAF)	1.000
Driver Population CAF	1.000		

Direction 1 Demand and Capacity

Volume(V) veh/h	1510	Heavy Vehicle Adjustment Factor (f_{HV})	0.927
Peak Hour Factor	0.96	Flow Rate (V_p), pc/h/ln	848
Total Trucks, %	7.91	Capacity (c), pc/h/ln	1900
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	1900
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.45

Direction 1 Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	45.0
Total Lateral Clearance Adj. (f_{LLC})	0.0	Density (D), pc/mi/ln	18.8
Median Type Adjustment (f_M)	0.0	Level of Service (LOS)	C
Access Point Density Adjustment (f_A)	0.0		

Direction 1 Bicycle LOS

Flow Rate in Outside Lane (v_{OL}),veh/h	786	Effective Speed Factor (S_t)	4.62
Effective Width of Volume (W_v), ft	18	Bicyle LOS Score (BLOS)	4.76
Average Effective Width (W_e), ft	24	Bicycle Level of Service (LOS)	E

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Project Information

Analyst	Lowe Engineers	Date	9/14/2018
Agency		Analysis Year	2021
Jurisdiction	Gwinnett County	Time Period Analyzed	Background AM
Project Description	DRI 2834 - The Exchange at Gwinnett - Segment 8		

Direction 2 Geometric Data

Direction 2	SB		
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	45.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Left-Side Lateral Clearance (LC_R), ft	6
Median Type	Divided	Total Lateral Clearance (TLC), ft	12.00
Access Point Density, pts/mi	13.3	Free-Flow Speed (FFS), mi/h	41.7

Direction 2 Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Driver Population SAF	1.000	Final Capacity Adjustment Factor (CAF)	1.000
Driver Population CAF	1.000		

Direction 2 Demand and Capacity

Volume(V) veh/h	1370	Heavy Vehicle Adjustment Factor (f_{HV})	0.927
Peak Hour Factor	0.90	Flow Rate (V_p), pc/h/ln	821
Total Trucks, %	7.91	Capacity (c), pc/h/ln	1900
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	1900
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.43

Direction 2 Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	41.7
Total Lateral Clearance Adj. (f_{LLC})	0.0	Density (D), pc/mi/ln	19.7
Median Type Adjustment (f_M)	0.0	Level of Service (LOS)	C
Access Point Density Adjustment (f_A)	3.3		

Direction 2 Bicycle LOS

Flow Rate in Outside Lane (v_{OL}),veh/h	761	Effective Speed Factor (S_t)	4.62
Effective Width of Volume (W_v), ft	18	Bicyle LOS Score (BLOS)	4.75
Average Effective Width (W_e), ft	24	Bicycle Level of Service (LOS)	E

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Project Information

Analyst	Lowe Engineers	Date	9/14/2018
Agency		Analysis Year	2021
Jurisdiction	Gwinnett County	Time Period Analyzed	Background PM
Project Description	DRI 2834 - The Exchange at Gwinnett - Segment 8		

Direction 1 Geometric Data

Direction 1	NB		
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	45.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Left-Side Lateral Clearance (LC_R), ft	6
Median Type	Divided	Total Lateral Clearance (TLC), ft	12.00
Access Point Density, pts/mi	0.0	Free-Flow Speed (FFS), mi/h	45.0

Direction 1 Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Driver Population SAF	1.000	Final Capacity Adjustment Factor (CAF)	1.000
Driver Population CAF	1.000		

Direction 1 Demand and Capacity

Volume(V) veh/h	1726	Heavy Vehicle Adjustment Factor (f_{HV})	0.927
Peak Hour Factor	0.91	Flow Rate (V_p), pc/h/ln	1023
Total Trucks, %	7.91	Capacity (c), pc/h/ln	1900
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	1900
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.54

Direction 1 Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	45.0
Total Lateral Clearance Adj. (f_{LLC})	0.0	Density (D), pc/mi/ln	22.7
Median Type Adjustment (f_M)	0.0	Level of Service (LOS)	C
Access Point Density Adjustment (f_A)	0.0		

Direction 1 Bicycle LOS

Flow Rate in Outside Lane (v_{OL}),veh/h	948	Effective Speed Factor (S_t)	4.62
Effective Width of Volume (W_v), ft	18	Bicyle LOS Score (BLOS)	4.86
Average Effective Width (W_e), ft	24	Bicycle Level of Service (LOS)	E

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Project Information

Analyst	Lowe Engineers	Date	9/14/2018
Agency		Analysis Year	2021
Jurisdiction	Gwinnett County	Time Period Analyzed	Background PM
Project Description	DRI 2834 - The Exchange at Gwinnett - Segment 8		

Direction 2 Geometric Data

Direction 2	SB		
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	45.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Left-Side Lateral Clearance (LC_R), ft	6
Median Type	Divided	Total Lateral Clearance (TLC), ft	12.00
Access Point Density, pts/mi	13.3	Free-Flow Speed (FFS), mi/h	41.7

Direction 2 Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Driver Population SAF	1.000	Final Capacity Adjustment Factor (CAF)	1.000
Driver Population CAF	1.000		

Direction 2 Demand and Capacity

Volume(V) veh/h	1689	Heavy Vehicle Adjustment Factor (f_{HV})	0.927
Peak Hour Factor	0.90	Flow Rate (V_p), pc/h/ln	1012
Total Trucks, %	7.91	Capacity (c), pc/h/ln	1900
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	1900
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.53

Direction 2 Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	41.7
Total Lateral Clearance Adj. (f_{LLC})	0.0	Density (D), pc/mi/ln	24.3
Median Type Adjustment (f_M)	0.0	Level of Service (LOS)	C
Access Point Density Adjustment (f_A)	3.3		

Direction 2 Bicycle LOS

Flow Rate in Outside Lane (v_{OL}),veh/h	938	Effective Speed Factor (S_t)	4.62
Effective Width of Volume (W_v), ft	18	Bicyle LOS Score (BLOS)	4.85
Average Effective Width (W_e), ft	24	Bicycle Level of Service (LOS)	E

HCS7 Multilane Highway Report

Project Information

Analyst	Lowe Engineers	Date	9/14/2018
Agency		Analysis Year	2021
Jurisdiction	Gwinnett County	Time Period Analyzed	Build AM
Project Description	DRI 2834 - The Exchange at Gwinnett - Segment 1		

Direction 1 Geometric Data

Direction 1	NB		
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	50.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Left-Side Lateral Clearance (LC_R), ft	6
Median Type	Divided	Total Lateral Clearance (TLC), ft	12.00
Access Point Density, pts/mi	10.0	Free-Flow Speed (FFS), mi/h	47.5

Direction 1 Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Driver Population SAF	1.000	Final Capacity Adjustment Factor (CAF)	1.000
Driver Population CAF	1.000		

Direction 1 Demand and Capacity

Volume(V) veh/h	1612	Heavy Vehicle Adjustment Factor (f_{HV})	0.956
Peak Hour Factor	0.96	Flow Rate (V_p), pc/h/ln	585
Total Trucks, %	4.64	Capacity (c), pc/h/ln	1950
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	1950
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.30

Direction 1 Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	47.5
Total Lateral Clearance Adj. (f_{LLC})	0.0	Density (D), pc/mi/ln	12.3
Median Type Adjustment (f_M)	0.0	Level of Service (LOS)	B
Access Point Density Adjustment (f_A)	2.5		

Direction 1 Bicycle LOS

Flow Rate in Outside Lane (v_{OL}),veh/h	560	Effective Speed Factor (S_t)	4.62
Effective Width of Volume (W_v), ft	18	Bicyle LOS Score (BLOS)	3.56
Average Effective Width (W_e), ft	24	Bicycle Level of Service (LOS)	D

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Project Information

Analyst	Lowe Engineers	Date	9/14/2018
Agency		Analysis Year	2021
Jurisdiction	Gwinnett County	Time Period Analyzed	Build AM
Project Description	DRI 2834 - The Exchange at Gwinnett - Segment 1		

Direction 2 Geometric Data

Direction 2	SB		
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	50.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Left-Side Lateral Clearance (LC_R), ft	6
Median Type	Divided	Total Lateral Clearance (TLC), ft	12.00
Access Point Density, pts/mi	20.0	Free-Flow Speed (FFS), mi/h	45.0

Direction 2 Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Driver Population SAF	1.000	Final Capacity Adjustment Factor (CAF)	1.000
Driver Population CAF	1.000		

Direction 2 Demand and Capacity

Volume(V) veh/h	1295	Heavy Vehicle Adjustment Factor (f_{HV})	0.956
Peak Hour Factor	0.87	Flow Rate (V_p), pc/h/ln	519
Total Trucks, %	4.64	Capacity (c), pc/h/ln	1900
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	1900
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.27

Direction 2 Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	45.0
Total Lateral Clearance Adj. (f_{LLC})	0.0	Density (D), pc/mi/ln	11.5
Median Type Adjustment (f_M)	0.0	Level of Service (LOS)	B
Access Point Density Adjustment (f_A)	5.0		

Direction 2 Bicycle LOS

Flow Rate in Outside Lane (v_{OL}),veh/h	496	Effective Speed Factor (S_t)	4.62
Effective Width of Volume (W_v), ft	18	Bicyle LOS Score (BLOS)	3.50
Average Effective Width (W_e), ft	24	Bicycle Level of Service (LOS)	C

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Project Information

Analyst	Lowe Engineers	Date	9/14/2018
Agency		Analysis Year	2021
Jurisdiction	Gwinnett County	Time Period Analyzed	Build PM
Project Description	DRI 2834 - The Exchange at Gwinnett - Segment 1		

Direction 1 Geometric Data

Direction 1	NB		
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	50.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Left-Side Lateral Clearance (LC_R), ft	6
Median Type	Divided	Total Lateral Clearance (TLC), ft	12.00
Access Point Density, pts/mi	10.0	Free-Flow Speed (FFS), mi/h	47.5

Direction 1 Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Driver Population SAF	1.000	Final Capacity Adjustment Factor (CAF)	1.000
Driver Population CAF	1.000		

Direction 1 Demand and Capacity

Volume(V) veh/h	1926	Heavy Vehicle Adjustment Factor (f_{HV})	0.956
Peak Hour Factor	0.90	Flow Rate (V_p), pc/h/ln	746
Total Trucks, %	4.64	Capacity (c), pc/h/ln	1950
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	1950
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.38

Direction 1 Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	47.5
Total Lateral Clearance Adj. (f_{LLC})	0.0	Density (D), pc/mi/ln	15.7
Median Type Adjustment (f_M)	0.0	Level of Service (LOS)	B
Access Point Density Adjustment (f_A)	2.5		

Direction 1 Bicycle LOS

Flow Rate in Outside Lane (v_{OL}),veh/h	713	Effective Speed Factor (S_t)	4.62
Effective Width of Volume (W_v), ft	18	Bicyle LOS Score (BLOS)	3.68
Average Effective Width (W_e), ft	24	Bicycle Level of Service (LOS)	D

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Project Information

Analyst	Lowe Engineers	Date	9/14/2018
Agency		Analysis Year	2021
Jurisdiction	Gwinnett County	Time Period Analyzed	Build PM
Project Description	DRI 2834 - The Exchange at Gwinnett - Segment 1		

Direction 2 Geometric Data

Direction 2	SB		
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	50.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Left-Side Lateral Clearance (LC_R), ft	6
Median Type	Divided	Total Lateral Clearance (TLC), ft	12.00
Access Point Density, pts/mi	20.0	Free-Flow Speed (FFS), mi/h	45.0

Direction 2 Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Driver Population SAF	1.000	Final Capacity Adjustment Factor (CAF)	1.000
Driver Population CAF	1.000		

Direction 2 Demand and Capacity

Volume(V) veh/h	2138	Heavy Vehicle Adjustment Factor (f_{HV})	0.956
Peak Hour Factor	0.87	Flow Rate (V_p), pc/h/ln	857
Total Trucks, %	4.64	Capacity (c), pc/h/ln	1900
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	1900
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.45

Direction 2 Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	45.0
Total Lateral Clearance Adj. (f_{LLC})	0.0	Density (D), pc/mi/ln	19.0
Median Type Adjustment (f_M)	0.0	Level of Service (LOS)	C
Access Point Density Adjustment (f_A)	5.0		

Direction 2 Bicycle LOS

Flow Rate in Outside Lane (v_{OL}),veh/h	819	Effective Speed Factor (S_t)	4.62
Effective Width of Volume (W_v), ft	18	Bicyle LOS Score (BLOS)	3.75
Average Effective Width (W_e), ft	24	Bicycle Level of Service (LOS)	D

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Project Information

Analyst	Lowe Engineers	Date	9/14/2018
Agency		Analysis Year	2021
Jurisdiction	Gwinnett County	Time Period Analyzed	Build AM
Project Description	DRI 2834 - The Exchange at Gwinnett - Segment 2		

Direction 1 Geometric Data

Direction 1	NB		
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	50.0	Total Ramp Density (TRD), ramps/mi	-
Lane Width, ft	-	Left-Side Lateral Clearance (LC_R), ft	-
Median Type	-	Total Lateral Clearance (TLC), ft	-
Access Point Density, pts/mi	-	Free-Flow Speed (FFS), mi/h	50.0

Direction 1 Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Driver Population SAF	1.000	Final Capacity Adjustment Factor (CAF)	1.000
Driver Population CAF	1.000		

Direction 1 Demand and Capacity

Volume(V) veh/h	1930	Heavy Vehicle Adjustment Factor (f_{HV})	0.956
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	716
Total Trucks, %	4.64	Capacity (c), pc/h/ln	2000
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2000
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.36

Direction 1 Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	50.0
Total Lateral Clearance Adj. (f_{LLC})	-	Density (D), pc/mi/ln	14.3
Median Type Adjustment (f_M)	-	Level of Service (LOS)	B
Access Point Density Adjustment (f_A)	-		

Direction 1 Bicycle LOS

Flow Rate in Outside Lane (v_{OL}),veh/h	684	Effective Speed Factor (S_t)	4.62
Effective Width of Volume (W_v), ft	18	Bicyle LOS Score (BLOS)	3.66
Average Effective Width (W_e), ft	24	Bicycle Level of Service (LOS)	D

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Project Information

Analyst	Lowe Engineers	Date	9/14/2018
Agency		Analysis Year	2021
Jurisdiction	Gwinnett County	Time Period Analyzed	Build AM
Project Description	DRI 2834 - The Exchange at Gwinnett - Segment 2		

Direction 2 Geometric Data

Direction 2	SB		
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	50.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Left-Side Lateral Clearance (LC_R), ft	6
Median Type	Divided	Total Lateral Clearance (TLC), ft	12.00
Access Point Density, pts/mi	0.0	Free-Flow Speed (FFS), mi/h	50.0

Direction 2 Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Driver Population SAF	1.000	Final Capacity Adjustment Factor (CAF)	1.000
Driver Population CAF	1.000		

Direction 2 Demand and Capacity

Volume(V) veh/h	1860	Heavy Vehicle Adjustment Factor (f_{HV})	0.956
Peak Hour Factor	0.85	Flow Rate (V_p), pc/h/ln	763
Total Trucks, %	4.64	Capacity (c), pc/h/ln	2000
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2000
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.38

Direction 2 Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	50.0
Total Lateral Clearance Adj. (f_{LLC})	0.0	Density (D), pc/mi/ln	15.3
Median Type Adjustment (f_M)	0.0	Level of Service (LOS)	B
Access Point Density Adjustment (f_A)	0.0		

Direction 2 Bicycle LOS

Flow Rate in Outside Lane (v_{OL}),veh/h	729	Effective Speed Factor (S_t)	4.62
Effective Width of Volume (W_v), ft	18	Bicyle LOS Score (BLOS)	3.69
Average Effective Width (W_e), ft	24	Bicycle Level of Service (LOS)	D

HCS7 Multilane Highway Report

Project Information

Analyst	Lowe Engineers	Date	9/14/2018
Agency		Analysis Year	2021
Jurisdiction	Gwinnett County	Time Period Analyzed	Build PM
Project Description	DRI 2834 - The Exchange at Gwinnett - Segment 2		

Direction 1 Geometric Data

Direction 1	NB		
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	50.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Left-Side Lateral Clearance (LC_R), ft	6
Median Type	Divided	Total Lateral Clearance (TLC), ft	12.00
Access Point Density, pts/mi	5.0	Free-Flow Speed (FFS), mi/h	48.8

Direction 1 Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Driver Population SAF	1.000	Final Capacity Adjustment Factor (CAF)	1.000
Driver Population CAF	1.000		

Direction 1 Demand and Capacity

Volume(V) veh/h	2929	Heavy Vehicle Adjustment Factor (f_{HV})	0.956
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1075
Total Trucks, %	4.64	Capacity (c), pc/h/ln	1976
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	1976
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.54

Direction 1 Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	48.8
Total Lateral Clearance Adj. (f_{LLC})	0.0	Density (D), pc/mi/ln	22.0
Median Type Adjustment (f_M)	0.0	Level of Service (LOS)	C
Access Point Density Adjustment (f_A)	1.3		

Direction 1 Bicycle LOS

Flow Rate in Outside Lane (v_{OL}),veh/h	1028	Effective Speed Factor (S_t)	4.62
Effective Width of Volume (W_v), ft	18	Bicyle LOS Score (BLOS)	3.87
Average Effective Width (W_e), ft	24	Bicycle Level of Service (LOS)	D

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Project Information

Analyst	Lowe Engineers	Date	9/14/2018
Agency		Analysis Year	2021
Jurisdiction	Gwinnett County	Time Period Analyzed	Build PM
Project Description	DRI 2834 - The Exchange at Gwinnett - Segment 2		

Direction 2 Geometric Data

Direction 2	SB		
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	50.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Left-Side Lateral Clearance (LC_R), ft	6
Median Type	Divided	Total Lateral Clearance (TLC), ft	12.00
Access Point Density, pts/mi	0.0	Free-Flow Speed (FFS), mi/h	50.0

Direction 2 Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Driver Population SAF	1.000	Final Capacity Adjustment Factor (CAF)	1.000
Driver Population CAF	1.000		

Direction 2 Demand and Capacity

Volume(V) veh/h	2750	Heavy Vehicle Adjustment Factor (f_{HV})	0.956
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1009
Total Trucks, %	4.64	Capacity (c), pc/h/ln	2000
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2000
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.50

Direction 2 Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	50.0
Total Lateral Clearance Adj. (f_{LLC})	0.0	Density (D), pc/mi/ln	20.2
Median Type Adjustment (f_M)	0.0	Level of Service (LOS)	C
Access Point Density Adjustment (f_A)	0.0		

Direction 2 Bicycle LOS

Flow Rate in Outside Lane (v_{OL}),veh/h	965	Effective Speed Factor (S_t)	4.62
Effective Width of Volume (W_v), ft	18	Bicyle LOS Score (BLOS)	3.83
Average Effective Width (W_e), ft	24	Bicycle Level of Service (LOS)	D

HCS7 Multilane Highway Report

Project Information

Analyst	Lowe Engineers	Date	9/14/2018
Agency		Analysis Year	2021
Jurisdiction	Gwinnett County	Time Period Analyzed	Build AM
Project Description	DRI 2834 - The Exchange at Gwinnett - Segment 3		

Direction 1 Geometric Data

Direction 1	NB		
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	50.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Left-Side Lateral Clearance (LC_R), ft	6
Median Type	Divided	Total Lateral Clearance (TLC), ft	12.00
Access Point Density, pts/mi	0.0	Free-Flow Speed (FFS), mi/h	50.0

Direction 1 Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Driver Population SAF	1.000	Final Capacity Adjustment Factor (CAF)	1.000
Driver Population CAF	1.000		

Direction 1 Demand and Capacity

Volume(V) veh/h	2115	Heavy Vehicle Adjustment Factor (f_{HV})	0.956
Peak Hour Factor	0.90	Flow Rate (V_p), pc/h/ln	819
Total Trucks, %	4.64	Capacity (c), pc/h/ln	2000
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2000
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.41

Direction 1 Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	50.0
Total Lateral Clearance Adj. (f_{LLC})	0.0	Density (D), pc/mi/ln	16.4
Median Type Adjustment (f_M)	0.0	Level of Service (LOS)	B
Access Point Density Adjustment (f_A)	0.0		

Direction 1 Bicycle LOS

Flow Rate in Outside Lane (v_{OL}),veh/h	783	Effective Speed Factor (S_t)	4.62
Effective Width of Volume (W_v), ft	18	Bicyle LOS Score (BLOS)	3.73
Average Effective Width (W_e), ft	24	Bicycle Level of Service (LOS)	D

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Project Information

Analyst	Lowe Engineers	Date	9/14/2018
Agency		Analysis Year	2021
Jurisdiction	Gwinnett County	Time Period Analyzed	Build AM
Project Description	DRI 2834 - The Exchange at Gwinnett - Segment 3		

Direction 2 Geometric Data

Direction 2	SB		
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	50.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Left-Side Lateral Clearance (LC_R), ft	6
Median Type	Divided	Total Lateral Clearance (TLC), ft	12.00
Access Point Density, pts/mi	0.0	Free-Flow Speed (FFS), mi/h	50.0

Direction 2 Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Driver Population SAF	1.000	Final Capacity Adjustment Factor (CAF)	1.000
Driver Population CAF	1.000		

Direction 2 Demand and Capacity

Volume(V) veh/h	1633	Heavy Vehicle Adjustment Factor (f_{HV})	0.956
Peak Hour Factor	0.82	Flow Rate (V_p), pc/h/ln	694
Total Trucks, %	4.64	Capacity (c), pc/h/ln	2000
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2000
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.35

Direction 2 Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	50.0
Total Lateral Clearance Adj. (f_{LLC})	0.0	Density (D), pc/mi/ln	13.9
Median Type Adjustment (f_M)	0.0	Level of Service (LOS)	B
Access Point Density Adjustment (f_A)	0.0		

Direction 2 Bicycle LOS

Flow Rate in Outside Lane (v_{OL}),veh/h	664	Effective Speed Factor (S_t)	4.62
Effective Width of Volume (W_v), ft	18	Bicyle LOS Score (BLOS)	3.64
Average Effective Width (W_e), ft	24	Bicycle Level of Service (LOS)	D

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Project Information

Analyst	Lowe Engineers	Date	9/14/2018
Agency		Analysis Year	2021
Jurisdiction	Gwinnett County	Time Period Analyzed	Build PM
Project Description	DRI 2834 - The Exchange at Gwinnett - Segment 3		

Direction 1 Geometric Data

Direction 1	NB		
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	50.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Left-Side Lateral Clearance (LC_R), ft	6
Median Type	Divided	Total Lateral Clearance (TLC), ft	12.00
Access Point Density, pts/mi	0.0	Free-Flow Speed (FFS), mi/h	50.0

Direction 1 Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Driver Population SAF	1.000	Final Capacity Adjustment Factor (CAF)	1.000
Driver Population CAF	1.000		

Direction 1 Demand and Capacity

Volume(V) veh/h	2724	Heavy Vehicle Adjustment Factor (f_{HV})	0.956
Peak Hour Factor	0.97	Flow Rate (V_p), pc/h/ln	979
Total Trucks, %	4.64	Capacity (c), pc/h/ln	2000
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2000
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.49

Direction 1 Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	50.0
Total Lateral Clearance Adj. (f_{LLC})	0.0	Density (D), pc/mi/ln	19.6
Median Type Adjustment (f_M)	0.0	Level of Service (LOS)	C
Access Point Density Adjustment (f_A)	0.0		

Direction 1 Bicycle LOS

Flow Rate in Outside Lane (v_{OL}),veh/h	936	Effective Speed Factor (S_t)	4.62
Effective Width of Volume (W_v), ft	18	Bicyle LOS Score (BLOS)	3.82
Average Effective Width (W_e), ft	24	Bicycle Level of Service (LOS)	D

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Project Information

Analyst	Lowe Engineers	Date	9/14/2018
Agency		Analysis Year	2021
Jurisdiction	Gwinnett County	Time Period Analyzed	Build PM
Project Description	DRI 2834 - The Exchange at Gwinnett - Segment 3		

Direction 2 Geometric Data

Direction 2	SB		
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	50.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Left-Side Lateral Clearance (LC_R), ft	6
Median Type	Divided	Total Lateral Clearance (TLC), ft	12.00
Access Point Density, pts/mi	0.0	Free-Flow Speed (FFS), mi/h	50.0

Direction 2 Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Driver Population SAF	1.000	Final Capacity Adjustment Factor (CAF)	1.000
Driver Population CAF	1.000		

Direction 2 Demand and Capacity

Volume(V) veh/h	2617	Heavy Vehicle Adjustment Factor (f_{HV})	0.956
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	971
Total Trucks, %	4.64	Capacity (c), pc/h/ln	2000
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2000
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.49

Direction 2 Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	50.0
Total Lateral Clearance Adj. (f_{LLC})	0.0	Density (D), pc/mi/ln	19.4
Median Type Adjustment (f_M)	0.0	Level of Service (LOS)	C
Access Point Density Adjustment (f_A)	0.0		

Direction 2 Bicycle LOS

Flow Rate in Outside Lane (v_{OL}),veh/h	928	Effective Speed Factor (S_t)	4.62
Effective Width of Volume (W_v), ft	18	Bicyle LOS Score (BLOS)	3.81
Average Effective Width (W_e), ft	24	Bicycle Level of Service (LOS)	D

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Project Information

Analyst	Lowe Engineers	Date	9/14/2018
Agency		Analysis Year	2021
Jurisdiction	Gwinnett County	Time Period Analyzed	Build AM
Project Description	DRI 2834 - The Exchange at Gwinnett - Segment 4		

Direction 1 Geometric Data

Direction 1	NB		
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	45.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Left-Side Lateral Clearance (LC_R), ft	6
Median Type	Divided	Total Lateral Clearance (TLC), ft	12.00
Access Point Density, pts/mi	5.0	Free-Flow Speed (FFS), mi/h	43.8

Direction 1 Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Driver Population SAF	1.000	Final Capacity Adjustment Factor (CAF)	1.000
Driver Population CAF	1.000		

Direction 1 Demand and Capacity

Volume(V) veh/h	2176	Heavy Vehicle Adjustment Factor (f_{HV})	0.927
Peak Hour Factor	0.90	Flow Rate (V_p), pc/h/ln	1304
Total Trucks, %	7.91	Capacity (c), pc/h/ln	1900
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	1900
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.69

Direction 1 Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	43.8
Total Lateral Clearance Adj. (f_{LLC})	0.0	Density (D), pc/mi/ln	29.8
Median Type Adjustment (f_M)	0.0	Level of Service (LOS)	D
Access Point Density Adjustment (f_A)	1.3		

Direction 1 Bicycle LOS

Flow Rate in Outside Lane (v_{OL}),veh/h	1209	Effective Speed Factor (S_t)	4.62
Effective Width of Volume (W_v), ft	18	Bicyle LOS Score (BLOS)	4.98
Average Effective Width (W_e), ft	24	Bicycle Level of Service (LOS)	E

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Project Information

Analyst	Lowe Engineers	Date	9/14/2018
Agency		Analysis Year	2021
Jurisdiction	Gwinnett County	Time Period Analyzed	Build AM
Project Description	DRI 2834 - The Exchange at Gwinnett - Segment 4		

Direction 2 Geometric Data

Direction 2	SB		
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	45.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Left-Side Lateral Clearance (LC_R), ft	6
Median Type	Divided	Total Lateral Clearance (TLC), ft	12.00
Access Point Density, pts/mi	5.0	Free-Flow Speed (FFS), mi/h	43.8

Direction 2 Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Driver Population SAF	1.000	Final Capacity Adjustment Factor (CAF)	1.000
Driver Population CAF	1.000		

Direction 2 Demand and Capacity

Volume(V) veh/h	1693	Heavy Vehicle Adjustment Factor (f_{HV})	0.927
Peak Hour Factor	0.84	Flow Rate (V_p), pc/h/ln	725
Total Trucks, %	7.91	Capacity (c), pc/h/ln	1900
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	1900
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.38

Direction 2 Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	43.8
Total Lateral Clearance Adj. (f_{LLC})	0.0	Density (D), pc/mi/ln	16.6
Median Type Adjustment (f_M)	0.0	Level of Service (LOS)	B
Access Point Density Adjustment (f_A)	1.3		

Direction 2 Bicycle LOS

Flow Rate in Outside Lane (v_{OL}),veh/h	672	Effective Speed Factor (S_t)	4.62
Effective Width of Volume (W_v), ft	18	Bicyle LOS Score (BLOS)	4.69
Average Effective Width (W_e), ft	24	Bicycle Level of Service (LOS)	E

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Project Information

Analyst	Lowe Engineers	Date	9/14/2018
Agency		Analysis Year	2021
Jurisdiction	Gwinnett County	Time Period Analyzed	Build PM
Project Description	DRI 2834 - The Exchange at Gwinnett - Segment 4		

Direction 1 Geometric Data

Direction 1	NB		
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	45.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Left-Side Lateral Clearance (LC_R), ft	6
Median Type	Divided	Total Lateral Clearance (TLC), ft	12.00
Access Point Density, pts/mi	5.0	Free-Flow Speed (FFS), mi/h	43.8

Direction 1 Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Driver Population SAF	1.000	Final Capacity Adjustment Factor (CAF)	1.000
Driver Population CAF	1.000		

Direction 1 Demand and Capacity

Volume(V) veh/h	2514	Heavy Vehicle Adjustment Factor (f_{HV})	0.927
Peak Hour Factor	0.96	Flow Rate (V_p), pc/h/ln	1412
Total Trucks, %	7.91	Capacity (c), pc/h/ln	1900
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	1900
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.74

Direction 1 Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	43.8
Total Lateral Clearance Adj. (f_{LLC})	0.0	Density (D), pc/mi/ln	32.2
Median Type Adjustment (f_M)	0.0	Level of Service (LOS)	D
Access Point Density Adjustment (f_A)	1.3		

Direction 1 Bicycle LOS

Flow Rate in Outside Lane (v_{OL}),veh/h	1309	Effective Speed Factor (S_t)	4.62
Effective Width of Volume (W_v), ft	18	Bicyle LOS Score (BLOS)	5.02
Average Effective Width (W_e), ft	24	Bicycle Level of Service (LOS)	E

HCS7 Multilane Highway Report

Project Information

Analyst	Lowe Engineers	Date	9/14/2018
Agency		Analysis Year	2021
Jurisdiction	Gwinnett County	Time Period Analyzed	Build PM
Project Description	DRI 2834 - The Exchange at Gwinnett - Segment 4		

Direction 2 Geometric Data

Direction 2	SB		
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	45.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Left-Side Lateral Clearance (LC_R), ft	6
Median Type	Divided	Total Lateral Clearance (TLC), ft	12.00
Access Point Density, pts/mi	5.0	Free-Flow Speed (FFS), mi/h	43.8

Direction 2 Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Driver Population SAF	1.000	Final Capacity Adjustment Factor (CAF)	1.000
Driver Population CAF	1.000		

Direction 2 Demand and Capacity

Volume(V) veh/h	2512	Heavy Vehicle Adjustment Factor (f_{HV})	0.927
Peak Hour Factor	0.93	Flow Rate (V_p), pc/h/ln	971
Total Trucks, %	7.91	Capacity (c), pc/h/ln	1900
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	1900
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.51

Direction 2 Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	43.8
Total Lateral Clearance Adj. (f_{LLC})	0.0	Density (D), pc/mi/ln	22.2
Median Type Adjustment (f_M)	0.0	Level of Service (LOS)	C
Access Point Density Adjustment (f_A)	1.3		

Direction 2 Bicycle LOS

Flow Rate in Outside Lane (v_{OL}),veh/h	900	Effective Speed Factor (S_t)	4.62
Effective Width of Volume (W_v), ft	18	Bicyle LOS Score (BLOS)	4.83
Average Effective Width (W_e), ft	24	Bicycle Level of Service (LOS)	E

HCS7 Multilane Highway Report

Project Information

Analyst	Lowe Engineers	Date	9/14/2018
Agency		Analysis Year	2021
Jurisdiction	Gwinnett County	Time Period Analyzed	Build AM
Project Description	DRI 2834 - The Exchange at Gwinnett - Segment 5		

Direction 1 Geometric Data

Direction 1	NB		
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	45.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Left-Side Lateral Clearance (LC_R), ft	6
Median Type	Divided	Total Lateral Clearance (TLC), ft	12.00
Access Point Density, pts/mi	6.0	Free-Flow Speed (FFS), mi/h	43.5

Direction 1 Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Driver Population SAF	1.000	Final Capacity Adjustment Factor (CAF)	1.000
Driver Population CAF	1.000		

Direction 1 Demand and Capacity

Volume(V) veh/h	2106	Heavy Vehicle Adjustment Factor (f_{HV})	0.927
Peak Hour Factor	0.90	Flow Rate (V_p), pc/h/ln	1262
Total Trucks, %	7.91	Capacity (c), pc/h/ln	1900
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	1900
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.66

Direction 1 Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	43.5
Total Lateral Clearance Adj. (f_{LLC})	0.0	Density (D), pc/mi/ln	29.0
Median Type Adjustment (f_M)	0.0	Level of Service (LOS)	D
Access Point Density Adjustment (f_A)	1.5		

Direction 1 Bicycle LOS

Flow Rate in Outside Lane (v_{OL}),veh/h	1170	Effective Speed Factor (S_t)	4.62
Effective Width of Volume (W_v), ft	18	Bicyle LOS Score (BLOS)	4.97
Average Effective Width (W_e), ft	24	Bicycle Level of Service (LOS)	E

HCS7 Multilane Highway Report

Project Information

Analyst	Lowe Engineers	Date	9/14/2018
Agency		Analysis Year	2021
Jurisdiction	Gwinnett County	Time Period Analyzed	Build AM
Project Description	DRI 2834 - The Exchange at Gwinnett - Segment 5		

Direction 2 Geometric Data

Direction 2	SB		
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	45.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Left-Side Lateral Clearance (LC_R), ft	6
Median Type	Divided	Total Lateral Clearance (TLC), ft	12.00
Access Point Density, pts/mi	4.0	Free-Flow Speed (FFS), mi/h	44.0

Direction 2 Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Driver Population SAF	1.000	Final Capacity Adjustment Factor (CAF)	1.000
Driver Population CAF	1.000		

Direction 2 Demand and Capacity

Volume(V) veh/h	1664	Heavy Vehicle Adjustment Factor (f_{HV})	0.927
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	955
Total Trucks, %	7.91	Capacity (c), pc/h/ln	1900
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	1900
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.50

Direction 2 Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	44.0
Total Lateral Clearance Adj. (f_{LLC})	0.0	Density (D), pc/mi/ln	21.7
Median Type Adjustment (f_M)	0.0	Level of Service (LOS)	C
Access Point Density Adjustment (f_A)	1.0		

Direction 2 Bicycle LOS

Flow Rate in Outside Lane (v_{OL}),veh/h	885	Effective Speed Factor (S_t)	4.62
Effective Width of Volume (W_v), ft	18	Bicyle LOS Score (BLOS)	4.82
Average Effective Width (W_e), ft	24	Bicycle Level of Service (LOS)	E

HCS7 Multilane Highway Report

Project Information

Analyst	Lowe Engineers	Date	9/14/2018
Agency		Analysis Year	2021
Jurisdiction	Gwinnett County	Time Period Analyzed	Build PM
Project Description	DRI 2834 - The Exchange at Gwinnett - Segment 5		

Direction 1 Geometric Data

Direction 1	NB		
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	45.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Left-Side Lateral Clearance (LC_R), ft	6
Median Type	Divided	Total Lateral Clearance (TLC), ft	12.00
Access Point Density, pts/mi	6.0	Free-Flow Speed (FFS), mi/h	43.5

Direction 1 Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Driver Population SAF	1.000	Final Capacity Adjustment Factor (CAF)	1.000
Driver Population CAF	1.000		

Direction 1 Demand and Capacity

Volume(V) veh/h	2409	Heavy Vehicle Adjustment Factor (f_{HV})	0.927
Peak Hour Factor	0.96	Flow Rate (V_p), pc/h/ln	1354
Total Trucks, %	7.91	Capacity (c), pc/h/ln	1900
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	1900
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.71

Direction 1 Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	43.5
Total Lateral Clearance Adj. (f_{LLC})	0.0	Density (D), pc/mi/ln	31.1
Median Type Adjustment (f_M)	0.0	Level of Service (LOS)	D
Access Point Density Adjustment (f_A)	1.5		

Direction 1 Bicycle LOS

Flow Rate in Outside Lane (v_{OL}),veh/h	1255	Effective Speed Factor (S_t)	4.62
Effective Width of Volume (W_v), ft	18	Bicyle LOS Score (BLOS)	5.00
Average Effective Width (W_e), ft	24	Bicycle Level of Service (LOS)	E

HCS7 Multilane Highway Report

Project Information

Analyst	Lowe Engineers	Date	9/14/2018
Agency		Analysis Year	2021
Jurisdiction	Gwinnett County	Time Period Analyzed	Build PM
Project Description	DRI 2834 - The Exchange at Gwinnett - Segment 5		

Direction 2 Geometric Data

Direction 2	SB		
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	45.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Left-Side Lateral Clearance (LC_R), ft	6
Median Type	Divided	Total Lateral Clearance (TLC), ft	12.00
Access Point Density, pts/mi	4.0	Free-Flow Speed (FFS), mi/h	44.0

Direction 2 Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Driver Population SAF	1.000	Final Capacity Adjustment Factor (CAF)	1.000
Driver Population CAF	1.000		

Direction 2 Demand and Capacity

Volume(V) veh/h	2313	Heavy Vehicle Adjustment Factor (f_{HV})	0.927
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	1327
Total Trucks, %	7.91	Capacity (c), pc/h/ln	1900
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	1900
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.70

Direction 2 Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	44.0
Total Lateral Clearance Adj. (f_{LLC})	0.0	Density (D), pc/mi/ln	30.2
Median Type Adjustment (f_M)	0.0	Level of Service (LOS)	D
Access Point Density Adjustment (f_A)	1.0		

Direction 2 Bicycle LOS

Flow Rate in Outside Lane (v_{OL}),veh/h	1230	Effective Speed Factor (S_t)	4.62
Effective Width of Volume (W_v), ft	18	Bicyle LOS Score (BLOS)	4.99
Average Effective Width (W_e), ft	24	Bicycle Level of Service (LOS)	E

HCS7 Multilane Highway Report

Project Information

Analyst	Lowe Engineers	Date	9/14/2018
Agency		Analysis Year	2021
Jurisdiction	Gwinnett County	Time Period Analyzed	Build AM
Project Description	DRI 2834 - The Exchange at Gwinnett - Segment 6		

Direction 1 Geometric Data

Direction 1	NB		
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	45.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Left-Side Lateral Clearance (LC_R), ft	6
Median Type	Divided	Total Lateral Clearance (TLC), ft	12.00
Access Point Density, pts/mi	0.0	Free-Flow Speed (FFS), mi/h	45.0

Direction 1 Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Driver Population SAF	1.000	Final Capacity Adjustment Factor (CAF)	1.000
Driver Population CAF	1.000		

Direction 1 Demand and Capacity

Volume(V) veh/h	1707	Heavy Vehicle Adjustment Factor (f_{HV})	0.927
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	969
Total Trucks, %	7.91	Capacity (c), pc/h/ln	1900
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	1900
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.51

Direction 1 Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	45.0
Total Lateral Clearance Adj. (f_{LLC})	0.0	Density (D), pc/mi/ln	21.5
Median Type Adjustment (f_M)	0.0	Level of Service (LOS)	C
Access Point Density Adjustment (f_A)	0.0		

Direction 1 Bicycle LOS

Flow Rate in Outside Lane (v_{OL}),veh/h	898	Effective Speed Factor (S_t)	4.62
Effective Width of Volume (W_v), ft	18	Bicyle LOS Score (BLOS)	4.83
Average Effective Width (W_e), ft	24	Bicycle Level of Service (LOS)	E

HCS7 Multilane Highway Report

Project Information

Analyst	Lowe Engineers	Date	9/14/2018
Agency		Analysis Year	2021
Jurisdiction	Gwinnett County	Time Period Analyzed	Build AM
Project Description	DRI 2834 - The Exchange at Gwinnett - Segment 6		

Direction 2 Geometric Data

Direction 2	SB		
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	45.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Left-Side Lateral Clearance (LC_R), ft	6
Median Type	Divided	Total Lateral Clearance (TLC), ft	12.00
Access Point Density, pts/mi	5.0	Free-Flow Speed (FFS), mi/h	43.8

Direction 2 Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Driver Population SAF	1.000	Final Capacity Adjustment Factor (CAF)	1.000
Driver Population CAF	1.000		

Direction 2 Demand and Capacity

Volume(V) veh/h	1609	Heavy Vehicle Adjustment Factor (f_{HV})	0.927
Peak Hour Factor	0.88	Flow Rate (V_p), pc/h/ln	986
Total Trucks, %	7.91	Capacity (c), pc/h/ln	1900
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	1900
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.52

Direction 2 Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	43.8
Total Lateral Clearance Adj. (f_{LLC})	0.0	Density (D), pc/mi/ln	22.5
Median Type Adjustment (f_M)	0.0	Level of Service (LOS)	C
Access Point Density Adjustment (f_A)	1.3		

Direction 2 Bicycle LOS

Flow Rate in Outside Lane (v_{OL}),veh/h	914	Effective Speed Factor (S_t)	4.62
Effective Width of Volume (W_v), ft	18	Bicyle LOS Score (BLOS)	4.84
Average Effective Width (W_e), ft	24	Bicycle Level of Service (LOS)	E

HCS7 Multilane Highway Report

Project Information

Analyst	Lowe Engineers	Date	9/14/2018
Agency		Analysis Year	2021
Jurisdiction	Gwinnett County	Time Period Analyzed	Build PM
Project Description	DRI 2834 - The Exchange at Gwinnett - Segment 6		

Direction 1 Geometric Data

Direction 1	NB		
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	45.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Left-Side Lateral Clearance (LC_R), ft	6
Median Type	Divided	Total Lateral Clearance (TLC), ft	12.00
Access Point Density, pts/mi	0.0	Free-Flow Speed (FFS), mi/h	45.0

Direction 1 Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Driver Population SAF	1.000	Final Capacity Adjustment Factor (CAF)	1.000
Driver Population CAF	1.000		

Direction 1 Demand and Capacity

Volume(V) veh/h	2006	Heavy Vehicle Adjustment Factor (f_{HV})	0.927
Peak Hour Factor	0.91	Flow Rate (V_p), pc/h/ln	1189
Total Trucks, %	7.91	Capacity (c), pc/h/ln	1900
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	1900
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.63

Direction 1 Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	45.0
Total Lateral Clearance Adj. (f_{LLC})	0.0	Density (D), pc/mi/ln	26.4
Median Type Adjustment (f_M)	0.0	Level of Service (LOS)	D
Access Point Density Adjustment (f_A)	0.0		

Direction 1 Bicycle LOS

Flow Rate in Outside Lane (v_{OL}),veh/h	1102	Effective Speed Factor (S_t)	4.62
Effective Width of Volume (W_v), ft	18	Bicyle LOS Score (BLOS)	4.94
Average Effective Width (W_e), ft	24	Bicycle Level of Service (LOS)	E

HCS7 Multilane Highway Report

Project Information

Analyst	Lowe Engineers	Date	9/14/2018
Agency		Analysis Year	2021
Jurisdiction	Gwinnett County	Time Period Analyzed	Build PM
Project Description	DRI 2834 - The Exchange at Gwinnett - Segment 6		

Direction 2 Geometric Data

Direction 2	SB		
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	45.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Left-Side Lateral Clearance (LC_R), ft	6
Median Type	Divided	Total Lateral Clearance (TLC), ft	12.00
Access Point Density, pts/mi	5.0	Free-Flow Speed (FFS), mi/h	43.8

Direction 2 Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Driver Population SAF	1.000	Final Capacity Adjustment Factor (CAF)	1.000
Driver Population CAF	1.000		

Direction 2 Demand and Capacity

Volume(V) veh/h	2050	Heavy Vehicle Adjustment Factor (f_{HV})	0.927
Peak Hour Factor	0.89	Flow Rate (V_p), pc/h/ln	1242
Total Trucks, %	7.91	Capacity (c), pc/h/ln	1900
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	1900
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.65

Direction 2 Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	43.8
Total Lateral Clearance Adj. (f_{LLC})	0.0	Density (D), pc/mi/ln	28.4
Median Type Adjustment (f_M)	0.0	Level of Service (LOS)	D
Access Point Density Adjustment (f_A)	1.3		

Direction 2 Bicycle LOS

Flow Rate in Outside Lane (v_{OL}),veh/h	1152	Effective Speed Factor (S_t)	4.62
Effective Width of Volume (W_v), ft	18	Bicyle LOS Score (BLOS)	4.96
Average Effective Width (W_e), ft	24	Bicycle Level of Service (LOS)	E

HCS7 Multilane Highway Report

Project Information

Analyst	Lowe Engineers	Date	9/14/2018
Agency		Analysis Year	2021
Jurisdiction	Gwinnett County	Time Period Analyzed	Build AM
Project Description	DRI 2834 - The Exchange at Gwinnett - Segment 7		

Direction 1 Geometric Data

Direction 1	NB		
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	45.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Left-Side Lateral Clearance (LC_R), ft	6
Median Type	Divided	Total Lateral Clearance (TLC), ft	12.00
Access Point Density, pts/mi	0.0	Free-Flow Speed (FFS), mi/h	45.0

Direction 1 Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Driver Population SAF	1.000	Final Capacity Adjustment Factor (CAF)	1.000
Driver Population CAF	1.000		

Direction 1 Demand and Capacity

Volume(V) veh/h	1599	Heavy Vehicle Adjustment Factor (f_{HV})	0.927
Peak Hour Factor	0.97	Flow Rate (V_p), pc/h/ln	889
Total Trucks, %	7.91	Capacity (c), pc/h/ln	1900
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	1900
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.47

Direction 1 Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	45.0
Total Lateral Clearance Adj. (f_{LLC})	0.0	Density (D), pc/mi/ln	19.8
Median Type Adjustment (f_M)	0.0	Level of Service (LOS)	C
Access Point Density Adjustment (f_A)	0.0		

Direction 1 Bicycle LOS

Flow Rate in Outside Lane (v_{OL}),veh/h	824	Effective Speed Factor (S_t)	4.62
Effective Width of Volume (W_v), ft	18	Bicyle LOS Score (BLOS)	4.79
Average Effective Width (W_e), ft	24	Bicycle Level of Service (LOS)	E

HCS7 Multilane Highway Report

Project Information

Analyst	Lowe Engineers	Date	9/14/2018
Agency		Analysis Year	2021
Jurisdiction	Gwinnett County	Time Period Analyzed	Build AM
Project Description	DRI 2834 - The Exchange at Gwinnett - Segment 7		

Direction 2 Geometric Data

Direction 2	SB		
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	45.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Left-Side Lateral Clearance (LC_R), ft	6
Median Type	Divided	Total Lateral Clearance (TLC), ft	12.00
Access Point Density, pts/mi	3.3	Free-Flow Speed (FFS), mi/h	44.2

Direction 2 Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Driver Population SAF	1.000	Final Capacity Adjustment Factor (CAF)	1.000
Driver Population CAF	1.000		

Direction 2 Demand and Capacity

Volume(V) veh/h	1485	Heavy Vehicle Adjustment Factor (f_{HV})	0.927
Peak Hour Factor	0.86	Flow Rate (V_p), pc/h/ln	932
Total Trucks, %	7.91	Capacity (c), pc/h/ln	1900
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	1900
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.49

Direction 2 Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	44.2
Total Lateral Clearance Adj. (f_{LLC})	0.0	Density (D), pc/mi/ln	21.1
Median Type Adjustment (f_M)	0.0	Level of Service (LOS)	C
Access Point Density Adjustment (f_A)	0.8		

Direction 2 Bicycle LOS

Flow Rate in Outside Lane (v_{OL}),veh/h	863	Effective Speed Factor (S_t)	4.62
Effective Width of Volume (W_v), ft	18	Bicyle LOS Score (BLOS)	4.81
Average Effective Width (W_e), ft	24	Bicycle Level of Service (LOS)	E

HCS7 Multilane Highway Report

Project Information

Analyst	Lowe Engineers	Date	9/14/2018
Agency		Analysis Year	2021
Jurisdiction	Gwinnett County	Time Period Analyzed	Build PM
Project Description	DRI 2834 - The Exchange at Gwinnett - Segment 7		

Direction 1 Geometric Data

Direction 1	NB		
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	45.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Left-Side Lateral Clearance (LC_R), ft	6
Median Type	Divided	Total Lateral Clearance (TLC), ft	12.00
Access Point Density, pts/mi	0.0	Free-Flow Speed (FFS), mi/h	45.0

Direction 1 Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Driver Population SAF	1.000	Final Capacity Adjustment Factor (CAF)	1.000
Driver Population CAF	1.000		

Direction 1 Demand and Capacity

Volume(V) veh/h	1856	Heavy Vehicle Adjustment Factor (f_{HV})	0.927
Peak Hour Factor	0.96	Flow Rate (V_p), pc/h/ln	1043
Total Trucks, %	7.91	Capacity (c), pc/h/ln	1900
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	1900
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.55

Direction 1 Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	45.0
Total Lateral Clearance Adj. (f_{LLC})	0.0	Density (D), pc/mi/ln	23.2
Median Type Adjustment (f_M)	0.0	Level of Service (LOS)	C
Access Point Density Adjustment (f_A)	0.0		

Direction 1 Bicycle LOS

Flow Rate in Outside Lane (v_{OL}),veh/h	967	Effective Speed Factor (S_t)	4.62
Effective Width of Volume (W_v), ft	18	Bicyle LOS Score (BLOS)	4.87
Average Effective Width (W_e), ft	24	Bicycle Level of Service (LOS)	E

HCS7 Multilane Highway Report

Project Information

Analyst	Lowe Engineers	Date	9/14/2018
Agency		Analysis Year	2021
Jurisdiction	Gwinnett County	Time Period Analyzed	Build PM
Project Description	DRI 2834 - The Exchange at Gwinnett - Segment 7		

Direction 2 Geometric Data

Direction 2	SB		
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	45.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Left-Side Lateral Clearance (LC_R), ft	6
Median Type	Divided	Total Lateral Clearance (TLC), ft	12.00
Access Point Density, pts/mi	3.3	Free-Flow Speed (FFS), mi/h	44.2

Direction 2 Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Driver Population SAF	1.000	Final Capacity Adjustment Factor (CAF)	1.000
Driver Population CAF	1.000		

Direction 2 Demand and Capacity

Volume(V) veh/h	1963	Heavy Vehicle Adjustment Factor (f_{HV})	0.927
Peak Hour Factor	0.97	Flow Rate (V_p), pc/h/ln	1092
Total Trucks, %	7.91	Capacity (c), pc/h/ln	1900
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	1900
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.57

Direction 2 Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	44.2
Total Lateral Clearance Adj. (f_{LLC})	0.0	Density (D), pc/mi/ln	24.7
Median Type Adjustment (f_M)	0.0	Level of Service (LOS)	C
Access Point Density Adjustment (f_A)	0.8		

Direction 2 Bicycle LOS

Flow Rate in Outside Lane (v_{OL}),veh/h	1012	Effective Speed Factor (S_t)	4.62
Effective Width of Volume (W_v), ft	18	Bicyle LOS Score (BLOS)	4.89
Average Effective Width (W_e), ft	24	Bicycle Level of Service (LOS)	E

HCS7 Multilane Highway Report

Project Information

Analyst	Lowe Engineers	Date	9/14/2018
Agency		Analysis Year	2021
Jurisdiction	Gwinnett County	Time Period Analyzed	Build AM
Project Description	DRI 2834 - The Exchange at Gwinnett - Segment 8		

Direction 1 Geometric Data

Direction 1	NB		
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	45.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Left-Side Lateral Clearance (LC_R), ft	6
Median Type	Divided	Total Lateral Clearance (TLC), ft	12.00
Access Point Density, pts/mi	0.0	Free-Flow Speed (FFS), mi/h	45.0

Direction 1 Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Driver Population SAF	1.000	Final Capacity Adjustment Factor (CAF)	1.000
Driver Population CAF	1.000		

Direction 1 Demand and Capacity

Volume(V) veh/h	1605	Heavy Vehicle Adjustment Factor (f_{HV})	0.927
Peak Hour Factor	0.96	Flow Rate (V_p), pc/h/ln	902
Total Trucks, %	7.91	Capacity (c), pc/h/ln	1900
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	1900
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.47

Direction 1 Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	45.0
Total Lateral Clearance Adj. (f_{LLC})	0.0	Density (D), pc/mi/ln	20.0
Median Type Adjustment (f_M)	0.0	Level of Service (LOS)	C
Access Point Density Adjustment (f_A)	0.0		

Direction 1 Bicycle LOS

Flow Rate in Outside Lane (v_{OL}),veh/h	836	Effective Speed Factor (S_t)	4.62
Effective Width of Volume (W_v), ft	18	Bicyle LOS Score (BLOS)	4.80
Average Effective Width (W_e), ft	24	Bicycle Level of Service (LOS)	E

HCS7 Multilane Highway Report

Project Information

Analyst	Lowe Engineers	Date	9/14/2018
Agency		Analysis Year	2021
Jurisdiction	Gwinnett County	Time Period Analyzed	Build AM
Project Description	DRI 2834 - The Exchange at Gwinnett - Segment 8		

Direction 2 Geometric Data

Direction 2	SB		
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	45.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Left-Side Lateral Clearance (LC_R), ft	6
Median Type	Divided	Total Lateral Clearance (TLC), ft	12.00
Access Point Density, pts/mi	13.3	Free-Flow Speed (FFS), mi/h	41.7

Direction 2 Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Driver Population SAF	1.000	Final Capacity Adjustment Factor (CAF)	1.000
Driver Population CAF	1.000		

Direction 2 Demand and Capacity

Volume(V) veh/h	1459	Heavy Vehicle Adjustment Factor (f_{HV})	0.927
Peak Hour Factor	0.90	Flow Rate (V_p), pc/h/ln	874
Total Trucks, %	7.91	Capacity (c), pc/h/ln	1900
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	1900
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.46

Direction 2 Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	41.7
Total Lateral Clearance Adj. (f_{LLC})	0.0	Density (D), pc/mi/ln	21.0
Median Type Adjustment (f_M)	0.0	Level of Service (LOS)	C
Access Point Density Adjustment (f_A)	3.3		

Direction 2 Bicycle LOS

Flow Rate in Outside Lane (v_{OL}),veh/h	811	Effective Speed Factor (S_t)	4.62
Effective Width of Volume (W_v), ft	18	Bicyle LOS Score (BLOS)	4.78
Average Effective Width (W_e), ft	24	Bicycle Level of Service (LOS)	E

HCS7 Multilane Highway Report

Project Information

Analyst	Lowe Engineers	Date	9/14/2018
Agency		Analysis Year	2021
Jurisdiction	Gwinnett County	Time Period Analyzed	Build PM
Project Description	DRI 2834 - The Exchange at Gwinnett - Segment 8		

Direction 1 Geometric Data

Direction 1	NB		
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	45.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Left-Side Lateral Clearance (LC_R), ft	6
Median Type	Divided	Total Lateral Clearance (TLC), ft	12.00
Access Point Density, pts/mi	0.0	Free-Flow Speed (FFS), mi/h	45.0

Direction 1 Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Driver Population SAF	1.000	Final Capacity Adjustment Factor (CAF)	1.000
Driver Population CAF	1.000		

Direction 1 Demand and Capacity

Volume(V) veh/h	1889	Heavy Vehicle Adjustment Factor (f_{HV})	0.927
Peak Hour Factor	0.91	Flow Rate (V_p), pc/h/ln	1120
Total Trucks, %	7.91	Capacity (c), pc/h/ln	1900
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	1900
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.59

Direction 1 Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	45.0
Total Lateral Clearance Adj. (f_{LLC})	0.0	Density (D), pc/mi/ln	24.9
Median Type Adjustment (f_M)	0.0	Level of Service (LOS)	C
Access Point Density Adjustment (f_A)	0.0		

Direction 1 Bicycle LOS

Flow Rate in Outside Lane (v_{OL}),veh/h	1038	Effective Speed Factor (S_t)	4.62
Effective Width of Volume (W_v), ft	18	Bicyle LOS Score (BLOS)	4.91
Average Effective Width (W_e), ft	24	Bicycle Level of Service (LOS)	E

HCS7 Multilane Highway Report

Project Information

Analyst	Lowe Engineers	Date	9/14/2018
Agency		Analysis Year	2021
Jurisdiction	Gwinnett County	Time Period Analyzed	Build PM
Project Description	DRI 2834 - The Exchange at Gwinnett - Segment 8		

Direction 2 Geometric Data

Direction 2	SB		
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	45.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Left-Side Lateral Clearance (LC_R), ft	6
Median Type	Divided	Total Lateral Clearance (TLC), ft	12.00
Access Point Density, pts/mi	13.3	Free-Flow Speed (FFS), mi/h	41.7

Direction 2 Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Driver Population SAF	1.000	Final Capacity Adjustment Factor (CAF)	1.000
Driver Population CAF	1.000		

Direction 2 Demand and Capacity

Volume(V) veh/h	1839	Heavy Vehicle Adjustment Factor (f_{HV})	0.927
Peak Hour Factor	0.90	Flow Rate (V_p), pc/h/ln	1102
Total Trucks, %	7.91	Capacity (c), pc/h/ln	1900
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	1900
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.58

Direction 2 Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	41.7
Total Lateral Clearance Adj. (f_{LLC})	0.0	Density (D), pc/mi/ln	26.4
Median Type Adjustment (f_M)	0.0	Level of Service (LOS)	D
Access Point Density Adjustment (f_A)	3.3		

Direction 2 Bicycle LOS

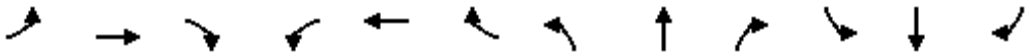
Flow Rate in Outside Lane (v_{OL}),veh/h	1022	Effective Speed Factor (S_t)	4.62
Effective Width of Volume (W_v), ft	18	Bicyle LOS Score (BLOS)	4.90
Average Effective Width (W_e), ft	24	Bicycle Level of Service (LOS)	E

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	8	5	2	28	4	35	8	1503	86	1221
Future Volume (vph)	8	5	2	28	4	35	8	1503	86	1221
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Prot	NA
Protected Phases	7	4		3	8		1	6	5	2
Permitted Phases			4			8				
Detector Phase	7	4	4	3	8	8	1	6	5	2
Switch Phase										
Minimum Initial (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	12.0	4.0	12.0
Minimum Split (s)	10.9	13.4	13.4	10.5	13.4	13.4	11.3	25.3	11.3	19.3
Total Split (s)	20.0	24.0	24.0	20.0	24.0	24.0	17.0	76.0	20.0	79.0
Total Split (%)	14.3%	17.1%	17.1%	14.3%	17.1%	17.1%	12.1%	54.3%	14.3%	56.4%
Yellow Time (s)	3.9	4.4	4.4	3.5	4.4	4.4	4.6	4.6	4.6	4.6
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	2.7	2.7	2.7	2.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.9	7.4	7.4	6.5	7.4	7.4	7.3	7.3	7.3	7.3
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	None	C-Max

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 74 (53%), Referenced to phase 2:SBT and 6:NBT, Start of 1st Green
Natural Cycle: 65
Control Type: Actuated-Coordinated

Splits and Phases: 1: Buford Dr NE & Mall Drwy/Woodward Crossing Blvd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	5	2	28	4	35	8	1503	22	86	1221	18
Future Volume (vph)	8	5	2	28	4	35	8	1503	22	86	1221	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.9	7.4	7.4	6.5	7.4	7.4	7.3	7.3		7.3	7.3	
Lane Util. Factor	1.00	1.00	1.00	0.97	0.95	0.95	1.00	0.91		0.97	0.91	
Frt	1.00	1.00	0.85	1.00	0.88	0.85	1.00	1.00		1.00	1.00	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1863	1583	3433	1555	1504	1770	5074		3433	5074	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1863	1583	3433	1555	1504	1770	5074		3433	5074	
Peak-hour factor, PHF	0.42	0.42	0.42	0.93	0.93	0.93	0.96	0.96	0.96	0.90	0.90	0.90
Adj. Flow (vph)	19	12	5	30	4	38	8	1566	23	96	1357	20
RTOR Reduction (vph)	0	0	5	0	16	20	0	1	0	0	1	0
Lane Group Flow (vph)	19	12	0	30	5	1	8	1588	0	96	1376	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases			4			8						
Actuated Green, G (s)	6.1	3.0	3.0	7.8	4.3	4.3	1.9	91.4		9.3	98.8	
Effective Green, g (s)	6.1	3.0	3.0	7.8	4.3	4.3	1.9	91.4		9.3	98.8	
Actuated g/C Ratio	0.04	0.02	0.02	0.06	0.03	0.03	0.01	0.65		0.07	0.71	
Clearance Time (s)	6.9	7.4	7.4	6.5	7.4	7.4	7.3	7.3		7.3	7.3	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	77	39	33	191	47	46	24	3312		228	3580	
v/s Ratio Prot	c0.01	c0.01		0.01	0.00		0.00	c0.31		0.03	c0.27	
v/s Ratio Perm			0.00			0.00						
v/c Ratio	0.25	0.31	0.00	0.16	0.10	0.01	0.33	0.48		0.42	0.38	
Uniform Delay, d1	64.7	67.5	67.0	63.0	66.0	65.8	68.4	12.3		62.8	8.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.58	0.42		1.00	1.00	
Incremental Delay, d2	1.7	4.4	0.0	0.4	0.9	0.1	6.6	0.4		1.3	0.3	
Delay (s)	66.4	71.9	67.1	63.4	66.9	65.9	46.3	5.6		64.0	8.6	
Level of Service	E	E	E	E	E	E	D	A		E	A	
Approach Delay (s)		68.3			65.1			5.8			12.2	
Approach LOS		E			E			A			B	

Intersection Summary			
HCM 2000 Control Delay	10.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	28.9
Intersection Capacity Utilization	56.5%	ICU Level of Service	B
Analysis Period (min)	15		

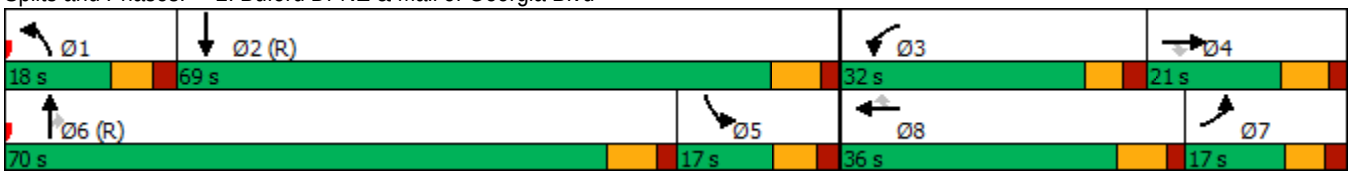
c Critical Lane Group

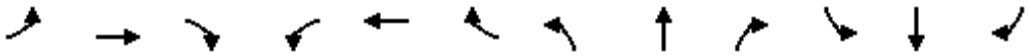
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	52	30	113	405	21	18	113	1512	178	18	1173
Future Volume (vph)	52	30	113	405	21	18	113	1512	178	18	1173
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA
Protected Phases	7	4		3	8		1	6		5	2
Permitted Phases			4			8			6		
Detector Phase	7	4	4	3	8	8	1	6	6	5	2
Switch Phase											
Minimum Initial (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	12.0	12.0	4.0	12.0
Minimum Split (s)	10.6	13.1	13.1	10.6	13.1	13.1	10.9	19.3	19.3	10.9	19.3
Total Split (s)	17.0	21.0	21.0	32.0	36.0	36.0	18.0	70.0	70.0	17.0	69.0
Total Split (%)	12.1%	15.0%	15.0%	22.9%	25.7%	25.7%	12.9%	50.0%	50.0%	12.1%	49.3%
Yellow Time (s)	4.1	5.1	5.1	4.1	5.1	5.1	4.4	5.3	5.3	4.4	5.3
All-Red Time (s)	2.5	2.0	2.0	2.5	2.0	2.0	2.5	2.0	2.0	2.5	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)	6.6	7.1	7.1	6.6	7.1	7.1	6.9	7.3	7.3	6.9	7.3
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 73 (52%), Referenced to phase 2:SBT and 6:NBT, Start of 1st Green
Natural Cycle: 80
Control Type: Actuated-Coordinated

Splits and Phases: 2: Buford Dr NE & Mall of Georgia Blvd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	52	30	113	405	21	18	113	1512	178	18	1173	19
Future Volume (veh/h)	52	30	113	405	21	18	113	1512	178	18	1173	19
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	62	36	0	450	23	20	120	1609	0	21	1348	22
Peak Hour Factor	0.84	0.84	0.84	0.90	0.90	0.90	0.94	0.94	0.94	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	498	80		510	80	68	172	2513		284	2909	47
Arrive On Green	0.14	0.04	0.00	0.15	0.04	0.04	0.02	0.15	0.00	0.32	1.00	1.00
Sat Flow, veh/h	3456	1870	1585	3456	1870	1585	3563	5611	1585	1781	5175	84
Grp Volume(v), veh/h	62	36	0	450	23	20	120	1609	0	21	887	483
Grp Sat Flow(s),veh/h/ln	1728	1870	1585	1728	1870	1585	1781	1870	1585	1781	1702	1855
Q Serve(g_s), s	2.2	2.6	0.0	17.9	1.7	1.4	4.7	37.8	0.0	1.2	0.0	0.0
Cycle Q Clear(g_c), s	2.2	2.6	0.0	17.9	1.7	1.4	4.7	37.8	0.0	1.2	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.05
Lane Grp Cap(c), veh/h	498	80		510	80	68	172	2513		284	1914	1043
V/C Ratio(X)	0.12	0.45		0.88	0.29	0.29	0.70	0.64		0.07	0.46	0.46
Avail Cap(c_a), veh/h	498	186		627	386	327	282	2513		284	1914	1043
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	0.90	0.90	0.00	0.95	0.95	0.95
Uniform Delay (d), s/veh	52.2	65.4	0.0	58.5	64.9	46.4	67.9	49.0	0.0	40.4	0.0	0.0
Incr Delay (d2), s/veh	0.1	3.9	0.0	11.9	1.9	2.4	4.6	1.1	0.0	0.1	0.8	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(50%),veh/ln	1.0	1.3	0.0	8.5	0.8	0.7	2.3	19.2	0.0	0.5	0.2	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.3	69.4	0.0	70.4	66.9	48.8	72.5	50.2	0.0	40.5	0.8	1.4
LnGrp LOS	D	E		E	E	D	E	D		D	A	A
Approach Vol, veh/h		98	A		493			1729	A		1391	
Approach Delay, s/veh		58.6			69.4			51.7			1.6	
Approach LOS		E			E			D			A	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.6	86.0	27.3	13.1	29.6	70.0	27.3	13.1
Change Period (Y+Rc), s	6.9	7.3	6.6	7.1	7.3	* 7.3	7.1	* 7.1
Max Green Setting (Gmax), s	11.1	61.7	25.4	13.9	10.1	* 63	10.4	* 29
Max Q Clear Time (g_c+I1), s	6.7	2.0	19.9	4.6	3.2	39.8	4.2	3.7
Green Ext Time (p_c), s	0.1	11.7	0.8	0.1	0.0	11.9	0.1	0.1

Intersection Summary	
HCM 6th Ctrl Delay	35.5
HCM 6th LOS	D

Notes

User approved volume balancing among the lanes for turning movement.

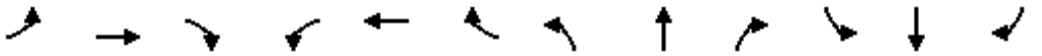
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

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

Lane Group	EBR	WBR	NBT	NBR	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	147	94	1698	258	1335	389
Future Volume (vph)	147	94	1698	258	1335	389
Turn Type	Perm	Prot	NA	Perm	NA	Free
Protected Phases		4	2		6	
Permitted Phases	2			2	4	Free
Detector Phase	2	4	2	2	6	
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	22.5	23.5	22.5	22.5	22.5	
Total Split (s)	115.0	25.0	115.0	115.0	115.0	
Total Split (%)	82.1%	17.9%	82.1%	82.1%	82.1%	
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	C-Max	None	C-Max	C-Max	C-Max	

Intersection Summary
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 55
Control Type: Actuated-Coordinated

Splits and Phases: 3: Buford Dr NE & I-85 SB Ramp



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	147	0	0	94	0	1698	258	0	1335	389
Future Volume (vph)	0	0	147	0	0	94	0	1698	258	0	1335	389
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			5.5			5.5		5.5	5.5		5.5	4.0
Lane Util. Factor			1.00			0.88		0.91	1.00		0.95	1.00
Frt			0.86			0.85		1.00	0.85		1.00	0.85
Flt Protected			1.00			1.00		1.00	1.00		1.00	1.00
Satd. Flow (prot)			1611			2787		5085	1583		3539	1583
Flt Permitted			1.00			1.00		1.00	1.00		1.00	1.00
Satd. Flow (perm)			1611			2787		5085	1583		3539	1583
Peak-hour factor, PHF	0.82	0.82	0.82	0.77	0.77	0.77	0.90	0.90	0.90	0.85	0.85	0.85
Adj. Flow (vph)	0	0	179	0	0	122	0	1887	287	0	1571	458
RTOR Reduction (vph)	0	0	19	0	0	71	0	0	39	0	0	0
Lane Group Flow (vph)	0	0	160	0	0	51	0	1887	248	0	1571	458
Turn Type			Perm			Prot		NA	Perm		NA	Free
Protected Phases						4		2			6	
Permitted Phases			2						2		4	Free
Actuated Green, G (s)			120.9			8.1		120.9	120.9		129.0	140.0
Effective Green, g (s)			120.9			8.1		120.9	120.9		129.0	140.0
Actuated g/C Ratio			0.86			0.06		0.86	0.86		0.92	1.00
Clearance Time (s)			5.5			5.5		5.5	5.5		5.5	
Vehicle Extension (s)			3.0			3.0		3.0	3.0		3.0	
Lane Grp Cap (vph)			1391			161		4391	1367		3539	1583
v/s Ratio Prot						0.02		0.37			c0.38	
v/s Ratio Perm			0.10						0.16		0.06	0.29
v/c Ratio			0.12			0.32		0.43	0.18		0.44	0.29
Uniform Delay, d1			1.4			63.3		2.1	1.5		0.7	0.0
Progression Factor			1.00			1.00		0.53	0.50		1.00	1.00
Incremental Delay, d2			0.2			1.1		0.2	0.2		0.1	0.4
Delay (s)			1.6			64.4		1.3	1.0		0.8	0.4
Level of Service			A			E		A	A		A	A
Approach Delay (s)		1.6			64.4			1.3			0.7	
Approach LOS		A			E			A			A	

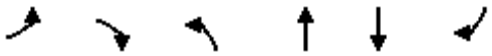
Intersection Summary			
HCM 2000 Control Delay	2.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	55.2%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	171	67	102	1840	1407	80
Future Volume (vph)	171	67	102	1840	1407	80
Turn Type	Perm	Perm	pm+pt	NA	NA	Perm
Protected Phases			1	6	2	
Permitted Phases	4	4	6			2
Detector Phase	4	4	1	6	2	2
Switch Phase						
Minimum Initial (s)	6.0	6.0	4.0	12.0	12.0	12.0
Minimum Split (s)	12.2	12.2	9.7	18.1	18.1	18.1
Total Split (s)	25.0	25.0	20.0	115.0	95.0	95.0
Total Split (%)	17.9%	17.9%	14.3%	82.1%	67.9%	67.9%
Yellow Time (s)	3.2	3.2	3.2	4.7	4.7	4.7
All-Red Time (s)	3.0	3.0	2.5	1.4	1.4	1.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.2	6.2	5.7	6.1	6.1	6.1
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Recall Mode	None	None	None	C-Max	C-Max	C-Max

Intersection Summary
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 118 (84%), Referenced to phase 2:SBT and 6:NBTL, Start of 1st Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

Splits and Phases: 5: Buford Dr NE & Brand Smart Way



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	171	67	102	1840	1407	80
Future Volume (vph)	171	67	102	1840	1407	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.2	6.2	5.7	6.1	6.1	6.1
Lane Util. Factor	0.97	1.00	1.00	0.95	0.95	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	3433	1583	1770	3539	3539	1583
Flt Permitted	0.95	1.00	0.09	1.00	1.00	1.00
Satd. Flow (perm)	3433	1583	176	3539	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.84	0.84
Adj. Flow (vph)	190	74	113	2044	1675	95
RTOR Reduction (vph)	0	67	0	0	0	23
Lane Group Flow (vph)	190	7	113	2044	1675	72
Turn Type	Perm	Perm	pm+pt	NA	NA	Perm
Protected Phases			1	6	2	
Permitted Phases	4	4	6			2
Actuated Green, G (s)	13.0	13.0	114.7	114.7	100.9	100.9
Effective Green, g (s)	13.0	13.0	114.7	114.7	100.9	100.9
Actuated g/C Ratio	0.09	0.09	0.82	0.82	0.72	0.72
Clearance Time (s)	6.2	6.2	5.7	6.1	6.1	6.1
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	318	146	236	2899	2550	1140
v/s Ratio Prot			0.03	c0.58	0.47	
v/s Ratio Perm	c0.06	0.00	0.36			0.05
v/c Ratio	0.60	0.05	0.48	0.71	0.66	0.06
Uniform Delay, d1	61.0	57.9	10.9	5.4	10.4	5.7
Progression Factor	1.00	1.00	3.69	0.42	0.43	0.44
Incremental Delay, d2	3.0	0.1	1.1	1.1	1.3	0.1
Delay (s)	64.0	58.0	41.4	3.3	5.8	2.6
Level of Service	E	E	D	A	A	A
Approach Delay (s)	62.3			5.3	5.6	
Approach LOS	E			A	A	

Intersection Summary			
HCM 2000 Control Delay	9.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	66.1%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	17

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	33	69	1830	15	21	1513
Future Vol, veh/h	33	69	1830	15	21	1513
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Yield	-	Yield	-	None
Storage Length	0	0	-	175	325	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	85	85	93	93	86	86
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	39	81	1968	16	24	1759

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2896	984	0	0	1968	0
Stage 1	1968	-	-	-	-	-
Stage 2	928	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	~ 13	248	-	-	291	-
Stage 1	95	-	-	-	-	-
Stage 2	345	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 12	248	-	-	291	-
Mov Cap-2 Maneuver	~ 12	-	-	-	-	-
Stage 1	95	-	-	-	-	-
Stage 2	317	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	$ 547.9	0	0.3
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	12	248	291	-
HCM Lane V/C Ratio	-	-	3.235	0.327	0.084	-
HCM Control Delay (s)	-	-	$ 1638.4	26.4	18.5	-
HCM Lane LOS	-	-	F	D	C	-
HCM 95th %tile Q(veh)	-	-	5.8	1.4	0.3	-

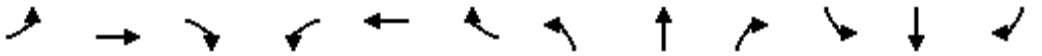
Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	261	20	91	77	41	81	1504	10	23	1321	192
Future Volume (vph)	261	20	91	77	41	81	1504	10	23	1321	192
Turn Type	pm+pt	NA	Perm	Perm	NA	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4			8	1	6		5	2	
Permitted Phases	4		4	8		6		6	2		2
Detector Phase	7	4	4	8	8	1	6	6	5	2	2
Switch Phase											
Minimum Initial (s)	4.0	6.0	6.0	6.0	6.0	4.0	12.0	12.0	4.0	12.0	12.0
Minimum Split (s)	11.0	12.5	12.5	14.0	14.0	10.8	19.3	19.3	12.0	19.3	19.3
Total Split (s)	23.0	46.0	46.0	23.0	23.0	17.0	77.0	77.0	17.0	77.0	77.0
Total Split (%)	16.4%	32.9%	32.9%	16.4%	16.4%	12.1%	55.0%	55.0%	12.1%	55.0%	55.0%
Yellow Time (s)	4.0	3.5	3.5	5.0	5.0	3.8	4.7	4.7	5.0	4.7	4.7
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	2.6	2.6	3.0	2.6	2.6
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	6.5	6.5	8.0	8.0	6.8	7.3	7.3	8.0	7.3	7.3
Lead/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	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 110 (79%), Referenced to phase 2:SBTL and 6:NBTL, Start of 1st Green
Natural Cycle: 90
Control Type: Actuated-Coordinated

Splits and Phases: 7: Buford Dr NE & Rock Springs Rd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	261	20	91	77	41	90	81	1504	10	23	1321	192
Future Volume (veh/h)	261	20	91	77	41	90	81	1504	10	23	1321	192
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	303	23	0	97	52	114	85	1583	0	24	1405	0
Peak Hour Factor	0.86	0.86	0.86	0.79	0.79	0.79	0.95	0.95	0.95	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	442	467		200	56	122	326	2014		263	1985	
Arrive On Green	0.09	0.25	0.00	0.11	0.11	0.11	0.07	1.00	0.00	0.03	1.00	0.00
Sat Flow, veh/h	3456	1870	1585	1388	521	1143	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	303	23	0	97	0	166	85	1583	0	24	1405	0
Grp Sat Flow(s),veh/h/ln	1728	1870	1585	1388	0	1665	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	10.6	1.3	0.0	9.4	0.0	13.8	2.9	0.0	0.0	0.8	0.0	0.0
Cycle Q Clear(g_c), s	10.6	1.3	0.0	9.4	0.0	13.8	2.9	0.0	0.0	0.8	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.69	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	442	467		200	0	178	326	2014		263	1985	
V/C Ratio(X)	0.69	0.05		0.48	0.00	0.93	0.26	0.79		0.09	0.71	
Avail Cap(c_a), veh/h	517	528		200	0	178	395	2014		346	1985	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	1.00	0.85	0.85	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	48.4	39.9	0.0	60.0	0.0	62.0	11.8	0.0	0.0	12.5	0.0	0.0
Incr Delay (d2), s/veh	3.1	0.0	0.0	1.8	0.0	47.8	0.4	2.7	0.0	0.1	2.2	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(50%),veh/ln	4.7	0.6	0.0	3.4	0.0	8.2	1.1	0.8	0.0	0.3	0.6	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	51.5	40.0	0.0	61.8	0.0	109.7	12.1	2.7	0.0	12.7	2.2	0.0
LnGrp LOS	D	D		E	A	F	B	A		B	A	
Approach Vol, veh/h		326	A		263			1668	A		1429	A
Approach Delay, s/veh		50.7			92.1			3.2			2.3	
Approach LOS		D			F			A			A	

Timer - Assigned Phs	1	2		4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.6	85.5		42.9	10.4	86.6	19.9	23.0				
Change Period (Y+Rc), s	* 6.8	* 7.3		* 8	8.0	* 7.3	7.0	8.0				
Max Green Setting (Gmax), s	* 10	* 70		* 40	9.0	* 70	16.0	15.0				
Max Q Clear Time (g_c+I1), s	4.9	2.0		3.3	2.8	2.0	12.6	15.8				
Green Ext Time (p_c), s	0.1	13.7		0.1	0.0	17.3	0.4	0.0				

Intersection Summary		
HCM 6th Ctrl Delay		13.4
HCM 6th LOS		B

Notes

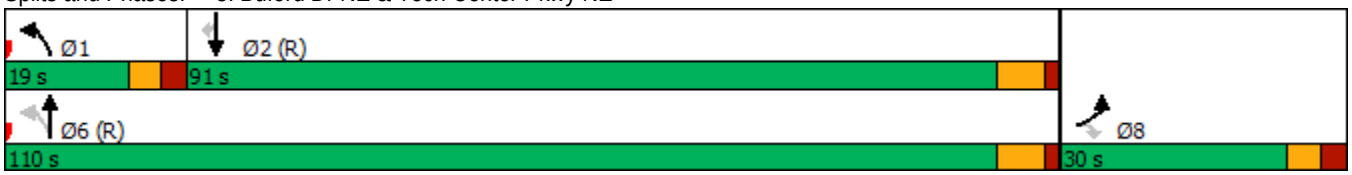
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

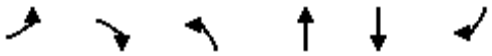
Unsignalized Delay for [NBR, EBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	111	40	48	1456	1371	131
Future Volume (vph)	111	40	48	1456	1371	131
Turn Type	Prot	Perm	pm+pt	NA	NA	Perm
Protected Phases	8		1	6	2	
Permitted Phases		8	6			2
Detector Phase	8	8	1	6	2	2
Switch Phase						
Minimum Initial (s)	6.0	6.0	4.0	20.0	20.0	20.0
Minimum Split (s)	12.4	12.4	10.0	26.6	26.6	26.6
Total Split (s)	30.0	30.0	19.0	110.0	91.0	91.0
Total Split (%)	21.4%	21.4%	13.6%	78.6%	65.0%	65.0%
Yellow Time (s)	3.5	3.5	3.3	5.0	5.0	5.0
All-Red Time (s)	2.9	2.9	2.7	1.6	1.6	1.6
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4	6.4	6.0	6.6	6.6	6.6
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Recall Mode	None	None	None	C-Max	C-Max	C-Max

Intersection Summary
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 74 (53%), Referenced to phase 2:SBT and 6:NBTL, Start of 1st Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

Splits and Phases: 8: Buford Dr NE & Tech Center Pkwy NE





Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	111	40	48	1456	1371	131
Future Volume (veh/h)	111	40	48	1456	1371	131
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	141	0	49	1501	1558	0
Peak Hour Factor	0.79	0.79	0.97	0.97	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	196		354	3022	2783	
Arrive On Green	0.06	0.00	0.05	1.00	1.00	0.00
Sat Flow, veh/h	3456	1585	1781	3647	3647	1585
Grp Volume(v), veh/h	141	0	49	1501	1558	0
Grp Sat Flow(s),veh/h/ln	1728	1585	1781	1777	1777	1585
Q Serve(g_s), s	5.6	0.0	0.7	0.0	0.0	0.0
Cycle Q Clear(g_c), s	5.6	0.0	0.7	0.0	0.0	0.0
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	196		354	3022	2783	
V/C Ratio(X)	0.72		0.14	0.50	0.56	
Avail Cap(c_a), veh/h	583		476	3022	2783	
HCM Platoon Ratio	1.00	1.00	2.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	0.87	0.87	0.63	0.00
Uniform Delay (d), s/veh	64.9	0.0	2.2	0.0	0.0	0.0
Incr Delay (d2), s/veh	4.9	0.0	0.2	0.5	0.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.6	0.0	0.2	0.2	0.2	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	69.8	0.0	2.4	0.5	0.5	0.0
LnGrp LOS	E		A	A	A	
Approach Vol, veh/h	141	A		1550	1558	A
Approach Delay, s/veh	69.8			0.6	0.5	
Approach LOS	E			A	A	

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	9.4	116.3			125.7	14.3
Change Period (Y+Rc), s	6.0	* 6.6			* 6.6	6.4
Max Green Setting (Gmax), s	13.0	* 84			* 1E2	23.6
Max Q Clear Time (g_c+I1), s	2.7	2.0			2.0	7.6
Green Ext Time (p_c), s	0.0	17.1			16.0	0.4

Intersection Summary	
HCM 6th Ctrl Delay	3.6
HCM 6th LOS	A

Notes

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

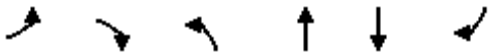
Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	NBL	NBT	SBT	SBR	Ø3	Ø5
Lane Configurations							
Traffic Volume (vph)	21	12	1498	1392	4		
Future Volume (vph)	21	12	1498	1392	4		
Turn Type	Prot	Prot	NA	NA	Perm		
Protected Phases	4	1	6	2		3	5
Permitted Phases					2		
Detector Phase	4	1	6	2	2		
Switch Phase							
Minimum Initial (s)	6.0	4.0	12.0	12.0	12.0	1.0	4.0
Minimum Split (s)	12.4	10.3	18.9	18.9	18.9	5.5	9.6
Total Split (s)	28.0	15.0	86.0	88.0	88.0	9.0	17.0
Total Split (%)	20.0%	10.7%	61.4%	62.9%	62.9%	6%	12%
Yellow Time (s)	3.4	3.7	5.4	5.4	5.4	2.0	3.0
All-Red Time (s)	3.0	2.6	1.5	1.5	1.5	0.0	2.6
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		
Total Lost Time (s)	6.4	6.3	6.9	6.9	6.9		
Lead/Lag	Lag	Lead	Lag	Lag	Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	C-Max	C-Max	C-Max	None	None

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 89 (64%), Referenced to phase 2:SBT and 6:NBT, Start of 1st Green
Natural Cycle: 70
Control Type: Actuated-Coordinated

Splits and Phases: 9: Buford Dr NE & Braves Ave



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	21	0	12	1498	1392	4
Future Volume (vph)	21	0	12	1498	1392	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.4		6.3	6.9	6.9	6.9
Lane Util. Factor	1.00		0.97	0.95	0.95	1.00
Frt	1.00		1.00	1.00	1.00	0.85
Flt Protected	0.95		0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770		3433	3539	3539	1583
Flt Permitted	0.95		0.95	1.00	1.00	1.00
Satd. Flow (perm)	1770		3433	3539	3539	1583
Peak-hour factor, PHF	0.77	0.77	0.96	0.96	0.86	0.86
Adj. Flow (vph)	27	0	12	1560	1619	5
RTOR Reduction (vph)	0	0	0	0	0	1
Lane Group Flow (vph)	27	0	13	1560	1619	4
Turn Type	Prot	Perm	Prot	NA	NA	Perm
Protected Phases	4		1	6	2	
Permitted Phases		4				2
Actuated Green, G (s)	5.3		2.7	121.4	112.4	112.4
Effective Green, g (s)	5.3		2.7	121.4	112.4	112.4
Actuated g/C Ratio	0.04		0.02	0.87	0.80	0.80
Clearance Time (s)	6.4		6.3	6.9	6.9	6.9
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	67		66	3068	2841	1270
v/s Ratio Prot	c0.02		0.00	c0.44	c0.46	
v/s Ratio Perm						0.00
v/c Ratio	0.40		0.20	0.51	0.57	0.00
Uniform Delay, d1	65.8		67.6	2.2	5.0	2.7
Progression Factor	1.00		1.46	0.40	1.15	1.93
Incremental Delay, d2	3.9		1.0	0.4	0.7	0.0
Delay (s)	69.7		99.8	1.3	6.5	5.3
Level of Service	E		F	A	A	A
Approach Delay (s)	69.7			2.1	6.5	
Approach LOS	E			A	A	

Intersection Summary			
HCM 2000 Control Delay	4.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	21.6
Intersection Capacity Utilization	57.5%	ICU Level of Service	B
Analysis Period (min)	15		

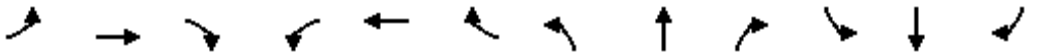
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	98	161	109	153	417	223	116	1171	68	37	1291	42
Future Volume (vph)	98	161	109	153	417	223	116	1171	68	37	1291	42
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases	4		4	8		8			6			2
Detector Phase	7	4	4	3	8	8	1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	15.0	15.0	4.0	15.0	15.0
Minimum Split (s)	10.5	13.4	13.4	10.5	13.4	13.4	10.6	21.6	21.6	10.5	21.6	21.6
Total Split (s)	17.0	42.0	42.0	15.0	40.0	40.0	22.0	66.0	66.0	17.0	61.0	61.0
Total Split (%)	12.1%	30.0%	30.0%	10.7%	28.6%	28.6%	15.7%	47.1%	47.1%	12.1%	43.6%	43.6%
Yellow Time (s)	3.5	4.5	4.5	3.5	4.5	4.5	4.7	4.7	4.7	3.5	4.7	4.7
All-Red Time (s)	3.0	2.9	2.9	3.0	2.9	2.9	1.9	1.9	1.9	3.0	1.9	1.9
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)	6.5	7.4	7.4	6.5	7.4	7.4	6.6	6.6	6.6	6.5	6.6	6.6
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	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 43 (31%), Referenced to phase 2:SBT and 6:NBT, Start of 1st Green
Natural Cycle: 110
Control Type: Actuated-Coordinated

Splits and Phases: 10: Buford Dr NE & Old Peachtree Rd NE



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	98	161	109	153	417	223	116	1171	68	37	1291	42
Future Volume (veh/h)	98	161	109	153	417	223	116	1171	68	37	1291	42
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	105	173	117	161	439	235	122	1233	72	41	1434	47
Peak Hour Factor	0.93	0.93	0.93	0.95	0.95	0.95	0.95	0.95	0.95	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	155	431	365	325	436	369	146	1753	782	79	1541	687
Arrive On Green	0.06	0.23	0.23	0.06	0.23	0.23	0.08	0.49	0.49	0.01	0.14	0.14
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	3554	1585	3456	3554	1585
Grp Volume(v), veh/h	105	173	117	161	439	235	122	1233	72	41	1434	47
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	1777	1585	1728	1777	1585
Q Serve(g_s), s	6.2	11.0	8.6	8.5	32.6	18.7	9.5	37.7	3.4	1.7	55.8	3.6
Cycle Q Clear(g_c), s	6.2	11.0	8.6	8.5	32.6	18.7	9.5	37.7	3.4	1.7	55.8	3.6
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	155	431	365	325	436	369	146	1753	782	79	1541	687
V/C Ratio(X)	0.68	0.40	0.32	0.50	1.01	0.64	0.84	0.70	0.09	0.52	0.93	0.07
Avail Cap(c_a), veh/h	185	462	392	325	436	369	196	1753	782	259	1541	687
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.84	0.84	0.84
Uniform Delay (d), s/veh	41.4	45.7	44.8	40.5	53.7	48.4	63.4	27.5	18.8	68.7	57.9	35.5
Incr Delay (d2), s/veh	7.5	0.6	0.5	1.2	45.1	3.6	20.4	2.4	0.2	4.4	10.0	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(50%),veh/ln	3.0	5.1	3.4	0.7	20.4	7.6	5.0	15.6	1.3	0.8	28.7	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	48.8	46.3	45.3	41.7	98.8	52.0	83.8	29.9	19.1	73.1	67.8	35.7
LnGrp LOS	D	D	D	D	F	D	F	C	B	E	E	D
Approach Vol, veh/h		395			835			1427			1522	
Approach Delay, s/veh		46.7			74.6			34.0			67.0	
Approach LOS		D			E			C			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	18.0	67.3	15.0	39.6	9.7	75.7	14.6	40.0
Change Period (Y+Rc), s	* 6.6	* 6.6	6.5	7.4	6.5	* 6.6	6.5	7.4
Max Green Setting (Gmax), s	* 15	* 54	8.5	34.6	10.5	* 59	10.5	32.6
Max Q Clear Time (g_c+I1), s	11.5	57.8	10.5	13.0	3.7	39.7	8.2	34.6
Green Ext Time (p_c), s	0.1	0.0	0.0	1.2	0.0	8.3	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	55.3
HCM 6th LOS	E

Notes

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

Intersection: 1: Buford Dr NE & Mall Drwy/Woodward Crossing Blvd

Movement	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	NB	SB
Directions Served	L	T	R	L	L	TR	R	L	T	T	TR	L
Maximum Queue (ft)	51	28	27	47	71	73	30	71	187	239	248	117
Average Queue (ft)	11	5	3	6	30	22	3	8	80	115	131	16
95th Queue (ft)	35	21	16	26	70	51	16	34	147	200	227	56
Link Distance (ft)	330	330	330			1590	1590		3054	3054	3054	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)				250	250			300				500
Storage Blk Time (%)												
Queuing Penalty (veh)												

Intersection: 1: Buford Dr NE & Mall Drwy/Woodward Crossing Blvd

Movement	SB	SB	SB	SB
Directions Served	L	T	T	TR
Maximum Queue (ft)	133	173	188	177
Average Queue (ft)	63	64	65	32
95th Queue (ft)	116	139	158	102
Link Distance (ft)		1465	1465	1465
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	500			
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 2: Buford Dr NE & Mall of Georgia Blvd

Movement	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	NB	NB
Directions Served	L	L	T	L	L	T	R	L	L	T	T	TR
Maximum Queue (ft)	69	29	98	265	318	64	41	91	96	199	219	233
Average Queue (ft)	37	7	22	166	213	12	10	31	57	114	141	151
95th Queue (ft)	73	26	57	251	291	42	30	71	98	192	218	236
Link Distance (ft)	1056	1056	1056			1308				974	974	974
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)				275	275		400	375	375			
Storage Blk Time (%)				0	2							5
Queuing Penalty (veh)				0	1							4

Intersection: 2: Buford Dr NE & Mall of Georgia Blvd

Movement	SB	SB	SB	SB
Directions Served	L	T	T	TR
Maximum Queue (ft)	51	223	247	268
Average Queue (ft)	15	133	158	118
95th Queue (ft)	43	206	235	205
Link Distance (ft)		3054	3054	3054
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	300			
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: Buford Dr NE & I-85 SB Ramp

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 4: Buford Dr NE & I-85 NB Ramp

Movement	WB
Directions Served	R
Maximum Queue (ft)	170
Average Queue (ft)	18
95th Queue (ft)	93
Link Distance (ft)	1031
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 5: Buford Dr NE & Brand Smart Way

Movement	EB	EB	EB	NB	NB	NB	SB	SB
Directions Served	L	L	R	L	T	T	T	T
Maximum Queue (ft)	138	161	56	116	168	185	178	227
Average Queue (ft)	91	77	2	50	64	97	86	118
95th Queue (ft)	136	138	19	95	139	188	170	216
Link Distance (ft)	864	864	864		1166	1166	1076	1076
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)				300				
Storage Blk Time (%)								
Queuing Penalty (veh)								

Intersection: 6: Buford Dr NE & Laurel Crossing Pkwy NE

Movement	WB	SB
Directions Served	L	L
Maximum Queue (ft)	115	90
Average Queue (ft)	57	18
95th Queue (ft)	104	51
Link Distance (ft)	3679	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		325
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 7: Buford Dr NE & Rock Springs Rd

Movement	EB	EB	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	L	T	R	L	TR	L	T	T	L	T	T
Maximum Queue (ft)	157	179	41	122	132	218	146	268	242	23	584	652
Average Queue (ft)	79	86	12	20	60	102	37	104	115	11	346	383
95th Queue (ft)	136	151	34	73	117	181	92	187	203	28	547	597
Link Distance (ft)	2600	2600	2600			2242		412	412		1184	1184
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)				150	200		175			225		
Storage Blk Time (%)						2		0	5		16	32
Queuing Penalty (veh)						1		0	0		4	61

Intersection: 7: Buford Dr NE & Rock Springs Rd

Movement	SB
Directions Served	R
Maximum Queue (ft)	175
Average Queue (ft)	87
95th Queue (ft)	231
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	75
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 8: Buford Dr NE & Tech Center Pkwy NE

Movement	EB	EB	EB	NB	NB	NB	SB	SB
Directions Served	L	L	R	L	T	T	T	T
Maximum Queue (ft)	95	94	56	115	120	61	138	135
Average Queue (ft)	53	44	2	37	13	13	74	75
95th Queue (ft)	85	81	19	79	62	42	131	129
Link Distance (ft)	2083	2083	2083		1479	1479	412	412
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)				250				
Storage Blk Time (%)								0
Queuing Penalty (veh)								0

Intersection: 9: Buford Dr NE & Braves Ave

Movement	EB	NB	NB	NB	NB	SB	SB
Directions Served	L	L	L	T	T	T	T
Maximum Queue (ft)	55	24	53	26	27	282	262
Average Queue (ft)	21	1	13	2	4	61	68
95th Queue (ft)	53	10	40	13	20	192	192
Link Distance (ft)	766			1552	1552	1479	1479
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)		850	850				
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 10: Buford Dr NE & Old Peachtree Rd NE

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB
Directions Served	L	T	R	L	T	R	L	T	T	R	L	L
Maximum Queue (ft)	134	173	84	275	984	500	175	387	423	24	46	61
Average Queue (ft)	78	94	40	207	507	240	100	284	270	12	10	23
95th Queue (ft)	132	161	82	365	757	585	176	387	381	28	30	50
Link Distance (ft)	2063	2063			2738			1230	1230			
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)			300	225		400	375			375	375	375
Storage Blk Time (%)					54			1	1			
Queuing Penalty (veh)					204			1	1			

Intersection: 10: Buford Dr NE & Old Peachtree Rd NE

Movement	SB	SB	SB
Directions Served	T	T	R
Maximum Queue (ft)	726	743	135
Average Queue (ft)	380	393	28
95th Queue (ft)	595	598	107
Link Distance (ft)	1552	1552	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			110
Storage Blk Time (%)	8	38	0
Queuing Penalty (veh)	3	16	0

Network Summary

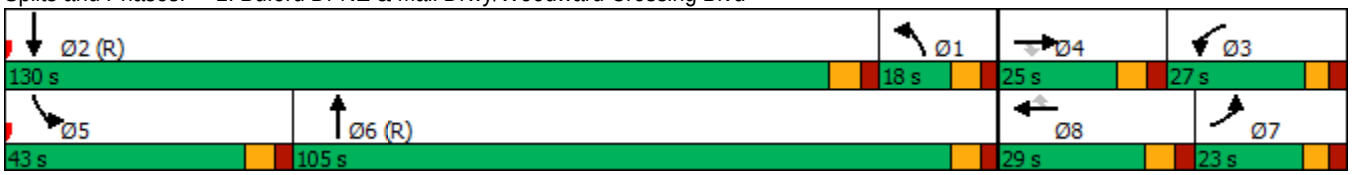
Network wide Queuing Penalty: 296

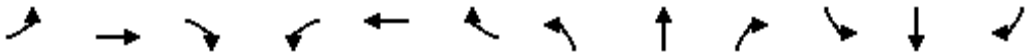
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	46	32	16	177	17	206	37	1647	366	1790
Future Volume (vph)	46	32	16	177	17	206	37	1647	366	1790
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Prot	NA
Protected Phases	7	4		3	8		1	6	5	2
Permitted Phases			4			8				
Detector Phase	7	4	4	3	8	8	1	6	5	2
Switch Phase										
Minimum Initial (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	12.0	4.0	12.0
Minimum Split (s)	10.9	13.4	13.4	10.5	13.4	13.4	11.3	25.3	11.3	19.3
Total Split (s)	23.0	25.0	25.0	27.0	29.0	29.0	18.0	105.0	43.0	130.0
Total Split (%)	11.5%	12.5%	12.5%	13.5%	14.5%	14.5%	9.0%	52.5%	21.5%	65.0%
Yellow Time (s)	3.9	4.4	4.4	3.5	4.4	4.4	4.6	4.6	4.6	4.6
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	2.7	2.7	2.7	2.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.9	7.4	7.4	6.5	7.4	7.4	7.3	7.3	7.3	7.3
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	None	C-Max

Intersection Summary

Cycle Length: 200
Actuated Cycle Length: 200
Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBT, Start of 1st Green
Natural Cycle: 90
Control Type: Actuated-Coordinated

Splits and Phases: 1: Buford Dr NE & Mall Drwy/Woodward Crossing Blvd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	46	32	16	177	17	206	37	1647	108	366	1790	44
Future Volume (vph)	46	32	16	177	17	206	37	1647	108	366	1790	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.9	7.4	7.4	6.5	7.4	7.4	7.3	7.3		7.3	7.3	
Lane Util. Factor	1.00	1.00	1.00	0.97	0.95	0.95	1.00	0.91		0.97	0.91	
Frt	1.00	1.00	0.85	1.00	0.87	0.85	1.00	0.99		1.00	1.00	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1863	1583	3433	1545	1504	1770	5038		3433	5067	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1863	1583	3433	1545	1504	1770	5038		3433	5067	
Peak-hour factor, PHF	0.73	0.73	0.73	0.82	0.82	0.82	0.90	0.90	0.90	0.95	0.95	0.95
Adj. Flow (vph)	63	44	22	216	21	251	41	1830	120	385	1884	46
RTOR Reduction (vph)	0	0	21	0	105	129	0	3	0	0	1	0
Lane Group Flow (vph)	63	44	1	216	31	7	41	1947	0	385	1929	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases			4			8						
Actuated Green, G (s)	17.7	8.8	8.8	19.5	10.2	10.2	8.6	115.5		27.7	134.6	
Effective Green, g (s)	17.7	8.8	8.8	19.5	10.2	10.2	8.6	115.5		27.7	134.6	
Actuated g/C Ratio	0.09	0.04	0.04	0.10	0.05	0.05	0.04	0.58		0.14	0.67	
Clearance Time (s)	6.9	7.4	7.4	6.5	7.4	7.4	7.3	7.3		7.3	7.3	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	156	81	69	334	78	76	76	2909		475	3410	
v/s Ratio Prot	0.04	c0.02		c0.06	0.02		0.02	c0.39		c0.11	0.38	
v/s Ratio Perm			0.00			0.00						
v/c Ratio	0.40	0.54	0.01	0.65	0.39	0.09	0.54	0.67		0.81	0.57	
Uniform Delay, d1	86.2	93.6	91.5	86.9	91.9	90.5	93.8	29.1		83.6	17.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.73	0.34		1.00	1.00	
Incremental Delay, d2	1.7	7.2	0.1	4.3	3.2	0.5	5.2	0.9		10.1	0.7	
Delay (s)	87.9	100.9	91.5	91.2	95.2	91.0	73.5	10.9		93.7	18.0	
Level of Service	F	F	F	F	F	F	E	B		F	B	
Approach Delay (s)		92.9			92.2			12.1			30.5	
Approach LOS		F			F			B			C	

Intersection Summary			
HCM 2000 Control Delay	30.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	200.0	Sum of lost time (s)	28.9
Intersection Capacity Utilization	74.7%	ICU Level of Service	D
Analysis Period (min)	15		

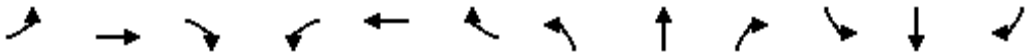
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	171	170	387	329	116	90	363	1617	735	54	1766
Future Volume (vph)	171	170	387	329	116	90	363	1617	735	54	1766
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA
Protected Phases	7	4		3	8		1	6		5	2
Permitted Phases			4			8			6		
Detector Phase	7	4	4	3	8	8	1	6	6	5	2
Switch Phase											
Minimum Initial (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	12.0	12.0	4.0	12.0
Minimum Split (s)	10.6	13.1	13.1	10.6	13.1	13.1	10.9	19.3	19.3	10.9	19.3
Total Split (s)	27.0	30.0	30.0	35.0	38.0	38.0	32.0	116.0	116.0	19.0	103.0
Total Split (%)	13.5%	15.0%	15.0%	17.5%	19.0%	19.0%	16.0%	58.0%	58.0%	9.5%	51.5%
Yellow Time (s)	4.1	5.1	5.1	4.1	5.1	5.1	4.4	5.3	5.3	4.4	5.3
All-Red Time (s)	2.5	2.0	2.0	2.5	2.0	2.0	2.5	2.0	2.0	2.5	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)	6.6	7.1	7.1	6.6	7.1	7.1	6.9	7.3	7.3	6.9	7.3
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max

Intersection Summary

Cycle Length: 200
Actuated Cycle Length: 200
Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBT, Start of 1st Green
Natural Cycle: 100
Control Type: Actuated-Coordinated

Splits and Phases: 2: Buford Dr NE & Mall of Georgia Blvd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	171	170	387	329	116	90	363	1617	735	54	1766	173
Future Volume (veh/h)	171	170	387	329	116	90	363	1617	735	54	1766	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	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	192	191	0	378	133	103	382	1934	0	62	2030	199
Peak Hour Factor	0.89	0.89	0.89	0.87	0.87	0.87	0.95	0.95	0.95	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	504	208		418	157	133	414	3050		147	2422	235
Arrive On Green	0.15	0.11	0.00	0.12	0.08	0.08	0.23	1.00	0.00	0.17	1.00	1.00
Sat Flow, veh/h	3456	1870	1585	3456	1870	1585	3563	5611	1585	1781	4732	460
Grp Volume(v), veh/h	192	191	0	378	133	103	382	1934	0	62	1455	774
Grp Sat Flow(s),veh/h/ln	1728	1870	1585	1728	1870	1585	1781	1870	1585	1781	1702	1788
Q Serve(g_s), s	10.1	20.2	0.0	21.6	14.0	10.1	20.9	0.0	0.0	6.2	0.0	0.0
Cycle Q Clear(g_c), s	10.1	20.2	0.0	21.6	14.0	10.1	20.9	0.0	0.0	6.2	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.26
Lane Grp Cap(c), veh/h	504	208		418	157	133	414	3050		147	1742	915
V/C Ratio(X)	0.38	0.92		0.90	0.85	0.77	0.92	0.63		0.42	0.84	0.85
Avail Cap(c_a), veh/h	504	214		491	289	245	447	3050		147	1742	915
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	0.78	0.78	0.00	0.81	0.81	0.81
Uniform Delay (d), s/veh	77.3	87.9	0.0	86.8	90.3	56.9	75.8	0.0	0.0	79.2	0.0	0.0
Incr Delay (d2), s/veh	0.5	38.8	0.0	18.3	11.6	9.1	19.8	0.8	0.0	1.5	4.0	7.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.5	12.1	0.0	10.7	7.3	4.4	9.8	0.2	0.0	2.8	1.0	2.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	77.7	126.8	0.0	105.1	102.0	66.1	95.6	0.8	0.0	80.7	4.0	7.8
LnGrp LOS	E	F		F	F	E	F	A		F	A	A
Approach Vol, veh/h		383	A		614			2316	A		2291	
Approach Delay, s/veh		102.2			97.9			16.4			7.4	
Approach LOS		F			F			B			A	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	30.2	109.7	30.8	29.4	23.8	116.0	36.3	23.9
Change Period (Y+Rc), s	6.9	7.3	6.6	7.1	7.3	* 7.3	7.1	* 7.1
Max Green Setting (Gmax), s	25.1	95.7	28.4	22.9	12.1	* 1.1E2	20.4	* 31
Max Q Clear Time (g_c+I1), s	22.9	2.0	23.6	22.2	8.2	2.0	12.1	16.0
Green Ext Time (p_c), s	0.3	33.8	0.6	0.1	0.0	26.9	0.4	0.8

Intersection Summary	
HCM 6th Ctrl Delay	27.5
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

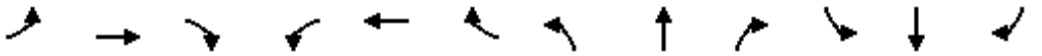
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

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

Lane Group	EBR	WBR	NBT	NBR	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	148	213	2425	32	2155	363
Future Volume (vph)	148	213	2425	32	2155	363
Turn Type	Perm	Prot	NA	Perm	NA	Free
Protected Phases		4	2		6	
Permitted Phases	2 4			2	4	Free
Detector Phase	2 4	4	2	2	6	
Switch Phase						
Minimum Initial (s)		5.0	5.0	5.0	5.0	
Minimum Split (s)		22.5	22.5	22.5	22.5	
Total Split (s)		70.0	130.0	130.0	130.0	
Total Split (%)		35.0%	65.0%	65.0%	65.0%	
Yellow Time (s)		3.5	3.5	3.5	3.5	
All-Red Time (s)		1.0	1.0	1.0	1.0	
Lost Time Adjust (s)		0.0	0.0	0.0	0.0	
Total Lost Time (s)		4.5	4.5	4.5	4.5	
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode		None	C-Max	C-Max	C-Max	

Intersection Summary
Cycle Length: 200
Actuated Cycle Length: 200
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

Splits and Phases: 3: Buford Dr NE & I-85 SB Ramp



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	148	0	0	213	0	2425	32	0	2155	363
Future Volume (vph)	0	0	148	0	0	213	0	2425	32	0	2155	363
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			4.5			4.5		4.5	4.5		4.5	4.0
Lane Util. Factor			1.00			0.88		0.91	1.00		0.95	1.00
Frt			0.86			0.85		1.00	0.85		1.00	0.85
Flt Protected			1.00			1.00		1.00	1.00		1.00	1.00
Satd. Flow (prot)			1611			2787		5085	1583		3539	1583
Flt Permitted			1.00			1.00		1.00	1.00		1.00	1.00
Satd. Flow (perm)			1611			2787		5085	1583		3539	1583
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.95	0.95	0.95
Adj. Flow (vph)	0	0	153	0	0	220	0	2500	33	0	2268	382
RTOR Reduction (vph)	0	0	0	0	0	7	0	0	3	0	0	0
Lane Group Flow (vph)	0	0	153	0	0	213	0	2500	30	0	2268	382
Turn Type			Perm			Prot		NA	Perm		NA	Free
Protected Phases						4		2			6	
Permitted Phases			2 4						2		4	Free
Actuated Green, G (s)			200.0			20.8		170.2	170.2		191.0	200.0
Effective Green, g (s)			200.0			20.8		170.2	170.2		191.0	200.0
Actuated g/C Ratio			1.00			0.10		0.85	0.85		0.96	1.00
Clearance Time (s)						4.5		4.5	4.5		4.5	
Vehicle Extension (s)						3.0		3.0	3.0		3.0	
Lane Grp Cap (vph)			1611			289		4327	1347		3539	1583
v/s Ratio Prot						0.08		0.49			c0.55	
v/s Ratio Perm			0.09						0.02		0.10	0.24
v/c Ratio			0.09			0.74		0.58	0.02		0.64	0.24
Uniform Delay, d1			0.0			86.9		4.4	2.3		0.5	0.0
Progression Factor			1.00			1.00		1.29	1.51		1.00	1.00
Incremental Delay, d2			0.0			9.4		0.5	0.0		0.1	0.1
Delay (s)			0.0			96.3		6.2	3.4		0.7	0.1
Level of Service			A			F		A	A		A	A
Approach Delay (s)		0.0			96.3			6.1			0.6	
Approach LOS		A			F			A			A	

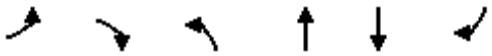
Intersection Summary			
HCM 2000 Control Delay	6.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	200.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	76.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	148	79	110	2020	1980	168
Future Volume (vph)	148	79	110	2020	1980	168
Turn Type	Perm	Perm	pm+pt	NA	NA	Perm
Protected Phases			1	6	2	
Permitted Phases	4	4	6			2
Detector Phase	4	4	1	6	2	2
Switch Phase						
Minimum Initial (s)	6.0	6.0	4.0	12.0	12.0	12.0
Minimum Split (s)	12.2	12.2	9.7	18.1	18.1	18.1
Total Split (s)	35.0	35.0	25.0	165.0	140.0	140.0
Total Split (%)	17.5%	17.5%	12.5%	82.5%	70.0%	70.0%
Yellow Time (s)	3.2	3.2	3.2	4.7	4.7	4.7
All-Red Time (s)	3.0	3.0	2.5	1.4	1.4	1.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.2	6.2	5.7	6.1	6.1	6.1
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Recall Mode	None	None	None	C-Max	C-Max	C-Max

Intersection Summary
Cycle Length: 200
Actuated Cycle Length: 200
Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBTL, Start of 1st Green
Natural Cycle: 80
Control Type: Actuated-Coordinated

Splits and Phases: 5: Buford Dr NE & Brand Smart Way



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	148	79	110	2020	1980	168
Future Volume (vph)	148	79	110	2020	1980	168
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.2	6.2	5.7	6.1	6.1	6.1
Lane Util. Factor	0.97	1.00	1.00	0.95	0.95	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	3433	1583	1770	3539	3539	1583
Flt Permitted	0.95	1.00	0.05	1.00	1.00	1.00
Satd. Flow (perm)	3433	1583	88	3539	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.96	0.96	0.93	0.93
Adj. Flow (vph)	164	88	115	2104	2129	181
RTOR Reduction (vph)	0	81	0	0	0	23
Lane Group Flow (vph)	164	7	115	2104	2129	158
Turn Type	Perm	Perm	pm+pt	NA	NA	Perm
Protected Phases			1	6	2	
Permitted Phases	4	4	6			2
Actuated Green, G (s)	14.9	14.9	172.8	172.8	153.6	153.6
Effective Green, g (s)	14.9	14.9	172.8	172.8	153.6	153.6
Actuated g/C Ratio	0.07	0.07	0.86	0.86	0.77	0.77
Clearance Time (s)	6.2	6.2	5.7	6.1	6.1	6.1
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	255	117	189	3057	2717	1215
v/s Ratio Prot			0.04	c0.59	c0.60	
v/s Ratio Perm	c0.05	0.00	0.48			0.10
v/c Ratio	0.64	0.06	0.61	0.69	0.78	0.13
Uniform Delay, d1	90.0	86.0	45.6	4.6	13.5	6.0
Progression Factor	1.00	1.00	1.55	0.29	1.05	1.67
Incremental Delay, d2	5.5	0.2	4.3	1.0	1.9	0.2
Delay (s)	95.4	86.2	74.9	2.3	16.1	10.2
Level of Service	F	F	E	A	B	B
Approach Delay (s)	92.2			6.1	15.6	
Approach LOS	F			A	B	

Intersection Summary			
HCM 2000 Control Delay	15.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	200.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	80.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	33.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	18	43	2074	44	87	2015
Future Vol, veh/h	18	43	2074	44	87	2015
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Yield	-	Yield	-	None
Storage Length	0	0	-	175	325	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	69	69	96	96	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	26	62	2160	46	95	2190

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	3445	1080	0	0	2160	0
Stage 1	2160	-	-	-	-	-
Stage 2	1285	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	~ 5	214	-	-	245	-
Stage 1	74	-	-	-	-	-
Stage 2	223	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 3	214	-	-	245	-
Mov Cap-2 Maneuver	~ 3	-	-	-	-	-
Stage 1	74	-	-	-	-	-
Stage 2	136	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	$ 1705.2	0	1.2
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	3	214	245	-
HCM Lane V/C Ratio	-	-	8.696	0.291	0.386	-
HCM Control Delay (s)	-	-	$ 5710.3	28.6	28.6	-
HCM Lane LOS	-	-	F	D	D	-
HCM 95th %tile Q(veh)	-	-	4.9	1.2	1.7	-

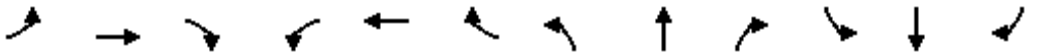
Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	35	24	112	35	24	64	1692	58	77	1764	259
Future Volume (vph)	35	24	112	35	24	64	1692	58	77	1764	259
Turn Type	pm+pt	NA	Perm	Perm	NA	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4			8	1	6		5	2	
Permitted Phases	4		4	8		6		6	2		2
Detector Phase	7	4	4	8	8	1	6	6	5	2	2
Switch Phase											
Minimum Initial (s)	4.0	6.0	6.0	6.0	6.0	4.0	12.0	12.0	4.0	12.0	12.0
Minimum Split (s)	11.0	12.5	12.5	14.0	14.0	10.8	19.3	19.3	12.0	19.3	19.3
Total Split (s)	28.0	48.0	48.0	20.0	20.0	17.0	117.0	117.0	35.0	135.0	135.0
Total Split (%)	14.0%	24.0%	24.0%	10.0%	10.0%	8.5%	58.5%	58.5%	17.5%	67.5%	67.5%
Yellow Time (s)	4.0	3.5	3.5	5.0	5.0	3.8	4.7	4.7	5.0	4.7	4.7
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	2.6	2.6	3.0	2.6	2.6
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	6.5	6.5	8.0	8.0	6.8	7.3	7.3	8.0	7.3	7.3
Lead/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	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max

Intersection Summary

Cycle Length: 200
Actuated Cycle Length: 200
Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBTL, Start of 1st Green
Natural Cycle: 90
Control Type: Actuated-Coordinated

Splits and Phases: 7: Buford Dr NE & Rock Springs Rd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	35	24	112	35	24	43	64	1692	58	77	1764	259
Future Volume (veh/h)	35	24	112	35	24	43	64	1692	58	77	1764	259
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	45	31	0	41	28	50	70	1859	0	82	1877	0
Peak Hour Factor	0.77	0.77	0.77	0.86	0.86	0.86	0.91	0.91	0.91	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	169	209		113	34	60	253	2665		260	2694	
Arrive On Green	0.02	0.11	0.00	0.06	0.06	0.06	0.04	1.00	0.00	0.04	1.00	0.00
Sat Flow, veh/h	3456	1870	1585	1378	602	1075	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	45	31	0	41	0	78	70	1859	0	82	1877	0
Grp Sat Flow(s),veh/h/ln	1728	1870	1585	1378	0	1677	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	2.4	3.0	0.0	5.8	0.0	9.2	1.9	0.0	0.0	2.3	0.0	0.0
Cycle Q Clear(g_c), s	2.4	3.0	0.0	5.8	0.0	9.2	1.9	0.0	0.0	2.3	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.64	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	169	209		113	0	94	253	2665		260	2694	
V/C Ratio(X)	0.27	0.15		0.36	0.00	0.83	0.28	0.70		0.31	0.70	
Avail Cap(c_a), veh/h	461	388		119	0	101	309	2665		462	2694	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	1.00	0.78	0.78	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	84.8	80.2	0.0	91.8	0.0	93.4	5.4	0.0	0.0	5.3	0.0	0.0
Incr Delay (d2), s/veh	0.8	0.3	0.0	1.9	0.0	39.4	0.5	1.2	0.0	0.7	1.5	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(50%),veh/ln	1.1	1.5	0.0	2.1	0.0	5.1	0.7	0.4	0.0	0.8	0.6	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	85.7	80.5	0.0	93.7	0.0	132.9	5.9	1.2	0.0	6.0	1.5	0.0
LnGrp LOS	F	F		F	A	F	A	A		A	A	
Approach Vol, veh/h		76	A		119			1929	A		1959	A
Approach Delay, s/veh		83.6			119.4			1.4			1.7	
Approach LOS		F			F			A			A	

Timer - Assigned Phs	1	2		4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.7	158.9		30.4	12.4	157.3	11.1	19.2				
Change Period (Y+Rc), s	* 6.8	* 7.3		* 8	8.0	* 7.3	7.0	8.0				
Max Green Setting (Gmax), s	* 10	* 1.3E2		* 42	27.0	* 1.1E2	21.0	12.0				
Max Q Clear Time (g_c+I1), s	3.9	2.0		5.0	4.3	2.0	4.4	11.2				
Green Ext Time (p_c), s	0.1	27.3		0.1	0.2	26.3	0.1	0.0				

Intersection Summary	
HCM 6th Ctrl Delay	6.5
HCM 6th LOS	A

Notes

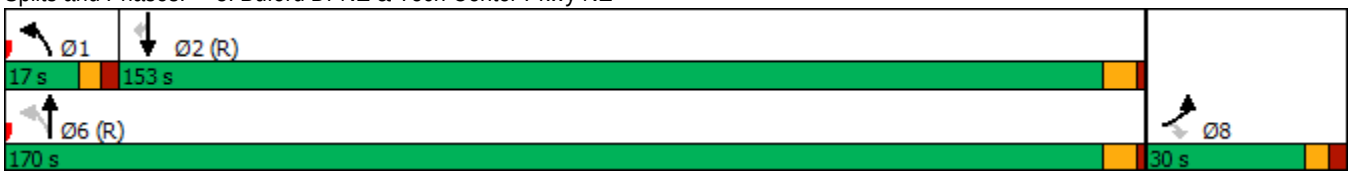
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

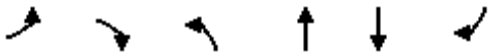
Unsignalized Delay for [NBR, EBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	188	97	56	1637	1715	155
Future Volume (vph)	188	97	56	1637	1715	155
Turn Type	Prot	Perm	pm+pt	NA	NA	Perm
Protected Phases	8		1	6	2	
Permitted Phases		8	6			2
Detector Phase	8	8	1	6	2	2
Switch Phase						
Minimum Initial (s)	6.0	6.0	4.0	20.0	20.0	20.0
Minimum Split (s)	12.4	12.4	10.0	26.6	26.6	26.6
Total Split (s)	30.0	30.0	17.0	170.0	153.0	153.0
Total Split (%)	15.0%	15.0%	8.5%	85.0%	76.5%	76.5%
Yellow Time (s)	3.5	3.5	3.3	5.0	5.0	5.0
All-Red Time (s)	2.9	2.9	2.7	1.6	1.6	1.6
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4	6.4	6.0	6.6	6.6	6.6
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Recall Mode	None	None	None	C-Max	C-Max	C-Max

Intersection Summary
Cycle Length: 200
Actuated Cycle Length: 200
Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBTL, Start of 1st Green
Natural Cycle: 75
Control Type: Actuated-Coordinated

Splits and Phases: 8: Buford Dr NE & Tech Center Pkwy NE





Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	188	97	56	1637	1715	155
Future Volume (veh/h)	188	97	56	1637	1715	155
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	221	0	58	1705	1927	0
Peak Hour Factor	0.85	0.85	0.96	0.96	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	261		258	3054	2880	
Arrive On Green	0.08	0.00	0.04	1.00	1.00	0.00
Sat Flow, veh/h	3456	1585	1781	3647	3647	1585
Grp Volume(v), veh/h	221	0	58	1705	1927	0
Grp Sat Flow(s),veh/h/ln	1728	1585	1781	1777	1777	1585
Q Serve(g_s), s	12.6	0.0	1.1	0.0	0.0	0.0
Cycle Q Clear(g_c), s	12.6	0.0	1.1	0.0	0.0	0.0
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	261		258	3054	2880	
V/C Ratio(X)	0.85		0.23	0.56	0.67	
Avail Cap(c_a), veh/h	408		321	3054	2880	
HCM Platoon Ratio	1.00	1.00	2.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	0.81	0.81	0.64	0.00
Uniform Delay (d), s/veh	91.3	0.0	2.6	0.0	0.0	0.0
Incr Delay (d2), s/veh	9.5	0.0	0.4	0.6	0.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.0	0.0	0.3	0.3	0.3	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	100.8	0.0	3.0	0.6	0.8	0.0
LnGrp LOS	F		A	A	A	
Approach Vol, veh/h	221	A		1763	1927	A
Approach Delay, s/veh	100.8			0.7	0.8	
Approach LOS	F			A	A	

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	9.8	168.7			178.5	21.5
Change Period (Y+Rc), s	6.0	* 6.6			* 6.6	6.4
Max Green Setting (Gmax), s	11.0	* 1.5E2			* 1.6E2	23.6
Max Q Clear Time (g_c+I1), s	3.1	2.0			2.0	14.6
Green Ext Time (p_c), s	0.0	29.6			21.5	0.5

Intersection Summary	
HCM 6th Ctrl Delay	6.4
HCM 6th LOS	A

Notes

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

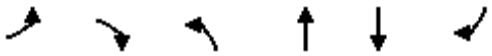
Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø3	Ø5
Lane Configurations								
Traffic Volume (vph)	5	9	41	1685	1757	51		
Future Volume (vph)	5	9	41	1685	1757	51		
Turn Type	Prot	Perm	Prot	NA	NA	Perm		
Protected Phases	4		1	6	2		3	5
Permitted Phases		4				2		
Detector Phase	4	4	1	6	2	2		
Switch Phase								
Minimum Initial (s)	6.0	6.0	4.0	12.0	12.0	12.0	5.0	5.0
Minimum Split (s)	12.4	12.4	10.3	18.9	18.9	18.9	9.5	9.5
Total Split (s)	28.0	28.0	18.0	146.0	145.0	145.0	9.0	17.0
Total Split (%)	14.0%	14.0%	9.0%	73.0%	72.5%	72.5%	5%	9%
Yellow Time (s)	3.4	3.4	3.7	5.4	5.4	5.4	3.0	3.0
All-Red Time (s)	3.0	3.0	2.6	1.5	1.5	1.5	0.0	0.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0		
Total Lost Time (s)	6.4	6.4	6.3	6.9	6.9	6.9		
Lead/Lag	Lag	Lag	Lead	Lag	Lag	Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	C-Max	C-Max	C-Max	None	None

Intersection Summary

Cycle Length: 200
Actuated Cycle Length: 200
Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBT, Start of 1st Green
Natural Cycle: 90
Control Type: Actuated-Coordinated

Splits and Phases: 9: Buford Dr NE & Braves Ave



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	5	9	41	1685	1757	51
Future Volume (vph)	5	9	41	1685	1757	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.4	6.4	6.3	6.9	6.9	6.9
Lane Util. Factor	1.00	1.00	0.97	0.95	0.95	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	1583	3433	3539	3539	1583
Flt Permitted	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	1770	1583	3433	3539	3539	1583
Peak-hour factor, PHF	0.88	0.88	0.91	0.91	0.97	0.97
Adj. Flow (vph)	6	10	45	1852	1811	53
RTOR Reduction (vph)	0	10	0	0	0	8
Lane Group Flow (vph)	6	0	45	1852	1811	45
Turn Type	Prot	Perm	Prot	NA	NA	Perm
Protected Phases	4		1	6	2	
Permitted Phases		4				2
Actuated Green, G (s)	4.1	4.1	6.8	182.6	169.5	169.5
Effective Green, g (s)	4.1	4.1	6.8	182.6	169.5	169.5
Actuated g/C Ratio	0.02	0.02	0.03	0.91	0.85	0.85
Clearance Time (s)	6.4	6.4	6.3	6.9	6.9	6.9
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	36	32	116	3231	2999	1341
v/s Ratio Prot	c0.00		0.01	c0.52	c0.51	
v/s Ratio Perm		0.00				0.03
v/c Ratio	0.17	0.01	0.39	0.57	0.60	0.03
Uniform Delay, d1	96.3	96.0	94.6	1.6	4.8	2.4
Progression Factor	1.00	1.00	0.95	2.37	0.62	1.08
Incremental Delay, d2	2.2	0.1	0.8	0.3	0.7	0.0
Delay (s)	98.5	96.0	90.9	4.0	3.6	2.6
Level of Service	F	F	F	A	A	A
Approach Delay (s)	96.9			6.1	3.6	
Approach LOS	F			A	A	

Intersection Summary			
HCM 2000 Control Delay	5.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	200.0	Sum of lost time (s)	22.6
Intersection Capacity Utilization	64.7%	ICU Level of Service	C
Analysis Period (min)	15		

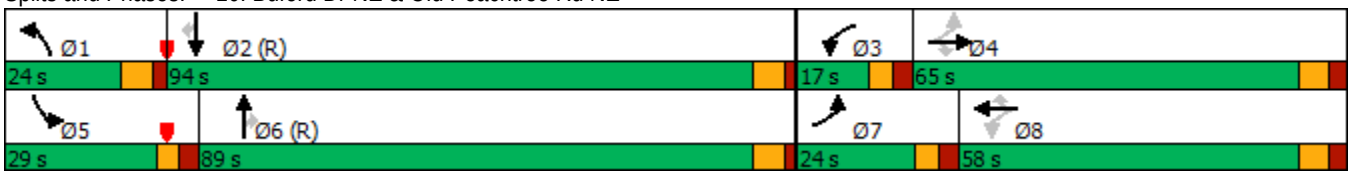
c Critical Lane Group

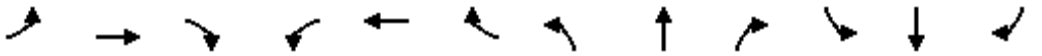
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	183	506	111	57	231	84	115	1505	108	196	1440	53
Future Volume (vph)	183	506	111	57	231	84	115	1505	108	196	1440	53
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases	4		4	8		8			6			2
Detector Phase	7	4	4	3	8	8	1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	15.0	15.0	4.0	15.0	15.0
Minimum Split (s)	10.5	13.4	13.4	10.5	13.4	13.4	10.6	21.6	21.6	10.5	21.6	21.6
Total Split (s)	24.0	65.0	65.0	17.0	58.0	58.0	24.0	89.0	89.0	29.0	94.0	94.0
Total Split (%)	12.0%	32.5%	32.5%	8.5%	29.0%	29.0%	12.0%	44.5%	44.5%	14.5%	47.0%	47.0%
Yellow Time (s)	3.5	4.5	4.5	3.5	4.5	4.5	4.7	4.7	4.7	3.5	4.7	4.7
All-Red Time (s)	3.0	2.9	2.9	3.0	2.9	2.9	1.9	1.9	1.9	3.0	1.9	1.9
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)	6.5	7.4	7.4	6.5	7.4	7.4	6.6	6.6	6.6	6.5	6.6	6.6
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	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max

Intersection Summary

Cycle Length: 200
Actuated Cycle Length: 200
Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBT, Start of 1st Green
Natural Cycle: 150
Control Type: Actuated-Coordinated

Splits and Phases: 10: Buford Dr NE & Old Peachtree Rd NE





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	183	506	111	57	231	84	115	1505	108	196	1440	53
Future Volume (veh/h)	183	506	111	57	231	84	115	1505	108	196	1440	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	197	544	119	60	243	88	121	1584	114	218	1600	59
Peak Hour Factor	0.93	0.93	0.93	0.95	0.95	0.95	0.95	0.95	0.95	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	318	539	456	97	439	372	138	1667	743	254	1652	737
Arrive On Green	0.09	0.29	0.29	0.03	0.23	0.23	0.08	0.47	0.47	0.15	0.93	0.93
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	3554	1585	3456	3554	1585
Grp Volume(v), veh/h	197	544	119	60	243	88	121	1584	114	218	1600	59
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	1777	1585	1728	1777	1585
Q Serve(g_s), s	16.6	57.6	11.6	5.1	22.9	9.0	13.4	85.4	8.2	12.3	63.7	0.6
Cycle Q Clear(g_c), s	16.6	57.6	11.6	5.1	22.9	9.0	13.4	85.4	8.2	12.3	63.7	0.6
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	318	539	456	97	439	372	138	1667	743	254	1652	737
V/C Ratio(X)	0.62	1.01	0.26	0.62	0.55	0.24	0.88	0.95	0.15	0.86	0.97	0.08
Avail Cap(c_a), veh/h	318	539	456	130	473	401	155	1667	743	389	1652	737
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.79	0.79	0.79
Uniform Delay (d), s/veh	52.0	71.2	54.8	60.8	67.3	62.0	91.3	50.9	30.4	84.2	6.0	3.8
Incr Delay (d2), s/veh	3.6	41.3	0.3	6.2	1.2	0.3	36.9	13.0	0.4	9.1	13.6	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(50%),veh/ln	7.7	33.4	4.7	2.5	11.0	3.7	7.6	39.7	3.3	5.4	6.0	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	55.6	112.5	55.1	67.0	68.5	62.3	128.2	63.9	30.8	93.4	19.6	4.0
LnGrp LOS	E	F	E	E	E	E	F	E	C	F	B	A
Approach Vol, veh/h		860			391			1819			1877	
Approach Delay, s/veh		91.5			66.9			66.1			27.7	
Approach LOS		F			E			E			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	22.1	99.6	13.4	65.0	21.2	100.4	24.0	54.4
Change Period (Y+Rc), s	* 6.6	* 6.6	6.5	7.4	6.5	* 6.6	6.5	7.4
Max Green Setting (Gmax), s	* 17	* 87	10.5	57.6	22.5	* 82	17.5	50.6
Max Q Clear Time (g_c+I1), s	15.4	65.7	7.1	59.6	14.3	87.4	18.6	24.9
Green Ext Time (p_c), s	0.0	11.9	0.0	0.0	0.4	0.0	0.0	1.5

Intersection Summary	
HCM 6th Ctrl Delay	56.0
HCM 6th LOS	E

Notes

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

Intersection: 1: Buford Dr NE & Mall Drwy/Woodward Crossing Blvd

Movement	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	NB	SB
Directions Served	L	T	R	L	L	TR	R	L	T	T	TR	L
Maximum Queue (ft)	115	99	52	191	229	203	147	110	196	216	180	332
Average Queue (ft)	49	32	11	76	134	113	51	53	75	102	128	182
95th Queue (ft)	105	80	37	182	224	174	113	95	150	179	195	284
Link Distance (ft)	418	418	418			574	574		3049	3049	3049	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)				250	250			300				500
Storage Blk Time (%)												
Queuing Penalty (veh)												

Intersection: 1: Buford Dr NE & Mall Drwy/Woodward Crossing Blvd

Movement	SB	SB	SB	SB
Directions Served	L	T	T	TR
Maximum Queue (ft)	372	371	366	352
Average Queue (ft)	206	190	194	170
95th Queue (ft)	309	369	371	356
Link Distance (ft)		1465	1465	1465
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	500			
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 2: Buford Dr NE & Mall of Georgia Blvd

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	NB
Directions Served	L	L	T	R	L	L	T	R	L	L	T	T
Maximum Queue (ft)	236	185	440	503	291	312	276	84	282	315	423	390
Average Queue (ft)	124	71	205	252	193	231	139	29	193	208	224	241
95th Queue (ft)	214	182	367	473	284	317	232	68	285	290	391	389
Link Distance (ft)	451	451	451	451			717				976	976
Upstream Blk Time (%)			0	9								
Queuing Penalty (veh)			0	0								
Storage Bay Dist (ft)					275	275		400	375	375		
Storage Blk Time (%)					0	4	0				0	
Queuing Penalty (veh)					0	7	1				1	

Intersection: 2: Buford Dr NE & Mall of Georgia Blvd

Movement	NB	NB	SB	SB	SB	SB
Directions Served	TR	R	L	T	T	TR
Maximum Queue (ft)	415	275	113	476	519	425
Average Queue (ft)	262	127	46	312	331	253
95th Queue (ft)	420	353	95	431	454	427
Link Distance (ft)	976			3049	3049	3049
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		175	300			
Storage Blk Time (%)	20	0		17		
Queuing Penalty (veh)	73	1		9		

Intersection: 3: Buford Dr NE & I-85 SB Ramp

Movement	WB	WB	SB
Directions Served	R	R	T
Maximum Queue (ft)	882	888	953
Average Queue (ft)	594	584	34
95th Queue (ft)	1078	1036	326
Link Distance (ft)	867	867	976
Upstream Blk Time (%)	30	26	
Queuing Penalty (veh)	0	0	
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 4: Buford Dr NE & I-85 NB Ramp

Movement	WB
Directions Served	R
Maximum Queue (ft)	1065
Average Queue (ft)	988
95th Queue (ft)	1268
Link Distance (ft)	1031
Upstream Blk Time (%)	83
Queuing Penalty (veh)	0
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 5: Buford Dr NE & Brand Smart Way

Movement	EB	EB	EB	NB	NB	NB	SB	SB
Directions Served	L	L	R	L	T	T	T	T
Maximum Queue (ft)	158	183	56	199	289	316	543	573
Average Queue (ft)	111	84	18	116	96	111	379	404
95th Queue (ft)	158	155	60	192	242	267	596	625
Link Distance (ft)	864	864	864		1166	1166	1076	1076
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)				300				
Storage Blk Time (%)					0			
Queuing Penalty (veh)					0			

Intersection: 6: Buford Dr NE & Laurel Crossing Pkwy NE

Movement	WB	WB	SB
Directions Served	L	R	L
Maximum Queue (ft)	117	124	199
Average Queue (ft)	54	9	88
95th Queue (ft)	117	61	160
Link Distance (ft)	3679	3679	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			325
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 7: Buford Dr NE & Rock Springs Rd

Movement	EB	EB	EB	EB	WB	WB	NB	NB	NB	NB	SB	SB
Directions Served	L	L	T	R	L	TR	L	T	T	R	L	T
Maximum Queue (ft)	44	44	82	108	127	170	250	448	439	225	324	615
Average Queue (ft)	17	18	23	30	43	48	54	289	293	16	88	301
95th Queue (ft)	36	43	61	89	94	111	172	535	539	112	273	604
Link Distance (ft)	2600	2600	2600			2242		412	412			1184
Upstream Blk Time (%)								3	4			
Queuing Penalty (veh)								28	34			
Storage Bay Dist (ft)				150	200		175			125	225	
Storage Blk Time (%)								16	20			13
Queuing Penalty (veh)								11	11			10

Intersection: 7: Buford Dr NE & Rock Springs Rd

Movement	SB	SB
Directions Served	T	R
Maximum Queue (ft)	645	175
Average Queue (ft)	325	93
95th Queue (ft)	662	235
Link Distance (ft)	1184	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		75
Storage Blk Time (%)	21	
Queuing Penalty (veh)	53	

Intersection: 8: Buford Dr NE & Tech Center Pkwy NE

Movement	EB	EB	EB	NB	NB	NB	SB	SB	SB
Directions Served	L	L	R	L	T	T	T	T	R
Maximum Queue (ft)	247	292	56	114	204	163	438	496	200
Average Queue (ft)	149	131	14	41	85	84	150	141	28
95th Queue (ft)	242	228	53	90	178	167	407	407	141
Link Distance (ft)	2083	2083	2083		1479	1479	412	412	
Upstream Blk Time (%)							1	1	
Queuing Penalty (veh)							6	11	
Storage Bay Dist (ft)				250					150
Storage Blk Time (%)								4	
Queuing Penalty (veh)								6	

Intersection: 9: Buford Dr NE & Braves Ave

Movement	EB	NB	NB	NB	NB	SB	SB
Directions Served	L	L	L	T	T	T	T
Maximum Queue (ft)	30	53	74	70	74	233	261
Average Queue (ft)	7	13	31	5	8	57	61
95th Queue (ft)	26	40	64	32	40	159	175
Link Distance (ft)	766			1552	1552	1479	1479
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)		850	850				
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 10: Buford Dr NE & Old Peachtree Rd NE

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB
Directions Served	L	T	R	L	T	R	L	T	T	R	L	L
Maximum Queue (ft)	262	916	400	274	399	177	575	910	873	450	260	674
Average Queue (ft)	128	457	113	57	229	66	249	729	666	253	102	167
95th Queue (ft)	233	761	364	162	364	134	596	981	909	602	189	465
Link Distance (ft)	2063	2063			2738			858	858			
Upstream Blk Time (%)								10	3			
Queuing Penalty (veh)								0	0			
Storage Bay Dist (ft)			300	225		400	375			375	375	375
Storage Blk Time (%)		34			16			39	35			
Queuing Penalty (veh)		37			23			45	38			

Intersection: 10: Buford Dr NE & Old Peachtree Rd NE

Movement	SB	SB	SB
Directions Served	T	T	R
Maximum Queue (ft)	850	881	110
Average Queue (ft)	573	601	8
95th Queue (ft)	801	811	43
Link Distance (ft)	1552	1552	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			110
Storage Blk Time (%)	32	47	0
Queuing Penalty (veh)	64	25	0

Network Summary

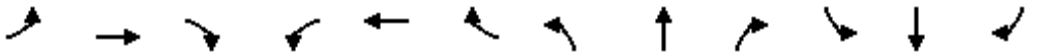
Network wide Queuing Penalty: 494

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	98	161	109	153	417	223	116	1171	68	37	1291	42
Future Volume (vph)	98	161	109	153	417	223	116	1171	68	37	1291	42
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases	4		4	8		8			6			2
Detector Phase	7	4	4	3	8	8	1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	15.0	15.0	4.0	15.0	15.0
Minimum Split (s)	10.5	13.4	13.4	10.5	13.4	13.4	10.6	21.6	21.6	10.5	21.6	21.6
Total Split (s)	17.0	42.0	42.0	15.0	40.0	40.0	22.0	66.0	66.0	17.0	61.0	61.0
Total Split (%)	12.1%	30.0%	30.0%	10.7%	28.6%	28.6%	15.7%	47.1%	47.1%	12.1%	43.6%	43.6%
Yellow Time (s)	3.5	4.5	4.5	3.5	4.5	4.5	4.7	4.7	4.7	3.5	4.7	4.7
All-Red Time (s)	3.0	2.9	2.9	3.0	2.9	2.9	1.9	1.9	1.9	3.0	1.9	1.9
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)	6.5	7.4	7.4	6.5	7.4	7.4	6.6	6.6	6.6	6.5	6.6	6.6
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	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 43 (31%), Referenced to phase 2:SBT and 6:NBT, Start of 1st Green
Natural Cycle: 110
Control Type: Actuated-Coordinated

Splits and Phases: 10: Buford Dr NE & Old Peachtree Rd NE



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	98	161	109	153	417	223	116	1171	68	37	1291	42
Future Volume (veh/h)	98	161	109	153	417	223	116	1171	68	37	1291	42
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	105	173	117	161	439	235	122	1233	72	41	1434	47
Peak Hour Factor	0.93	0.93	0.93	0.95	0.95	0.95	0.95	0.95	0.95	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	155	431	365	325	436	369	146	2519	782	79	1541	687
Arrive On Green	0.06	0.23	0.23	0.06	0.23	0.23	0.08	0.49	0.49	0.01	0.14	0.14
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	5106	1585	3456	3554	1585
Grp Volume(v), veh/h	105	173	117	161	439	235	122	1233	72	41	1434	47
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	1702	1585	1728	1777	1585
Q Serve(g_s), s	6.2	11.0	8.6	8.5	32.6	18.7	9.5	22.6	3.4	1.7	55.8	3.6
Cycle Q Clear(g_c), s	6.2	11.0	8.6	8.5	32.6	18.7	9.5	22.6	3.4	1.7	55.8	3.6
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	155	431	365	325	436	369	146	2519	782	79	1541	687
V/C Ratio(X)	0.68	0.40	0.32	0.50	1.01	0.64	0.84	0.49	0.09	0.52	0.93	0.07
Avail Cap(c_a), veh/h	185	462	392	325	436	369	196	2519	782	259	1541	687
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.84	0.84	0.84
Uniform Delay (d), s/veh	41.4	45.7	44.8	40.5	53.7	48.4	63.4	23.7	18.8	68.7	57.9	35.5
Incr Delay (d2), s/veh	7.5	0.6	0.5	1.2	45.1	3.6	20.4	0.7	0.2	4.4	10.0	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(50%),veh/ln	3.0	5.1	3.4	0.7	20.4	7.6	5.0	8.8	1.3	0.8	28.7	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	48.8	46.3	45.3	41.7	98.8	52.0	83.8	24.4	19.1	73.1	67.8	35.7
LnGrp LOS	D	D	D	D	F	D	F	C	B	E	E	D
Approach Vol, veh/h		395			835			1427			1522	
Approach Delay, s/veh		46.7			74.6			29.2			67.0	
Approach LOS		D			E			C			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	18.0	67.3	15.0	39.6	9.7	75.7	14.6	40.0
Change Period (Y+Rc), s	* 6.6	* 6.6	6.5	7.4	6.5	* 6.6	6.5	7.4
Max Green Setting (Gmax), s	* 15	* 54	8.5	34.6	10.5	* 59	10.5	32.6
Max Q Clear Time (g_c+I1), s	11.5	57.8	10.5	13.0	3.7	24.6	8.2	34.6
Green Ext Time (p_c), s	0.1	0.0	0.0	1.2	0.0	10.0	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	53.7
HCM 6th LOS	D

Notes

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

Intersection: 10: Buford Dr NE & Old Peachtree Rd NE

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	NB	SB
Directions Served	L	T	R	L	T	R	L	T	T	T	R	L
Maximum Queue (ft)	179	217	83	275	1450	500	157	294	248	216	35	45
Average Queue (ft)	72	94	37	204	799	303	73	224	193	141	13	4
95th Queue (ft)	142	168	80	363	1388	640	133	284	246	232	29	22
Link Distance (ft)	2063	2063			2732			1230	1230	1230		
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)			300	225		400	375				375	375
Storage Blk Time (%)				5	60							
Queuing Penalty (veh)				33	226							

Intersection: 10: Buford Dr NE & Old Peachtree Rd NE

Movement	SB	SB	SB	SB
Directions Served	L	T	T	R
Maximum Queue (ft)	42	775	769	135
Average Queue (ft)	18	387	389	17
95th Queue (ft)	39	645	651	85
Link Distance (ft)		1552	1552	
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	375			110
Storage Blk Time (%)		10	37	0
Queuing Penalty (veh)		4	16	0

Zone Summary

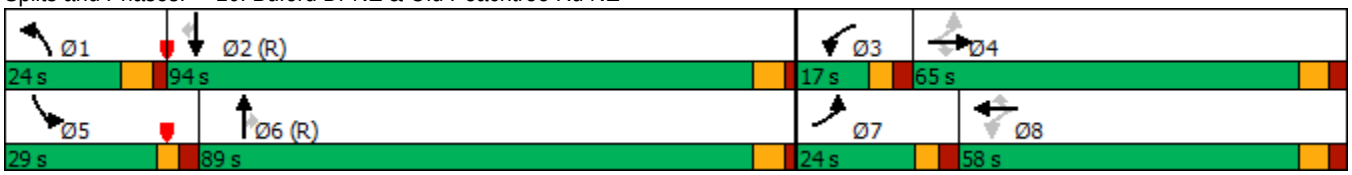
Zone wide Queuing Penalty: 278

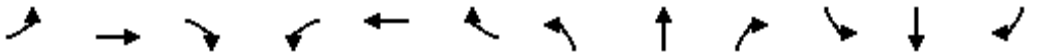
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	183	506	111	57	231	84	115	1505	108	196	1440	53
Future Volume (vph)	183	506	111	57	231	84	115	1505	108	196	1440	53
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases	4		4	8		8			6			2
Detector Phase	7	4	4	3	8	8	1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	15.0	15.0	4.0	15.0	15.0
Minimum Split (s)	10.5	13.4	13.4	10.5	13.4	13.4	10.6	21.6	21.6	10.5	21.6	21.6
Total Split (s)	24.0	65.0	65.0	17.0	58.0	58.0	24.0	89.0	89.0	29.0	94.0	94.0
Total Split (%)	12.0%	32.5%	32.5%	8.5%	29.0%	29.0%	12.0%	44.5%	44.5%	14.5%	47.0%	47.0%
Yellow Time (s)	3.5	4.5	4.5	3.5	4.5	4.5	4.7	4.7	4.7	3.5	4.7	4.7
All-Red Time (s)	3.0	2.9	2.9	3.0	2.9	2.9	1.9	1.9	1.9	3.0	1.9	1.9
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)	6.5	7.4	7.4	6.5	7.4	7.4	6.6	6.6	6.6	6.5	6.6	6.6
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	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max

Intersection Summary

Cycle Length: 200
Actuated Cycle Length: 200
Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBT, Start of 1st Green
Natural Cycle: 140
Control Type: Actuated-Coordinated

Splits and Phases: 10: Buford Dr NE & Old Peachtree Rd NE





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	183	506	111	57	231	84	115	1505	108	196	1440	53
Future Volume (veh/h)	183	506	111	57	231	84	115	1505	108	196	1440	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	197	544	119	60	243	88	121	1584	114	218	1600	59
Peak Hour Factor	0.93	0.93	0.93	0.95	0.95	0.95	0.95	0.95	0.95	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	318	539	456	97	439	372	138	2395	743	254	1652	737
Arrive On Green	0.09	0.29	0.29	0.03	0.23	0.23	0.08	0.47	0.47	0.15	0.93	0.93
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	5106	1585	3456	3554	1585
Grp Volume(v), veh/h	197	544	119	60	243	88	121	1584	114	218	1600	59
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	1702	1585	1728	1777	1585
Q Serve(g_s), s	16.6	57.6	11.6	5.1	22.9	9.0	13.4	47.8	8.2	12.3	63.7	0.6
Cycle Q Clear(g_c), s	16.6	57.6	11.6	5.1	22.9	9.0	13.4	47.8	8.2	12.3	63.7	0.6
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	318	539	456	97	439	372	138	2395	743	254	1652	737
V/C Ratio(X)	0.62	1.01	0.26	0.62	0.55	0.24	0.88	0.66	0.15	0.86	0.97	0.08
Avail Cap(c_a), veh/h	318	539	456	130	473	401	155	2395	743	389	1652	737
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.72	0.72	0.72
Uniform Delay (d), s/veh	52.0	71.2	54.8	60.8	67.3	62.0	91.3	40.9	30.4	84.2	6.0	3.8
Incr Delay (d2), s/veh	3.6	41.3	0.3	6.2	1.2	0.3	36.9	1.5	0.4	8.4	12.7	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(50%),veh/ln	7.7	33.4	4.7	2.5	11.0	3.7	7.6	20.0	3.3	5.4	5.8	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	55.6	112.5	55.1	67.0	68.5	62.3	128.2	42.3	30.8	92.6	18.8	3.9
LnGrp LOS	E	F	E	E	E	E	F	D	C	F	B	A
Approach Vol, veh/h		860			391			1819			1877	
Approach Delay, s/veh		91.5			66.9			47.3			26.9	
Approach LOS		F			E			D			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	22.1	99.6	13.4	65.0	21.2	100.4	24.0	54.4
Change Period (Y+Rc), s	* 6.6	* 6.6	6.5	7.4	6.5	* 6.6	6.5	7.4
Max Green Setting (Gmax), s	* 17	* 87	10.5	57.6	22.5	* 82	17.5	50.6
Max Q Clear Time (g_c+I1), s	15.4	65.7	7.1	59.6	14.3	49.8	18.6	24.9
Green Ext Time (p_c), s	0.0	11.9	0.0	0.0	0.4	14.0	0.0	1.5

Intersection Summary	
HCM 6th Ctrl Delay	48.8
HCM 6th LOS	D

Notes

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

Intersection: 6: Buford Dr NE & Laurel Crossing Pkwy NE

Movement	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	R	T	T	R	L	T	T
Maximum Queue (ft)	325	175	508	525	250	288	347	293
Average Queue (ft)	111	49	228	266	27	152	87	90
95th Queue (ft)	224	161	460	517	154	245	251	250
Link Distance (ft)	846		1185	1185			696	696
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)		150			175	325		
Storage Blk Time (%)	6	0		21			1	
Queuing Penalty (veh)	6	0		15			1	

Intersection: 10: Buford Dr NE & Old Peachtree Rd NE

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	NB	SB
Directions Served	L	T	R	L	T	R	L	T	T	T	R	L
Maximum Queue (ft)	283	902	400	275	312	133	575	1282	1293	1282	450	172
Average Queue (ft)	154	469	114	72	182	62	511	1138	1132	1095	339	101
95th Queue (ft)	250	811	366	178	293	115	767	1514	1507	1540	656	164
Link Distance (ft)	2063	2063			2732			1230	1230	1230		
Upstream Blk Time (%)								57	53	59		
Queuing Penalty (veh)								0	0	0		
Storage Bay Dist (ft)			300	225		400	375				375	375
Storage Blk Time (%)		35			8			80		89		
Queuing Penalty (veh)		39			14			92		96		

Intersection: 10: Buford Dr NE & Old Peachtree Rd NE

Movement	SB	SB	SB	SB
Directions Served	L	T	T	R
Maximum Queue (ft)	674	734	773	135
Average Queue (ft)	151	588	621	37
95th Queue (ft)	397	772	795	124
Link Distance (ft)		1552	1552	
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	375			110
Storage Blk Time (%)		35	47	0
Queuing Penalty (veh)		79	38	0

Zone Summary

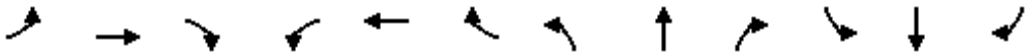
Zone wide Queuing Penalty: 380

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	8	5	2	45	4	35	8	1566	86	1289
Future Volume (vph)	8	5	2	45	4	35	8	1566	86	1289
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Prot	NA
Protected Phases	7	4		3	8		1	6	5	2
Permitted Phases			4			8				
Detector Phase	7	4	4	3	8	8	1	6	5	2
Switch Phase										
Minimum Initial (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	12.0	4.0	12.0
Minimum Split (s)	10.9	13.4	13.4	10.5	13.4	13.4	11.3	25.3	11.3	19.3
Total Split (s)	20.0	24.0	24.0	20.0	24.0	24.0	17.0	76.0	20.0	79.0
Total Split (%)	14.3%	17.1%	17.1%	14.3%	17.1%	17.1%	12.1%	54.3%	14.3%	56.4%
Yellow Time (s)	3.9	4.4	4.4	3.5	4.4	4.4	4.6	4.6	4.6	4.6
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	2.7	2.7	2.7	2.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.9	7.4	7.4	6.5	7.4	7.4	7.3	7.3	7.3	7.3
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	None	C-Max

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 74 (53%), Referenced to phase 2:SBT and 6:NBT, Start of 1st Green
Natural Cycle: 65
Control Type: Actuated-Coordinated

Splits and Phases: 1: Buford Dr NE & Mall Drwy/Woodward Crossing Blvd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	5	2	45	4	35	8	1566	38	86	1289	18
Future Volume (vph)	8	5	2	45	4	35	8	1566	38	86	1289	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.9	7.4	7.4	6.5	7.4	7.4	7.3	7.3		7.3	7.3	
Lane Util. Factor	1.00	1.00	1.00	0.97	0.95	0.95	1.00	0.91		0.97	0.91	
Frt	1.00	1.00	0.85	1.00	0.88	0.85	1.00	1.00		1.00	1.00	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1863	1583	3433	1555	1504	1770	5067		3433	5075	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1863	1583	3433	1555	1504	1770	5067		3433	5075	
Peak-hour factor, PHF	0.42	0.42	0.42	0.93	0.93	0.93	0.96	0.96	0.96	0.90	0.90	0.90
Adj. Flow (vph)	19	12	5	48	4	38	8	1631	40	96	1432	20
RTOR Reduction (vph)	0	0	5	0	16	20	0	1	0	0	1	0
Lane Group Flow (vph)	19	12	0	48	5	1	8	1670	0	96	1451	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases			4			8						
Actuated Green, G (s)	6.3	3.0	3.0	9.2	5.5	5.5	1.9	90.0		9.3	97.4	
Effective Green, g (s)	6.3	3.0	3.0	9.2	5.5	5.5	1.9	90.0		9.3	97.4	
Actuated g/C Ratio	0.04	0.02	0.02	0.07	0.04	0.04	0.01	0.64		0.07	0.70	
Clearance Time (s)	6.9	7.4	7.4	6.5	7.4	7.4	7.3	7.3		7.3	7.3	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	79	39	33	225	61	59	24	3257		228	3530	
v/s Ratio Prot	0.01	c0.01		c0.01	0.00		0.00	c0.33		0.03	c0.29	
v/s Ratio Perm			0.00			0.00						
v/c Ratio	0.24	0.31	0.00	0.21	0.08	0.01	0.33	0.51		0.42	0.41	
Uniform Delay, d1	64.5	67.5	67.0	62.0	64.8	64.6	68.4	13.3		62.8	9.1	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.65	0.56		1.00	1.00	
Incremental Delay, d2	1.6	4.4	0.0	0.5	0.5	0.1	6.3	0.5		1.3	0.4	
Delay (s)	66.1	71.9	67.1	62.4	65.3	64.7	50.7	7.9		64.0	9.4	
Level of Service	E	E	E	E	E	E	D	A		E	A	
Approach Delay (s)		68.2			63.7			8.1			12.8	
Approach LOS		E			E			A			B	

Intersection Summary			
HCM 2000 Control Delay	12.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	28.9
Intersection Capacity Utilization	57.4%	ICU Level of Service	B
Analysis Period (min)	15		

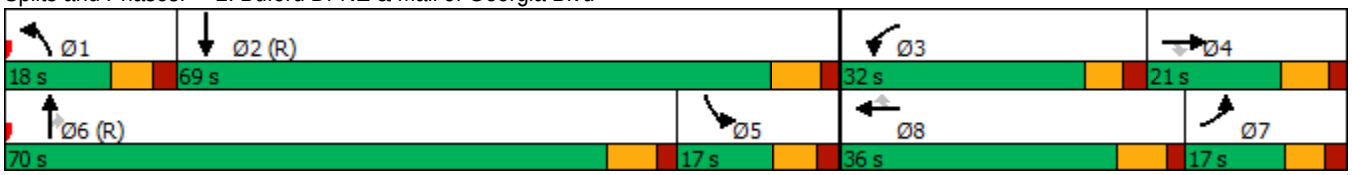
c Critical Lane Group

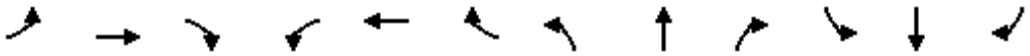
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	52	30	130	439	21	18	129	1591	210	18	1258
Future Volume (vph)	52	30	130	439	21	18	129	1591	210	18	1258
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA
Protected Phases	7	4		3	8		1	6		5	2
Permitted Phases			4			8			6		
Detector Phase	7	4	4	3	8	8	1	6	6	5	2
Switch Phase											
Minimum Initial (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	12.0	12.0	4.0	12.0
Minimum Split (s)	10.6	13.1	13.1	10.6	13.1	13.1	10.9	19.3	19.3	10.9	19.3
Total Split (s)	17.0	21.0	21.0	32.0	36.0	36.0	18.0	70.0	70.0	17.0	69.0
Total Split (%)	12.1%	15.0%	15.0%	22.9%	25.7%	25.7%	12.9%	50.0%	50.0%	12.1%	49.3%
Yellow Time (s)	4.1	5.1	5.1	4.1	5.1	5.1	4.4	5.3	5.3	4.4	5.3
All-Red Time (s)	2.5	2.0	2.0	2.5	2.0	2.0	2.5	2.0	2.0	2.5	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)	6.6	7.1	7.1	6.6	7.1	7.1	6.9	7.3	7.3	6.9	7.3
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 73 (52%), Referenced to phase 2:SBT and 6:NBT, Start of 1st Green
Natural Cycle: 80
Control Type: Actuated-Coordinated

Splits and Phases: 2: Buford Dr NE & Mall of Georgia Blvd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	52	30	130	439	21	18	129	1591	210	18	1258	19
Future Volume (veh/h)	52	30	130	439	21	18	129	1591	210	18	1258	19
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	62	36	0	488	23	20	137	1693	0	21	1446	22
Peak Hour Factor	0.84	0.84	0.84	0.90	0.90	0.90	0.94	0.94	0.94	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	533	80		546	80	68	189	2513		266	2834	43
Arrive On Green	0.15	0.04	0.00	0.16	0.04	0.04	0.02	0.15	0.00	0.30	1.00	1.00
Sat Flow, veh/h	3456	1870	1585	3456	1870	1585	3563	5611	1585	1781	5181	79
Grp Volume(v), veh/h	62	36	0	488	23	20	137	1693	0	21	950	518
Grp Sat Flow(s),veh/h/ln	1728	1870	1585	1728	1870	1585	1781	1870	1585	1781	1702	1856
Q Serve(g_s), s	2.2	2.6	0.0	19.4	1.7	1.4	5.4	40.0	0.0	1.2	0.0	0.0
Cycle Q Clear(g_c), s	2.2	2.6	0.0	19.4	1.7	1.4	5.4	40.0	0.0	1.2	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.04
Lane Grp Cap(c), veh/h	533	80		546	80	68	189	2513		266	1862	1015
V/C Ratio(X)	0.12	0.45		0.89	0.29	0.29	0.72	0.67		0.08	0.51	0.51
Avail Cap(c_a), veh/h	533	186		627	386	327	282	2513		266	1862	1015
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	0.88	0.88	0.00	0.94	0.94	0.94
Uniform Delay (d), s/veh	51.0	65.4	0.0	57.8	64.9	45.8	67.7	50.0	0.0	42.2	0.0	0.0
Incr Delay (d2), s/veh	0.1	3.9	0.0	14.1	1.9	2.4	4.6	1.3	0.0	0.1	0.9	1.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	1.3	0.0	9.3	0.8	0.7	2.6	20.3	0.0	0.5	0.2	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	51.1	69.4	0.0	71.9	66.9	48.2	72.3	51.3	0.0	42.3	0.9	1.7
LnGrp LOS	D	E		E	E	D	E	D		D	A	A
Approach Vol, veh/h		98	A		531			1830	A		1489	
Approach Delay, s/veh		57.8			70.8			52.8			1.8	
Approach LOS		E			E			D			A	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.3	83.9	28.7	13.1	28.2	70.0	28.7	13.1
Change Period (Y+Rc), s	6.9	7.3	6.6	7.1	7.3	* 7.3	7.1	* 7.1
Max Green Setting (Gmax), s	11.1	61.7	25.4	13.9	10.1	* 63	10.4	* 29
Max Q Clear Time (g_c+I1), s	7.4	2.0	21.4	4.6	3.2	42.0	4.2	3.7
Green Ext Time (p_c), s	0.1	13.1	0.7	0.1	0.0	11.9	0.1	0.1

Intersection Summary	
HCM 6th Ctrl Delay	36.1
HCM 6th LOS	D

Notes

User approved volume balancing among the lanes for turning movement.

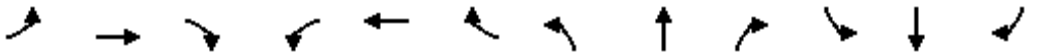
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

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

Lane Group	EBR	WBR	NBT	NBR	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	181	94	1825	290	1471	389
Future Volume (vph)	181	94	1825	290	1471	389
Turn Type	Perm	Prot	NA	Perm	NA	Free
Protected Phases		4	2		6	
Permitted Phases	2			2	4	Free
Detector Phase	2	4	2	2	6	
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	22.5	23.5	22.5	22.5	22.5	
Total Split (s)	115.0	25.0	115.0	115.0	115.0	
Total Split (%)	82.1%	17.9%	82.1%	82.1%	82.1%	
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	C-Max	None	C-Max	C-Max	C-Max	

Intersection Summary
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

Splits and Phases: 3: Buford Dr NE & I-85 SB Ramp



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	181	0	0	94	0	1825	290	0	1471	389
Future Volume (vph)	0	0	181	0	0	94	0	1825	290	0	1471	389
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			5.5			5.5		5.5	5.5		5.5	4.0
Lane Util. Factor			1.00			0.88		0.91	1.00		0.95	1.00
Frt			0.86			0.85		1.00	0.85		1.00	0.85
Flt Protected			1.00			1.00		1.00	1.00		1.00	1.00
Satd. Flow (prot)			1611			2787		5085	1583		3539	1583
Flt Permitted			1.00			1.00		1.00	1.00		1.00	1.00
Satd. Flow (perm)			1611			2787		5085	1583		3539	1583
Peak-hour factor, PHF	0.82	0.82	0.82	0.77	0.77	0.77	0.90	0.90	0.90	0.85	0.85	0.85
Adj. Flow (vph)	0	0	221	0	0	122	0	2028	322	0	1731	458
RTOR Reduction (vph)	0	0	16	0	0	54	0	0	46	0	0	0
Lane Group Flow (vph)	0	0	205	0	0	68	0	2028	276	0	1731	458
Turn Type			Perm			Prot		NA	Perm		NA	Free
Protected Phases						4		2			6	
Permitted Phases			2						2		4	Free
Actuated Green, G (s)			120.2			8.8		120.2	120.2		129.0	140.0
Effective Green, g (s)			120.2			8.8		120.2	120.2		129.0	140.0
Actuated g/C Ratio			0.86			0.06		0.86	0.86		0.92	1.00
Clearance Time (s)			5.5			5.5		5.5	5.5		5.5	
Vehicle Extension (s)			3.0			3.0		3.0	3.0		3.0	
Lane Grp Cap (vph)			1383			175		4365	1359		3539	1583
v/s Ratio Prot						0.02		0.40			c0.42	
v/s Ratio Perm			0.13						0.17		0.07	0.29
v/c Ratio			0.15			0.39		0.46	0.20		0.49	0.29
Uniform Delay, d1			1.6			63.0		2.3	1.7		0.8	0.0
Progression Factor			1.00			1.00		1.19	3.87		1.00	1.00
Incremental Delay, d2			0.2			1.4		0.2	0.2		0.1	0.4
Delay (s)			1.8			64.4		3.0	6.7		0.9	0.4
Level of Service			A			E		A	A		A	A
Approach Delay (s)		1.8			64.4			3.5			0.8	
Approach LOS		A			E			A			A	

Intersection Summary			
HCM 2000 Control Delay	3.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	61.0%	ICU Level of Service	B
Analysis Period (min)	15		

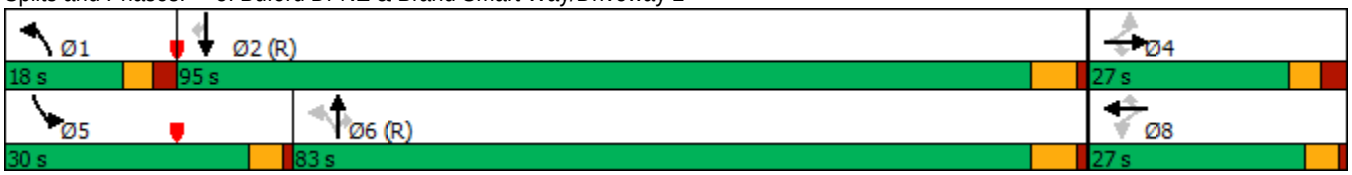
c Critical Lane Group

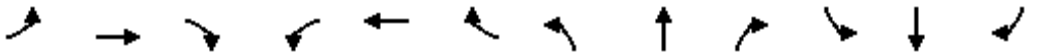
Lane Group	EBL	EBR	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	171	67	140	89	102	1912	92	236	1377	80
Future Volume (vph)	171	67	140	89	102	1912	92	236	1377	80
Turn Type	Perm	Perm	Perm	Perm	pm+pt	NA	Perm	Prot	NA	Perm
Protected Phases					1	6		5	2	
Permitted Phases	4	4	8	8	6		6			2
Detector Phase	4	4	8	8	1	6	6	5	2	2
Switch Phase										
Minimum Initial (s)	6.0	6.0	5.0	5.0	4.0	12.0	12.0	5.0	12.0	12.0
Minimum Split (s)	12.2	12.2	22.5	22.5	9.7	18.1	18.1	9.5	18.1	18.1
Total Split (s)	27.0	27.0	27.0	27.0	18.0	83.0	83.0	30.0	95.0	95.0
Total Split (%)	19.3%	19.3%	19.3%	19.3%	12.9%	59.3%	59.3%	21.4%	67.9%	67.9%
Yellow Time (s)	3.2	3.2	3.5	3.5	3.2	4.7	4.7	3.5	4.7	4.7
All-Red Time (s)	3.0	3.0	1.0	1.0	2.5	1.4	1.4	1.0	1.4	1.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.2	6.2	4.5	4.5	5.7	6.1	6.1	4.5	6.1	6.1
Lead/Lag					Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBTL, Start of 1st Green
Natural Cycle: 110
Control Type: Actuated-Coordinated

Splits and Phases: 5: Buford Dr NE & Brand Smart Way/Driveway 2





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	171	0	67	140	0	89	102	1912	92	236	1377	80
Future Volume (veh/h)	171	0	67	140	0	89	102	1912	92	236	1377	80
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	190	0	0	152	0	0	113	2124	102	281	1639	0
Peak Hour Factor	0.90	0.92	0.90	0.92	0.92	0.92	0.90	0.90	0.90	0.84	0.84	0.84
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	259	274		259	274		246	2254	1005	343	2444	
Arrive On Green	0.15	0.00	0.00	0.15	0.00	0.00	0.05	0.84	0.84	0.10	0.69	0.00
Sat Flow, veh/h	1418	1870	1585	1418	1870	1585	1781	3554	1585	3456	3554	1585
Grp Volume(v), veh/h	190	0	0	152	0	0	113	2124	102	281	1639	0
Grp Sat Flow(s),veh/h/ln	1418	1870	1585	1418	1870	1585	1781	1777	1585	1728	1777	1585
Q Serve(g_s), s	18.5	0.0	0.0	14.4	0.0	0.0	3.1	63.8	1.5	11.2	37.4	0.0
Cycle Q Clear(g_c), s	18.5	0.0	0.0	14.4	0.0	0.0	3.1	63.8	1.5	11.2	37.4	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	259	274		259	274		246	2254	1005	343	2444	
V/C Ratio(X)	0.73	0.00		0.59	0.00		0.46	0.94	0.10	0.82	0.67	
Avail Cap(c_a), veh/h	262	278		279	301		337	2254	1005	629	2444	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	58.9	0.0	0.0	57.1	0.0	0.0	12.9	9.0	4.1	61.8	12.7	0.0
Incr Delay (d2), s/veh	10.0	0.0	0.0	2.8	0.0	0.0	1.3	9.5	0.2	4.9	1.5	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(50%),veh/ln	7.4	0.0	0.0	5.4	0.0	0.0	1.2	9.3	0.5	5.0	13.3	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	68.9	0.0	0.0	59.9	0.0	0.0	14.3	18.5	4.3	66.7	14.2	0.0
LnGrp LOS	E	A		E	A		B	B	A	E	B	
Approach Vol, veh/h		190	A		152	A		2339			1920	A
Approach Delay, s/veh		68.9			59.9			17.7			21.8	
Approach LOS		E			E			B			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.9	102.4		26.7	18.4	94.9		26.7				
Change Period (Y+Rc), s	* 5.7	* 6.1		* 6.2	4.5	* 6.1		* 6.2				
Max Green Setting (Gmax), s	* 12	* 89		* 21	25.5	* 77		* 23				
Max Q Clear Time (g_c+I1), s	5.1	39.4		20.5	13.2	65.8		16.4				
Green Ext Time (p_c), s	0.1	17.4		0.0	0.7	9.4		0.2				

Intersection Summary			
HCM 6th Ctrl Delay		22.9	
HCM 6th LOS		C	

Notes

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

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

Intersection	
Int Delay, s/veh	325.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	101	101	1949	32	72	1572
Future Vol, veh/h	101	101	1949	32	72	1572
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Yield	-	Yield	-	None
Storage Length	0	0	-	175	325	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	85	85	93	93	86	86
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	119	119	2096	34	84	1828

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	3178	1048	0	0	2096	0
Stage 1	2096	-	-	-	-	-
Stage 2	1082	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	~ 8	224	-	-	259	-
Stage 1	~ 80	-	-	-	-	-
Stage 2	287	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 5	224	-	-	259	-
Mov Cap-2 Maneuver	~ 5	-	-	-	-	-
Stage 1	~ 80	-	-	-	-	-
Stage 2	194	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, $	5855.2	0	1.1
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	5	224	259	-
HCM Lane V/C Ratio	-	-	23.765	0.53	0.323	-
HCM Control Delay (s)	-	-	$ 11672.5	37.9	25.4	-
HCM Lane LOS	-	-	F	E	D	-
HCM 95th %tile Q(veh)	-	-	16.9	2.8	1.4	-

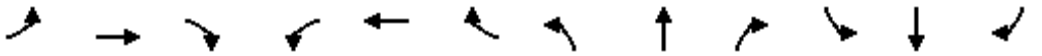
Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	275	20	91	77	41	81	1616	10	33	1426	205
Future Volume (vph)	275	20	91	77	41	81	1616	10	33	1426	205
Turn Type	pm+pt	NA	Perm	Perm	NA	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4			8	1	6		5	2	
Permitted Phases	4		4	8		6		6	2		2
Detector Phase	7	4	4	8	8	1	6	6	5	2	2
Switch Phase											
Minimum Initial (s)	4.0	6.0	6.0	6.0	6.0	4.0	12.0	12.0	4.0	12.0	12.0
Minimum Split (s)	11.0	12.5	12.5	14.0	14.0	10.8	19.3	19.3	12.0	19.3	19.3
Total Split (s)	23.0	46.0	46.0	23.0	23.0	17.0	77.0	77.0	17.0	77.0	77.0
Total Split (%)	16.4%	32.9%	32.9%	16.4%	16.4%	12.1%	55.0%	55.0%	12.1%	55.0%	55.0%
Yellow Time (s)	4.0	3.5	3.5	5.0	5.0	3.8	4.7	4.7	5.0	4.7	4.7
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	2.6	2.6	3.0	2.6	2.6
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	6.5	6.5	8.0	8.0	6.8	7.3	7.3	8.0	7.3	7.3
Lead/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	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 110 (79%), Referenced to phase 2:SBTL and 6:NBTL, Start of 1st Green
Natural Cycle: 90
Control Type: Actuated-Coordinated

Splits and Phases: 7: Buford Dr NE & Rock Springs Rd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	275	20	91	77	41	100	81	1616	10	33	1426	205
Future Volume (veh/h)	275	20	91	77	41	100	81	1616	10	33	1426	205
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	320	23	0	97	52	127	85	1701	0	35	1517	0
Peak Hour Factor	0.86	0.86	0.86	0.79	0.79	0.79	0.95	0.95	0.95	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	436	474		200	52	126	164	1986		249	1970	
Arrive On Green	0.10	0.25	0.00	0.11	0.11	0.11	0.07	1.00	0.00	0.01	0.18	0.00
Sat Flow, veh/h	3456	1870	1585	1388	482	1177	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	320	23	0	97	0	179	85	1701	0	35	1517	0
Grp Sat Flow(s),veh/h/ln	1728	1870	1585	1388	0	1659	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	11.2	1.3	0.0	9.4	0.0	15.0	2.9	0.0	0.0	1.2	56.8	0.0
Cycle Q Clear(g_c), s	11.2	1.3	0.0	9.4	0.0	15.0	2.9	0.0	0.0	1.2	56.8	0.0
Prop In Lane	1.00		1.00	1.00		0.71	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	436	474		200	0	178	164	1986		249	1970	
V/C Ratio(X)	0.73	0.05		0.48	0.00	1.01	0.52	0.86		0.14	0.77	
Avail Cap(c_a), veh/h	498	528		200	0	178	232	1986		326	1970	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	1.00	0.82	0.82	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	48.2	39.5	0.0	60.0	0.0	62.5	26.6	0.0	0.0	13.1	48.7	0.0
Incr Delay (d2), s/veh	4.8	0.0	0.0	1.8	0.0	69.4	2.1	4.2	0.0	0.3	3.0	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(50%),veh/ln	5.1	0.6	0.0	3.4	0.0	9.7	1.4	1.2	0.0	0.5	27.8	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	53.0	39.5	0.0	61.8	0.0	131.9	28.7	4.2	0.0	13.3	51.7	0.0
LnGrp LOS	D	D		E	A	F	C	A		B	D	
Approach Vol, veh/h		343	A		276			1786	A		1552	A
Approach Delay, s/veh		52.1			107.3			5.3			50.8	
Approach LOS		D			F			A			D	

Timer - Assigned Phs	1	2		4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.6	84.9		43.5	11.0	85.5	20.5	23.0				
Change Period (Y+Rc), s	* 6.8	* 7.3		* 8	8.0	* 7.3	7.0	8.0				
Max Green Setting (Gmax), s	* 10	* 70		* 40	9.0	* 70	16.0	15.0				
Max Q Clear Time (g_c+I1), s	4.9	58.8		3.3	3.2	2.0	13.2	17.0				
Green Ext Time (p_c), s	0.1	7.0		0.1	0.0	20.1	0.3	0.0				

Intersection Summary			
HCM 6th Ctrl Delay		34.3	
HCM 6th LOS		C	

Notes

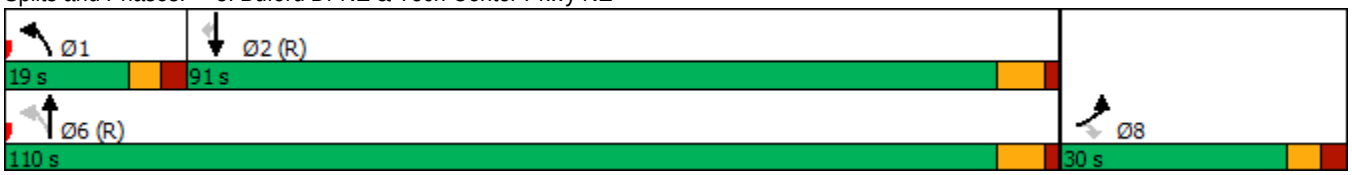
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

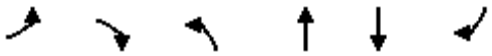
Unsignalized Delay for [NBR, EBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	128	40	48	1551	1460	147
Future Volume (vph)	128	40	48	1551	1460	147
Turn Type	Prot	Perm	pm+pt	NA	NA	Perm
Protected Phases	8		1	6	2	
Permitted Phases		8	6			2
Detector Phase	8	8	1	6	2	2
Switch Phase						
Minimum Initial (s)	6.0	6.0	4.0	20.0	20.0	20.0
Minimum Split (s)	12.4	12.4	10.0	26.6	26.6	26.6
Total Split (s)	30.0	30.0	19.0	110.0	91.0	91.0
Total Split (%)	21.4%	21.4%	13.6%	78.6%	65.0%	65.0%
Yellow Time (s)	3.5	3.5	3.3	5.0	5.0	5.0
All-Red Time (s)	2.9	2.9	2.7	1.6	1.6	1.6
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4	6.4	6.0	6.6	6.6	6.6
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Recall Mode	None	None	None	C-Max	C-Max	C-Max

Intersection Summary
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 74 (53%), Referenced to phase 2:SBT and 6:NBTL, Start of 1st Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

Splits and Phases: 8: Buford Dr NE & Tech Center Pkwy NE





Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	128	40	48	1551	1460	147
Future Volume (veh/h)	128	40	48	1551	1460	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	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	162	0	49	1599	1659	0
Peak Hour Factor	0.79	0.79	0.97	0.97	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	218		328	2999	2760	
Arrive On Green	0.06	0.00	0.05	1.00	1.00	0.00
Sat Flow, veh/h	3456	1585	1781	3647	3647	1585
Grp Volume(v), veh/h	162	0	49	1599	1659	0
Grp Sat Flow(s),veh/h/ln	1728	1585	1781	1777	1777	1585
Q Serve(g_s), s	6.5	0.0	0.7	0.0	0.0	0.0
Cycle Q Clear(g_c), s	6.5	0.0	0.7	0.0	0.0	0.0
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	218		328	2999	2760	
V/C Ratio(X)	0.74		0.15	0.53	0.60	
Avail Cap(c_a), veh/h	583		450	2999	2760	
HCM Platoon Ratio	1.00	1.00	2.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	0.85	0.85	0.54	0.00
Uniform Delay (d), s/veh	64.5	0.0	2.4	0.0	0.0	0.0
Incr Delay (d2), s/veh	4.9	0.0	0.2	0.6	0.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.0	0.0	0.2	0.2	0.2	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	69.4	0.0	2.6	0.6	0.5	0.0
LnGrp LOS	E		A	A	A	
Approach Vol, veh/h	162	A		1648	1659	A
Approach Delay, s/veh	69.4			0.6	0.5	
Approach LOS	E			A	A	

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	9.4	115.3			124.8	15.2
Change Period (Y+Rc), s	6.0	* 6.6			* 6.6	6.4
Max Green Setting (Gmax), s	13.0	* 84			* 1E2	23.6
Max Q Clear Time (g_c+I1), s	2.7	2.0			2.0	8.5
Green Ext Time (p_c), s	0.0	19.6			18.3	0.4

Intersection Summary	
HCM 6th Ctrl Delay	3.8
HCM 6th LOS	A

Notes

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

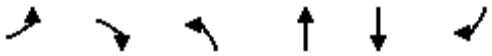
Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	NBL	NBT	SBT	SBR	Ø3	Ø5
Lane Configurations							
Traffic Volume (vph)	21	12	1593	1481	4		
Future Volume (vph)	21	12	1593	1481	4		
Turn Type	Prot	Prot	NA	NA	Perm		
Protected Phases	4	1	6	2		3	5
Permitted Phases					2		
Detector Phase	4	1	6	2	2		
Switch Phase							
Minimum Initial (s)	6.0	4.0	12.0	12.0	12.0	1.0	4.0
Minimum Split (s)	12.4	10.3	18.9	18.9	18.9	5.5	9.6
Total Split (s)	28.0	15.0	86.0	88.0	88.0	9.0	17.0
Total Split (%)	20.0%	10.7%	61.4%	62.9%	62.9%	6%	12%
Yellow Time (s)	3.4	3.7	5.4	5.4	5.4	2.0	3.0
All-Red Time (s)	3.0	2.6	1.5	1.5	1.5	0.0	2.6
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		
Total Lost Time (s)	6.4	6.3	6.9	6.9	6.9		
Lead/Lag	Lag	Lead	Lag	Lag	Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	C-Max	C-Max	C-Max	None	None

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 89 (64%), Referenced to phase 2:SBT and 6:NBT, Start of 1st Green
Natural Cycle: 75
Control Type: Actuated-Coordinated

Splits and Phases: 9: Buford Dr NE & Braves Ave



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	21	0	12	1593	1481	4
Future Volume (vph)	21	0	12	1593	1481	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.4		6.3	6.9	6.9	6.9
Lane Util. Factor	1.00		0.97	0.95	0.95	1.00
Frt	1.00		1.00	1.00	1.00	0.85
Flt Protected	0.95		0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770		3433	3539	3539	1583
Flt Permitted	0.95		0.95	1.00	1.00	1.00
Satd. Flow (perm)	1770		3433	3539	3539	1583
Peak-hour factor, PHF	0.77	0.77	0.96	0.96	0.86	0.86
Adj. Flow (vph)	27	0	12	1659	1722	5
RTOR Reduction (vph)	0	0	0	0	0	1
Lane Group Flow (vph)	27	0	13	1659	1722	4
Turn Type	Prot	Perm	Prot	NA	NA	Perm
Protected Phases	4		1	6	2	
Permitted Phases		4				2
Actuated Green, G (s)	5.3		2.7	121.4	112.4	112.4
Effective Green, g (s)	5.3		2.7	121.4	112.4	112.4
Actuated g/C Ratio	0.04		0.02	0.87	0.80	0.80
Clearance Time (s)	6.4		6.3	6.9	6.9	6.9
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	67		66	3068	2841	1270
v/s Ratio Prot	c0.02		0.00	c0.47	c0.49	
v/s Ratio Perm						0.00
v/c Ratio	0.40		0.20	0.54	0.61	0.00
Uniform Delay, d1	65.8		67.6	2.3	5.3	2.7
Progression Factor	1.00		1.45	0.42	1.33	2.17
Incremental Delay, d2	3.9		1.0	0.5	0.8	0.0
Delay (s)	69.7		99.1	1.4	7.8	5.9
Level of Service	E		F	A	A	A
Approach Delay (s)	69.7			2.2	7.8	
Approach LOS	E			A	A	

Intersection Summary			
HCM 2000 Control Delay	5.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	21.6
Intersection Capacity Utilization	60.1%	ICU Level of Service	B
Analysis Period (min)	15		

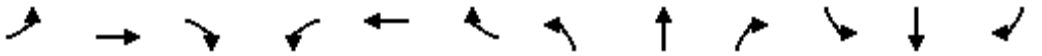
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	115	161	109	153	417	240	116	1232	68	53	1348	58
Future Volume (vph)	115	161	109	153	417	240	116	1232	68	53	1348	58
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases	4		4	8		8			6			2
Detector Phase	7	4	4	3	8	8	1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	15.0	15.0	4.0	15.0	15.0
Minimum Split (s)	10.5	13.4	13.4	10.5	13.4	13.4	10.6	21.6	21.6	10.5	21.6	21.6
Total Split (s)	17.0	42.0	42.0	15.0	40.0	40.0	22.0	66.0	66.0	17.0	61.0	61.0
Total Split (%)	12.1%	30.0%	30.0%	10.7%	28.6%	28.6%	15.7%	47.1%	47.1%	12.1%	43.6%	43.6%
Yellow Time (s)	3.5	4.5	4.5	3.5	4.5	4.5	4.7	4.7	4.7	3.5	4.7	4.7
All-Red Time (s)	3.0	2.9	2.9	3.0	2.9	2.9	1.9	1.9	1.9	3.0	1.9	1.9
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)	6.5	7.4	7.4	6.5	7.4	7.4	6.6	6.6	6.6	6.5	6.6	6.6
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	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 43 (31%), Referenced to phase 2:SBT and 6:NBT, Start of 1st Green
Natural Cycle: 130
Control Type: Actuated-Coordinated

Splits and Phases: 10: Buford Dr NE & Old Peachtree Rd NE



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	115	161	109	153	417	240	116	1232	68	53	1348	58
Future Volume (veh/h)	115	161	109	153	417	240	116	1232	68	53	1348	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	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	124	173	117	161	439	253	122	1297	72	59	1498	64
Peak Hour Factor	0.93	0.93	0.93	0.95	0.95	0.95	0.95	0.95	0.95	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	170	446	378	335	436	369	146	1704	760	98	1512	674
Arrive On Green	0.07	0.24	0.24	0.06	0.23	0.23	0.08	0.48	0.48	0.01	0.14	0.14
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	3554	1585	3456	3554	1585
Grp Volume(v), veh/h	124	173	117	161	439	253	122	1297	72	59	1498	64
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	1777	1585	1728	1777	1585
Q Serve(g_s), s	7.3	10.9	8.5	8.5	32.6	20.4	9.5	41.9	3.5	2.4	58.9	4.9
Cycle Q Clear(g_c), s	7.3	10.9	8.5	8.5	32.6	20.4	9.5	41.9	3.5	2.4	58.9	4.9
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	170	446	378	335	436	369	146	1704	760	98	1512	674
V/C Ratio(X)	0.73	0.39	0.31	0.48	1.01	0.69	0.84	0.76	0.09	0.60	0.99	0.09
Avail Cap(c_a), veh/h	185	462	392	335	436	369	196	1704	760	259	1512	674
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.81	0.81	0.81
Uniform Delay (d), s/veh	40.7	44.7	43.8	40.0	53.7	49.0	63.4	29.9	19.9	68.5	59.9	36.7
Incr Delay (d2), s/veh	12.6	0.6	0.5	1.1	45.1	5.2	20.4	3.3	0.2	4.7	18.8	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(50%),veh/ln	3.7	5.0	3.3	0.7	20.4	8.4	5.0	17.6	1.3	1.1	32.0	2.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	53.3	45.3	44.3	41.1	98.8	54.2	83.8	33.1	20.1	73.2	78.7	36.9
LnGrp LOS	D	D	D	D	F	D	F	C	C	E	E	D
Approach Vol, veh/h		414			853			1491			1621	
Approach Delay, s/veh		47.4			74.7			36.7			76.8	
Approach LOS		D			E			D			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	18.0	66.2	15.0	40.8	10.5	73.7	15.8	40.0
Change Period (Y+Rc), s	* 6.6	* 6.6	6.5	7.4	6.5	* 6.6	6.5	7.4
Max Green Setting (Gmax), s	* 15	* 54	8.5	34.6	10.5	* 59	10.5	32.6
Max Q Clear Time (g_c+I1), s	11.5	60.9	10.5	12.9	4.4	43.9	9.3	34.6
Green Ext Time (p_c), s	0.1	0.0	0.0	1.2	0.0	7.8	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	59.9
HCM 6th LOS	E

Notes

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

Intersection	
Int Delay, s/veh	1.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	94	2118	64	0	1672
Future Vol, veh/h	0	94	2118	64	0	1672
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	-	175	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	90	90	84	84
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	102	2353	71	0	1990

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	1177	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	184	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	184	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	46.6	0	0
HCM LOS	E		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	184	-
HCM Lane V/C Ratio	-	-	0.555	-
HCM Control Delay (s)	-	-	46.6	-
HCM Lane LOS	-	-	E	-
HCM 95th %tile Q(veh)	-	-	2.9	-

Intersection	
Int Delay, s/veh	1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	99	1969	85	0	1589
Future Vol, veh/h	0	99	1969	85	0	1589
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	-	175	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	90	90	84	84
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	108	2188	94	0	1892

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	1094	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	209	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	209	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	39.2	0	0
HCM LOS	E		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	209	-
HCM Lane V/C Ratio	-	-	0.515	-
HCM Control Delay (s)	-	-	39.2	-
HCM Lane LOS	-	-	E	-
HCM 95th %tile Q(veh)	-	-	2.6	-

Intersection	
Int Delay, s/veh	4.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	68	36	102	0	0	99
Future Vol, veh/h	68	36	102	0	0	99
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	89	85	85	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	74	40	120	0	0	108

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	120	0	-	0	308	120
Stage 1	-	-	-	-	120	-
Stage 2	-	-	-	-	188	-
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	1468	-	-	-	684	931
Stage 1	-	-	-	-	905	-
Stage 2	-	-	-	-	844	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1468	-	-	-	648	931
Mov Cap-2 Maneuver	-	-	-	-	648	-
Stage 1	-	-	-	-	858	-
Stage 2	-	-	-	-	844	-

Approach	EB	WB	SB
HCM Control Delay, s	4.9	0	9.4
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1468	-	-	-	931
HCM Lane V/C Ratio	0.05	-	-	-	0.116
HCM Control Delay (s)	7.6	0	-	-	9.4
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0.2	-	-	-	0.4

Intersection: 1: Buford Dr NE & Mall Drwy/Woodward Crossing Blvd

Movement	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	NB	SB
Directions Served	L	T	R	L	L	TR	R	L	T	T	TR	L
Maximum Queue (ft)	29	28	27	27	67	51	26	52	203	228	269	128
Average Queue (ft)	3	1	3	4	22	22	5	9	90	111	134	20
95th Queue (ft)	16	11	16	17	53	42	19	32	167	199	228	74
Link Distance (ft)	330	330	330			1590	1590		3054	3054	3054	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)				250	250			300				500
Storage Blk Time (%)												
Queuing Penalty (veh)												

Intersection: 1: Buford Dr NE & Mall Drwy/Woodward Crossing Blvd

Movement	SB	SB	SB	SB
Directions Served	L	T	T	TR
Maximum Queue (ft)	131	507	487	386
Average Queue (ft)	56	78	67	36
95th Queue (ft)	113	237	221	162
Link Distance (ft)		1465	1465	1465
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	500			
Storage Blk Time (%)		0		
Queuing Penalty (veh)		0		

Intersection: 2: Buford Dr NE & Mall of Georgia Blvd

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	NB
Directions Served	L	L	T	R	L	L	T	R	L	L	T	T
Maximum Queue (ft)	72	51	94	120	264	284	84	19	127	154	220	246
Average Queue (ft)	40	10	34	4	177	214	20	8	46	75	93	122
95th Queue (ft)	74	35	81	34	254	289	55	19	100	135	179	208
Link Distance (ft)	1056	1056	1056	1056			1308				974	974
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)					275	275		400	375	375		
Storage Blk Time (%)					0	1						
Queuing Penalty (veh)					0	0						

Intersection: 2: Buford Dr NE & Mall of Georgia Blvd

Movement	NB	NB	SB	SB	SB	SB
Directions Served	TR	R	L	T	T	TR
Maximum Queue (ft)	258	200	51	244	270	208
Average Queue (ft)	141	7	14	161	165	116
95th Queue (ft)	233	68	42	255	264	209
Link Distance (ft)	974			3054	3054	3054
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		175	300			
Storage Blk Time (%)	4	0				
Queuing Penalty (veh)	4	0				

Intersection: 3: Buford Dr NE & I-85 SB Ramp

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 4: Buford Dr NE & I-85 NB Ramp

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 5: Buford Dr NE & Brand Smart Way/Driveway 2

Movement	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB	SB
Directions Served	L	R	L	T	R	L	T	T	R	L	L	T
Maximum Queue (ft)	286	56	174	197	152	174	383	396	275	157	165	236
Average Queue (ft)	139	16	116	7	29	56	234	273	54	98	120	121
95th Queue (ft)	232	57	175	67	106	113	362	399	176	146	168	189
Link Distance (ft)	866	866		783			391	391				597
Upstream Blk Time (%)							0	0				
Queuing Penalty (veh)							0	2				
Storage Bay Dist (ft)			150		150	300			175	300	300	
Storage Blk Time (%)			5		0		2	20				
Queuing Penalty (veh)			4		1		2	18				

Intersection: 5: Buford Dr NE & Brand Smart Way/Driveway 2

Movement	SB
Directions Served	T
Maximum Queue (ft)	243
Average Queue (ft)	138
95th Queue (ft)	223
Link Distance (ft)	597
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 6: Buford Dr NE & Laurel Crossing Pkwy NE

Movement	WB	WB	B14	B14	SB
Directions Served	L	R	T	T	L
Maximum Queue (ft)	917	917	357	324	158
Average Queue (ft)	760	589	101	94	61
95th Queue (ft)	1115	1268	291	272	112
Link Distance (ft)	846	846	546	546	
Upstream Blk Time (%)	63	50			
Queuing Penalty (veh)	63	50			
Storage Bay Dist (ft)					325
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 7: Buford Dr NE & Rock Springs Rd

Movement	EB	EB	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	L	T	R	L	TR	L	T	T	L	T	T
Maximum Queue (ft)	148	152	41	128	144	210	249	347	383	324	575	545
Average Queue (ft)	83	93	12	30	63	99	52	166	200	38	362	382
95th Queue (ft)	140	141	34	82	125	176	151	319	348	171	532	530
Link Distance (ft)	2600	2600	2600			2242		412	412		1185	1185
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)				150	200		175			225		
Storage Blk Time (%)						0		7	16		20	33
Queuing Penalty (veh)						0		6	2		6	67

Intersection: 7: Buford Dr NE & Rock Springs Rd

Movement	SB
Directions Served	R
Maximum Queue (ft)	175
Average Queue (ft)	116
95th Queue (ft)	248
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	75
Storage Blk Time (%)	0
Queuing Penalty (veh)	0

Intersection: 8: Buford Dr NE & Tech Center Pkwy NE

Movement	EB	EB	NB	NB	NB	SB	SB
Directions Served	L	L	L	T	T	T	T
Maximum Queue (ft)	116	163	115	155	136	141	145
Average Queue (ft)	58	74	35	24	40	62	77
95th Queue (ft)	101	130	85	84	103	121	142
Link Distance (ft)	2083	2083		1479	1479	412	412
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)			250				
Storage Blk Time (%)							0
Queuing Penalty (veh)							0

Intersection: 9: Buford Dr NE & Braves Ave

Movement	EB	NB	NB	NB	NB	SB	SB
Directions Served	L	L	L	T	T	T	T
Maximum Queue (ft)	52	27	51	27	30	293	318
Average Queue (ft)	19	0	18	1	3	68	83
95th Queue (ft)	50	0	47	9	18	211	234
Link Distance (ft)	766			1552	1552	1479	1479
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)		850	850				
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 10: Buford Dr NE & Old Peachtree Rd NE

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB
Directions Served	L	T	R	L	T	R	L	T	T	R	L	L
Maximum Queue (ft)	111	173	125	275	1228	500	178	517	530	46	45	86
Average Queue (ft)	80	89	50	212	671	332	108	314	298	18	9	34
95th Queue (ft)	109	159	99	348	1169	657	183	445	449	45	28	70
Link Distance (ft)	2063	2063			2738			1230	1230			
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)			300	225		400	375			375	375	375
Storage Blk Time (%)					62			3	2			
Queuing Penalty (veh)					242			3	1			

Intersection: 10: Buford Dr NE & Old Peachtree Rd NE

Movement	SB	SB	SB
Directions Served	T	T	R
Maximum Queue (ft)	561	588	135
Average Queue (ft)	399	404	27
95th Queue (ft)	534	557	108
Link Distance (ft)	1552	1552	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			110
Storage Blk Time (%)	9	41	0
Queuing Penalty (veh)	5	24	0

Intersection: 100: Buford Dr NE & Driveway 1

Movement	WB
Directions Served	R
Maximum Queue (ft)	137
Average Queue (ft)	66
95th Queue (ft)	117
Link Distance (ft)	1223
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 101: Buford Dr NE & Driveway 3

Movement	WB	NB
Directions Served	R	T
Maximum Queue (ft)	452	52
Average Queue (ft)	298	5
95th Queue (ft)	497	28
Link Distance (ft)	878	696
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 102: Laurel Crossing Pkwy NE & Driveway 4

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	31	55
Average Queue (ft)	4	33
95th Queue (ft)	21	54
Link Distance (ft)	546	536
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

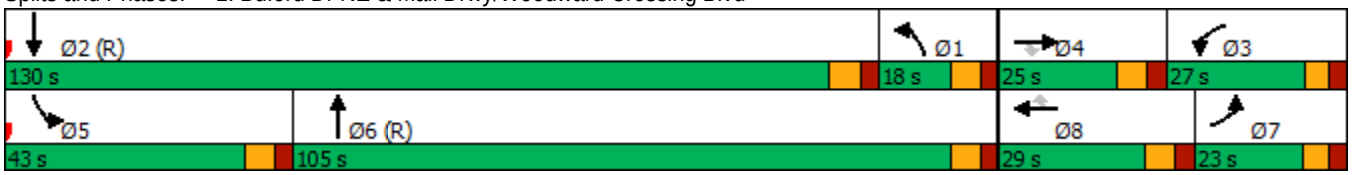
Network wide Queuing Penalty: 502

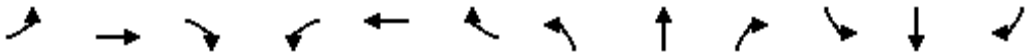
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	46	32	16	206	17	206	37	1754	366	1906
Future Volume (vph)	46	32	16	206	17	206	37	1754	366	1906
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Prot	NA
Protected Phases	7	4		3	8		1	6	5	2
Permitted Phases			4			8				
Detector Phase	7	4	4	3	8	8	1	6	5	2
Switch Phase										
Minimum Initial (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	12.0	4.0	12.0
Minimum Split (s)	10.9	13.4	13.4	10.5	13.4	13.4	11.3	25.3	11.3	19.3
Total Split (s)	23.0	25.0	25.0	27.0	29.0	29.0	18.0	105.0	43.0	130.0
Total Split (%)	11.5%	12.5%	12.5%	13.5%	14.5%	14.5%	9.0%	52.5%	21.5%	65.0%
Yellow Time (s)	3.9	4.4	4.4	3.5	4.4	4.4	4.6	4.6	4.6	4.6
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	2.7	2.7	2.7	2.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.9	7.4	7.4	6.5	7.4	7.4	7.3	7.3	7.3	7.3
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	None	C-Max

Intersection Summary

Cycle Length: 200
Actuated Cycle Length: 200
Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBT, Start of 1st Green
Natural Cycle: 90
Control Type: Actuated-Coordinated

Splits and Phases: 1: Buford Dr NE & Mall Drwy/Woodward Crossing Blvd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	46	32	16	206	17	206	37	1754	135	366	1906	44
Future Volume (vph)	46	32	16	206	17	206	37	1754	135	366	1906	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.9	7.4	7.4	6.5	7.4	7.4	7.3	7.3		7.3	7.3	
Lane Util. Factor	1.00	1.00	1.00	0.97	0.95	0.95	1.00	0.91		0.97	0.91	
Frt	1.00	1.00	0.85	1.00	0.87	0.85	1.00	0.99		1.00	1.00	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1863	1583	3433	1543	1504	1770	5031		3433	5068	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1863	1583	3433	1543	1504	1770	5031		3433	5068	
Peak-hour factor, PHF	0.42	0.42	0.42	0.93	0.93	0.93	0.96	0.96	0.96	0.90	0.90	0.90
Adj. Flow (vph)	110	76	38	222	18	222	39	1827	141	407	2118	49
RTOR Reduction (vph)	0	0	35	0	99	112	0	4	0	0	1	0
Lane Group Flow (vph)	110	76	3	222	23	6	39	1964	0	407	2166	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases			4			8						
Actuated Green, G (s)	21.2	13.3	13.3	17.8	9.5	9.5	8.6	111.5		28.9	131.8	
Effective Green, g (s)	21.2	13.3	13.3	17.8	9.5	9.5	8.6	111.5		28.9	131.8	
Actuated g/C Ratio	0.11	0.07	0.07	0.09	0.05	0.05	0.04	0.56		0.14	0.66	
Clearance Time (s)	6.9	7.4	7.4	6.5	7.4	7.4	7.3	7.3		7.3	7.3	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	187	123	105	305	73	71	76	2804		496	3339	
v/s Ratio Prot	c0.06	c0.04		c0.06	0.01		0.02	c0.39		c0.12	0.43	
v/s Ratio Perm			0.00			0.00						
v/c Ratio	0.59	0.62	0.02	0.73	0.31	0.08	0.51	0.70		0.82	0.65	
Uniform Delay, d1	85.2	90.9	87.3	88.7	92.1	91.1	93.7	32.1		83.0	20.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.69	0.34		1.00	1.00	
Incremental Delay, d2	4.7	8.9	0.1	8.4	2.5	0.5	3.7	1.0		10.5	1.0	
Delay (s)	89.9	99.8	87.4	97.1	94.6	91.5	68.6	11.8		93.5	21.3	
Level of Service	F	F	F	F	F	F	E	B		F	C	
Approach Delay (s)		92.8			95.0			13.0			32.7	
Approach LOS		F			F			B			C	

Intersection Summary			
HCM 2000 Control Delay	33.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	200.0	Sum of lost time (s)	28.9
Intersection Capacity Utilization	78.2%	ICU Level of Service	D
Analysis Period (min)	15		

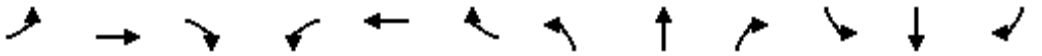
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	171	170	416	387	116	90	390	1751	788	54	1911
Future Volume (vph)	171	170	416	387	116	90	390	1751	788	54	1911
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA
Protected Phases	7	4		3	8		1	6		5	2
Permitted Phases			4			8			6		
Detector Phase	7	4	4	3	8	8	1	6	6	5	2
Switch Phase											
Minimum Initial (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	12.0	12.0	4.0	12.0
Minimum Split (s)	10.6	13.1	13.1	10.6	13.1	13.1	10.9	19.3	19.3	10.9	19.3
Total Split (s)	27.0	30.0	30.0	35.0	38.0	38.0	32.0	116.0	116.0	19.0	103.0
Total Split (%)	13.5%	15.0%	15.0%	17.5%	19.0%	19.0%	16.0%	58.0%	58.0%	9.5%	51.5%
Yellow Time (s)	4.1	5.1	5.1	4.1	5.1	5.1	4.4	5.3	5.3	4.4	5.3
All-Red Time (s)	2.5	2.0	2.0	2.5	2.0	2.0	2.5	2.0	2.0	2.5	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)	6.6	7.1	7.1	6.6	7.1	7.1	6.9	7.3	7.3	6.9	7.3
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max

Intersection Summary

Cycle Length: 200
Actuated Cycle Length: 200
Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBT, Start of 1st Green
Natural Cycle: 150
Control Type: Actuated-Coordinated

Splits and Phases: 2: Buford Dr NE & Mall of Georgia Blvd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	171	170	416	387	116	90	390	1751	788	54	1911	173
Future Volume (veh/h)	171	170	416	387	116	90	390	1751	788	54	1911	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	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	204	202	0	430	129	100	415	2107	0	62	2197	199
Peak Hour Factor	0.84	0.84	0.84	0.90	0.90	0.90	0.94	0.94	0.94	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	569	214		465	153	130	443	3050		117	2324	208
Arrive On Green	0.16	0.11	0.00	0.13	0.08	0.08	0.25	1.00	0.00	0.09	0.65	0.65
Sat Flow, veh/h	3456	1870	1585	3456	1870	1585	3563	5611	1585	1781	4771	427
Grp Volume(v), veh/h	204	202	0	430	129	100	415	2107	0	62	1560	836
Grp Sat Flow(s),veh/h/ln	1728	1870	1585	1728	1870	1585	1781	1870	1585	1781	1702	1794
Q Serve(g_s), s	10.5	21.4	0.0	24.6	13.6	9.7	22.8	0.0	0.0	6.7	82.7	86.4
Cycle Q Clear(g_c), s	10.5	21.4	0.0	24.6	13.6	9.7	22.8	0.0	0.0	6.7	82.7	86.4
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	569	214		465	153	130	443	3050		117	1658	874
V/C Ratio(X)	0.36	0.94		0.92	0.84	0.77	0.94	0.69		0.53	0.94	0.96
Avail Cap(c_a), veh/h	569	214		491	289	245	447	3050		117	1658	874
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.33	1.33	1.33
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	0.65	0.65	0.00	0.72	0.72	0.72
Uniform Delay (d), s/veh	74.1	87.9	0.0	85.5	90.5	55.9	74.4	0.0	0.0	88.3	32.6	33.3
Incr Delay (d2), s/veh	0.4	45.7	0.0	22.9	11.7	9.3	20.3	0.9	0.0	3.2	9.2	17.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.7	13.1	0.0	12.4	7.1	4.2	10.6	0.2	0.0	3.1	31.7	36.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	74.5	133.6	0.0	108.4	102.2	65.2	94.6	0.9	0.0	91.4	41.8	50.7
LnGrp LOS	E	F		F	F	E	F	A		F	D	D
Approach Vol, veh/h		406	A		659			2522	A		2458	
Approach Delay, s/veh		103.9			100.6			16.3			46.1	
Approach LOS		F			F			B			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	31.8	104.7	33.5	30.0	20.5	116.0	40.0	23.5
Change Period (Y+Rc), s	6.9	7.3	6.6	7.1	7.3	* 7.3	7.1	* 7.1
Max Green Setting (Gmax), s	25.1	95.7	28.4	22.9	12.1	* 1.1E2	20.4	* 31
Max Q Clear Time (g_c+I1), s	24.8	88.4	26.6	23.4	8.7	2.0	12.5	15.6
Green Ext Time (p_c), s	0.1	6.5	0.3	0.0	0.0	33.1	0.4	0.8

Intersection Summary	
HCM 6th Ctrl Delay	43.5
HCM 6th LOS	D

Notes

User approved volume balancing among the lanes for turning movement.

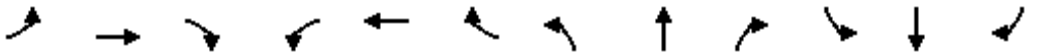
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

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

Lane Group	EBR	WBR	NBT	NBR	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	206	213	2639	85	2387	363
Future Volume (vph)	206	213	2639	85	2387	363
Turn Type	Perm	Prot	NA	Perm	NA	Free
Protected Phases		4	2		6	
Permitted Phases	2 4			2	4	Free
Detector Phase	2 4	4	2	2	6	
Switch Phase						
Minimum Initial (s)		5.0	5.0	5.0	5.0	
Minimum Split (s)		22.5	22.5	22.5	22.5	
Total Split (s)		70.0	130.0	130.0	130.0	
Total Split (%)		35.0%	65.0%	65.0%	65.0%	
Yellow Time (s)		3.5	3.5	3.5	3.5	
All-Red Time (s)		1.0	1.0	1.0	1.0	
Lost Time Adjust (s)		0.0	0.0	0.0	0.0	
Total Lost Time (s)		4.5	4.5	4.5	4.5	
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode		None	C-Max	C-Max	C-Max	

Intersection Summary
Cycle Length: 200
Actuated Cycle Length: 200
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated

Splits and Phases: 3: Buford Dr NE & I-85 SB Ramp



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	206	0	0	213	0	2639	85	0	2387	363
Future Volume (vph)	0	0	206	0	0	213	0	2639	85	0	2387	363
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			4.5			4.5		4.5	4.5		4.5	4.0
Lane Util. Factor			1.00			0.88		0.91	1.00		0.95	1.00
Frt			0.86			0.85		1.00	0.85		1.00	0.85
Flt Protected			1.00			1.00		1.00	1.00		1.00	1.00
Satd. Flow (prot)			1611			2787		5085	1583		3539	1583
Flt Permitted			1.00			1.00		1.00	1.00		1.00	1.00
Satd. Flow (perm)			1611			2787		5085	1583		3539	1583
Peak-hour factor, PHF	0.82	0.82	0.82	0.77	0.77	0.77	0.90	0.90	0.90	0.85	0.85	0.85
Adj. Flow (vph)	0	0	251	0	0	277	0	2932	94	0	2808	427
RTOR Reduction (vph)	0	0	0	0	0	7	0	0	8	0	0	0
Lane Group Flow (vph)	0	0	251	0	0	270	0	2932	86	0	2808	427
Turn Type			Perm			Prot		NA	Perm		NA	Free
Protected Phases						4		2			6	
Permitted Phases			2 4						2		4	Free
Actuated Green, G (s)			200.0			25.0		166.0	166.0		191.0	200.0
Effective Green, g (s)			200.0			25.0		166.0	166.0		191.0	200.0
Actuated g/C Ratio			1.00			0.12		0.83	0.83		0.96	1.00
Clearance Time (s)						4.5		4.5	4.5		4.5	
Vehicle Extension (s)						3.0		3.0	3.0		3.0	
Lane Grp Cap (vph)			1611			348		4220	1313		3539	1583
v/s Ratio Prot						0.10		0.58			c0.66	
v/s Ratio Perm			0.16						0.05		0.13	0.27
v/c Ratio			0.16			0.78		0.69	0.07		0.79	0.27
Uniform Delay, d1			0.0			84.8		6.8	3.1		0.8	0.0
Progression Factor			1.00			1.00		1.20	1.61		1.00	1.00
Incremental Delay, d2			0.0			10.4		0.6	0.1		0.1	0.0
Delay (s)			0.0			95.1		8.8	5.0		1.0	0.0
Level of Service			A			F		A	A		A	A
Approach Delay (s)		0.0			95.1			8.7			0.8	
Approach LOS		A			F			A			A	

Intersection Summary			
HCM 2000 Control Delay	8.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	200.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	86.2%	ICU Level of Service	E
Analysis Period (min)	15		

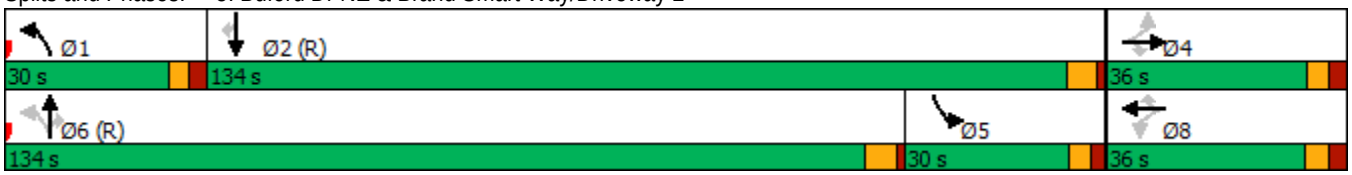
c Critical Lane Group

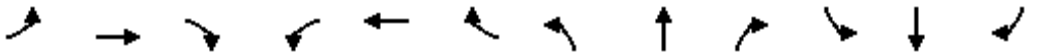
Lane Group	EBL	EBR	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	148	79	219	122	110	2169	130	385	1959	168
Future Volume (vph)	148	79	219	122	110	2169	130	385	1959	168
Turn Type	Perm	Perm	Perm	Perm	pm+pt	NA	Perm	Prot	NA	Perm
Protected Phases					1	6		5	2	
Permitted Phases	4	4	8	8	6		6			2
Detector Phase	4	4	8	8	1	6	6	5	2	2
Switch Phase										
Minimum Initial (s)	6.0	6.0	5.0	5.0	4.0	12.0	12.0	5.0	12.0	12.0
Minimum Split (s)	12.2	12.2	15.0	15.0	9.7	18.1	18.1	11.0	18.1	18.1
Total Split (s)	36.0	36.0	36.0	36.0	30.0	134.0	134.0	30.0	134.0	134.0
Total Split (%)	18.0%	18.0%	18.0%	18.0%	15.0%	67.0%	67.0%	15.0%	67.0%	67.0%
Yellow Time (s)	3.2	3.2	3.5	3.5	3.2	4.7	4.7	3.2	4.7	4.7
All-Red Time (s)	3.0	3.0	3.0	3.0	2.5	1.4	1.4	2.5	1.4	1.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.2	6.2	6.5	6.5	5.7	6.1	6.1	5.7	6.1	6.1
Lead/Lag					Lead	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max

Intersection Summary

Cycle Length: 200
Actuated Cycle Length: 200
Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBTL, Start of 1st Green
Natural Cycle: 150
Control Type: Actuated-Coordinated

Splits and Phases: 5: Buford Dr NE & Brand Smart Way/Driveway 2





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	148	0	79	219	0	122	110	2169	130	385	1959	168
Future Volume (veh/h)	148	0	79	219	0	122	110	2169	130	385	1959	168
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	164	0	0	238	0	0	122	2410	144	458	2332	0
Peak Hour Factor	0.90	0.92	0.90	0.92	0.92	0.92	0.90	0.90	0.90	0.84	0.84	0.84
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	245	276		245	276		140	2273	1014	648	2781	
Arrive On Green	0.15	0.00	0.00	0.15	0.00	0.00	0.09	1.00	1.00	0.19	0.78	0.00
Sat Flow, veh/h	1418	1870	1585	1418	1870	1585	1781	3554	1585	3456	3554	1585
Grp Volume(v), veh/h	164	0	0	238	0	0	122	2410	144	458	2332	0
Grp Sat Flow(s),veh/h/ln	1418	1870	1585	1418	1870	1585	1781	1777	1585	1728	1777	1585
Q Serve(g_s), s	22.3	0.0	0.0	29.5	0.0	0.0	6.9	0.0	0.0	24.8	83.0	0.0
Cycle Q Clear(g_c), s	22.3	0.0	0.0	29.5	0.0	0.0	6.9	0.0	0.0	24.8	83.0	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	245	276		245	276		140	2273	1014	648	2781	
V/C Ratio(X)	0.67	0.00		0.97	0.00		0.87	1.06	0.14	0.71	0.84	
Avail Cap(c_a), veh/h	247	279		245	276		274	2273	1014	648	2781	
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	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	82.2	0.0	0.0	87.0	0.0	0.0	49.7	0.0	0.0	76.1	13.8	0.0
Incr Delay (d2), s/veh	6.7	0.0	0.0	49.2	0.0	0.0	14.7	37.3	0.3	3.5	3.2	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(50%),veh/ln	8.7	0.0	0.0	15.9	0.0	0.0	6.5	11.8	0.1	11.2	29.4	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	88.9	0.0	0.0	136.3	0.0	0.0	64.4	37.3	0.3	79.6	17.0	0.0
LnGrp LOS	F	A		F	A		E	F	A	E	B	
Approach Vol, veh/h		164	A		238	A		2676			2790	A
Approach Delay, s/veh		88.9			136.3			36.6			27.3	
Approach LOS		F			F			D			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	14.9	163.1		36.0	44.0	134.0		36.0				
Change Period (Y+Rc), s	* 5.7	* 6.1		* 6.5	* 6.1	* 6.1		6.5				
Max Green Setting (Gmax), s	* 24	* 1.3E2		* 30	* 24	* 1.3E2		29.5				
Max Q Clear Time (g_c+I1), s	8.9	85.0		24.3	26.8	2.0		31.5				
Green Ext Time (p_c), s	0.2	29.5		0.2	0.0	58.9		0.0				

Intersection Summary	
HCM 6th Ctrl Delay	37.7
HCM 6th LOS	D

Notes

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

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

Intersection	
Int Delay, s/veh	5.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	119	96	2277	73	174	2127
Future Vol, veh/h	119	96	2277	73	174	2127
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Yield	-	Yield	-	None
Storage Length	0	0	-	175	325	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	85	85	93	93	86	86
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	140	113	2448	78	202	2473

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	4089	1224	0	0	2448	0
Stage 1	2448	-	-	-	-	-
Stage 2	1641	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	~ 2	171	-	-	~ 188	-
Stage 1	~ 51	-	-	-	-	-
Stage 2	143	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	0	171	-	-	~ 188	-
Mov Cap-2 Maneuver	0	-	-	-	-	-
Stage 1	~ 51	-	-	-	-	-
Stage 2	0	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s		0	10.5
HCM LOS	-		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	-	171	~ 188	-
HCM Lane V/C Ratio	-	-	-	0.66	1.076	-
HCM Control Delay (s)	-	-	-	59.6	139.1	-
HCM Lane LOS	-	-	-	F	F	-
HCM 95th %tile Q(veh)	-	-	-	3.8	9.7	-

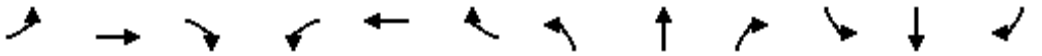
Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	58	24	112	35	24	64	1884	58	93	1940	280
Future Volume (vph)	58	24	112	35	24	64	1884	58	93	1940	280
Turn Type	pm+pt	NA	Perm	Perm	NA	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4			8	1	6		5	2	
Permitted Phases	4		4	8		6		6	2		2
Detector Phase	7	4	4	8	8	1	6	6	5	2	2
Switch Phase											
Minimum Initial (s)	4.0	6.0	6.0	6.0	6.0	4.0	12.0	12.0	4.0	12.0	12.0
Minimum Split (s)	11.0	12.5	12.5	14.0	14.0	10.8	19.3	19.3	12.0	19.3	19.3
Total Split (s)	28.0	48.0	48.0	20.0	20.0	17.0	117.0	117.0	35.0	135.0	135.0
Total Split (%)	14.0%	24.0%	24.0%	10.0%	10.0%	8.5%	58.5%	58.5%	17.5%	67.5%	67.5%
Yellow Time (s)	4.0	3.5	3.5	5.0	5.0	3.8	4.7	4.7	5.0	4.7	4.7
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	2.6	2.6	3.0	2.6	2.6
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	6.5	6.5	8.0	8.0	6.8	7.3	7.3	8.0	7.3	7.3
Lead/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	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max

Intersection Summary

Cycle Length: 200
Actuated Cycle Length: 200
Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBTL, Start of 1st Green
Natural Cycle: 100
Control Type: Actuated-Coordinated

Splits and Phases: 7: Buford Dr NE & Rock Springs Rd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	58	24	112	35	24	60	64	1884	58	93	1940	280
Future Volume (veh/h)	58	24	112	35	24	60	64	1884	58	93	1940	280
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	67	28	0	44	30	76	67	1983	0	99	2064	0
Peak Hour Factor	0.86	0.86	0.86	0.79	0.79	0.79	0.95	0.95	0.95	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	168	230		119	28	71	219	2613		242	2655	
Arrive On Green	0.03	0.12	0.00	0.06	0.06	0.06	0.04	1.00	0.00	0.05	1.00	0.00
Sat Flow, veh/h	3456	1870	1585	1382	469	1188	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	67	28	0	44	0	106	67	1983	0	99	2064	0
Grp Sat Flow(s),veh/h/ln	1728	1870	1585	1382	0	1657	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	3.6	2.7	0.0	6.2	0.0	12.0	2.0	0.0	0.0	2.9	0.0	0.0
Cycle Q Clear(g_c), s	3.6	2.7	0.0	6.2	0.0	12.0	2.0	0.0	0.0	2.9	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.72	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	168	230		119	0	99	219	2613		242	2655	
V/C Ratio(X)	0.40	0.12		0.37	0.00	1.07	0.31	0.76		0.41	0.78	
Avail Cap(c_a), veh/h	435	388		119	0	99	275	2613		437	2655	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	1.00	0.71	0.71	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	83.5	78.1	0.0	91.3	0.0	94.0	6.1	0.0	0.0	5.9	0.0	0.0
Incr Delay (d2), s/veh	1.5	0.2	0.0	1.9	0.0	109.4	0.6	1.5	0.0	1.1	2.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	1.3	0.0	2.3	0.0	8.2	0.7	0.6	0.0	1.0	0.9	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	85.0	78.4	0.0	93.2	0.0	203.4	6.7	1.5	0.0	7.0	2.3	0.0
LnGrp LOS	F	E		F	A	F	A	A		A	A	
Approach Vol, veh/h		95	A		150			2050	A		2163	A
Approach Delay, s/veh		83.1			171.0			1.7			2.5	
Approach LOS		F			F			A			A	

Timer - Assigned Phs	1	2		4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.7	156.7		32.6	13.1	154.3	12.6	20.0				
Change Period (Y+Rc), s	* 6.8	* 7.3		* 8	8.0	* 7.3	7.0	8.0				
Max Green Setting (Gmax), s	* 10	* 1.3E2		* 42	27.0	* 1.1E2	21.0	12.0				
Max Q Clear Time (g_c+I1), s	4.0	2.0		4.7	4.9	2.0	5.6	14.0				
Green Ext Time (p_c), s	0.1	35.6		0.1	0.2	31.1	0.1	0.0				

Intersection Summary		
HCM 6th Ctrl Delay	9.5	
HCM 6th LOS	A	

Notes

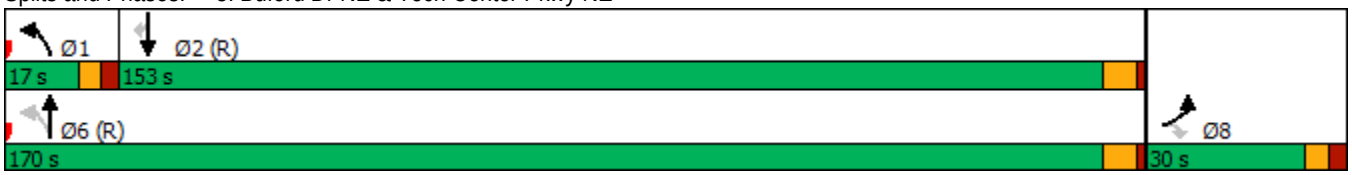
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

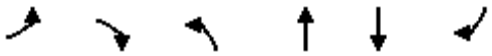
Unsignalized Delay for [NBR, EBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	217	97	56	1800	1865	182
Future Volume (vph)	217	97	56	1800	1865	182
Turn Type	Prot	Perm	pm+pt	NA	NA	Perm
Protected Phases	8		1	6	2	
Permitted Phases		8	6			2
Detector Phase	8	8	1	6	2	2
Switch Phase						
Minimum Initial (s)	6.0	6.0	4.0	20.0	20.0	20.0
Minimum Split (s)	12.4	12.4	10.0	26.6	26.6	26.6
Total Split (s)	30.0	30.0	17.0	170.0	153.0	153.0
Total Split (%)	15.0%	15.0%	8.5%	85.0%	76.5%	76.5%
Yellow Time (s)	3.5	3.5	3.3	5.0	5.0	5.0
All-Red Time (s)	2.9	2.9	2.7	1.6	1.6	1.6
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4	6.4	6.0	6.6	6.6	6.6
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Recall Mode	None	None	None	C-Max	C-Max	C-Max

Intersection Summary
Cycle Length: 200
Actuated Cycle Length: 200
Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBTL, Start of 1st Green
Natural Cycle: 90
Control Type: Actuated-Coordinated

Splits and Phases: 8: Buford Dr NE & Tech Center Pkwy NE





Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	217	97	56	1800	1865	182
Future Volume (veh/h)	217	97	56	1800	1865	182
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	275	0	58	1856	2119	0
Peak Hour Factor	0.79	0.79	0.97	0.97	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	314		222	3000	2825	
Arrive On Green	0.09	0.00	0.04	1.00	1.00	0.00
Sat Flow, veh/h	3456	1585	1781	3647	3647	1585
Grp Volume(v), veh/h	275	0	58	1856	2119	0
Grp Sat Flow(s),veh/h/ln	1728	1585	1781	1777	1777	1585
Q Serve(g_s), s	15.7	0.0	1.2	0.0	0.0	0.0
Cycle Q Clear(g_c), s	15.7	0.0	1.2	0.0	0.0	0.0
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	314		222	3000	2825	
V/C Ratio(X)	0.88		0.26	0.62	0.75	
Avail Cap(c_a), veh/h	408		286	3000	2825	
HCM Platoon Ratio	1.00	1.00	2.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	0.79	0.79	0.50	0.00
Uniform Delay (d), s/veh	89.8	0.0	3.2	0.0	0.0	0.0
Incr Delay (d2), s/veh	15.4	0.0	0.5	0.8	0.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.8	0.0	0.4	0.3	0.4	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	105.2	0.0	3.6	0.8	0.9	0.0
LnGrp LOS	F		A	A	A	
Approach Vol, veh/h	275	A		1914	2119	A
Approach Delay, s/veh	105.2			0.9	0.9	
Approach LOS	F			A	A	

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	9.8	165.6			175.4	24.6
Change Period (Y+Rc), s	6.0	* 6.6			* 6.6	6.4
Max Green Setting (Gmax), s	11.0	* 1.5E2			* 1.6E2	23.6
Max Q Clear Time (g_c+I1), s	3.2	2.0			2.0	17.7
Green Ext Time (p_c), s	0.0	39.1			26.8	0.5

Intersection Summary	
HCM 6th Ctrl Delay	7.6
HCM 6th LOS	A

Notes

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

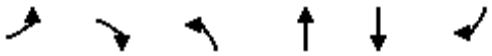
Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø3	Ø5
Lane Configurations								
Traffic Volume (vph)	5	9	41	1848	1907	51		
Future Volume (vph)	5	9	41	1848	1907	51		
Turn Type	Prot	Perm	Prot	NA	NA	Perm		
Protected Phases	4		1	6	2		3	5
Permitted Phases		4				2		
Detector Phase	4	4	1	6	2	2		
Switch Phase								
Minimum Initial (s)	6.0	6.0	4.0	12.0	12.0	12.0	5.0	5.0
Minimum Split (s)	12.4	12.4	10.3	18.9	18.9	18.9	9.5	9.5
Total Split (s)	28.0	28.0	18.0	146.0	145.0	145.0	9.0	17.0
Total Split (%)	14.0%	14.0%	9.0%	73.0%	72.5%	72.5%	5%	9%
Yellow Time (s)	3.4	3.4	3.7	5.4	5.4	5.4	3.0	3.0
All-Red Time (s)	3.0	3.0	2.6	1.5	1.5	1.5	0.0	0.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0		
Total Lost Time (s)	6.4	6.4	6.3	6.9	6.9	6.9		
Lead/Lag	Lag	Lag	Lead	Lag	Lag	Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	C-Max	C-Max	C-Max	None	None

Intersection Summary

Cycle Length: 200
Actuated Cycle Length: 200
Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBT, Start of 1st Green
Natural Cycle: 100
Control Type: Actuated-Coordinated

Splits and Phases: 9: Buford Dr NE & Braves Ave



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	5	9	41	1848	1907	51
Future Volume (vph)	5	9	41	1848	1907	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.4	6.4	6.3	6.9	6.9	6.9
Lane Util. Factor	1.00	1.00	0.97	0.95	0.95	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	1583	3433	3539	3539	1583
Flt Permitted	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	1770	1583	3433	3539	3539	1583
Peak-hour factor, PHF	0.77	0.77	0.96	0.96	0.86	0.86
Adj. Flow (vph)	6	12	43	1925	2217	59
RTOR Reduction (vph)	0	12	0	0	0	9
Lane Group Flow (vph)	6	0	43	1925	2217	50
Turn Type	Prot	Perm	Prot	NA	NA	Perm
Protected Phases	4		1	6	2	
Permitted Phases		4				2
Actuated Green, G (s)	4.1	4.1	6.8	182.6	169.5	169.5
Effective Green, g (s)	4.1	4.1	6.8	182.6	169.5	169.5
Actuated g/C Ratio	0.02	0.02	0.03	0.91	0.85	0.85
Clearance Time (s)	6.4	6.4	6.3	6.9	6.9	6.9
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	36	32	116	3231	2999	1341
v/s Ratio Prot	c0.00		0.01	c0.54	c0.63	
v/s Ratio Perm		0.00				0.03
v/c Ratio	0.17	0.01	0.37	0.60	0.74	0.04
Uniform Delay, d1	96.3	96.0	94.5	1.7	6.2	2.4
Progression Factor	1.00	1.00	0.94	2.95	0.71	1.93
Incremental Delay, d2	2.2	0.1	0.2	0.1	1.1	0.0
Delay (s)	98.5	96.1	88.7	5.0	5.5	4.7
Level of Service	F	F	F	A	A	A
Approach Delay (s)	96.9			6.8	5.5	
Approach LOS	F			A	A	

Intersection Summary			
HCM 2000 Control Delay	6.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	200.0	Sum of lost time (s)	22.6
Intersection Capacity Utilization	68.8%	ICU Level of Service	C
Analysis Period (min)	15		

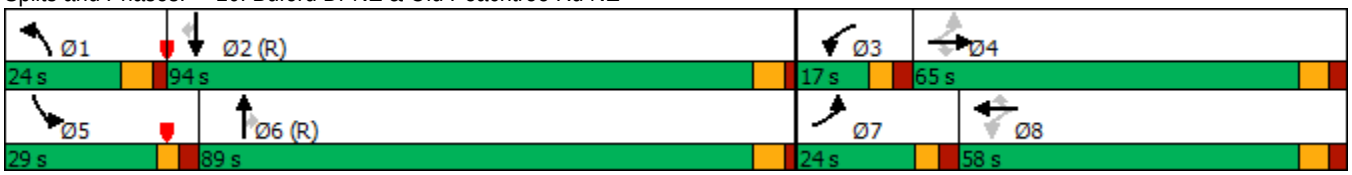
c Critical Lane Group

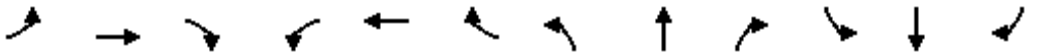
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	212	506	111	57	231	113	115	1610	108	223	1536	80
Future Volume (vph)	212	506	111	57	231	113	115	1610	108	223	1536	80
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases	4		4	8		8			6			2
Detector Phase	7	4	4	3	8	8	1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	15.0	15.0	4.0	15.0	15.0
Minimum Split (s)	10.5	13.4	13.4	10.5	13.4	13.4	10.6	21.6	21.6	10.5	21.6	21.6
Total Split (s)	24.0	65.0	65.0	17.0	58.0	58.0	24.0	89.0	89.0	29.0	94.0	94.0
Total Split (%)	12.0%	32.5%	32.5%	8.5%	29.0%	29.0%	12.0%	44.5%	44.5%	14.5%	47.0%	47.0%
Yellow Time (s)	3.5	4.5	4.5	3.5	4.5	4.5	4.7	4.7	4.7	3.5	4.7	4.7
All-Red Time (s)	3.0	2.9	2.9	3.0	2.9	2.9	1.9	1.9	1.9	3.0	1.9	1.9
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)	6.5	7.4	7.4	6.5	7.4	7.4	6.6	6.6	6.6	6.5	6.6	6.6
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	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max

Intersection Summary

Cycle Length: 200
Actuated Cycle Length: 200
Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBT, Start of 1st Green
Natural Cycle: 150
Control Type: Actuated-Coordinated

Splits and Phases: 10: Buford Dr NE & Old Peachtree Rd NE





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	212	506	111	57	231	113	115	1610	108	223	1536	80
Future Volume (veh/h)	212	506	111	57	231	113	115	1610	108	223	1536	80
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	228	544	119	60	243	119	121	1695	114	248	1707	89
Peak Hour Factor	0.93	0.93	0.93	0.95	0.95	0.95	0.95	0.95	0.95	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	315	539	456	97	439	372	138	1637	730	284	1652	737
Arrive On Green	0.09	0.29	0.29	0.03	0.23	0.23	0.08	0.46	0.46	0.16	0.93	0.93
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	3554	1585	3456	3554	1585
Grp Volume(v), veh/h	228	544	119	60	243	119	121	1695	114	248	1707	89
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	1777	1585	1728	1777	1585
Q Serve(g_s), s	17.5	57.6	11.6	5.1	22.9	12.4	13.4	92.1	8.4	14.0	93.0	0.9
Cycle Q Clear(g_c), s	17.5	57.6	11.6	5.1	22.9	12.4	13.4	92.1	8.4	14.0	93.0	0.9
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	315	539	456	97	439	372	138	1637	730	284	1652	737
V/C Ratio(X)	0.72	1.01	0.26	0.62	0.55	0.32	0.88	1.04	0.16	0.87	1.03	0.12
Avail Cap(c_a), veh/h	315	539	456	130	473	401	155	1637	730	389	1652	737
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.63	0.63	0.63
Uniform Delay (d), s/veh	55.5	71.2	54.8	60.8	67.3	63.3	91.3	53.9	31.4	82.6	7.0	3.8
Incr Delay (d2), s/veh	8.0	41.3	0.3	6.2	1.2	0.5	36.9	32.0	0.5	10.2	26.9	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(50%),veh/ln	2.9	33.4	4.7	2.5	11.0	5.1	7.6	47.0	3.3	6.1	9.2	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	63.5	112.5	55.1	67.0	68.5	63.8	128.2	86.0	31.8	92.7	34.0	4.0
LnGrp LOS	E	F	E	E	E	E	F	F	C	F	F	A
Approach Vol, veh/h		891			422			1930			2044	
Approach Delay, s/veh		92.3			67.0			85.4			39.8	
Approach LOS		F			E			F			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	22.1	99.6	13.4	65.0	22.9	98.7	24.0	54.4
Change Period (Y+Rc), s	* 6.6	* 6.6	6.5	7.4	6.5	* 6.6	6.5	7.4
Max Green Setting (Gmax), s	* 17	* 87	10.5	57.6	22.5	* 82	17.5	50.6
Max Q Clear Time (g_c+I1), s	15.4	95.0	7.1	59.6	16.0	94.1	19.5	24.9
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.4	0.0	0.0	1.6

Intersection Summary	
HCM 6th Ctrl Delay	67.5
HCM 6th LOS	E

Notes

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

Intersection	
Int Delay, s/veh	2.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	128	2369	80	0	2554
Future Vol, veh/h	0	128	2369	80	0	2554
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	-	175	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	90	90	84	84
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	139	2632	89	0	3040

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	1316	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	148	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	148	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	118.2	0	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	148	-
HCM Lane V/C Ratio	-	-	0.94	-
HCM Control Delay (s)	-	-	118.2	-
HCM Lane LOS	-	-	F	-
HCM 95th %tile Q(veh)	-	-	6.7	-

Intersection	
Int Delay, s/veh	2.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	122	2276	101	0	2263
Future Vol, veh/h	0	122	2276	101	0	2263
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	-	175	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	90	90	84	84
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	133	2529	112	0	2694

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	1265	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	160	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	160	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	88.4	0	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	160	-
HCM Lane V/C Ratio	-	-	0.829	-
HCM Control Delay (s)	-	-	88.4	-
HCM Lane LOS	-	-	F	-
HCM 95th %tile Q(veh)	-	-	5.5	-

Intersection	
Int Delay, s/veh	4.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	116	131	61	0	0	155
Future Vol, veh/h	116	131	61	0	0	155
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	89	85	85	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	126	147	72	0	0	168

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	72	0	-	0	471	72
Stage 1	-	-	-	-	72	-
Stage 2	-	-	-	-	399	-
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	1528	-	-	-	551	990
Stage 1	-	-	-	-	951	-
Stage 2	-	-	-	-	678	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1528	-	-	-	501	990
Mov Cap-2 Maneuver	-	-	-	-	501	-
Stage 1	-	-	-	-	865	-
Stage 2	-	-	-	-	678	-

Approach	EB	WB	SB
HCM Control Delay, s	3.5	0	9.4
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1528	-	-	-	990
HCM Lane V/C Ratio	0.083	-	-	-	0.17
HCM Control Delay (s)	7.6	0	-	-	9.4
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0.3	-	-	-	0.6

Intersection: 1: Buford Dr NE & Mall Drwy/Woodward Crossing Blvd

Movement	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	NB	SB
Directions Served	L	T	R	L	L	TR	R	L	T	T	TR	L
Maximum Queue (ft)	112	73	27	181	214	157	144	161	198	220	224	326
Average Queue (ft)	51	39	10	117	148	86	56	39	109	133	143	195
95th Queue (ft)	102	74	32	190	201	141	111	107	188	219	207	309
Link Distance (ft)	330	330	330			1590	1590		3054	3054	3054	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)				250	250			300				500
Storage Blk Time (%)												
Queuing Penalty (veh)												

Intersection: 1: Buford Dr NE & Mall Drwy/Woodward Crossing Blvd

Movement	SB	SB	SB	SB
Directions Served	L	T	T	TR
Maximum Queue (ft)	341	365	362	372
Average Queue (ft)	221	221	225	205
95th Queue (ft)	324	393	396	363
Link Distance (ft)		1465	1465	1465
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	500			
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 2: Buford Dr NE & Mall of Georgia Blvd

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	NB
Directions Served	L	L	T	R	L	L	T	R	L	L	T	T
Maximum Queue (ft)	178	161	384	529	325	362	199	89	389	499	546	695
Average Queue (ft)	110	75	213	314	210	236	119	31	176	205	349	388
95th Queue (ft)	173	157	337	515	307	341	177	69	282	344	547	600
Link Distance (ft)	1056	1056	1056	1056			1308				974	974
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)					275	275		400	375	375		
Storage Blk Time (%)					0	4			0	0	6	
Queuing Penalty (veh)					0	9			0	0	23	

Intersection: 2: Buford Dr NE & Mall of Georgia Blvd

Movement	NB	NB	SB	SB	SB	SB
Directions Served	TR	R	L	T	T	TR
Maximum Queue (ft)	738	200	399	1393	1369	1369
Average Queue (ft)	454	164	119	612	632	589
95th Queue (ft)	723	290	338	1139	1171	1127
Link Distance (ft)	974			3054	3054	3054
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		175	300			
Storage Blk Time (%)	23	0		43		
Queuing Penalty (veh)	92	5		23		

Intersection: 3: Buford Dr NE & I-85 SB Ramp

Movement	WB	WB	SB
Directions Served	R	R	T
Maximum Queue (ft)	799	778	981
Average Queue (ft)	454	442	35
95th Queue (ft)	777	784	335
Link Distance (ft)	867	867	974
Upstream Blk Time (%)			0
Queuing Penalty (veh)			0
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 4: Buford Dr NE & I-85 NB Ramp

Movement	SB	SB	SB
Directions Served	T	T	R
Maximum Queue (ft)	767	780	943
Average Queue (ft)	115	114	34
95th Queue (ft)	480	489	322
Link Distance (ft)	1474	1474	1474
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 5: Buford Dr NE & Brand Smart Way/Driveway 2

Movement	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB	SB
Directions Served	L	R	L	T	R	L	T	T	R	L	L	T
Maximum Queue (ft)	309	278	175	715	175	390	419	429	225	306	325	633
Average Queue (ft)	175	65	166	398	60	126	340	362	96	223	290	511
95th Queue (ft)	266	169	189	717	158	273	510	496	255	316	366	732
Link Distance (ft)	866	866		783			391	391				597
Upstream Blk Time (%)						0	10	14				7
Queuing Penalty (veh)						0	118	167				58
Storage Bay Dist (ft)			150		150	300			175	300	300	
Storage Blk Time (%)			70	0	4		23	29		0	1	23
Queuing Penalty (veh)			86	0	8		25	37		4	13	88

Intersection: 5: Buford Dr NE & Brand Smart Way/Driveway 2

Movement	SB
Directions Served	T
Maximum Queue (ft)	615
Average Queue (ft)	499
95th Queue (ft)	752
Link Distance (ft)	597
Upstream Blk Time (%)	7
Queuing Penalty (veh)	62
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 6: Buford Dr NE & Laurel Crossing Pkwy NE

Movement	WB	WB	B14	B14	SB	SB	SB
Directions Served	L	R	T	T	L	T	T
Maximum Queue (ft)	909	917	538	546	425	732	765
Average Queue (ft)	812	654	292	296	294	294	263
95th Queue (ft)	1074	1288	688	710	489	825	823
Link Distance (ft)	846	846	546	546		696	696
Upstream Blk Time (%)	72	66	44	44		7	6
Queuing Penalty (veh)	78	71	48	48		81	64
Storage Bay Dist (ft)					325		
Storage Blk Time (%)					34	0	
Queuing Penalty (veh)					365	0	

Intersection: 7: Buford Dr NE & Rock Springs Rd

Movement	EB	EB	EB	EB	WB	WB	NB	NB	NB	NB	SB	SB
Directions Served	L	L	T	R	L	TR	L	T	T	R	L	T
Maximum Queue (ft)	66	64	62	81	135	153	250	423	427	225	325	710
Average Queue (ft)	23	25	18	31	38	59	53	252	284	24	102	314
95th Queue (ft)	50	55	48	70	88	111	156	501	506	138	280	647
Link Distance (ft)	2600	2600	2600			2242		412	412			1185
Upstream Blk Time (%)								2	2			
Queuing Penalty (veh)								24	25			
Storage Bay Dist (ft)				150	200		175			125	225	
Storage Blk Time (%)								15	19			13
Queuing Penalty (veh)								10	11			12

Intersection: 7: Buford Dr NE & Rock Springs Rd

Movement	SB	SB
Directions Served	T	R
Maximum Queue (ft)	731	175
Average Queue (ft)	338	37
95th Queue (ft)	694	154
Link Distance (ft)	1185	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		75
Storage Blk Time (%)	21	
Queuing Penalty (veh)	59	

Intersection: 8: Buford Dr NE & Tech Center Pkwy NE

Movement	EB	EB	EB	NB	NB	NB	SB	SB	SB
Directions Served	L	L	R	L	T	T	T	T	R
Maximum Queue (ft)	264	264	146	160	187	197	412	420	200
Average Queue (ft)	137	137	21	49	96	104	112	111	21
95th Queue (ft)	211	220	88	104	194	200	319	305	122
Link Distance (ft)	2083	2083	2083		1479	1479	412	412	
Upstream Blk Time (%)							0	0	
Queuing Penalty (veh)							2	3	
Storage Bay Dist (ft)				250					150
Storage Blk Time (%)								3	
Queuing Penalty (veh)								6	

Intersection: 9: Buford Dr NE & Braves Ave

Movement	EB	NB	NB	NB	NB	SB	SB
Directions Served	L	L	L	T	T	T	T
Maximum Queue (ft)	30	51	72	56	95	174	202
Average Queue (ft)	5	13	33	4	10	57	60
95th Queue (ft)	21	39	65	23	58	148	164
Link Distance (ft)	766			1552	1552	1479	1479
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)		850	850				
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 10: Buford Dr NE & Old Peachtree Rd NE

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB
Directions Served	L	T	R	L	T	R	L	T	T	R	L	L
Maximum Queue (ft)	241	844	400	274	421	158	575	1282	1264	450	213	675
Average Queue (ft)	147	536	142	49	198	63	244	1198	1178	237	102	251
95th Queue (ft)	240	801	412	132	316	115	593	1403	1412	587	187	658
Link Distance (ft)	2063	2063			2738			1230	1230			
Upstream Blk Time (%)								42	39			
Queuing Penalty (veh)								0	0			
Storage Bay Dist (ft)			300	225		400	375			375	375	375
Storage Blk Time (%)		41			8			53	55			
Queuing Penalty (veh)		45			14			61	59			

Intersection: 10: Buford Dr NE & Old Peachtree Rd NE

Movement	SB	SB	SB
Directions Served	T	T	R
Maximum Queue (ft)	911	897	135
Average Queue (ft)	658	671	27
95th Queue (ft)	892	895	110
Link Distance (ft)	1552	1552	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			110
Storage Blk Time (%)	38	50	0
Queuing Penalty (veh)	84	40	0

Intersection: 100: Buford Dr NE & Driveway 1

Movement	WB	SB	SB	SB
Directions Served	R	T	T	T
Maximum Queue (ft)	306	429	440	370
Average Queue (ft)	132	142	151	75
95th Queue (ft)	251	429	437	316
Link Distance (ft)	1223	405	405	405
Upstream Blk Time (%)		5	6	
Queuing Penalty (veh)		43	48	
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 101: Buford Dr NE & Driveway 3

Movement	WB	NB	NB	NB	SB	SB
Directions Served	R	T	T	R	T	T
Maximum Queue (ft)	893	348	350	200	400	458
Average Queue (ft)	775	96	120	28	117	127
95th Queue (ft)	1119	278	315	143	400	433
Link Distance (ft)	878	696	696		391	391
Upstream Blk Time (%)	65				1	4
Queuing Penalty (veh)	0				7	41
Storage Bay Dist (ft)				175		
Storage Blk Time (%)			7	0		
Queuing Penalty (veh)			7	0		

Intersection: 102: Laurel Crossing Pkwy NE & Driveway 4

Movement	EB	WB	SB
Directions Served	LT	TR	LR
Maximum Queue (ft)	55	680	535
Average Queue (ft)	2	156	216
95th Queue (ft)	19	511	585
Link Distance (ft)	546	1652	536
Upstream Blk Time (%)			32
Queuing Penalty (veh)			0
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Network Summary

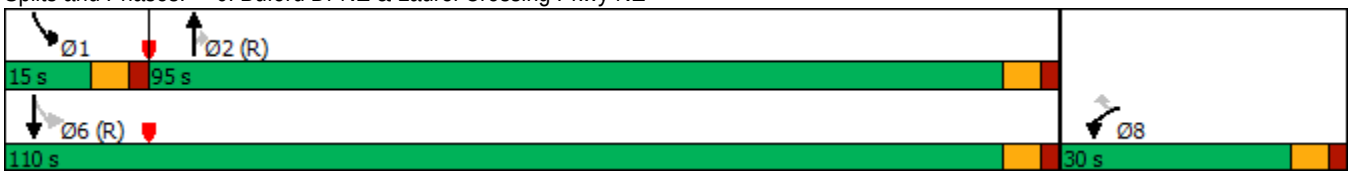
Network wide Queuing Penalty: 2177

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	101	101	1949	32	72	1572
Future Volume (vph)	101	101	1949	32	72	1572
Turn Type	Prot	Perm	NA	Perm	pm+pt	NA
Protected Phases	8		2		1	6
Permitted Phases		8		2	6	
Detector Phase	8	8	2	2	1	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	11.0	22.5
Total Split (s)	30.0	30.0	95.0	95.0	15.0	110.0
Total Split (%)	21.4%	21.4%	67.9%	67.9%	10.7%	78.6%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
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)	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Recall Mode	None	None	C-Max	C-Max	None	C-Max

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated

Splits and Phases: 6: Buford Dr NE & Laurel Crossing Pkwy NE



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	101	101	1949	32	72	1572
Future Volume (veh/h)	101	101	1949	32	72	1572
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	119	0	2096	0	84	1828
Peak Hour Factor	0.85	0.85	0.93	0.93	0.86	0.86
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	144		2688		192	2962
Arrive On Green	0.08	0.00	0.76	0.00	0.07	1.00
Sat Flow, veh/h	1781	1585	3647	1585	1781	3647
Grp Volume(v), veh/h	119	0	2096	0	84	1828
Grp Sat Flow(s),veh/h/ln	1781	1585	1777	1585	1781	1777
Q Serve(g_s), s	9.2	0.0	49.1	0.0	1.4	0.0
Cycle Q Clear(g_c), s	9.2	0.0	49.1	0.0	1.4	0.0
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	144		2688		192	2962
V/C Ratio(X)	0.83		0.78		0.44	0.62
Avail Cap(c_a), veh/h	305		2688		245	2962
HCM Platoon Ratio	1.00	1.00	1.00	1.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	0.44	0.00	1.00	1.00
Uniform Delay (d), s/veh	63.4	0.0	10.1	0.0	18.0	0.0
Incr Delay (d2), s/veh	11.3	0.0	1.0	0.0	1.6	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.6	0.0	15.0	0.0	1.5	0.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	74.7	0.0	11.2	0.0	19.6	1.0
LnGrp LOS	E		B		B	A
Approach Vol, veh/h	119	A	2096	A		1912
Approach Delay, s/veh	74.7		11.2			1.8
Approach LOS	E		B			A

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	10.8	111.9			122.7	17.3
Change Period (Y+Rc), s	6.0	6.0			6.0	6.0
Max Green Setting (Gmax), s	9.0	89.0			104.0	24.0
Max Q Clear Time (g_c+I1), s	3.4	51.1			2.0	11.2
Green Ext Time (p_c), s	0.1	23.4			25.1	0.2

Intersection Summary	
HCM 6th Ctrl Delay	8.7
HCM 6th LOS	A

Notes

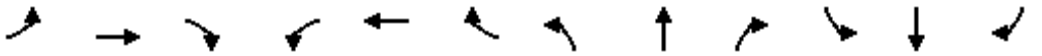
Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	115	161	109	153	417	240	116	1232	68	53	1348	58
Future Volume (vph)	115	161	109	153	417	240	116	1232	68	53	1348	58
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases	4		4	8		8			6			2
Detector Phase	7	4	4	3	8	8	1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	15.0	15.0	4.0	15.0	15.0
Minimum Split (s)	10.5	13.4	13.4	10.5	13.4	13.4	10.6	21.6	21.6	10.5	21.6	21.6
Total Split (s)	17.0	42.0	42.0	15.0	40.0	40.0	22.0	66.0	66.0	17.0	61.0	61.0
Total Split (%)	12.1%	30.0%	30.0%	10.7%	28.6%	28.6%	15.7%	47.1%	47.1%	12.1%	43.6%	43.6%
Yellow Time (s)	3.5	4.5	4.5	3.5	4.5	4.5	4.7	4.7	4.7	3.5	4.7	4.7
All-Red Time (s)	3.0	2.9	2.9	3.0	2.9	2.9	1.9	1.9	1.9	3.0	1.9	1.9
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)	6.5	7.4	7.4	6.5	7.4	7.4	6.6	6.6	6.6	6.5	6.6	6.6
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	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 43 (31%), Referenced to phase 2:SBT and 6:NBT, Start of 1st Green
Natural Cycle: 130
Control Type: Actuated-Coordinated

Splits and Phases: 10: Buford Dr NE & Old Peachtree Rd NE



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	115	161	109	153	417	240	116	1232	68	53	1348	58
Future Volume (veh/h)	115	161	109	153	417	240	116	1232	68	53	1348	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	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	124	173	117	161	439	253	122	1297	72	59	1498	64
Peak Hour Factor	0.93	0.93	0.93	0.95	0.95	0.95	0.95	0.95	0.95	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	170	446	378	335	436	369	146	2448	760	98	1512	674
Arrive On Green	0.07	0.24	0.24	0.06	0.23	0.23	0.08	0.48	0.48	0.01	0.14	0.14
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	5106	1585	3456	3554	1585
Grp Volume(v), veh/h	124	173	117	161	439	253	122	1297	72	59	1498	64
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	1702	1585	1728	1777	1585
Q Serve(g_s), s	7.3	10.9	8.5	8.5	32.6	20.4	9.5	24.8	3.5	2.4	58.9	4.9
Cycle Q Clear(g_c), s	7.3	10.9	8.5	8.5	32.6	20.4	9.5	24.8	3.5	2.4	58.9	4.9
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	170	446	378	335	436	369	146	2448	760	98	1512	674
V/C Ratio(X)	0.73	0.39	0.31	0.48	1.01	0.69	0.84	0.53	0.09	0.60	0.99	0.09
Avail Cap(c_a), veh/h	185	462	392	335	436	369	196	2448	760	259	1512	674
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.74	0.74	0.74
Uniform Delay (d), s/veh	40.7	44.7	43.8	40.0	53.7	49.0	63.4	25.4	19.9	68.5	59.9	36.7
Incr Delay (d2), s/veh	12.6	0.6	0.5	1.1	45.1	5.2	20.4	0.8	0.2	4.3	17.8	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(50%),veh/ln	3.7	5.0	3.3	0.7	20.4	8.4	5.0	9.7	1.3	1.1	31.8	2.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	53.3	45.3	44.3	41.1	98.8	54.2	83.8	26.3	20.1	72.8	77.7	36.9
LnGrp LOS	D	D	D	D	F	D	F	C	C	E	E	D
Approach Vol, veh/h		414			853			1491			1621	
Approach Delay, s/veh		47.4			74.7			30.7			76.0	
Approach LOS		D			E			C			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	18.0	66.2	15.0	40.8	10.5	73.7	15.8	40.0
Change Period (Y+Rc), s	* 6.6	* 6.6	6.5	7.4	6.5	* 6.6	6.5	7.4
Max Green Setting (Gmax), s	* 15	* 54	8.5	34.6	10.5	* 59	10.5	32.6
Max Q Clear Time (g_c+I1), s	11.5	60.9	10.5	12.9	4.4	26.8	9.3	34.6
Green Ext Time (p_c), s	0.1	0.0	0.0	1.2	0.0	10.5	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	57.6
HCM 6th LOS	E

Notes

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

Intersection: 6: Buford Dr NE & Laurel Crossing Pkwy NE

Movement	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	R	T	T	R	L	T	T
Maximum Queue (ft)	179	162	324	338	250	116	142	154
Average Queue (ft)	91	6	131	165	18	67	58	77
95th Queue (ft)	163	56	267	316	124	105	114	134
Link Distance (ft)	846		1185	1185			696	696
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)		150			175	325		
Storage Blk Time (%)	3	0		8				
Queuing Penalty (veh)	3	0		3				

Intersection: 10: Buford Dr NE & Old Peachtree Rd NE

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	NB	SB
Directions Served	L	T	R	L	T	R	L	T	T	T	R	L
Maximum Queue (ft)	216	186	151	275	660	500	196	362	390	264	46	45
Average Queue (ft)	81	96	45	133	350	171	97	251	231	176	13	9
95th Queue (ft)	142	149	104	288	565	374	160	339	327	259	34	33
Link Distance (ft)	2063	2063			2732			1230	1230	1230		
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)			300	225		400	375				375	375
Storage Blk Time (%)					34			0				
Queuing Penalty (veh)					135			0				

Intersection: 10: Buford Dr NE & Old Peachtree Rd NE

Movement	SB	SB	SB	SB
Directions Served	L	T	T	R
Maximum Queue (ft)	81	748	746	135
Average Queue (ft)	30	422	431	44
95th Queue (ft)	69	647	662	145
Link Distance (ft)		1552	1552	
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	375			110
Storage Blk Time (%)		14	43	0
Queuing Penalty (veh)		7	25	0

Zone Summary

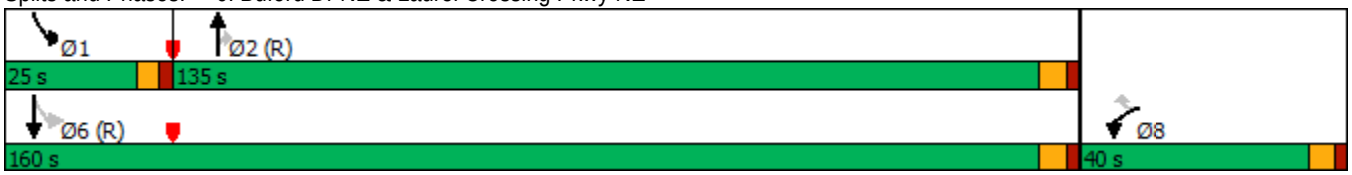
Zone wide Queuing Penalty: 173

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	119	96	2277	73	174	2127
Future Volume (vph)	119	96	2277	73	174	2127
Turn Type	Prot	Perm	NA	Perm	pm+pt	NA
Protected Phases	8		2		1	6
Permitted Phases		8		2	6	
Detector Phase	8	8	2	2	1	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	23.5	23.5	23.5	23.5	11.0	23.5
Total Split (s)	40.0	40.0	135.0	135.0	25.0	160.0
Total Split (%)	20.0%	20.0%	67.5%	67.5%	12.5%	80.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	3.5	4.0
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)	6.0	6.0	6.0	6.0	5.5	6.0
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Recall Mode	None	None	C-Max	C-Max	None	C-Max

Intersection Summary

Cycle Length: 200
Actuated Cycle Length: 200
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 140
Control Type: Actuated-Coordinated

Splits and Phases: 6: Buford Dr NE & Laurel Crossing Pkwy NE



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	119	96	2277	73	174	2127
Future Volume (veh/h)	119	96	2277	73	174	2127
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	140	0	2448	0	202	2473
Peak Hour Factor	0.85	0.85	0.93	0.93	0.86	0.86
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	159		2772		221	3024
Arrive On Green	0.09	0.00	1.00	0.00	0.04	0.85
Sat Flow, veh/h	1781	1585	3647	1585	1781	3647
Grp Volume(v), veh/h	140	0	2448	0	202	2473
Grp Sat Flow(s),veh/h/ln	1781	1585	1777	1585	1781	1777
Q Serve(g_s), s	15.5	0.0	0.0	0.0	6.3	68.3
Cycle Q Clear(g_c), s	15.5	0.0	0.0	0.0	6.3	68.3
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	159		2772		221	3024
V/C Ratio(X)	0.88		0.88		0.91	0.82
Avail Cap(c_a), veh/h	303		2772		318	3024
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.49	0.00	1.00	1.00
Uniform Delay (d), s/veh	90.0	0.0	0.0	0.0	26.9	7.3
Incr Delay (d2), s/veh	14.4	0.0	2.3	0.0	23.4	2.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.8	0.0	0.9	0.0	10.2	19.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	104.4	0.0	2.3	0.0	50.3	9.9
LnGrp LOS	F		A		D	A
Approach Vol, veh/h	140	A	2448	A		2675
Approach Delay, s/veh	104.4		2.3			13.0
Approach LOS	F		A			B

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	14.1	162.0			176.2	23.8
Change Period (Y+Rc), s	5.5	6.0			6.0	6.0
Max Green Setting (Gmax), s	19.5	129.0			154.0	34.0
Max Q Clear Time (g_c+I1), s	8.3	2.0			70.3	17.5
Green Ext Time (p_c), s	0.4	58.5			49.5	0.3

Intersection Summary	
HCM 6th Ctrl Delay	10.4
HCM 6th LOS	B

Notes

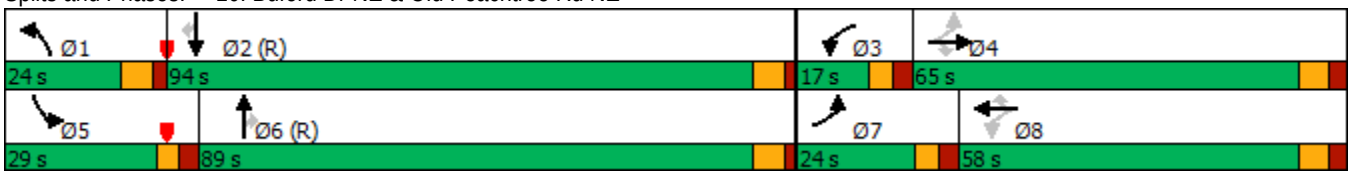
Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

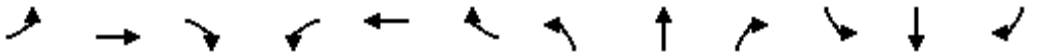
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	212	506	111	57	231	113	115	1610	108	223	1536	80
Future Volume (vph)	212	506	111	57	231	113	115	1610	108	223	1536	80
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases	4		4	8		8			6			2
Detector Phase	7	4	4	3	8	8	1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	15.0	15.0	4.0	15.0	15.0
Minimum Split (s)	10.5	13.4	13.4	10.5	13.4	13.4	10.6	21.6	21.6	10.5	21.6	21.6
Total Split (s)	24.0	65.0	65.0	17.0	58.0	58.0	24.0	89.0	89.0	29.0	94.0	94.0
Total Split (%)	12.0%	32.5%	32.5%	8.5%	29.0%	29.0%	12.0%	44.5%	44.5%	14.5%	47.0%	47.0%
Yellow Time (s)	3.5	4.5	4.5	3.5	4.5	4.5	4.7	4.7	4.7	3.5	4.7	4.7
All-Red Time (s)	3.0	2.9	2.9	3.0	2.9	2.9	1.9	1.9	1.9	3.0	1.9	1.9
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)	6.5	7.4	7.4	6.5	7.4	7.4	6.6	6.6	6.6	6.5	6.6	6.6
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	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max

Intersection Summary

Cycle Length: 200
Actuated Cycle Length: 200
Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBT, Start of 1st Green
Natural Cycle: 150
Control Type: Actuated-Coordinated

Splits and Phases: 10: Buford Dr NE & Old Peachtree Rd NE





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	212	506	111	57	231	113	115	1610	108	223	1536	80
Future Volume (veh/h)	212	506	111	57	231	113	115	1610	108	223	1536	80
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	228	544	119	60	243	119	121	1695	114	248	1707	89
Peak Hour Factor	0.93	0.93	0.93	0.95	0.95	0.95	0.95	0.95	0.95	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	315	539	456	97	439	372	138	2352	730	284	1652	737
Arrive On Green	0.09	0.29	0.29	0.03	0.23	0.23	0.08	0.46	0.46	0.16	0.93	0.93
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	5106	1585	3456	3554	1585
Grp Volume(v), veh/h	228	544	119	60	243	119	121	1695	114	248	1707	89
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	1702	1585	1728	1777	1585
Q Serve(g_s), s	17.5	57.6	11.6	5.1	22.9	12.4	13.4	53.6	8.4	14.0	93.0	0.9
Cycle Q Clear(g_c), s	17.5	57.6	11.6	5.1	22.9	12.4	13.4	53.6	8.4	14.0	93.0	0.9
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	315	539	456	97	439	372	138	2352	730	284	1652	737
V/C Ratio(X)	0.72	1.01	0.26	0.62	0.55	0.32	0.88	0.72	0.16	0.87	1.03	0.12
Avail Cap(c_a), veh/h	315	539	456	130	473	401	155	2352	730	389	1652	737
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.63	0.63	0.63
Uniform Delay (d), s/veh	55.5	71.2	54.8	60.8	67.3	63.3	91.3	43.6	31.4	82.6	7.0	3.8
Incr Delay (d2), s/veh	8.0	41.3	0.3	6.2	1.2	0.5	36.9	1.9	0.5	10.2	26.9	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(50%),veh/ln	2.9	33.4	4.7	2.5	11.0	5.1	7.6	22.6	3.3	6.1	9.2	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	63.5	112.5	55.1	67.0	68.5	63.8	128.2	45.5	31.8	92.7	34.0	4.0
LnGrp LOS	E	F	E	E	E	E	F	D	C	F	F	A
Approach Vol, veh/h		891			422			1930			2044	
Approach Delay, s/veh		92.3			67.0			49.9			39.8	
Approach LOS		F			E			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	22.1	99.6	13.4	65.0	22.9	98.7	24.0	54.4
Change Period (Y+Rc), s	* 6.6	* 6.6	6.5	7.4	6.5	* 6.6	6.5	7.4
Max Green Setting (Gmax), s	* 17	* 87	10.5	57.6	22.5	* 82	17.5	50.6
Max Q Clear Time (g_c+I1), s	15.4	95.0	7.1	59.6	16.0	55.6	19.5	24.9
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.4	13.9	0.0	1.6

Intersection Summary	
HCM 6th Ctrl Delay	54.5
HCM 6th LOS	D

Notes

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

Intersection: 2: Buford Dr NE & Mall of Georgia Blvd

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	NB
Directions Served	L	L	T	R	L	L	T	R	L	L	T	T
Maximum Queue (ft)	200	992	1071	1071	325	375	1360	450	311	499	994	1038
Average Queue (ft)	101	100	616	753	311	372	1266	139	176	233	355	1033
95th Queue (ft)	178	395	1282	1339	343	379	1505	464	268	418	734	1043
Link Distance (ft)	1056	1056	1056	1056			1308				974	974
Upstream Blk Time (%)			13	41			65				1	97
Queuing Penalty (veh)			0	0			0				6	1013
Storage Bay Dist (ft)					275	275		400	375	375		
Storage Blk Time (%)					63	85					7	
Queuing Penalty (veh)					129	176					28	

Intersection: 2: Buford Dr NE & Mall of Georgia Blvd

Movement	NB	NB	SB	SB	SB	SB	SB
Directions Served	TR	R	L	T	T	T	R
Maximum Queue (ft)	1034	200	400	3079	3092	3091	325
Average Queue (ft)	1009	164	133	2249	2259	2231	120
95th Queue (ft)	1030	290	415	4107	4101	4130	354
Link Distance (ft)	974			3055	3055	3055	
Upstream Blk Time (%)	100			23	25	24	
Queuing Penalty (veh)	1039			181	192	184	
Storage Bay Dist (ft)		175	300				300
Storage Blk Time (%)	21	0		80		38	0
Queuing Penalty (veh)	92	4		43		65	0

Intersection: 7: Buford Dr NE & Rock Springs Rd

Movement	EB	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	L	T	R	L	T	R	L	T	T	L	T
Maximum Queue (ft)	69	68	82	134	82	79	142	249	432	455	281	644
Average Queue (ft)	27	26	28	29	18	25	58	57	387	396	147	175
95th Queue (ft)	60	58	63	94	52	65	120	180	501	480	250	444
Link Distance (ft)	2600	2600	2600			2240			412	412		1185
Upstream Blk Time (%)									10	12		
Queuing Penalty (veh)									113	132		
Storage Bay Dist (ft)				150	200		200	175			225	
Storage Blk Time (%)				0				3	27	30	5	5
Queuing Penalty (veh)				0				34	18	17	53	11

Intersection: 7: Buford Dr NE & Rock Springs Rd

Movement	SB	SB
Directions Served	T	R
Maximum Queue (ft)	616	175
Average Queue (ft)	177	44
95th Queue (ft)	440	168
Link Distance (ft)	1185	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		75
Storage Blk Time (%)	17	
Queuing Penalty (veh)	47	

Intersection: 10: Buford Dr NE & Old Peachtree Rd NE

Movement	EB	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	NB
Directions Served	L	T	T	R	L	T	R	L	T	T	T	R
Maximum Queue (ft)	303	373	398	102	274	350	467	575	1280	1269	1256	450
Average Queue (ft)	186	196	189	36	72	233	174	465	1099	1080	1021	342
95th Queue (ft)	286	311	324	78	195	355	320	778	1483	1456	1461	650
Link Distance (ft)	2063	2063	2063			2732			1217	1217	1217	
Upstream Blk Time (%)									46	36	32	
Queuing Penalty (veh)									0	0	0	
Storage Bay Dist (ft)				300	225		400	375				375
Storage Blk Time (%)			2			20	1		82		89	
Queuing Penalty (veh)			2			60	3		94		97	

Intersection: 10: Buford Dr NE & Old Peachtree Rd NE

Movement	SB	SB	SB	SB	SB
Directions Served	L	L	T	T	R
Maximum Queue (ft)	198	674	734	711	135
Average Queue (ft)	97	134	416	433	14
95th Queue (ft)	174	323	688	685	70
Link Distance (ft)			1552	1552	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	375	375			110
Storage Blk Time (%)			20	41	0
Queuing Penalty (veh)			69	33	0

Zone Summary

Zone wide Queuing Penalty: 3937

Appendix D: Trip Generation and Internal Capture

Project Trip Generation

The Exchange at Gwinnett DRI 2834 - Buford, GA

LOWE ENGINEERS

Calculations based upon methodology from ITE's Trip Generation Manual, 10th Edition (2017)

Land Use Information	Reduction %	Project Trips Total	Inbound	Outbound	Equation Used[1]	In / Out Distribution
960- Super Convenience Market / Gas Station					**20**	**Pumps**
Daily		4,610	2,305	2,305	T = 230.52(X)	50% / 50%
AM Peak Hour		562	281	281	T = 28.08(X)	50% / 50%
PM Peak Hour		459	230	229	T = 22.96(X)	50% / 50%
Reductions for Internal Capture						
Daily	21%	973	498	475		
AM Peak Hour	9%	51	13	38		
PM Peak Hour	16%	74	34	40		
Reductions for Modal Split						
Daily	2%	73	36	37		
AM Peak Hour	2%	10	5	5		
PM Peak Hour	2%	8	4	4		
Reductions for Pass-By Trips						
Daily	59%	2,103	1,045	1,058		
AM Peak Hour	62%	311	163	148		
PM Peak Hour	56%	211	108	103		
Net New External Vehicle Trips						
Daily		1,461	726	735		
AM Peak Hour		190	100	90		
PM Peak Hour		166	84	82		
937- Coffee/Doughnut Shop with Drive-Through Window					**2,500**	**1000 S.F.**
Daily		2,051	1,026	1,025	T = 820.38(X)	50% / 50%
AM Peak Hour		222	113	109	T = 88.99(X)	51% / 49%
PM Peak Hour		108	54	54	T = 43.38(X)	50% / 50%
Reductions for Internal Capture						
Daily	63%	1,283	524	759		
AM Peak Hour	41%	91	73	18		
PM Peak Hour	64%	69	29	40		
Reductions for Modal Split						
Daily	2%	15	10	5		
AM Peak Hour	2%	3	1	2		
PM Peak Hour	2%	1	1	0		
Reductions for Pass-By Trips						
Daily	50%	377	246	131		
AM Peak Hour	49%	63	19	44		
PM Peak Hour	50%	19	12	7		
Net New External Vehicle Trips						
Daily		376	246	130		
AM Peak Hour		65	20	45		
PM Peak Hour		19	12	7		

Project Trip Generation

The Exchange at Gwinnett DRI 2834 - Buford, GA

LOWE ENGINEERS

Calculations based upon methodology from ITE's Trip Generation Manual, 10th Edition (2017)

Land Use Information	Reduction %	Project Trips Total	Inbound	Outbound	Equation Used[1]	In / Out Distribution
820- Shopping Center					**130,312**	**1000 S.F.**
Daily		7,198	3,599	3,599	Ln(T) = 0.68Ln(X)+5.57	50% / 50%
AM Peak Hour		217	135	82	T = 0.5(X) + 151.78	62% / 38%
PM Peak Hour		661	317	344	Ln(T) = 0.74Ln(X)+2.89	48% / 52%
Reductions for Internal Capture						
Daily	21%	1,519	778	741		
AM Peak Hour	8%	17	6	11		
PM Peak Hour	16%	107	47	60		
Reductions for Modal Split						
Daily	2%	114	56	58		
AM Peak Hour	2%	4	3	1		
PM Peak Hour	2%	11	5	6		
Reductions for Pass-By Trips						
Daily	26%	1,447	719	728		
AM Peak Hour	17%	33	21	12		
PM Peak Hour	34%	185	90	95		
Net New External Vehicle Trips						
Daily		4,118	2,046	2,072		
AM Peak Hour		163	105	58		
PM Peak Hour		358	175	183		
890- Furniture Store					**56,032**	**1000 S.F.**
Daily		336	168	168	T = 5.17(X) + 46.56	50% / 50%
AM Peak Hour		14	10	4	T = 0.24(X) + 0.94	71% / 29%
PM Peak Hour		26	12	14	Ln(T) = 0.85 Ln(X) - 0.18	47% / 53%
Reductions for Internal Capture						
Daily	21%	71	36	35		
AM Peak Hour	7%	1	0	1		
PM Peak Hour	15%	4	2	2		
Reductions for Modal Split						
Daily	2%	5	3	2		
AM Peak Hour	2%	0	0	0		
PM Peak Hour	2%	0	0	0		
Reductions for Pass-By Trips						
Daily	27%	70	35	35		
AM Peak Hour	0%	0	0	0		
PM Peak Hour	53%	12	5	7		
Net New External Vehicle Trips						
Daily		190	94	96		
AM Peak Hour		13	10	3		
PM Peak Hour		10	5	5		
310- Hotel					**123**	**Rooms**
Daily		962	481	481	T = 11.29(X) - 426.97	50% / 50%
AM Peak Hour		56	33	23	T = 0.50(X) - 5.34	59% / 41%
PM Peak Hour		66	34	32	T = 0.75(X) - 26.02	51% / 49%
Reductions for Internal Capture						
Daily	34%	328	200	128		
AM Peak Hour	11%	6	1	5		
PM Peak Hour	30%	20	12	8		
Reductions for Modal Split						
Daily	2%	13	6	7		
AM Peak Hour	2%	1	1	0		
PM Peak Hour	2%	1	0	1		
Reductions for Pass-By Trips						
Daily	0%	0	0	0		
AM Peak Hour	0%	0	0	0		
PM Peak Hour	0%	0	0	0		
Net New External Vehicle Trips						
Daily		621	275	346		
AM Peak Hour		49	31	18		
PM Peak Hour		45	22	23		

Project Trip Generation

The Exchange at Gwinnett DRI 2834 - Buford, GA

LOWE ENGINEERS

Calculations based upon methodology from ITE's Trip Generation Manual, 10th Edition (2017)

Land Use Information	Reduction %	Project Trips Total	Inbound	Outbound	Equation Used[1]	In / Out Distribution
435- Multipurpose Recreational Facility					**87,000**	**1000 S.F.**
Daily		1,037	519	518	*T = PM / 30%	50% / 50%
AM Peak Hour		10	8	2	*T = Daily * 1%	80% / 20%
PM Peak Hour		311	171	140	T = 3.58(X)	55% / 45%
Reductions for Internal Capture						
Daily	19%	193	95	98		
AM Peak Hour	0%	0	0	0		
PM Peak Hour	12%	36	18	18		
Reductions for Modal Split						
Daily	2%	17	8	9		
AM Peak Hour	2%	0	0	0		
PM Peak Hour	2%	6	3	3		
Reductions for Pass-By Trips						
Daily	0%	0	0	0		
AM Peak Hour	0%	0	0	0		
PM Peak Hour	0%	0	0	0		
Net New External Vehicle Trips						
Daily		827	416	411		
AM Peak Hour		10	8	2		
PM Peak Hour		269	150	119		
N/A- Golf Driving Range (Non ITE Trip Generation)					**1**	**Unit**
Daily		2,495	1,248	1,247		50% / 50%
AM Peak Hour		32	28	4	Data sourced from other sites	88% / 22%
PM Peak Hour		183	91	92	See DRI report for data points	50% / 50%
Reductions for Internal Capture						
Daily	19%	465	230	235		
AM Peak Hour	0%	0	0	0		
PM Peak Hour	11%	21	9	12		
Reductions for Modal Split						
Daily	2%	41	20	21		
AM Peak Hour	2%	1	1	0		
PM Peak Hour	2%	3	2	1		
Reductions for Pass-By Trips						
Daily	0%	0	0	0		
AM Peak Hour	0%	0	0	0		
PM Peak Hour	0%	0	0	0		
Net New External Vehicle Trips						
Daily		1,989	998	991		
AM Peak Hour		31	27	4		
PM Peak Hour		159	80	79		

Project Trip Generation

The Exchange at Gwinnett DRI 2834 - Buford, GA

LOWE ENGINEERS

Calculations based upon methodology from ITE's Trip Generation Manual, 10th Edition (2017)

Land Use Information	Reduction %	Project Trips Total	Inbound	Outbound	Equation Used[1]	In / Out Distribution
221- Multifamily Housing (Mid-Rise)					**500**	**Dwelling Units**
Daily		2,723	1,362	1,361	T=5.45(X) - 1.75	50% / 50%
AM Peak Hour		166	43	123	Ln(T) = 0.98Ln(X)-0.98	26% / 74%
PM Peak Hour		208	127	81	Ln(T) = 0.96Ln(X)-0.63	61% / 39%
Reductions for Internal Capture						
Daily	60%	1,623	866	757		
AM Peak Hour	16%	27	3	24		
PM Peak Hour	56%	117	73	44		
Reductions for Modal Split						
Daily	2%	22	10	12		
AM Peak Hour	2%	3	1	2		
PM Peak Hour	2%	2	1	1		
Reductions for Pass-By Trips						
Daily	0%	0	0	0		
AM Peak Hour	0%	0	0	0		
PM Peak Hour	0%	0	0	0		
Net New External Vehicle Trips						
Daily		1,078	486	592		
AM Peak Hour		136	39	97		
PM Peak Hour		89	53	36		

Total Trip Generation					
Daily		21,412	10,708	10,704	960-Super Convenience Market / Gas Station
AM Peak Hour		1,279	651	628	937-Coffee/Doughnut Shop with Drive-Through Window
PM Peak Hour		2,022	1,036	986	820-Shopping Center
Reductions for Internal Capture					890-Furniture Store
Daily	30%	6,455	3,227	3,228	310-Hotel
AM Peak Hour	15%	193	96	97	435-Multipurpose Recreational Facility
PM Peak Hour	22%	448	224	224	N/A-Golf Driving Range (Non ITE Trip Generation)
Reductions for Modal Split					221-Multifamily Housing (Mid-Rise)
Daily	1%	300	149	151	
AM Peak Hour	2%	22	12	10	
PM Peak Hour	2%	32	16	16	
Reductions for Pass-By Trips					
Daily	19%	3,997	2,045	1,952	
AM Peak Hour	32%	407	203	204	
PM Peak Hour	21%	427	215	212	
Net New External Vehicle Trips					
Daily		10,660	5,287	5,373	
AM Peak Hour		657	340	317	
PM Peak Hour		1,115	581	534	

Note: [1]1 Where: T = Trips; X = Density by Variable

* ITE only provide trip generation rates for PM peak periods, in order to estimate a daily trip rate for the presumptive impact table a daily rate was estimated, additional data is required to determine actual daily rate of traffic

NCHRP 8-51 Internal Trip Capture Estimation Tool			
Project Name:	The Exchange at Gwinnett DRI 2834	**Organization:**	Foresite Group
Project Location:	Buford, GA		
Scenario Description:	Full Build		
Analysis Year:	2021		
Analysis Period:	**Daily (PM Peak Hour Rates)**		

Table 1-P: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)

Land Use	DevelopDailyent Data (For Information Only)			Estimated Vehicle-Trips		
	ITE LUCs[1]	Quantity	Units	Total	Entering	Exiting
Office	0	-	See Trip Gen	0	0	0
Retail	960, 820, 890	186,364	See Trip Gen	12,144	6,072	6,072
Restaurant	937	2,500	See Trip Gen	2,051	1,026	1,025
Cinema/Entertainment	435, Golf	87,001	See Trip Gen	3,532	1,767	1,765
Residential	221	500	See Trip Gen	2,723	1,362	1,361
Hotel	310	123	See Trip Gen	962	481	481
All Other Land Uses[2]	0	-	See Trip Gen	0	0	0
Total				21,412	10,708	10,704

Table 2-P: Mode Split and Vehicle Occupancy Estimates

Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.	% Transit	% Non-Motorized	Veh. Occ.	% Transit	% Non-Motorized
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						
All Other Land Uses[2]						

Table 3-P: Average Land Use Interchange Distances (Feet Walking Distance)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-P: Internal Person-Trip Origin-Destination Matrix*

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	0		298	243	627	82
Restaurant	0	420		82	185	72
Cinema/Entertainment	0	243	31		54	5
Residential	0	572	144	0		41
Hotel	0	77	51	0	0	

Table 5-P: Computations Summary

	Total	Entering	Exiting
All Person-Trips	21,412	10,708	10,704
Internal Capture Percentage	30%	30%	30%
External Vehicle-Trips[3]	14,958	7,481	7,477
External Transit-Trips[4]	0	0	0
External Non-Motorized Trips[4]	0	0	0

Table 6-P: Internal Trip Capture Percentages by Land Use

Land Use	Entering Trips	Exiting Trips
Office	N/A	N/A
Retail	22%	21%
Restaurant	51%	74%
Cinema/Entertainment	18%	19%
Residential	64%	56%
Hotel	42%	27%

[1]Land Use Codes (LUCs) from *Trip Generation Informational Report* , published by the Institute of Transportation Engineers.

2Total estimate for all other land uses at mixed-use develoDailyent site-not subject to internal trip capture computations in this estimator

[3]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P

[4]Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas Transportation Institute

Project Name:	The Exchange at Gwinnett DRI 2834
Analysis Period:	**Daily Peak Hour**

Table 7-P: Conversion of Vehicle-Trip Ends to Person-Trip Ends

Land Use	Table 7-P (D): Entering Trips			Table 7-P (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.00	0	0	1.00	0	0
Retail	1.00	6,072	6072	1.00	6,072	6072
Restaurant	1.00	1,026	1026	1.00	1,025	1025
Cinema/Entertainment	1.00	1,767	1767	1.00	1,765	1765
Residential	1.00	1,362	1362	1.00	1,361	1361
Hotel	1.00	481	481	1.00	481	481

Table 8-P (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	121		1761	243	1579	304
Restaurant	31	420		82	185	72
Cinema/Entertainment	35	371	547		141	35
Residential	54	572	286	0		41
Hotel	0	77	327	0	10	

Table 8-P (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		486	21	18	54	0
Retail	0		298	459	627	82
Restaurant	0	3036		565	218	342
Cinema/Entertainment	0	243	31		54	5
Residential	0	607	144	0		58
Hotel	0	121	51	0	0	

Table 9-P (D): Internal and External Trips Summary (Entering Trips)

Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	0	0	0	0	0	0
Retail	1312	4760	6072	4760	0	0
Restaurant	524	502	1026	502	0	0
Cinema/Entertainment	325	1442	1767	1442	0	0
Residential	866	496	1362	496	0	0
Hotel	200	281	481	281	0	0
All Other Land Uses[3]	0	0	0	0	0	0

Table 9-P (O): Internal and External Trips Summary (Exiting Trips)

Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	0	0	0	0	0	0
Retail	1250	4822	6072	4822	0	0
Restaurant	759	266	1025	266	0	0
Cinema/Entertainment	333	1432	1765	1432	0	0
Residential	757	604	1361	604	0	0
Hotel	128	353	481	353	0	0
All Other Land Uses[3]	0	0	0	0	0	0

[1]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P

[2]Person-Trips

3Total estimate for all other land uses at mixed-use develoDailyent site-not subject to internal trip capture computations in this estimator

*Indicates computation that has been rounded to the nearest whole number.

NCHRP 8-51 Internal Trip Capture Estimation Tool			
Project Name:	The Exchange at Gwinnett DRI 2834	**Organization:**	Foresite Group
Project Location:	Buford, GA		
Scenario Description:	Full Build		
Analysis Year:	2021		
Analysis Period:	**AM Peak Hour**		

Table 1-A: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)

Land Use	Development Data (*For Information Only*)			Estimated Vehicle-Trips		
	ITE LUCs[1]	Quantity	Units	Total	Entering	Exiting
Office	0	-	See Trip Gen	0	0	0
Retail	960, 820, 890	186,364	See Trip Gen	793	426	367
Restaurant	937	2,500	See Trip Gen	222	113	109
Cinema/Entertainment	435, Golf	87,001	See Trip Gen	42	36	6
Residential	221	500	See Trip Gen	166	43	123
Hotel	310	123	See Trip Gen	56	33	23
All Other Land Uses[2]	0	-	See Trip Gen	0	0	0
Total				1,279	651	628

Table 2-A: Mode Split and Vehicle Occupancy Estimates

Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.	% Transit	% Non-Motorized	Veh. Occ.	% Transit	% Non-Motorized
Office	1.00			1.00		
Retail	1.00			1.00		
Restaurant	1.00			1.00		
Cinema/Entertainment	1.00			1.00		
Residential	1.00			1.00		
Hotel	1.00			1.00		
All Other Land Uses[2]	1.00			1.00		

Table 3-A: Average Land Use Interchange Distances (Feet Walking Distance)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-A: Internal Person-Trip Origin-Destination Matrix*

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	0		48	0	1	0
Restaurant	0	15		0	2	1
Cinema/Entertainment	0	0	0		0	0
Residential	0	1	23	0		0
Hotel	0	3	2	0	0	

Table 5-A: Computations Summary

	Total	Entering	Exiting
All Person-Trips	1,279	651	628
Internal Capture Percentage	15%	15%	15%
External Vehicle-Trips[3]	1,087	555	532
External Transit-Trips[4]	0	0	0
External Non-Motorized Trips[4]	0	0	0

Table 6-A: Internal Trip Capture Percentages by Land Use

Land Use	Entering Trips	Exiting Trips
Office	N/A	N/A
Retail	4%	13%
Restaurant	65%	17%
Cinema/Entertainment	0%	0%
Residential	7%	20%
Hotel	3%	22%

[1]Land Use Codes (LUCs) from *Trip Generation Informational Report*, published by the Institute of Transportation Engineers.

[2]Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

[3]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A

[4]Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas Transportation Institute

Project Name:	The Exchange at Gwinnett DRI 2834
Analysis Period:	**AM Peak Hour**

Table 7-A: Conversion of Vehicle-Trip Ends to Person-Trip Ends

Land Use	Table 7-A (D): Entering Trips			Table 7-A (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.00	0	0	1.00	0	0
Retail	1.00	426	426	1.00	367	367
Restaurant	1.00	113	113	1.00	109	109
Cinema/Entertainment	1.00	36	36	1.00	6	6
Residential	1.00	43	43	1.00	123	123
Hotel	1.00	33	33	1.00	23	23

Table 8-A (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	106		48	0	51	0
Restaurant	34	15		0	4	3
Cinema/Entertainment	0	0	0		0	0
Residential	2	1	25	0		0
Hotel	17	3	2	0	0	

Table 8-A (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		136	26	0	0	0
Retail	0		57	0	1	0
Restaurant	0	34		0	2	1
Cinema/Entertainment	0	0	0		0	0
Residential	0	72	23	0		0
Hotel	0	17	7	0	0	

Table 9-A (D): Internal and External Trips Summary (Entering Trips)

Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	0	0	0	0	0	0
Retail	19	407	426	407	0	0
Restaurant	73	40	113	40	0	0
Cinema/Entertainment	0	36	36	36	0	0
Residential	3	40	43	40	0	0
Hotel	1	32	33	32	0	0
All Other Land Uses[3]	0	0	0	0	0	0

Table 9-A (O): Internal and External Trips Summary (Exiting Trips)

Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	0	0	0	0	0	0
Retail	49	318	367	318	0	0
Restaurant	18	91	109	91	0	0
Cinema/Entertainment	0	6	6	6	0	0
Residential	24	99	123	99	0	0
Hotel	5	18	23	18	0	0
All Other Land Uses[3]	0	0	0	0	0	0

[1]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A

[2]Person-Trips

[3]Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

*Indicates computation that has been rounded to the nearest whole number.

NCHRP 8-51 Internal Trip Capture Estimation Tool			
Project Name:	The Exchange at Gwinnett DRI 2834	**Organization:**	Foresite Group
Project Location:	Buford, GA		
Scenario Description:	Full Build		
Analysis Year:	2021		
Analysis Period:	**PM Peak Hour**		

Table 1-P: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)

Land Use	Development Data (*For Information Only*)			Estimated Vehicle-Trips		
	ITE LUCs[1]	Quantity	Units	Total	Entering	Exiting
Office	0	-	See Trip Gen	0	0	0
Retail	960, 820, 890	186,364	See Trip Gen	1,146	559	587
Restaurant	937	2,500	See Trip Gen	108	54	54
Cinema/Entertainment	435, Golf	87,001	See Trip Gen	494	262	232
Residential	221	500	See Trip Gen	208	127	81
Hotel	310	123	See Trip Gen	66	34	32
All Other Land Uses[2]	0	-	See Trip Gen	0	0	0
Total				2,022	1,036	986

Table 2-P: Mode Split and Vehicle Occupancy Estimates

Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.	% Transit	% Non-Motorized	Veh. Occ.	% Transit	% Non-Motorized
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						
All Other Land Uses[2]						

Table 3-P: Average Land Use Interchange Distances (Feet Walking Distance)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-P: Internal Person-Trip Origin-Destination Matrix*

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	0		16	23	58	6
Restaurant	0	22		4	10	4
Cinema/Entertainment	0	22	2		5	0
Residential	0	34	8	0		2
Hotel	0	5	3	0	0	

Table 5-P: Computations Summary

	Total	Entering	Exiting
All Person-Trips	2,022	1,036	986
Internal Capture Percentage	22%	22%	23%
External Vehicle-Trips[3]	1,574	812	762
External Transit-Trips[4]	0	0	0
External Non-Motorized Trips[4]	0	0	0

Table 6-P: Internal Trip Capture Percentages by Land Use

Land Use	Entering Trips	Exiting Trips
Office	N/A	N/A
Retail	15%	18%
Restaurant	54%	74%
Cinema/Entertainment	10%	13%
Residential	57%	54%
Hotel	35%	25%

[1]Land Use Codes (LUCs) from *Trip Generation Informational Report*, published by the Institute of Transportation Engineers.

[2]Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

[3]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P

[4]Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas Transportation Institute

Project Name:	The Exchange at Gwinnett DRI 2834
Analysis Period:	**PM Peak Hour**

Table 7-P: Conversion of Vehicle-Trip Ends to Person-Trip Ends

Land Use	Table 7-P (D): Entering Trips			Table 7-P (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.00	0	0	1.00	0	0
Retail	1.00	559	559	1.00	587	587
Restaurant	1.00	54	54	1.00	54	54
Cinema/Entertainment	1.00	262	262	1.00	232	232
Residential	1.00	127	127	1.00	81	81
Hotel	1.00	34	34	1.00	32	32

Table 8-P (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	12		170	23	153	29
Restaurant	2	22		4	10	4
Cinema/Entertainment	5	49	72		19	5
Residential	3	34	17	0		2
Hotel	0	5	22	0	1	

Table 8-P (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		45	1	3	5	0
Retail	0		16	68	58	6
Restaurant	0	280		84	20	24
Cinema/Entertainment	0	22	2		5	0
Residential	0	56	8	0		4
Hotel	0	11	3	0	0	

Table 9-P (D): Internal and External Trips Summary (Entering Trips)

Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	0	0	0	0	0	0
Retail	83	476	559	476	0	0
Restaurant	29	25	54	25	0	0
Cinema/Entertainment	27	235	262	235	0	0
Residential	73	54	127	54	0	0
Hotel	12	22	34	22	0	0
All Other Land Uses[3]	0	0	0	0	0	0

Table 9-P (O): Internal and External Trips Summary (Exiting Trips)

Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	0	0	0	0	0	0
Retail	103	484	587	484	0	0
Restaurant	40	14	54	14	0	0
Cinema/Entertainment	29	203	232	203	0	0
Residential	44	37	81	37	0	0
Hotel	8	24	32	24	0	0
All Other Land Uses[3]	0	0	0	0	0	0

[1]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P

[2]Person-Trips

[3]Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

*Indicates computation that has been rounded to the nearest whole number.

Appendix E: NCHRP Turn Lane Warrants

Figure 2 - 5. Guideline for determining the need for a major-road left-turn bay at a two-way stop-controlled intersection.

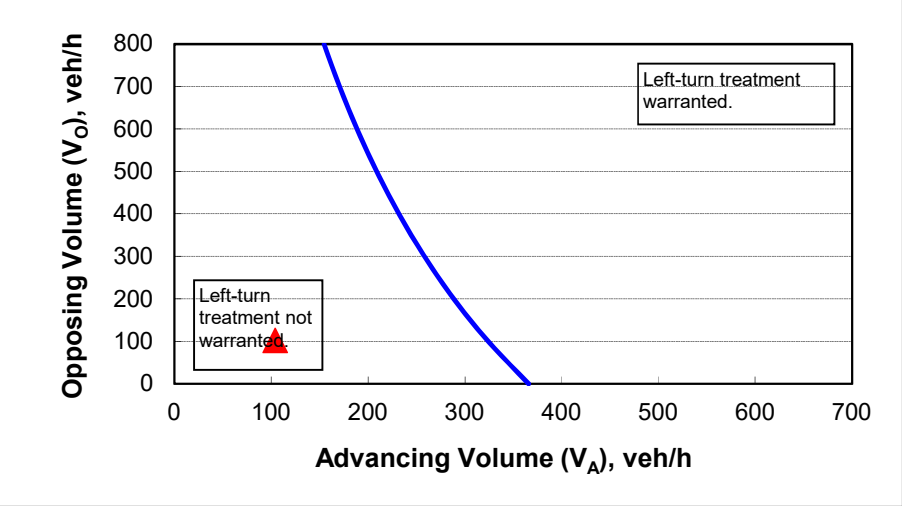
2-lane roadway (English)

INPUT

Variable	Value
85th percentile speed, mph:	40
Percent of left-turns in advancing volume (V_A), %:	65%
Advancing volume (V_A), veh/h:	104
Opposing volume (V_O), veh/h:	102

OUTPUT

Variable	Value
Limiting advancing volume (V_A), veh/h:	323
Guidance for determining the need for a major-road left-turn bay:	
Left-turn treatment NOT warranted.	



CALIBRATION CONSTANTS

Variable	Value
Average time for making left-turn, s:	3.0
Critical headway, s:	5.0
Average time for left-turn vehicle to clear the advancing lane , s:	1.9

Figure 2 - 5. Guideline for determining the need for a major-road left-turn bay at a two-way stop-controlled intersection.

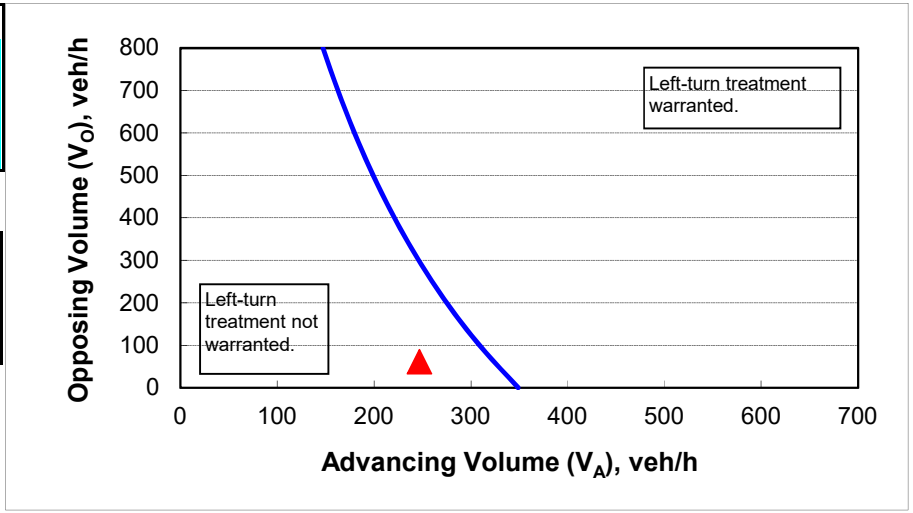
2-lane roadway (English)

INPUT

Variable	Value
85th percentile speed, mph:	40
Percent of left-turns in advancing volume (V_A), %:	47%
Advancing volume (V_A), veh/h:	247
Opposing volume (V_O), veh/h:	61

OUTPUT

Variable	Value
Limiting advancing volume (V_A), veh/h:	324
Guidance for determining the need for a major-road left-turn bay:	
Left-turn treatment NOT warranted.	



CALIBRATION CONSTANTS

Variable	Value
Average time for making left-turn, s:	3.0
Critical headway, s:	5.0
Average time for left-turn vehicle to clear the advancing lane , s:	1.9

Appendix F: Signal Warrant Analysis

	Group 1			Group 2			Group 3			Group 4			Group 5			Group 6		
Time	**In**	**Out**	**Total**	**In**	**Out**	**Total**	**In**	**Out**	**Total**	**In**	**Out**	**Total**	**In**	**Out**	**Total**	**In**	**Out**	**Total**
Daily	5,287	5,373	10,660			0			0			0			0			0
AM	340	317	657			0			0			0			0			0
PM	581	534	1,115			0			0			0			0			0
ITE Codes	820 Daily Distr. Used																	

	Hourly Distribution						Project Volume						
	Group 1	**Group 2**	**Group 3**	**Group 4**	**Group 5**	**Group 6**	**Group 1**	**Group 2**	**Group 3**	**Group 4**	**Group 5**	**Group 6**	**Total**
12:00 AM	0.00%						0	0	0	0	0	0	**0**
1:00 AM	0.00%						0	0	0	0	0	0	**0**
2:00 AM	0.00%						0	0	0	0	0	0	**0**
3:00 AM	0.00%						0	0	0	0	0	0	**0**
4:00 AM	0.00%						0	0	0	0	0	0	**0**
5:00 AM	0.00%						0	0	0	0	0	0	**0**
6:00 AM	1.00%						107	0	0	0	0	0	**107**
7:00 AM	5.00%						533	0	0	0	0	0	**533**
8:00 AM	4.00%						426	0	0	0	0	0	**426**
9:00 AM	3.00%						320	0	0	0	0	0	**320**
10:00 AM	4.00%						426	0	0	0	0	0	**426**
11:00 AM	8.00%						853	0	0	0	0	0	**853**
12:00 PM	10.00%						1066	0	0	0	0	0	**1,066**
1:00 PM	9.00%						959	0	0	0	0	0	**959**
2:00 PM	9.00%						959	0	0	0	0	0	**959**
3:00 PM	8.00%						853	0	0	0	0	0	**853**
4:00 PM	9.00%						959	0	0	0	0	0	**959**
5:00 PM	9.00%						959	0	0	0	0	0	**959**
6:00 PM	8.00%						853	0	0	0	0	0	**853**
7:00 PM	6.00%						640	0	0	0	0	0	**640**
8:00 PM	4.00%						426	0	0	0	0	0	**426**
9:00 PM	2.00%						213	0	0	0	0	0	**213**
10:00 PM	0.50%						53	0	0	0	0	0	**53**
11:00 PM	0.50%						53	0	0	0	0	0	**53**
Total	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	10,658	0	0	0	0	0	10,658

Group Distribution	
Group 1	100%
Group 2	0%
Group 3	0%
Group 4	0%
Group 5	0%
Group 6	0%

% of total Daily Volume

Hourly distribution percentages are based on data from the ITE Trip Generation Manual 10th Edition, 2017

Due to rounding percentages may not exactly equal 100%, and volumes may not add up exactly to the total daily volume

	Group 1			Group 2			Group 3			Group 4			Group 5			Group 6		
Time	**In**	**Out**	**Total**	**In**	**Out**	**Total**	**In**	**Out**	**Total**	**In**	**Out**	**Total**	**In**	**Out**	**Total**	**In**	**Out**	**Total**
Daily	2,045	1,952	3,997			0			0			0			0			0
AM	203	204	407			0			0			0			0			0
PM	215	212	427			0			0			0			0			0
ITE Codes	ITE 820 Used for Distr.																	

	Hourly Distribution						Project Volume						
	Group 1	**Group 2**	**Group 3**	**Group 4**	**Group 5**	**Group 6**	**Group 1**	**Group 2**	**Group 3**	**Group 4**	**Group 5**	**Group 6**	**Total**
12:00 AM	0.20%						8	0	0	0	0	0	**8**
1:00 AM	0.10%						4	0	0	0	0	0	**4**
2:00 AM	0.00%						0	0	0	0	0	0	**0**
3:00 AM	0.00%						0	0	0	0	0	0	**0**
4:00 AM	0.00%						0	0	0	0	0	0	**0**
5:00 AM	0.10%						4	0	0	0	0	0	**4**
6:00 AM	0.20%						8	0	0	0	0	0	**8**
7:00 AM	2.00%						80	0	0	0	0	0	**80**
8:00 AM	2.00%						80	0	0	0	0	0	**80**
9:00 AM	3.60%						144	0	0	0	0	0	**144**
10:00 AM	5.60%						224	0	0	0	0	0	**224**
11:00 AM	8.30%						332	0	0	0	0	0	**332**
12:00 PM	10.00%						400	0	0	0	0	0	**400**
1:00 PM	9.30%						372	0	0	0	0	0	**372**
2:00 PM	9.00%						360	0	0	0	0	0	**360**
3:00 PM	8.80%						352	0	0	0	0	0	**352**
4:00 PM	9.20%						368	0	0	0	0	0	**368**
5:00 PM	9.30%						372	0	0	0	0	0	**372**
6:00 PM	8.00%						320	0	0	0	0	0	**320**
7:00 PM	6.10%						244	0	0	0	0	0	**244**
8:00 PM	4.40%						176	0	0	0	0	0	**176**
9:00 PM	2.90%						116	0	0	0	0	0	**116**
10:00 PM	1.10%						44	0	0	0	0	0	**44**
11:00 PM	0.50%						20	0	0	0	0	0	**20**
Total	100.70%	0.00%	0.00%	0.00%	0.00%	0.00%	4,028	0	0	0	0	0	4,028

Group Distribution	
Group 1	100%
Group 2	0%
Group 3	0%
Group 4	0%
Group 5	0%
Group 6	0%

% of total Daily Volume

Hourly distribution percentages are from ITE Trip Generation Manual 10th Edition, 2017 unless otherwise noted

Due to rounding percentages may not exactly equal 100%, and volumes may not add up exactly to the total daily volume

LOWE ENGINEERS

New Trips

			NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
Group 1	In	AM		35%	5%	15%								
		MID		35%	5%	15%								
		PM		35%	5%	15%								
	Out	AM					25%					15%		10%
		MID					25%					15%		10%
		PM					25%					15%		10%
Group 2	In	AM												
		MID												
		PM												
	Out	AM												
		MID												
		PM												
Group 3	In	AM												
		MID												
		PM												
	Out	AM												
		MID												
		PM												
Group 4	In	AM												
		MID												
		PM												
	Out	AM												
		MID												
		PM												
Group 5	In	AM												
		MID												
		PM												
	Out	AM												
		MID												
		PM												
Group 6	In	AM												
		MID												
		PM												
	Out	AM												
		MID												
		PM												
Weighted Total	In	AM	0%	35%	5%	15%	0%	0%	0%	0%	0%	0%	0%	0%
		MID	0%	35%	5%	15%	0%	0%	0%	0%	0%	0%	0%	0%
		PM	0%	35%	5%	15%	0%	0%	0%	0%	0%	0%	0%	0%
	Out	AM	0%	0%	0%	0%	25%	0%	0%	0%	0%	15%	0%	10%
		MID	0%	0%	0%	0%	25%	0%	0%	0%	0%	15%	0%	10%
		PM	0%	0%	0%	0%	25%	0%	0%	0%	0%	15%	0%	10%

Pass-By Trips

			NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
Group 1	In	AM					-10%							
		MID					-10%							
		PM					-10%							
	Out	AM										10%		
		MID										10%		
		PM										10%		
Group 2	In	AM												
		MID												
		PM												
	Out	AM												
		MID												
		PM												
Group 3	In	AM												
		MID												
		PM												
	Out	AM												
		MID												
		PM												
Group 4	In	AM												
		MID												
		PM												
	Out	AM												
		MID												
		PM												
Group 5	In	AM												
		MID												
		PM												
	Out	AM												
		MID												
		PM												
Group 6	In	AM												
		MID												
		PM												
	Out	AM												
		MID												
		PM												
Weighted Total	In	AM	0%	0%	0%	0%	-10%	0%	0%	0%	0%	0%	0%	0%
		MID	0%	0%	0%	0%	-10%	0%	0%	0%	0%	0%	0%	0%
		PM	0%	0%	0%	0%	-10%	0%	0%	0%	0%	0%	0%	0%
	Out	AM	0%	0%	0%	0%	0%	0%	0%	0%	0%	10%	0%	0%
		MID	0%	0%	0%	0%	0%	0%	0%	0%	0%	10%	0%	0%
		PM	0%	0%	0%	0%	0%	0%	0%	0%	0%	10%	0%	0%

Weighted Distribution

			NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
New Trips	In	AM	0%	35%	5%	15%	0%	0%	0%	0%	0%	0%	0%	0%
		MID	0%	35%	5%	15%	0%	0%	0%	0%	0%	0%	0%	0%
		PM	0%	35%	5%	15%	0%	0%	0%	0%	0%	0%	0%	0%
	Out	AM	0%	0%	0%	0%	25%	0%	0%	0%	0%	15%	0%	10%
		MID	0%	0%	0%	0%	25%	0%	0%	0%	0%	15%	0%	10%
		PM	0%	0%	0%	0%	25%	0%	0%	0%	0%	15%	0%	10%
Pass-By	In	AM	0%	0%	0%	0%	-10%	0%	0%	0%	0%	0%	0%	0%
		MID	0%	0%	0%	0%	-10%	0%	0%	0%	0%	0%	0%	0%
		PM	0%	0%	0%	0%	-10%	0%	0%	0%	0%	0%	0%	0%
	Out	AM	0%	0%	0%	0%	0%	0%	0%	0%	0%	10%	0%	0%
		MID	0%	0%	0%	0%	0%	0%	0%	0%	0%	10%	0%	0%
		PM	0%	0%	0%	0%	0%	0%	0%	0%	0%	10%	0%	0%

Total Volume		
In	Out	Total
5,287	5,373	10,660
340	317	657
581	534	1,115

In / Out Distribution		
	In	Out
AM	52%	48%
PM	52%	48%

			New Trips In												New Trips Out										
	In	Out	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
12:00 AM	50%	50%	0%	35%	5%	15%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	25%	0%	0%	0%	0%	15%	0%	10%
1:00 AM	50%	50%	0%	35%	5%	15%	0%	0%	0%	0%	0%	0%	3%	0%	0%	0%	0%	0%	25%	0%	0%	0%	0%	15%	0%	10%
2:00 AM	50%	50%	0%	35%	5%	15%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	25%	0%	0%	0%	0%	15%	0%	10%
3:00 AM	50%	50%	0%	35%	5%	15%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	25%	0%	0%	0%	0%	15%	0%	10%
4:00 AM	50%	50%	0%	35%	5%	15%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	25%	0%	0%	0%	0%	15%	0%	10%
5:00 AM	50%	50%	0%	35%	5%	15%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	25%	0%	0%	0%	0%	15%	0%	10%
6:00 AM	51%	49%	0%	35%	5%	15%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	25%	0%	0%	0%	0%	15%	0%	10%
7:00 AM	51%	49%	0%	35%	5%	15%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	25%	0%	0%	0%	0%	15%	0%	10%
8:00 AM	52%	48%	0%	35%	5%	15%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	25%	0%	0%	0%	0%	15%	0%	10%
9:00 AM	52%	48%	0%	35%	5%	15%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	25%	0%	0%	0%	0%	15%	0%	10%
10:00 AM	52%	48%	0%	35%	5%	15%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	25%	0%	0%	0%	0%	15%	0%	10%
11:00 AM	52%	48%	0%	35%	5%	15%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	25%	0%	0%	0%	0%	15%	0%	10%
12:00 PM	52%	48%	0%	35%	5%	15%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	25%	0%	0%	0%	0%	15%	0%	10%
1:00 PM	52%	48%	0%	35%	5%	15%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	25%	0%	0%	0%	0%	15%	0%	10%
2:00 PM	52%	48%	0%	35%	5%	15%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	25%	0%	0%	0%	0%	15%	0%	10%
3:00 PM	52%	48%	0%	35%	5%	15%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	25%	0%	0%	0%	0%	15%	0%	10%
4:00 PM	52%	48%	0%	35%	5%	15%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	25%	0%	0%	0%	0%	15%	0%	10%
5:00 PM	52%	48%	0%	35%	5%	15%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	25%	0%	0%	0%	0%	15%	0%	10%
6:00 PM	51%	49%	0%	35%	5%	15%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	25%	0%	0%	0%	0%	15%	0%	10%
7:00 PM	51%	49%	0%	35%	5%	15%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	25%	0%	0%	0%	0%	15%	0%	10%
8:00 PM	50%	50%	0%	35%	5%	15%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	25%	0%	0%	0%	0%	15%	0%	10%
9:00 PM	50%	50%	0%	35%	5%	15%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	25%	0%	0%	0%	0%	15%	0%	10%
10:00 PM	50%	50%	0%	35%	5%	15%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	25%	0%	0%	0%	0%	15%	0%	10%
11:00 PM	50%	50%	0%	35%	5%	15%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	25%	0%	0%	0%	0%	15%	0%	10%

			Pass-By Trips In												Pass-By Trips Out										
	In	Out	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
12:00 AM	50%	50%	0%	0%	0%	0%	-10%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	10%	0%	0%
1:00 AM	50%	50%	0%	0%	0%	0%	-10%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	10%	0%	0%
2:00 AM	50%	50%	0%	0%	0%	0%	-10%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	10%	0%	0%
3:00 AM	50%	50%	0%	0%	0%	0%	-10%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	10%	0%	0%
4:00 AM	50%	50%	0%	0%	0%	0%	-10%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	10%	0%	0%
5:00 AM	50%	50%	0%	0%	0%	0%	-10%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	10%	0%	0%
6:00 AM	51%	49%	0%	0%	0%	0%	-10%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	10%	0%	0%
7:00 AM	51%	49%	0%	0%	0%	0%	-10%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	10%	0%	0%
8:00 AM	52%	48%	0%	0%	0%	0%	-10%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	10%	0%	0%
9:00 AM	52%	48%	0%	0%	0%	0%	-10%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	10%	0%	0%
10:00 AM	52%	48%	0%	0%	0%	0%	-10%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	10%	0%	0%
11:00 AM	52%	48%	0%	0%	0%	0%	-10%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	10%	0%	0%
12:00 PM	52%	48%	0%	0%	0%	0%	-10%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	10%	0%	0%
1:00 PM	52%	48%	0%	0%	0%	0%	-10%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	10%	0%	0%
2:00 PM	52%	48%	0%	0%	0%	0%	-10%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	10%	0%	0%
3:00 PM	52%	48%	0%	0%	0%	0%	-10%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	10%	0%	0%
4:00 PM	52%	48%	0%	0%	0%	0%	-10%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	10%	0%	0%
5:00 PM	52%	48%	0%	0%	0%	0%	-10%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	10%	0%	0%
6:00 PM	51%	49%	0%	0%	0%	0%	-10%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	10%	0%	0%
7:00 PM	51%	49%	0%	0%	0%	0%	-10%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	10%	0%	0%
8:00 PM	50%	50%	0%	0%	0%	0%	-10%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	10%	0%	0%
9:00 PM	50%	50%	0%	0%	0%	0%	-10%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	10%	0%	0%
10:00 PM	50%	50%	0%	0%	0%	0%	-10%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	10%	0%	0%
11:00 PM	50%	50%	0%	0%	0%	0%	-10%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	10%	0%	0%

Inbound and outbound % are based around AM and PM percentages averaging to a 50-50 split overnight, due to rounding and averaging, the daily volume may not be a true 50-50 split

AM turning movement % is used 12:00AM-8:00AM, PM 4PM-11:00PM, MID 12:00PM, 9AM-3PM, is averaged around Mid day peak % and AM/PM peak hours.

	Hourly Project Trip Distribution										
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
12:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
1:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
2:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
3:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
4:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
5:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
6:00 AM	0	19	3	8	13	0	0	0	0	8	0	5
7:00 AM	0	96	14	41	61	0	0	0	0	43	0	26
8:00 AM	0	77	11	33	47	0	0	0	0	35	0	21
9:00 AM	0	58	8	25	31	0	0	0	0	30	0	15
10:00 AM	0	77	11	33	40	0	0	0	0	42	0	21
11:00 AM	0	155	22	66	85	0	0	0	0	78	0	41
12:00 PM	0	194	28	83	107	0	0	0	0	96	0	51
1:00 PM	0	174	25	75	96	0	0	0	0	87	0	46
2:00 PM	0	175	25	75	96	0	0	0	0	86	0	46
3:00 PM	0	155	22	67	84	0	0	0	0	78	0	41
4:00 PM	0	175	25	75	96	0	0	0	0	87	0	46
5:00 PM	0	173	25	74	97	0	0	0	0	88	0	46
6:00 PM	0	152	22	65	88	0	0	0	0	78	0	42
7:00 PM	0	113	16	49	67	0	0	0	0	60	0	32
8:00 PM	0	75	11	32	44	0	0	0	0	41	0	21
9:00 PM	0	37	5	16	21	0	0	0	0	22	0	11
10:00 PM	0	9	1	4	4	0	0	0	0	6	0	3
11:00 PM	0	9	1	4	6	0	0	0	0	5	0	3

	15 Min Project Trip Distribution											
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
12:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
12:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
12:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
12:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
1:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
1:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
1:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
1:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
2:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
2:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
2:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
2:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
3:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
3:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
3:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
3:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
4:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
4:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
4:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
4:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
5:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
5:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
5:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
5:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
6:00 AM	0	5	1	2	3	0	0	0	0	2	0	1
6:15 AM	0	5	1	2	3	0	0	0	0	2	0	1
6:30 AM	0	5	1	2	3	0	0	0	0	2	0	1
6:45 AM	0	5	1	2	3	0	0	0	0	2	0	1
7:00 AM	0	24	4	10	15	0	0	0	0	11	0	7
7:15 AM	0	24	4	10	15	0	0	0	0	11	0	7
7:30 AM	0	24	4	10	15	0	0	0	0	11	0	7
7:45 AM	0	24	4	10	15	0	0	0	0	11	0	7
8:00 AM	0	19	3	8	12	0	0	0	0	9	0	5
8:15 AM	0	19	3	8	12	0	0	0	0	9	0	5
8:30 AM	0	19	3	8	12	0	0	0	0	9	0	5
8:45 AM	0	19	3	8	12	0	0	0	0	9	0	5
9:00 AM	0	15	2	6	8	0	0	0	0	8	0	4
9:15 AM	0	15	2	6	8	0	0	0	0	8	0	4
9:30 AM	0	15	2	6	8	0	0	0	0	8	0	4
9:45 AM	0	15	2	6	8	0	0	0	0	8	0	4
10:00 AM	0	19	3	8	10	0	0	0	0	11	0	5
10:15 AM	0	19	3	8	10	0	0	0	0	11	0	5
10:30 AM	0	19	3	8	10	0	0	0	0	11	0	5
10:45 AM	0	19	3	8	10	0	0	0	0	11	0	5
11:00 AM	0	39	6	17	21	0	0	0	0	20	0	10
11:15 AM	0	39	6	17	21	0	0	0	0	20	0	10
11:30 AM	0	39	6	17	21	0	0	0	0	20	0	10
11:45 AM	0	39	6	17	21	0	0	0	0	20	0	10
12:00 PM	0	49	7	21	27	0	0	0	0	24	0	13
12:15 PM	0	49	7	21	27	0	0	0	0	24	0	13
12:30 PM	0	49	7	21	27	0	0	0	0	24	0	13
12:45 PM	0	49	7	21	27	0	0	0	0	24	0	13
1:00 PM	0	44	6	19	24	0	0	0	0	22	0	12
1:15 PM	0	44	6	19	24	0	0	0	0	22	0	12
1:30 PM	0	44	6	19	24	0	0	0	0	22	0	12
1:45 PM	0	44	6	19	24	0	0	0	0	22	0	12
2:00 PM	0	44	6	19	24	0	0	0	0	22	0	12
2:15 PM	0	44	6	19	24	0	0	0	0	22	0	12
2:30 PM	0	44	6	19	24	0	0	0	0	22	0	12
2:45 PM	0	44	6	19	24	0	0	0	0	22	0	12
3:00 PM	0	39	6	17	21	0	0	0	0	20	0	10
3:15 PM	0	39	6	17	21	0	0	0	0	20	0	10
3:30 PM	0	39	6	17	21	0	0	0	0	20	0	10
3:45 PM	0	39	6	17	21	0	0	0	0	20	0	10
4:00 PM	0	44	6	19	24	0	0	0	0	22	0	12
4:15 PM	0	44	6	19	24	0	0	0	0	22	0	12
4:30 PM	0	44	6	19	24	0	0	0	0	22	0	12
4:45 PM	0	44	6	19	24	0	0	0	0	22	0	12
5:00 PM	0	43	6	19	24	0	0	0	0	22	0	12
5:15 PM	0	43	6	19	24	0	0	0	0	22	0	12
5:30 PM	0	43	6	19	24	0	0	0	0	22	0	12
5:45 PM	0	43	6	19	24	0	0	0	0	22	0	12
6:00 PM	0	38	6	16	22	0	0	0	0	20	0	11
6:15 PM	0	38	6	16	22	0	0	0	0	20	0	11
6:30 PM	0	38	6	16	22	0	0	0	0	20	0	11
6:45 PM	0	38	6	16	22	0	0	0	0	20	0	11
7:00 PM	0	28	4	12	17	0	0	0	0	15	0	8
7:15 PM	0	28	4	12	17	0	0	0	0	15	0	8
7:30 PM	0	28	4	12	17	0	0	0	0	15	0	8
7:45 PM	0	28	4	12	17	0	0	0	0	15	0	8
8:00 PM	0	19	3	8	11	0	0	0	0	10	0	5
8:15 PM	0	19	3	8	11	0	0	0	0	10	0	5
8:30 PM	0	19	3	8	11	0	0	0	0	10	0	5
8:45 PM	0	19	3	8	11	0	0	0	0	10	0	5
9:00 PM	0	9	1	4	5	0	0	0	0	6	0	3
9:15 PM	0	9	1	4	5	0	0	0	0	6	0	3
9:30 PM	0	9	1	4	5	0	0	0	0	6	0	3
9:45 PM	0	9	1	4	5	0	0	0	0	6	0	3
10:00 PM	0	2	0	1	1	0	0	0	0	2	0	1
10:15 PM	0	2	0	1	1	0	0	0	0	2	0	1
10:30 PM	0	2	0	1	1	0	0	0	0	2	0	1
10:45 PM	0	2	0	1	1	0	0	0	0	2	0	1
11:00 PM	0	2	0	1	2	0	0	0	0	1	0	1
11:15 PM	0	2	0	1	2	0	0	0	0	1	0	1
11:30 PM	0	2	0	1	2	0	0	0	0	1	0	1
11:45 PM	0	2	0	1	2	0	0	0	0	1	0	1

LOWE
ENGINEERS

Warrant 1 - Eight-Hour Vehicular Volume

Based on Section 4C.02 of the Manual on Uniform Traffic Control Devices, 2009 Edition (rev. 2)

	Major Road	Minor Road
Name	SR 20	Laurel Crossing Pkwy NE
Number of Lanes by Approach	2	1

% of Volume	100%	**Data Year**	2018
Right Turn Reduction?	Yes	**Future Year**	2021
15 Min Interval Start	0	**Growth Rate**	2.00%
Mainline Left as Minor?	No		

Time Of Day			SR 20 Major Road Volume (vph) Both Approaches	Laurel Crossing Pkwy NE Minor Road Volume (vph) Highest Approach	Warrant 1, Condition A: Major Road Condition Met? *> 600 vph*	Warrant 1, Condition A: Minor Road Condition Met? *> 150 vph*	Warrant 1, Condition B: Major Road Condition Met? *> 900 vph*	Warrant 1, Condition B: Minor Road Condition Met? *> 75 vph*	Warrant 1, Combination A&B, Condition A: Major Road Condition Met? *> 480 vph*	Warrant 1, Combination A&B, Condition A: Minor Road Condition Met? *> 120 vph*	Warrant 1, Combination A&B, Condition B: Major Road Condition Met? *> 720 vph*	Warrant 1, Combination A&B, Condition B: Minor Road Condition Met? *> 60 vph*
12:00 AM	to	1:00 AM	0	0	No	No	No	No	No	No	No	No
1:00 AM	to	2:00 AM	0	0	No	No	No	No	No	No	No	No
2:00 AM	to	3:00 AM	0	0	No	No	No	No	No	No	No	No
3:00 AM	to	4:00 AM	0	0	No	No	No	No	No	No	No	No
4:00 AM	to	5:00 AM	0	0	No	No	No	No	No	No	No	No
5:00 AM	to	6:00 AM	0	0	No	No	No	No	No	No	No	No
6:00 AM	to	7:00 AM	2856	38	Yes	No	Yes	No	Yes	No	Yes	No
7:00 AM	to	8:00 AM	4005	81	Yes	No	Yes	Yes	Yes	No	Yes	Yes
8:00 AM	to	9:00 AM	3653	64	Yes	No	Yes	No	Yes	No	Yes	Yes
9:00 AM	to	10:00 AM	3086	50	Yes	No	Yes	No	Yes	No	Yes	No
10:00 AM	to	11:00 AM	2999	63	Yes	No	Yes	No	Yes	No	Yes	Yes
11:00 AM	to	12:00 PM	3375	96	Yes	No	Yes	Yes	Yes	No	Yes	Yes
12:00 PM	to	1:00 PM	3572	112	Yes	No	Yes	Yes	Yes	No	Yes	Yes
1:00 PM	to	2:00 PM	3712	98	Yes	No	Yes	Yes	Yes	No	Yes	Yes
2:00 PM	to	3:00 PM	3999	113	Yes	No	Yes	Yes	Yes	No	Yes	Yes
3:00 PM	to	4:00 PM	4220	100	Yes	No	Yes	Yes	Yes	No	Yes	Yes
4:00 PM	to	5:00 PM	4732	103	Yes	No	Yes	Yes	Yes	No	Yes	Yes
5:00 PM	to	6:00 PM	5118	102	Yes	No	Yes	Yes	Yes	No	Yes	Yes
6:00 PM	to	7:00 PM	328	80	No	No	No	Yes	No	No	No	Yes
7:00 PM	to	8:00 PM	244	60	No	No	No	No	No	No	No	No
8:00 PM	to	9:00 PM	164	40	No	No	No	No	No	No	No	No
9:00 PM	to	10:00 PM	76	24	No	No	No	No	No	No	No	No
10:00 PM	to	11:00 PM	16	8	No	No	No	No	No	No	No	No
11:00 PM	to	12:00 AM	20	4	No	No	No	No	No	No	No	No
			Total Hours Condition is Met		0		8		0			
			Meets Warrant?		**No - Warrant is Not Met**		**Yes - Warrant is Met**		**No - Warrant is Not Met**			

Warrant 2 - Four-Hour Vehicular Volume

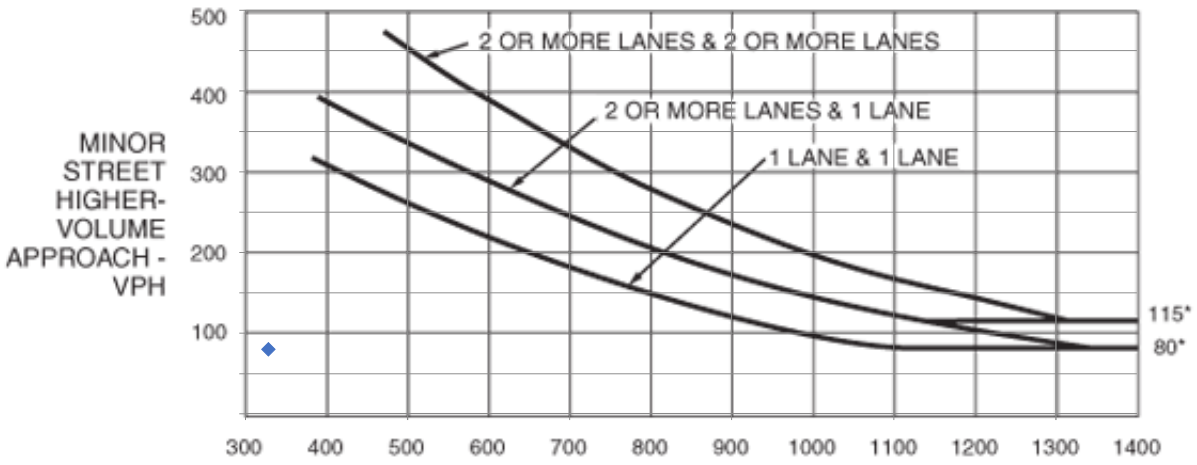
Based on Section 4C.02 of the Manual on Uniform Traffic Control Devices, 2009 Edition (rev. 2)

	Major Road	Minor Road
Name	SR 20	Laurel Crossing Pkwy NE
Number of Lanes by Approach	2	1

% of Volume	100%	**Data Year**	2018
Right Turn Reduction?	Yes	**Future Year**	2021
15 Min Interval Start	0	**Growth Rate**	2.00%
Mainline Left as Minor?	No		

Time Of Day			SR 20 Major Road Volume (vph) Both Approaches	Laurel Crossing Pkwy NE Minor Road Volume (vph) Highest Approach	Warrant 2 Four-Hour Vehicular Volume Condtion Met?
12:00 AM	to	1:00 AM	0	0	No
1:00 AM	to	2:00 AM	0	0	No
2:00 AM	to	3:00 AM	0	0	No
3:00 AM	to	4:00 AM	0	0	No
4:00 AM	to	5:00 AM	0	0	No
5:00 AM	to	6:00 AM	0	0	No
6:00 AM	to	7:00 AM	2856	38	No
7:00 AM	to	8:00 AM	4005	81	Yes
8:00 AM	to	9:00 AM	3653	64	No
9:00 AM	to	10:00 AM	3086	50	No
10:00 AM	to	11:00 AM	2999	63	No
11:00 AM	to	12:00 PM	3375	96	Yes
12:00 PM	to	1:00 PM	3572	112	Yes
1:00 PM	to	2:00 PM	3712	98	Yes
2:00 PM	to	3:00 PM	3999	113	Yes
3:00 PM	to	4:00 PM	4220	100	Yes
4:00 PM	to	5:00 PM	4732	103	Yes
5:00 PM	to	6:00 PM	5118	102	Yes
6:00 PM	to	7:00 PM	328	80	No
7:00 PM	to	8:00 PM	244	60	No
8:00 PM	to	9:00 PM	164	40	No
9:00 PM	to	10:00 PM	76	24	No
10:00 PM	to	11:00 PM	16	8	No
11:00 PM	to	12:00 AM	20	4	No
				Total Hours Condition is Met	8
				Meets Warrant?	**Yes - Warrant is Met**

Figure 4C-1. Warrant 2, Four-Hour Vehicular Volume



*Note: 115 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 80 vph applies as the lower threshold volume for a minor-street approach with one lane.

Warrant 1 - Peak-Hour Vehicular Volume

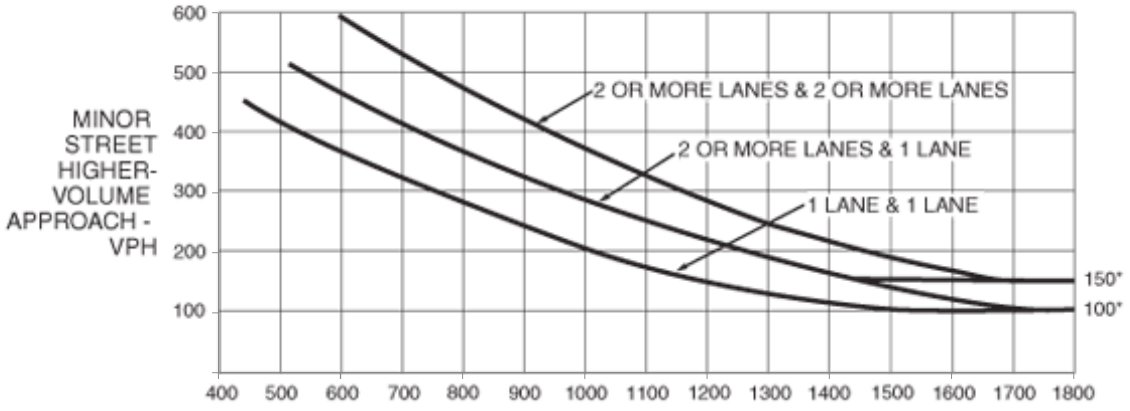
Based on Section 4C.02 of the Manual on Uniform Traffic Control Devices, 2009 Edition (rev. 2)

	Major Road	Minor Road
Name	SR 20	Laurel Crossing Pkwy NE
Number of Lanes by Approach	2	1

% of Volume	100%	**Data Year**	2018
Right Turn Reduction?	Yes	**Future Year**	2021
15 Min Interval Start	0	**Growth Rate**	2.00%
Mainline Left as Minor?	No		

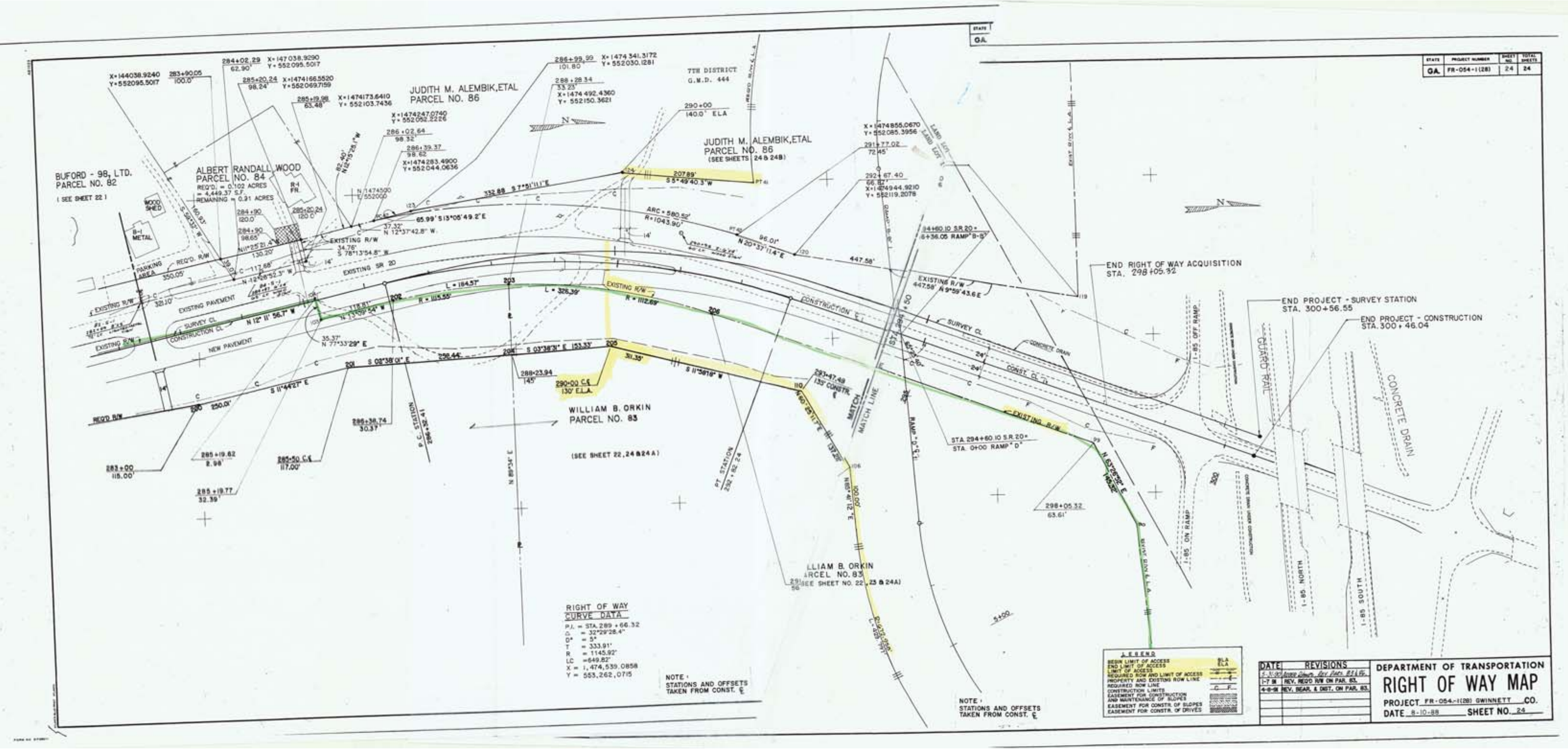
Time Of Day			SR 20 Major Road Volume (vph) Both Approaches	Laurel Crossing Pkwy NE Minor Road Volume (vph) Highest Approach	Warrant 3 Peak-Hour Vehicular Volume Condtion Met?
12:00 AM	to	1:00 AM	0	0	No
1:00 AM	to	2:00 AM	0	0	No
2:00 AM	to	3:00 AM	0	0	No
3:00 AM	to	4:00 AM	0	0	No
4:00 AM	to	5:00 AM	0	0	No
5:00 AM	to	6:00 AM	0	0	No
6:00 AM	to	7:00 AM	2856	38	No
7:00 AM	to	8:00 AM	4005	81	No
8:00 AM	to	9:00 AM	3653	64	No
9:00 AM	to	10:00 AM	3086	50	No
10:00 AM	to	11:00 AM	2999	63	No
11:00 AM	to	12:00 PM	3375	96	No
12:00 PM	to	1:00 PM	3572	112	No
1:00 PM	to	2:00 PM	3712	98	No
2:00 PM	to	3:00 PM	3999	113	No
3:00 PM	to	4:00 PM	4220	100	No
4:00 PM	to	5:00 PM	4732	103	No
5:00 PM	to	6:00 PM	5118	102	No
6:00 PM	to	7:00 PM	328	80	No
7:00 PM	to	8:00 PM	244	60	No
8:00 PM	to	9:00 PM	164	40	No
9:00 PM	to	10:00 PM	76	24	No
10:00 PM	to	11:00 PM	16	8	No
11:00 PM	to	12:00 AM	20	4	No
				Total Hours Condition is Met	0
				Meets Warrant?	**No - Warrant is Not Met**

Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Appendix G: Interstate Limited Access Extents


DEPARTMENT OF TRANSPORTATION
RIGHT OF WAY MAP
PROJECT FR-054-1(28) GWINNETT CO.
DATE 8-10-88 SHEET NO. 24
GA. FR-054-1(28) 24 24
BUFORD - 98, LTD. PARCEL NO. 82 (SEE SHEET 22)
ALBERT RANDALL WOOD PARCEL NO. 84
JUDITH M. ALEMBIK, ETAL PARCEL NO. 86
JUDITH M. ALEMBIK, ETAL PARCEL NO. 86 (SEE SHEETS 24 & 24B)
WILLIAM B. ORKIN PARCEL NO. 83
(SEE SHEET 22, 24 & 24 A)
7TH DISTRICT G.M.D. 444
EXISTING SR 20
CONSTRUCTION CL
SURVEY CL
EXISTING R/W
REQ'D R/W
MATCH LINE
END RIGHT OF WAY ACQUISITION STA. 298+05.92
END PROJECT - SURVEY STATION STA. 300+56.55
END PROJECT - CONSTRUCTION STA. 300+46.04
CONCRETE DRAIN
GUARD RAIL
I-85 NORTH
I-85 SOUTH
RIGHT OF WAY CURVE DATA
P.I. = STA. 289+66.32
Δ = 32°29'28.4"
D° = 5°
T = 333.91'
R = 1145.92'
LC = 649.82'
X = 1,474,539.0858
Y = 553,262.0715
NOTE: STATIONS AND OFFSETS TAKEN FROM CONST. ℄
LEGEND
DATE REVISIONS
1-7-91 REV. REQ'D R/W ON PAR. 83.
4-8-91 REV. BEAR. & DIST. ON PAR. 83.

Appendix H: Gwinnett County Comment Response

Blake Bredbenner

From: Blake Bredbenner
Sent: Tuesday, October 16, 2018 3:30 PM
To: 'Alex.Hofelich@gwinnettcounty.com'
Cc: Sameer Patharkar; Josh Pruitt; 'Greer Scoggins'
Subject: RE: GRTA Technical Analysis Transmittal for DRI 2834 The Exchange at Gwinnett

Per our conversation on the phone please see a summary of what we talked about / agreed upon. Please let me know if I missed anything or if anything needs to be changed. I've inserted the comments in Red below.

LOWE ENGINEERS
60 Years of Stripes

Blake Bredbenner, EIT
Blake.Bredbenner@loweengineers.com
C: 813.431.0575
990 Hammond Drive, Suite 900
Atlanta, GA 30328
loweengineers.com

From: Alex.Hofelich@gwinnettcounty.com <Alex.Hofelich@gwinnettcounty.com>
Sent: Friday, October 5, 2018 3:35 PM
To: eestes@srta.ga.gov; Nancy.Lovingood@gwinnettcounty.com; Jeffrey.West@gwinnettcounty.com; Brian.Johnson@gwinnettcounty.com; heather.correa@fuquadev.com; greer.scoggins@fuquadev.com; jeff.fuqua@fuquadev.com; jennifer.ledbetter@fuquadev.com; denise.laudun@fuquadev.com; slanham@mptlawfirm.com; Michael.Johnson2@gwinnettcounty.com; Blake Bredbenner <blake.bredbenner@loweengineers.com>; Sameer Patharkar <sameer.patharkar@loweengineers.com>
Cc: ASmith@atlantaregional.org; Jon.West@dca.ga.gov; sdecker@dot.ga.gov; rmarshall@srta.ga.gov; shgiles@dot.ga.gov; jpeevy@dot.ga.gov
Subject: RE: GRTA Technical Analysis Transmittal for DRI 2834 The Exchange at Gwinnett

The comments on the Technical Analysis from Gwinnett DOT are as follows:

1. The interchange at Gravel Springs and I-85 was marked as "unknown." This is PI#0012698 which begins construction in December. This should be open to traffic by the build year, so the traffic impact should be included in the background condition. We respectfully request that the background analysis be revisited.
   We will project volumes to be reduced from the existing interchange based on the proposed project volumes for the Gravel Springs interchange. We both agreed that we would expect a reduction of 60-80% of the proposed interchange volumes from the existing interchange. I am currently working on this reduction and will send it over to you for your review before we proceed with analysis.
2. On page 19 in section 3.4, there is a statement of "no modification of the signal timing can be made for this analysis." We'd like for this statement to be elaborated.
   This is based on GRTA DRI guidelines and we will reference this rule into the report for clarification. Where possible we will take a quick look to see if it is possible to solve the issues with signal timing and indicate as such in the report. Due to this rule the improvements at existing intersections are required to

be geometric in nature and may be impractical to actually implement when simple signal timing would resolve the issue.

3. On page 35 in section 4.8, the northbound approach drops below the LOS standard due to project traffic. As a project improvement, we would like a northbound lane added for the stretch between Brandsmart Drive and the ramp, with the deceleration lane for the right-in, right-out constructed in addition to this lane.
   Per our discussion on the phone the "additional" lane is to be a continuous turn lane for the development utilizing striped islands in lieu of traditional raised islands for right-turn access into the development.
4. Rather than construct a number of raised islands throughout the project length, consider providing a consistent width throughout the frontage and use pavement markings to have the "bubbles" at the start of the deceleration lanes and to reinforce the right-in right-out movements.
   See #3
5. I did not see the data from the non-expedited review packet repeated in the report, such as the trip generation, pass-by, and internal capture calculations. On 8/14 we requested that the pass-by percentages be revisited for the furniture store. We think the pass-by percentage for general retail may be too high for a furniture store. Also missing were the figures identifying the whole study network.
   We will repeat the information from the methodology meeting as needed and expand upon the sources of trip generation particularly for the furniture store. ITE 10th edition does provide pass-by rates for a furniture store which was used in analysis, not a retail pass-by.
6. On 8/14 we noted that we thought Woodward Crossing will have a lower side street contribution than initially presented, and Mall Grand Lane will have a significantly lower contribution. We think more of this traffic will be using Mall of Georgia Boulevard. While Mall Grand Lane was reduced, Woodward Crossing was not. We'd like to get some clarification on that decision.
   Upon further discussion the distribution will remain as shown in the DRI report. Changing by 2-3% will be negligible and our analysis provides a more conservative approach.
7. For Rock Springs, on 8/14 we identified a couple alternatives worth reviewing. One could be to revise the eastbound approach to have a shared thru-right lane, allowing the westbound gore area to line up sufficiently to be remarked as a through lane. Westbound receiving could have a couple alternative configurations, but we're not sure what would work best or fit with a minimum of construction. We asked for these to be considered as part of this evaluation. Just adding a westbound right turn lase as presented in the study carries significant challenges when considering the power transmission tower that acts as a right of way constraint for this intersection.
   Per our discussion we will examine the intersection without the westbound right-turn recommendation, if the intersection does need improvement after the reduction from the gravel springs interchange project.
8. Considering future development along Laurel Crossing Parkway, we would like to see some improvement at its intersection with Driveway 4. Consider either installing an eastbound left turn lane on Laurel Crossing Parkway or a roundabout at the intersection.
   I think we missed this point during our discussion. However, in response the intersection does not currently see any issues with project LOS and the volumes along Laurel Springs are relatively low. I would expect when the adjoining undeveloped parcels of land are developed some may connect to this driveway at which point it would be their responsibility to make any necessary improvements if their development degrades the LOS. With re-distrusted volumes we will re-run the turn-lane warrant analysis for the intersection to determine if turn lanes are warranted and make a recommendation in the addendum.
9. We would like to see what can be done to push more outbound traffic to Laurel Crossing Parkway. For example, one option could be to adjust the mainline of the exiting traffic from the back so that it follows Driveway 4, making the Driveway 2 approach a side-street. This should be reinforced with a nice slow pedestrian-friendly tight radius and no right turn lane to turn from Driveway 4 onto Driveway 2. ICE will be required for the intersection of SR 20 @ Laurel Crossing Way.
   Based on our discussion Gwinnett County does not intend to permit a traffic signal at Driveway 1 with the current proposed exiting volume turning left which requires a dual-left turn lane. In order to alleviate this condition we are to look at the internal site circulation, particularly the in-site roundabouts to provide better access to the Laurel Crossing connection. The project trip distribution is to be re-analyzed as if a

traffic signal is provided at Laurel Crossing in order to determine if a traffic signal would be warranted at the intersection.

10. The NB right turn lane on SR 20 at Driveway 2 will need to be signal controlled.
    We will add this into the recommendations
11. Convert the first internal drives along Driveway 2 to right-in right-out and extend the left turn lane for the signal.
    This information will be relayed to the site design team
12. Was the outstanding issue of researching the extents of limited access ever resolved?
    This comment is in reference to a concern raised by GDOT that Driveway 1 may be inside the interstate limited access zone of influence. This will need to be checked prior to approval, if the driveway is inside the limited access area then it will not be permiited.

Let me know if you have any questions.

Alex Hofelich, PE, PTOE | Division Director for Traffic Engineering | Transportation | Gwinnett County
678.639.8800 | 75 Langley Drive, Lawrenceville, GA 30046 | www.gwinnettcounty.com

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From: Emily Estes [mailto:eestes@srta.ga.gov]
Sent: Thursday, October 04, 2018 11:42 PM
To: Lovingood, Nancy; West, Jeff; Johnson, Brian; Heather Correa; Greer Scoggins; jeff.fuqua@fuquadev.com; jennifer.ledbetter@fuquadev.com; Denise Laudun; Taylor & Mathis Properties V, LLC; tom.ohara@gwinnettcounty.com; Johnson, Michael D. (DOT); Hofelich, Alex; blake.bredbenner@loweengineers.com; sameer.patharkar@loweengineers.com
Cc: Andrew Smith; Jon West; Decker, Sue Anne; Renaud Marshall; 'Shane Giles'; jpeevy@dot.ga.gov
Subject: GRTA Technical Analysis Transmittal for DRI 2834 The Exchange at Gwinnett

All,

Attached, please find the GRTA's Technical Analysis Transmittal (TAT) for **The Exchange at Gwinnett** development of regional impact (DRI# 2834). This proposed development is on approximately 64 acres in unincorporated Gwinnett County, south of I-85, east of SR 20 (Buford Drive) and north of Laurel Crossing Parkway. It is planned as a mixed-use project, to include 20 gas station pumps, 34,000 SF health and fitness club, 2,500 SF coffee shop, 143,200 SF shopping, 90,000 SF recreational facility 65,000 SF golf range, and 500 residential units. Site access is proposed via three driveways on SR 20 (Buford Drive) and one driveway extending to Laurel Crossing Parkway NE. The expected build-out is 2021.

Please let me know if you have any questions!

Emily Estes