DEVELOPMENT OF REGIONAL IMPACT
(DRI #2747)
TRAFFIC STUDY
FOR
THE INTERLOCK
MIXED-USE DEVELOPMENT

ATLANTA, GEORGIA

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A & R Project # 17-086

EXECUTIVE SUMMARY

Traffic impacts were evaluated for the added traffic from the proposed Interlock mixed-use development located in the southeast corner of the intersection of Howell Mill Road at 14th Street in Atlanta, Georgia. The proposed development will consist of:

- Retail: 60,800 sf
- Office: 225,000 sf
- Hotel: 150 rooms
- Fitness Center: 35,000 sf
- Multifamily: 430 units
- Townhomes: 20 units

The development proposes three full-access driveways, one on Howell Mill Road, one on 14th Street and one via Ethel Street. Existing and future operations after completion of the project were analyzed at the intersections of:

1. Howell Mill Road at 17th Street
2. Howell Mill Road at Huff Road
3. Howell Mill Road at 14th Street
4. Howell Mill Road at Brady Avenue
5. Howell Mill Road at 10th Street
6. Northside Drive at 10th Street
7. Northside Drive at Ethel Street
8. Northside Drive at 14th Street
9. Hemphill Avenue at 14th Street

The analysis included the evaluation of Future operations for "No-Build" and "Build" conditions, both of which account for increases in annual growth of through traffic. The results of the analysis are listed below:

System Recommendations and Improvements

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

Summary of Recommended System Improvements

- Construct a dedicated westbound right turn lane on 17th Street at Howell Mill Road.

Site Access Configuration

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

- Site Driveway #1: Full-access driveway on Howell Mill Road
    - This driveway is assumed to consist of one entering lane and one exiting lane. The westbound (driveway) approach is recommended to have a shared left/right turn lane for exiting traffic.

    - Entering right turns are assumed to be made from the northbound through lane. No deceleration lane is recommended.
    - Entering left turns are assumed to be made from the southbound left-turn lane created by re-striping the proposed two-way-left-turn lane.
- Site Driveway #2: Full-access driveway on 14th Street
    - This driveway is assumed to consist of one entering lane and two exiting lanes. The northbound (driveway) approach will have a left and a shared through/right turn lane for exiting traffic.
    - The intersection is proposed to be signalized.
    - Entering right turns are assumed to be made from the eastbound through lane. No deceleration lane is recommended.
    - It is recommended a westbound left turn lane be created on 14th street and included in the designs for the 14th Street Road Diet project.
- Site Driveway #3: Full-access driveway on Ethel Street
    - This driveway is assumed to consist of one entering lane and one exiting lane.
    - The intersection is assumed to be un-signalized.
    - No auxiliary lanes are recommended.

Site Mitigation Improvements

Improvements that are identified as mitigation improvements address deficiencies that are caused by site traffic and can be identified as related to the proposed development. Information on each intersection with a level-of-service below the allotted standard is outlined on page 26.

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INTRODUCTION

The purpose of this study is to determine the traffic impact that will result from the proposed Interlock mixed-use development located in the southeast corner of the intersection of Howell Mill Road at 14th Street in Atlanta, Georgia. The traffic analysis evaluates the current operations compared to the future conditions with the traffic generated by the development. The proposed development will consist of:

- Retail: 60,800 sf
- Office: 225,000 sf
- Hotel: 150 rooms
- Fitness Center: 35,000 sf
- Multifamily: 430 units
- Townhomes: 20 units

The development proposes access at the following locations:

- Site Driveway 1: Full-access driveway on Howell Mill Road
- Site Driveway 2: Full-access driveway on 14th Street
- Site Driveway 3: Full-access driveway on Ethel Street

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

1. Howell Mill Road at 17th Street
2. Howell Mill Road at Huff Road
3. Howell Mill Road at 14th Street
4. Howell Mill Road at Brady Avenue
5. Howell Mill Road at 10th Street

6. Northside Drive at 10th Street
7. Northside Drive at Ethel Street
8. Northside Drive at 14th Street
9. Hemphill Avenue at 14th Street

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

STUDY NETWORK DETERMINATION

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

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

1. Howell Mill Road at 17th Street
2. Howell Mill Road at Huff Road
3. Howell Mill Road at 14th Street
4. Howell Mill Road at Brady Avenue
5. Howell Mill Road at 10th Street
6. Northside Drive at 10th Street
7. Northside Drive at Ethel Street
8. Northside Drive at 14th Street
9. Hemphill Avenue at 14th Street

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

Existing Roadway Facilities

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

Howell Mill Road

Howell Mill Road is a north-south, three-lane (one northbound and two southbound lanes), undivided roadway with a posted speed limit of 35 mph in the vicinity of the site. GDOT traffic counts (Station ID 1215675) indicate that the daily traffic volume on Howell Mill Road is 20,400 vehicles per day north of Huff Road. GDOT classifies Howell Mill Road as a Minor Arterial roadway. There is a planned roadway improvement project referred to as the Howell Mill Complete Street Project sponsored by the Renew Atlanta TSPLOST. The project includes reducing the existing three-lane roadway to a two-lane facility with a central two-way left turn lane, the installation of bicycle lanes, streetscape and pedestrian safety improvements along Howell Mill Road between Collier Road and W. Marietta Street. As this project is slated to be complete before buildout of the proposed Interlock development, the updates to the road network have been analyzed in the "No-Build" and "Build" conditions.

14th Street

14th Street is an east-west, four-lane, undivided roadway with a posted speed limit of 35 mph in the vicinity of the site. GDOT traffic counts (Station ID 121-5633) indicate that the daily traffic volume on 14th Street is 15,100 vehicles per day west of McMillan Street. GDOT classifies 14th Street as a Minor Arterial roadway. As part of the Howell Mill Complete Street Project, and in conjunction with GDOT, there is an improvement project to mill, resurface and add bicycle lanes on 14th Street from Howell Mill Road to Hemphill Avenue. The project also includes improvements to the signals and geometry at the intersections of SR 3 (Northside Drive) at 14th Street and 14th Street at Hemphill Avenue. As these improvements are slated to be complete before buildout of the proposed Interlock development, the updates to the road network have been analyzed in the "No-Build" and "Build" conditions.

US 41/SR 3 (Northside Drive)

Northside Drive is a north-south, six-lane, undivided roadway with a posted speed limit of 35 mph in the vicinity of the site. GDOT traffic counts (Station ID 121-5016) indicate that the daily traffic volume on Northside Drive is 28,400 vehicles per day north of 11th Street. GDOT classifies Northside Drive as a Principal Arterial roadway. The improvements at the intersection of Northside Drive at 14th Street as part of the Howell Mill Road Complete Street Project will include reducing the southbound approach from three lanes to two lanes, as well as reconfiguring the northbound approach to operate with a dedicated left turn lane, two through lanes, and a dedicated right turn lane.

Ethel Street

Ethel Street is an east-west, two-lane, undivided local roadway in the vicinity of the site.

17th Street

17th Street is an east-west, two-lane, undivided roadway with a posted speed limit of 30 mph in the vicinity of the site. GDOT traffic counts (Station ID 1210262) indicate that the daily traffic volume on 17th Street is 30,000 vehicles per day west of I-75/I-85. GDOT classifies 17th Street as a Minor Arterial roadway. As part of the Howell Mill Complete Street Project, the southbound approach on Howell Mill Road at 17th Street will be reconfigured to operate with one dedicated left turn lane and one dedicated through lane.

Huff Road

Huff Road is an east-west, two-lane, undivided roadway with a posted speed limit of 35 mph in the vicinity of the site. GDOT traffic counts (Station ID 1216082) indicate that the daily traffic volume on Huff Road is 9,090 vehicles per day west of Howell Mill Road. GDOT classifies Huff Road as a Major Collector roadway. As part of the Howell Mill Complete Street Project, the intersection of Howell Mill Road at Huff Road will be reconfigured such that the northbound approach will operate with one dedicated left turn lane and one shared through/right turn lane, the southbound approach will operate with one dedicated right turn lane and one shared through/left turn lane, and the eastbound approach will operate with one dedicated left turn lane and one shared through/right turn lane.

Brady Avenue

Brady Avenue is an east-west, two-lane, undivided roadway. As part of the Howell Mill Complete Street Project, the intersection of Howell Mill Road at Brady Avenue will be reconfigured such that the northbound approach will operate with one dedicated left turn lane and one shared through/right turn lane, the southbound approach will operate with one dedicated left turn lane and one shared through/right turn lane, and the eastbound approach will operate with one dedicated right turn lane and one shared through/left turn lane.

10th Street

10th Street is an east-west, four-lane, undivided roadway with a posted speed limit of 35 mph in the vicinity of the site. GDOT traffic counts (Station ID 1215636) indicate that the daily traffic volume on 10th Street is 14,000 vehicles per day west of Tumlin Street. GDOT classifies 10th Street as a Minor Arterial roadway. As part of the Howell Mill Complete Street Project, the intersection of Howell Mill Road at 10th Street will be reconfigured such that the northbound approach will operate with one dedicated left turn lane and one shared through/right turn lane, and the southbound approach will operate with one dedicated left turn lane and one shared through/right turn lane.

Hemphill Avenue

Hemphill Avenue is a northwest-southeast, two-lane, undivided roadway with a posted speed limit of 35 mph. The improvements at the intersection of 14th Street at Hemphill Avenue as part of the Howell Mill Road Complete Street Project will include reducing the eastbound approach from two lanes to one lane, as well as reconfiguring the northwestbound approach to operate with a shared through/left turn lane and a shared through/right turn lane.

Existing Bicycle and Pedestrian Facilities

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

Nearby local or regional trails

There are no trails located in the study area.

Sidewalks or Bicycle paths

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

- Howell Mill Road: east and west sides of the road along the frontage of the proposed development.
- Northside Drive: east and west sides of the road between 14th Street and 10th Street.
- 14th Street: various points along the north and south sides of the road between Howell Mill Road and Hemphill Avenue.
- 10th Street: north and south sides of the road between Howell Mill Road and Northside Drive.
- 17th Street: various points along the north and south sides of the road between Howell Mill Road and Northside Drive.

- Huff Road: south side of the road west of Howell Mill Road.
- Brady Avenue: various points along the north and south sides of the road west of Howell Mill Road.
- Hemphill Avenue: both sides of the road south of 14th Street.
- Ethel Street: both sides of the road west of Northside Drive.

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

- Hemphill Avenue: South of 14th Street to North Avenue.

Existing Transit Facilities

Marta operates three bus routes along Howell Mill Road and Northside Drive. There are currently two bus stops on Howell Mill Road in the vicinity of the proposed development at 14th Street and Brady Avenue. The following MARTA bus routes have operations along the study network.

- Bus route 1: Operates from North Avenue along Chattahoochee Avenue, Ellsworth Drive, Howell Mill Road, Huff Road, Ivan Allen Jr. Blvd, and Marietta Street.
- Bus route 12: Operates from the Midtown Station to the Cumberland Transfer Center along 10th Street, Howell Mill Road, Northside Parkway, and Akers Mill Road.
- Bus route 94: Operates from West End Station to District of Howell Mill via Lee Street, Oak Street, W. Whitehall Street, Peters Street, Chapel Street, Northside Drive to Vine City continuing along Northside Drive to Interstate 75 to Howell Mill Rd, and Howell Mill Road to Spring Grove Avenue

LOCATION MAP AND STUDY INTERSECTIONS

FIGURE 1

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STUDY METHODOLOGY

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

Unsignalized Intersections

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

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

TABLE 1 – LEVEL-OF-SERVICE CRITERIA FOR UNSIGNALIZED INTERSECTIONS

Level-of-service	Average Delay (sec)
A	≤ 10
B	> 10 and ≤ 15
C	> 15 and ≤ 25
D	> 25 and ≤ 35
E	> 35 and ≤ 50
F	> 50

Source: 2000 and 2010 Highway Capacity Manual

Signalized Intersections

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

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

TABLE 2 – LEVEL-OF-SERVICE CRITERIA FOR SIGNALIZED INTERSECTIONS

Level-of-service	Average Control Delay (sec)
A	≤ 10
B	> 10 and ≤ 20
C	> 20 and ≤ 35
D	> 35 and ≤ 55
E	> 55 and ≤ 80
F	> 80

Source: 2000 and 2010 Highway Capacity Manual

EXISTING TRAFFIC ANALYSIS

Existing traffic counts and intersection geometric data were obtained at the following study intersections:

1. Howell Mill Road at 17th Street
2. Howell Mill Road at Huff Road
3. Howell Mill Road at 14th Street
4. Howell Mill Road at Brady Avenue
5. Howell Mill Road at 10th Street
6. Northside Drive at 10th Street
7. Northside Drive at Ethel Street
8. Northside Drive at 14th Street
9. Hemphill Avenue at 14th Street

Turning movement counts were collected on Wednesday, July 5, 2017 at intersections #3, #4, and #7, and turning movement counts at intersections #1, #2, #5, #6, #8, and #9 were collected on Thursday, November 2, 2017. All turning movement counts were recorded during the AM and PM peak hours between 7:00 a.m. to 9:00 a.m. and 4:00 p.m. to 6:00 p.m., respectively. The four consecutive 15-minute interval volumes that summed to produce the highest volume at the intersections were then determined. These volumes make up the peak hour traffic volumes for the intersections counted and are shown in Figure 2.

Existing Traffic Operations

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

TABLE 3 – EXISTING INTERSECTION OPERATIONS

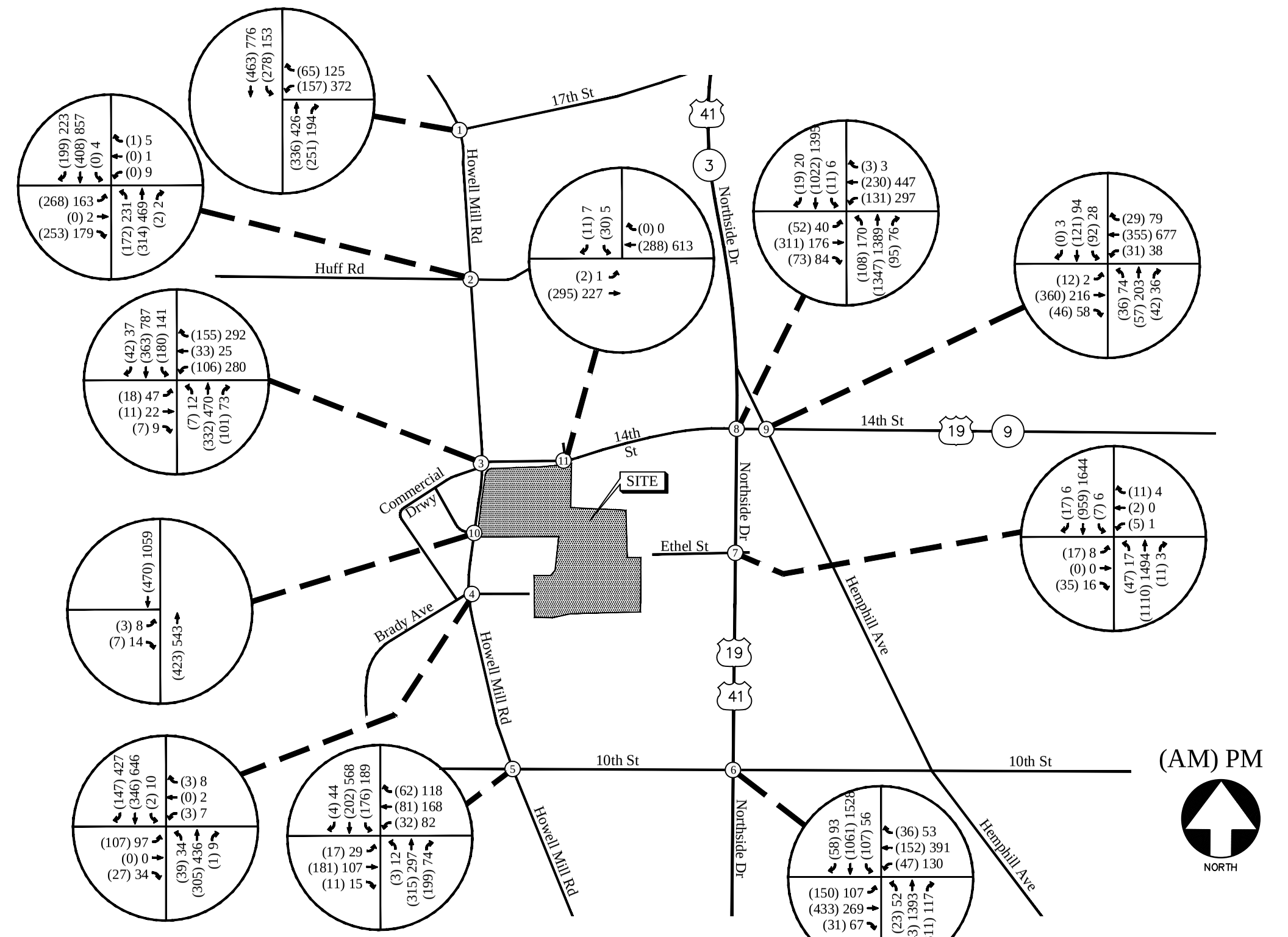
	Intersection	Traffic Control	AM Peak	PM Peak	LOS Standard
1	**Howell Mill Rd @ 17th St***	Signalized	**B (15.9)**	**C (33.4)**	**D / D**
	-Westbound Approach		E (56.5)	E (69.2)	-
	-Northbound Approach		A (7.4)	B (12.6)	-
	-Southbound Approach		A (8.6)	C (28.3)	-
2	**Howell Mill Rd @ Huff Rd**	Signalized	**C (22.8)**	**B (12.1)**	**D / D**
	-Eastbound Approach		D (46.0)	E (55.4)	-
	-Westbound Approach		C (21.0)	C (32.8)	-
	-Northbound Approach		A (7.3)	A (4.3)	-
	-Southbound Approach		B (11.4)	A (1.4)	-
3	**Howell Mill Rd @ 14th St***	Signalized	**B (11.4)**	**B (19.3)**	**D / D**
	-Eastbound Approach		D (45.9)	D (36.2)	-
	-Westbound Approach		C (27.8)	D (37.7)	-
	-Northbound Approach		A (3.8)	B (13.8)	-
	-Southbound Approach		A (3.9)	A (9.9)	-

Table continued on next page…

	Intersection	Traffic Control	AM Peak	PM Peak	LOS Standard
4	**Howell Mill Rd @ Brady Ave** -Eastbound Approach -Westbound Approach -Northbound Left -Southbound Left	Stop Controlled on EB/WB Approaches	 D (34.5) B (13.2) A (8.7) A (8.0)	 F (463.6) D (34.2) B (11.7) A (8.5)	 D / E D / D D / D D / D
5	**Howell Mill Rd @ 10th St** -Eastbound Approach -Westbound Approach -Northbound Approach -Southbound Approach	Signalized	**B (18.1)** D (50.4) C (34.3) A (9.5) A (1.1)	**B (14.3)** D (48.2) C (25.6) B (13.7) A (2.3)	**D / D** - - - -
6	**Northside Dr @ 10th St*** -Eastbound Approach -Westbound Approach -Northbound Approach -Southbound Approach	Signalized	**C (23.3)** D (45.2) C (32.1) B (16.0) B (18.6)	**C (26.3)** D (51.9) E (58.0) B (19.6) B (12.5)	**D / D** - - - -
7	**Northside Dr @ Ethel St** -Eastbound Approach -Westbound Approach -Northbound Left -Southbound Left	Stop Controlled on EB/WB Approaches	 F (67.3) F (105.4) C (17.0) C (16.7)	 - - D (28.0) C (23.4)	 E / D E / D D / D D / D
8	**Northside Dr @ 14th St*** -Eastbound Approach -Westbound Approach -Northbound Approach -Southbound Approach	Signalized	**C (20.6)** D (40.1) D (37.0) B (13.2) B (18.7)	**D (45.0)** C (30.3) E (59.9) D (39.1) D (48.4)	**D / D** - - - -
9	**Hemphill Ave @ 14th St** -Eastbound Approach -Westbound Approach -Northbound Approach -Southbound Approach	Signalized	**C (25.2)** C (20.9) A (8.3) D (51.5) D (45.2)	**C (20.2)** A (0.3) B (15.7) D (43.0) C (29.9)	**D / D** - - - -

**Results reported via HCM 2000*

The results of existing traffic operations analysis indicate that the side streets to the intersections of Howell Mill Road at Brady Avenue and Northside Drive at Ethel Street are operating at level-of-service "F" in the morning or evening peak hours. These areas are addressed further in the "Future Traffic Analysis" section.



EXISTING WEEKDAY PEAK-HOUR VOLUMES

FIGURE 2

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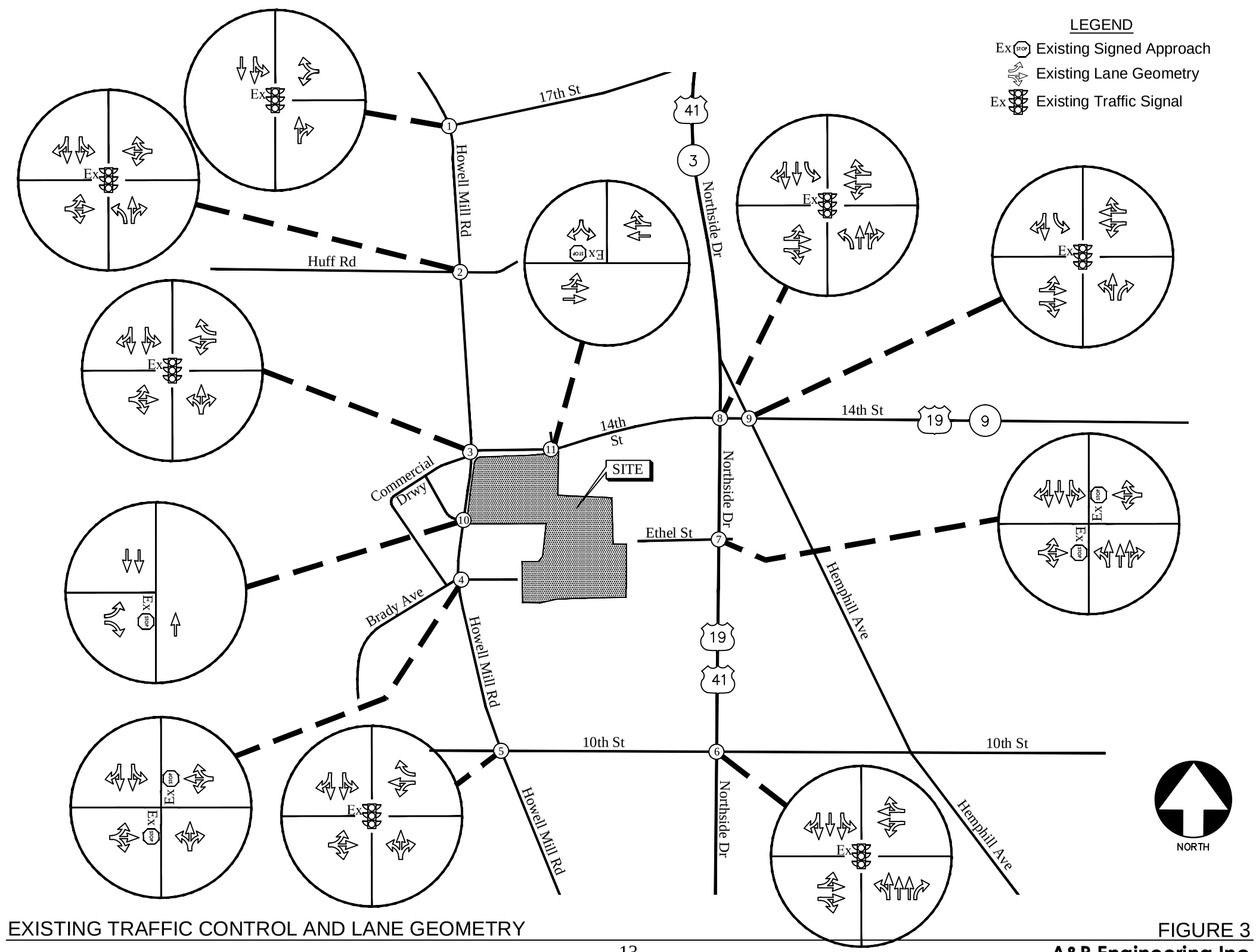


EXISTING TRAFFIC CONTROL AND LANE GEOMETRY

FIGURE 3

A&R Engineering Inc.

PROJECT DESCRIPTION

The proposed Interlock mixed-use development will be located in the southeast corner of the intersection of Howell Mill Road at 14th Street in Atlanta, Georgia. The proposed development will consist of:

- Retail: 60,800 sf
- Office: 225,000 sf
- Hotel: 150 rooms
- Fitness Center: 35,000 sf
- Multifamily: 430 units
- Townhomes: 20 units

The development proposes access at the following locations:

- Site Driveway 1: Full-access driveway on Howell Mill Road
- Site Driveway 2: Full-access driveway on 14th Street
- Site Driveway 3: Full-access driveway on Ethel Street

Site Plan

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

Planned Bicycle and Pedestrian Facilities

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

- The proposed development will be comprised of residential, retail, and office uses. Pedestrian connections are proposed between the mixed-uses on the site.
- Bicycle lanes are proposed on Howell Mill Road and 14th Street via the Howell Mill Complete Street Project.

Planned Transit Facilities

There will be a direct shuttle service from Georgia Tech's campus to The Interlock development as well as bus service via MARTA bus routes 1, 12, and 94. Because of the various modes of transportation available in the vicinity of the development, an alternative mode reduction of 15% was determined to be suitable in discussions with GRTA and ARC.

Consistency with Adopted Comprehensive Plan

The following is an explanation as to how the proposed DRI relates to the local government's Comprehensive Plan in particular the transportation and capital improvements element, and any transportation improvements listed in the Short-Term Work Program(s) within the vicinity of the DRI. The proposed development is located within the "Upper Westside" Livable Centers Initiative (LCI) as defined by the Atlanta Regional Commission (ARC).

Project Phasing

For the purpose of this analysis, the project has been evaluated for the complete build-out of the development in 2020.

Trip Generation

Trip generation estimates for the project were based on the rates and equations published in the 10th edition of the Institute of Transportation Engineers (ITE) Trip Generation report. This reference contains traffic volume count data collected at similar facilities nationwide. The trip generation was based on the following ITE Land Uses: *221 – Multifamily Housing (Mid-Rise)*, *310 – Hotel*, *492 – Health/Fitness Club*, *710 – General Office Building* and *820 – Shopping Center*. Due to the nature of the development, pass-by, mixed-use, and alternative mode reductions have been applied per ITE standards. The calculated total trip generation for the proposed development is shown in Table 4.

TABLE 4 – TRIP GENERATION

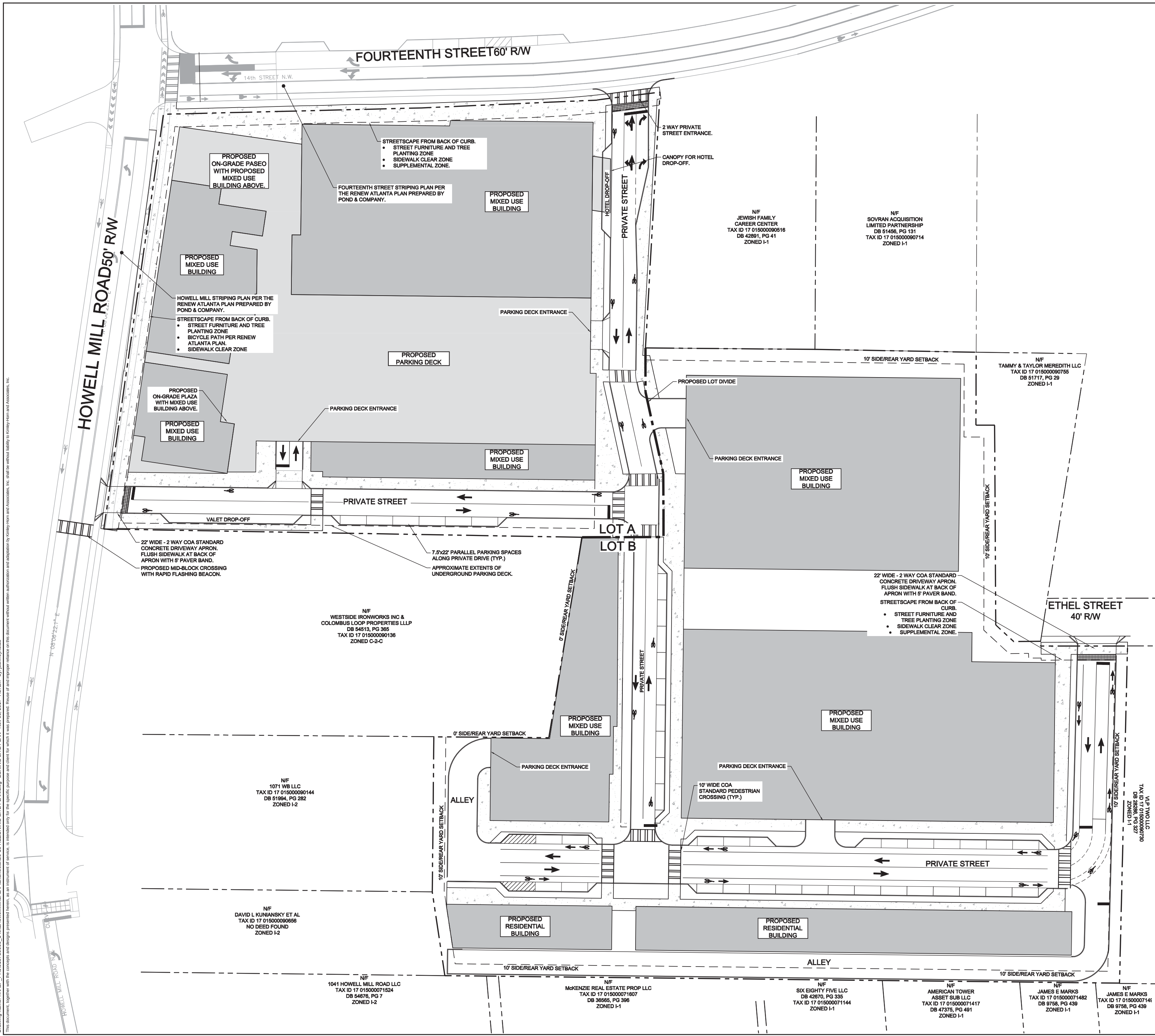
Land Use	Size	AM Peak Hour			PM Peak Hour			24-Hour
		Enter	Exit	Total	Enter	Exit	Total	Two-way
ITE 221 – Multifamily (Mid-Rise)	450 Units	39	110	149	115	73	188	2,451
ITE 310 – Hotel	150 Rooms	41	29	70	44	42	86	1,267
ITE 492 – Health/Fitness Club**	35,000 sf	23	23	46	71	56	124	1,153
ITE 710 – General Office Building	225,000 sf	205	33	238	39	207	246	2,330
ITE 820 – Shopping Center	60,800 sf	113	69	182	180	196	376	4,286
Total Site Trips (without Reductions)		**421**	**264**	**685**	**449**	**571**	**1,020**	**11,487**
Internal Capture for Multifamily		*-8*	*-8*	*-16*	*-22*	*-15*	*-37*	*-374*
Internal Capture for Hotel		*-4*	*-4*	*-8*	*-11*	*-8*	*-19*	*-193*
Internal Capture for Health/Fitness Club		*-3*	*-3*	*-6*	*-6*	*-8*	*-14*	*-156*
Internal Capture for Office		*-3*	*-4*	*-7*	*-7*	*-8*	*-15*	*-214*
Internal Capture for Shopping Center		*-12*	*-11*	*-23*	*-22*	*-29*	*-51*	*-579*
Total Internal (Mixed-Use) Trip Reductions		***-30***	***-30***	***-60***	***-68***	***-68***	***-136***	***-1,516***
**Pass-by for Shopping Center (0%) 34%*		0	0	0	-54	-57	-111	-1,110
Residential and Retail Alternative Mode Reduction (15%)		-32	-35	-67	-62	-55	-116	-1,374
Office Alternative Mode Reduction (15%)		-31	-5	-35	-6	-31	-37	-550
Total New External Trips (with reductions)		**328**	**194**	**522**	**259**	**360**	**620**	**7,137**

**Daily pass-by reduction estimated as least of applied PM peak hour pass-by rate or 10x the PM pass-by volume*

***24-hour volume calculated using ITE 9th edition due to no data available via 10th edition*

Trip Distribution

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



SITE PLAN SPECIFICATIONS:

1. ZONING CLASSIFICATIONS:
   CURRENT ZONING - I-1
   PROPOSED ZONING - PD-MU
2. SQUARE FOOTAGE OF BUILDINGS AND STRUCTURES:
   TOTAL: RESIDENTIAL - 565,000 SF; NON-RESIDENTIAL - 425,800 SF
   LOT A: RESIDENTIAL - 45,000 SF; NON-RESIDENTIAL - 415,000 SF
   LOT B: RESIDENTIAL - 520,000 SF; NON-RESIDENTIAL - 10,800 SF
3. NUMBER OF DWELLING UNITS: 450
4. HEIGHT OF BUILDINGS AND STRUCTURES IN FEET:
   MAX BUILDING HEIGHT - 225 FT
5. NET LOT AREA (NLA):
   LOT A: 155,639 SF
   LOT B: 229,256 SF
6. GROSS LAND AREA (GLA):
   LOT A: 175,639 SF
   LOT B: 231,081 SF
7. MAXIMUM BUILDING COVERAGE ALLOWED: 85% OF NLA
   LOT A BUILDING COVERAGE PROVIDED: 68%
   LOT B BUILDING COVERAGE PROVIDED: 51%
8. PROJECT ADDRESSES:
   1115 HOWELL MILL ROAD NW
   720 FOURTEENTH STREET NW
   673 ETHEL STREET NW
9. PEDESTRIAN ACCESS TO BE PROVIDED THROUGHOUT THE SITE.
10. INTERNAL BUILDING SETBACKS ARE TO BE 0'.
11. PROPOSED RESIDENTIAL BUILDINGS ON LOT B MAY BE CONNECTED WITH AN ELEVATED CONNECTION.

*A LOT CONSOLIDATION WILL BE SUBMITTED PRIOR TO LAND DISTURBANCE SUBMITTAL.

ZONING CALCULATIONS	MAXIMUM ALLOWED / MINIMUM REQUIRED	PROVIDED
LOT A - TOTAL OPEN SPACE REQUIREMENT (TOSR)	MINIMUM REQUIRED: 128,845 SF	70,000 SF
LOT A - USEABLE OPEN SPACE REQUIREMENT (UOSR)	MINIMUM REQUIRED: 83,575 SF	45,000 SF
LOT B - TOTAL OPEN SPACE REQUIREMENT (TOSR)	MINIMUM REQUIRED: 166,378 SF	166,400 SF
LOT B - USEABLE OPEN SPACE REQUIREMENT (UOSR)	MINIMUM REQUIRED: 115,541 SF	115,600 SF
LOT A - LOADING	MINIMUM REQUIRED: 8 (12'X35'); 3 (12'x55')	3 - 12'x35'
LOT B - LOADING	MINIMUM REQUIRED: 6 (12'X35'); 1 (12'x55')	2 - 12'x35'

*REQUIRED AND PROVIDED TOSR AND UOSR MAY VARY DEPENDING ON THE ACTUAL CONSTRUCTED DENSITY

PARKING CALCULATIONS*	MAXIMUM ALLOWED	MINIMUM REQUIRED	MINIMUM PROVIDED
RESIDENTIAL LOT A LOT B		17 255	SEE TOTAL
NON-RESIDENTIAL LOT A LOT B		1,038 28	SEE TOTAL
TOTAL		1,338	1,365

*REQUIRED AND PROVIDED PARKING MAY VARY DEPENDING ON THE ACTUAL CONSTRUCTED DENSITY

SITE PLAN LEGEND:

- PROPERTY LINE
- SETBACK LINE
- INTERNAL LOT LINE
- CONCRETE SIDEWALK
- PROPOSED BUILDING FOOTPRINT
- PROPOSED BUILDING ABOVE

PROFESSIONAL'S CERTIFICATION:

I HEREBY CERTIFY THAT I AM FAMILIAR WITH THE ZONING ORDINANCE OF THE CITY OF ATLANTA, AS AMENDED. I FURTHER CERTIFY THAT TO THE BEST OF MY KNOWLEDGE AND ABILITY, THESE PLANS ARE ACCURATE AND COMPLY WITH THE DISTRICT AND GENERAL REGULATIONS OF THE ZONING ORDINANCE OF THE CITY OF ATLANTA.

11/03/2017
DATE

DESIGN PROFESSIONAL'S SIGNATURE
(ANGELA L. FANNEY, P.E.)

No.	REVISIONS	DATE	BY
1			
2			
3			
4			
5			
6			
7			

Kimley»Horn
© 2017 KIMLEY-HORN AND ASSOCIATES, INC.
817 W. PEACHTREE STREET, NW
THE BILTMORE, SUITE 601
ATLANTA, GEORGIA 30308
PHONE (404) 419-8700
WWW.KIMLEY-HORN.COM

SCALE: 1" = 30'
DRAWN BY: JCR
DESIGNED BY: JCR
CHECKED BY: ALF

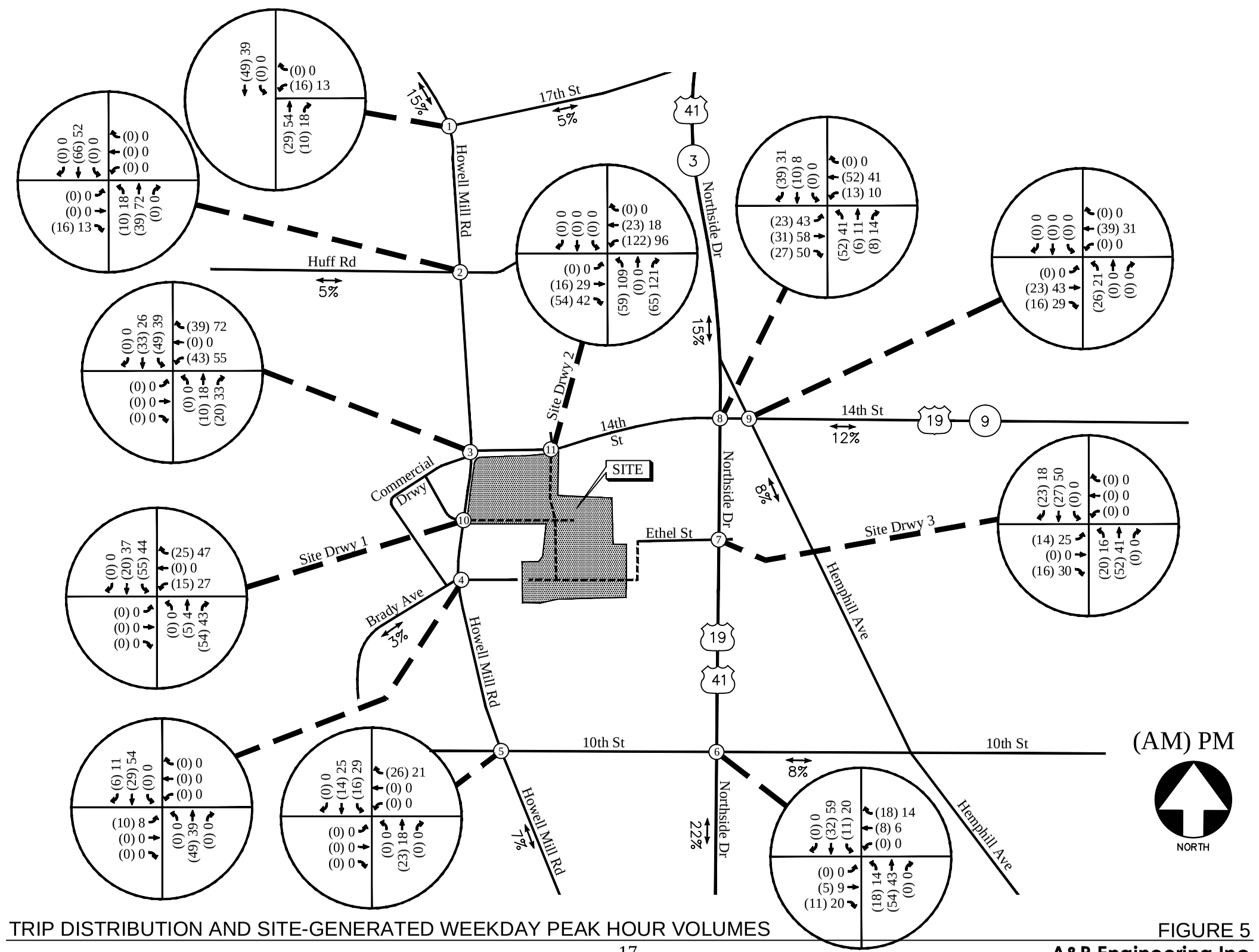
CLIENT:
SJ COLLINS ENTERPRISES
5 SW BROAD STREET, SUITE B
FAIRBURN, GA 30213
PHONE: 770-692-8300 FAX: 770-692-8302

PROJECT:
THE INTERLOCK
1115 HOWELL MILL ROAD NW

TITLE:
ZONING SITE PLAN

DATE 11/07/2017
PROJECT NO. 018759000
SHEET NUMBER
C0-10

Drawing name: K:\ALP_PRJ\018759000_1449HowellMill\CAD\PlanSheets\C0-10 REZONING SITE PLAN.dwg ZONING SITE PLAN Nov 06, 2017 7:57am by: josh.reynolds



TRIP DISTRIBUTION AND SITE-GENERATED WEEKDAY PEAK HOUR VOLUMES

FIGURE 5

A&R Engineering Inc.

FUTURE TRAFFIC ANALYSIS

The future traffic operations are analyzed for the "No-Build" and "Build" conditions. This provides a basis of reference for determining both the contribution of the site to overall traffic conditions and the additional improvements needed to provide sufficient site access and capacity for passing traffic. Note that survey and construction drawings would be needed to verify the feasibility and extent of additional right-of-way required for any recommended improvements.

Improvements that are identified as "System Improvements" address deficiencies that are found within the existing road network prior to any impacts from the proposed development's added traffic. Improvements that are identified as "Site Mitigation Improvements" address further impacts that are a result of the proposed development's added traffic.

Future "No-Build" Conditions

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

Annual Traffic Growth

In order to evaluate future traffic operations in this area, a projection of normal traffic growth was applied to the existing volumes. The Georgia Department of Transportation recorded average daily traffic volumes at several locations in the vicinity of the site. Reviewing the growth over the last five years revealed growth of approximately 3% in the area. This growth factor was applied to the existing traffic volumes between collector and arterial roadways in order to estimate the future year traffic volumes prior to the addition of site-generated traffic. The resulting Future "No-Build" volumes on the roadway are shown in Figure 6.

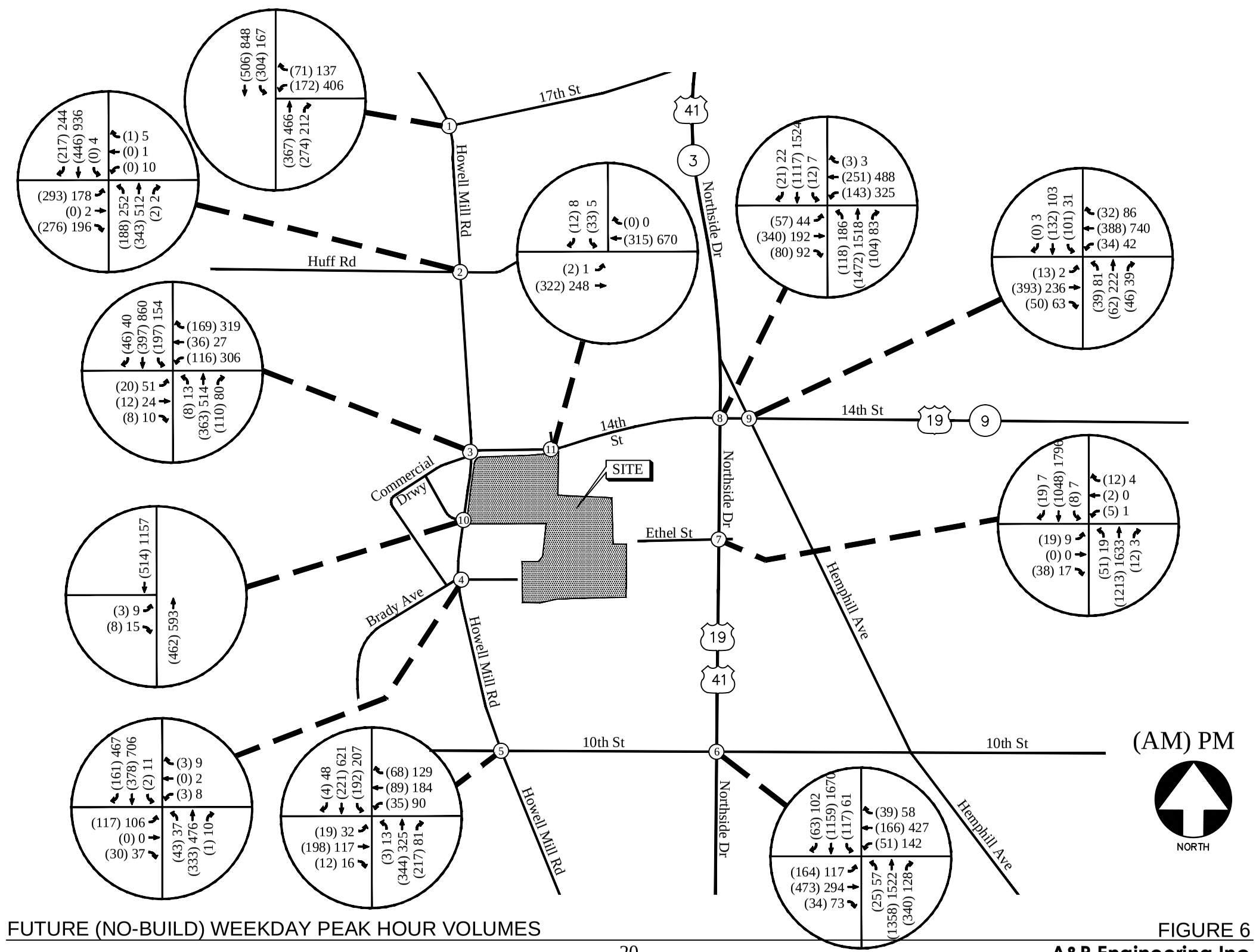
Planned and Programmed Improvements in Study Area

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

TABLE 5 – PLANNED AND PROGRAMMED IMPROVEMENTS				
ARC#/GDOT#/ Local#	**Project**	**Type of Improvement**	**Network Year**	**Source**
0012823	Northside Drive signal upgrades @ 13 locations	Roadway Corridor Operations/Safety	2019	GDOT
N/A	Howell Mill Complete Street Project	Roadway Corridor Operations/Safety Bicycle Facilities	2018	Renew Atlanta TSPLOST
N/A	Phase 1 Resurfacing of 14th Street as part of the Howell Mill Complete Street Project	Roadway Corridor Operations/Safety	2019	Renew Atlanta TSPLOST
0015288	Redesign of intersections of SR 3, 14th Street, and Hemphill Ave to remove shared southbound lane and provide additional flexibility for signal timing	Reconstruction/ Rehabilitation	2019	GDOT

Projects included in the model for the future conditions include:

Howell Mill Complete Street Project: The Howell Mill Road Complete Streets Project will begin at the intersection of Howell Mill Road at W. Marietta Street and terminate at the intersection of Howell Mill Road at Collier Road. This project will rehabilitate the existing roadway pavement, improve existing pedestrian infrastructure, install mid-block crossings, install bicycle facilities, and make improvements at existing intersections along the Howell Mill Road Corridor. In order to maintain corridor and signal level of service, dedicated turn lanes will be added at 17th Street, Huff Road, Brady Avenue, and 10th Street, and signals will be installed at Brady Avenue. This project aims to provide a safe route for all methods of transportation along the Howell Mill Road Corridor. Conversion of southbound through lane to a two-way left-turn lane, dedicated turn lanes, and installation of a traffic signal at Brady Avenue as a part of this project are included in the future "No-Build" and "Build" analyses.



FUTURE (NO-BUILD) WEEKDAY PEAK HOUR VOLUMES

FIGURE 6

A&R Engineering Inc.

Future "No-Build" Traffic Operations

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

TABLE 6 – FUTURE "NO-BUILD" INTERSECTION OPERATIONS

	Intersection	Traffic Control	AM Peak	PM Peak	LOS Standard
1	**Howell Mill Rd @ 17th St**	Signalized	**C (30.4)**	**E (61.0)**	**D / D**
	-Westbound Approach		E (73.5)	F (101.0)	-
	-Northbound Approach		C (31.2)	E (61.9)	-
	-Southbound Approach		B (15.1)	D (40.0)	-
2	**Howell Mill Rd @ Huff Rd**	Signalized	**C (27.4)**	**C (27.8)**	**D / D**
	-Eastbound Approach		D (47.9)	D (54.8)	-
	-Westbound Approach		C (33.6)	D (42.1)	-
	-Northbound Approach		A (5.1)	B (16.3)	-
	-Southbound Approach		C (27.3)	C (27.0)	-
3	**Howell Mill Rd @ 14th St**	Signalized	**C (24.6)**	**C (28.0)**	**D / D**
	-Eastbound Approach		D (51.9)	F (98.5)	-
	-Westbound Approach		D (44.6)	D (42.4)	-
	-Northbound Approach		C (34.1)	B (11.7)	-
	-Southbound Approach		A (4.5)	C (22.5)	-
4	**Howell Mill Rd @ Brady Ave**	*Signalized*	**A (7.8)**	**C (22.5)**	**D / D**
	-Eastbound Approach		D (52.0)	D (51.7)	-
	-Westbound Approach		D (46.2)	D (46.1)	-
	-Northbound Approach		A (0.4)	A (7.8)	-
	-Southbound Approach		A (1.0)	C (25.2)	-
5	**Howell Mill Rd @ 10th St**	Signalized	**C (23.8)**	**C (27.7)**	**D / D**
	-Eastbound Approach		E (55.8)	F (132.1)	-
	-Westbound Approach		D (46.9)	D (48.5)	-
	-Northbound Approach		B (13.4)	B (16.0)	-
	-Southbound Approach		A (5.7)	A (2.0)	-
6	**Northside Dr @ 10th St***	Signalized	**C (29.7)**	**C (28.9)**	**D / D**
	-Eastbound Approach		D (51.7)	E (57.7)	-
	-Westbound Approach		C (30.8)	E (64.5)	-
	-Northbound Approach		B (19.3)	C (22.9)	-
	-Southbound Approach		C (30.3)	B (13.3)	-
7	**Northside Dr @ Ethel St**	Stop Controlled on EB/WB Approaches			
	-Eastbound Approach		F (502.8)	-	E / D
	-Westbound Approach		F (362.6)	-	E / D
	-Northbound Left		C (19.0)	D (34.2)	D / D
	-Southbound Left		C (18.4)	D (27.2)	D / D
8	**Northside Dr @ 14th St**	Signalized	**C (21.8)**	**E (71.6)**	**D / E**
	-Eastbound Approach		F (86.7)	E (68.1)	-
	-Westbound Approach		C (29.0)	F (84.9)	-
	-Northbound Approach		A (9.0)	D (54.2)	-
	-Southbound Approach		B (12.9)	F (87.8)	-

Table continued on next page…

Intersection		Traffic Control	AM Peak	PM Peak	LOS Standard
9	**Hemphill Ave @ 14th St**	Signalized	**C (24.6)**	**C (20.8)**	**D / D**
	-Eastbound Approach		B (17.9)	A (5.4)	-
	-Westbound Approach		A (9.2)	B (13.8)	-
	-Northbound Approach		D (52.3)	D (44.6)	-
	-Southbound Approach		D (44.9)	C (32.6)	-

**Results reported via HCM 2000*

Recommendations for System Improvements

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

Summary of Recommended System Improvements

- Construct a dedicated westbound right turn lane on 17th Street at Howell Mill Road.

Howell Mill Road @ 17th Street

After accounting for a 3% in background traffic, the intersection will begin to operate at an overall level-of-service "E" in the PM peak hour. In order to bring the delay within an acceptable threshold, it is recommended that a westbound dedicated right turn lane be installed on 17th Street. The operations at the intersection with this proposed improvement are shown below in Table 6A.

TABLE 6A – FUTURE "NO-BUILD" INTERSECTION OPERATIONS (IMPROVED)

Intersection		Traffic Control	AM Peak	PM Peak	LOS Standard
1	**Howell Mill Rd @ 17th St**	Signalized	**C (24.8)**	**D (39.3)**	**D / D**
	-Westbound Approach		E (63.9)	E (57.1)	-
	-Northbound Approach		C (25.6)	D (48.5)	-
	-Southbound Approach		B (11.1)	C (24.5)	-

Northside Drive @ Ethel Street

The eastbound and westbound approaches to the intersection of Northside Drive at Ethel Street are currently operating at level-of-service "F" in the AM and PM peak hours. After accounting for a 3% growth of background traffic, these approaches will continue to operate at level-of-service "F". Delays are caused by side-street wait times to turn left onto the mainline. This intersection is approximately 600 feet south of the signalized intersection of Northside Drive at 14th Street which is less than the desired distance of 1,000 feet between signalized intersections. Moreover, as it is not unusual for stop-controlled site-streets along arterial roadways to have elevated delays during peak periods, no changes are recommended.

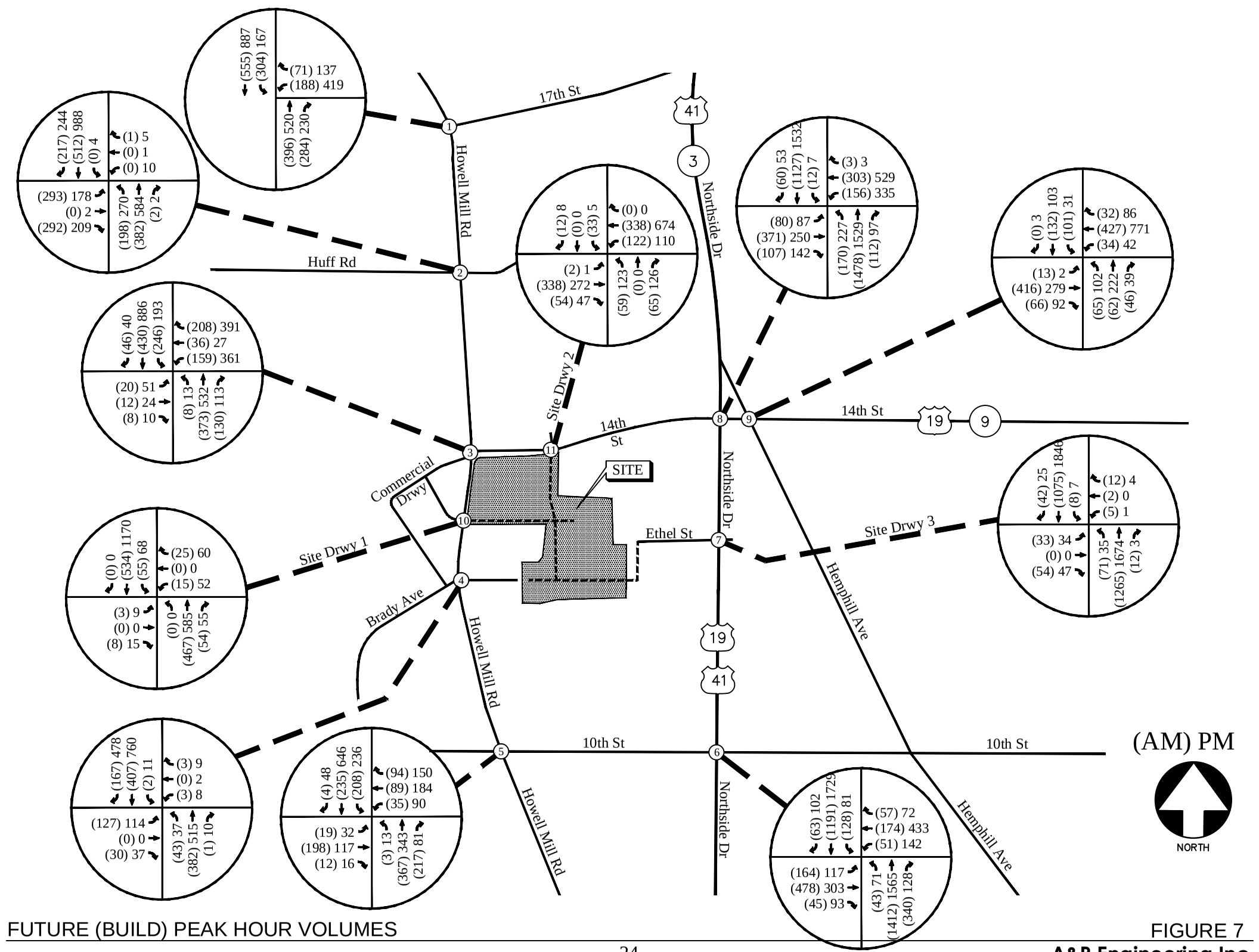
Future "Build" Conditions

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

Site Access Configuration

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

- Site Driveway #1: Full-access driveway on Howell Mill Road
    - This driveway is assumed to consist of one entering lane and one exiting lane. The westbound (driveway) approach is recommended to have a shared left/right turn lane for exiting traffic.
    - Entering right turns are assumed to be made from the northbound through lane. No deceleration lane is recommended.
    - Entering left turns are assumed to be made from the southbound left-turn lane created by re-striping the proposed two-way-left-turn lane.
- Site Driveway #2: Full-access driveway on 14th Street
    - This driveway is assumed to consist of one entering lane and two exiting lanes. The northbound (driveway) approach will have a left and a shared through/right turn lane for exiting traffic.
    - The intersection is proposed to be signalized.
    - Entering right turns are assumed to be made from the eastbound through lane. No deceleration lane is recommended.
    - It is recommended a westbound left turn lane be created on 14th street and included in the designs for the 14th Street Road Diet project.
- Site Driveway #3: Full-access driveway on Ethel Street
    - This driveway is assumed to consist of one entering lane and one exiting lane.
    - The intersection is assumed to be un-signalized.
    - No auxiliary lanes are recommended.



FUTURE (BUILD) PEAK HOUR VOLUMES

FIGURE 7

A&R Engineering Inc.

Future "Build" Traffic Operations

The "Build" conditions are evaluated to determine effectiveness of the recommended system and site mitigation improvements. The results of the "Build" operations analyses with the assumed site access configuration are shown in Table 7. Recommendations on traffic control and lane geometry are shown graphically in Figure 8. The results of the analyses, including the recommended improvements, are discussed in detail in the next section.

TABLE 7 – FUTURE "BUILD" INTERSECTION OPERATIONS

	Intersection	Traffic Control	AM Peak	PM Peak	LOS Standard
1	**Howell Mill Rd @ 17th St**	Signalized	**C (28.5)**	**E (63.0)**	**D / D**
	-Westbound Approach		E (75.6)	F (96.1)	-
	-Northbound Approach		C (24.2)	E (67.8)	-
	-Southbound Approach		B (15.6)	D (41.8)	-
2	**Howell Mill Rd @ Huff Rd**	Signalized	**C (28.9)**	**C (30.2)**	**D / D**
	-Eastbound Approach		D (50.9)	E (56.8)	-
	-Westbound Approach		C (33.7)	D (42.4)	-
	-Northbound Approach		A (5.6)	B (19.4)	-
	-Southbound Approach		C (29.3)	C (29.7)	-
3	**Howell Mill Rd @ 14th St**	Signalized	**C (26.9)**	**D (51.4)**	**D / D**
	-Eastbound Approach		D (50.7)	F (336.4)	-
	-Westbound Approach		D (42.1)	D (46.3)	-
	-Northbound Approach		D (41.1)	F (80.0)	-
	-Southbound Approach		A (6.4)	B (11.1)	-
4	**Howell Mill Rd @ Brady Ave**	*Signalized*	**A (7.7)**	**C (32.2)**	**D / D**
	-Eastbound Approach		D (51.4)	E (56.0)	-
	-Westbound Approach		D (45.1)	D (47.8)	-
	-Northbound Approach		A (0.4)	A (5.8)	-
	-Southbound Approach		A (1.2)	D (41.2)	-
5	**Howell Mill Rd @ 10th St**	Signalized	**C (24.6)**	**B (18.2)**	**D / D**
	-Eastbound Approach		E (57.0)	F (93.9)	-
	-Westbound Approach		D (47.0)	C (24.2)	-
	-Northbound Approach		B (13.8)	B (15.7)	-
	-Southbound Approach		A (7.4)	A (1.8)	-
6	**Northside Dr @ 10th St***	Signalized	**C (31.5)**	**D (53.7)**	**D / D**
	-Eastbound Approach		E (61.4)	E (60.1)	-
	-Westbound Approach		C (32.4)	E(69.0)	-
	-Northbound Approach		C (22.6)	C (28.1)	-
	-Southbound Approach		C (26.2)	E (69.2)	-
7	**Northside Dr @ Ethel St (Site Drwy 3)**	Stop Controlled on EB and WB Approaches			
	-Eastbound Approach		F (4,537.6)	-	E / D
	-Westbound Approach		F (1,620.5)	-	E / D
	-Northbound Left		C (20.8)	E (39.4)	D / D
	-Southbound Left		C (19.4)	D (28.4)	D / D

Table continued on next page…

	Intersection	Traffic Control	AM Peak	PM Peak	LOS Standard
8	**Northside Dr @ 14th St**	Signalized	**D (43.9)**	**F (89.1)**	**D / E**
	-Eastbound Approach		F (92.4)	F (108.2)	-
	-Westbound Approach		C (34.0)	F (98.6)	-
	-Northbound Approach		C (34.7)	D (38.2)	-
	-Southbound Approach		D (38.8)	F (143.9)	-
9	**Hemphill Ave @ 14th St**	Signalized	**B (18.5)**	**B (19.8)**	**D / D**
	-Eastbound Approach		A (0.6)	A (0.5)	-
	-Westbound Approach		B (10.1)	B (13.9)	-
	-Northbound Approach		D (49.7)	D (46.9)	-
	-Southbound Approach		D (42.6)	C (32.9)	-
10	**Howell Mill Rd @ Site Drwy 1**	Stop Controlled on EB/WB Approaches			
	-Eastbound Approach		B (13.3)	D (30.6)	D / D
	-Westbound Approach		C (15.1)	F (52.6)	D / D
	-Southbound Left		A (8.8)	A (9.4)	D / D
11	**14th St @ Site Drwy 2**	Signalized	**C (32.3)**	**C (21.0)**	**D / D**
	-Eastbound Approach		C (27.6)	A (0.1)	-
	-Westbound Approach		D (42.5)	C (28.8)	-
	-Northbound Approach		B (16.1)	C (27.8)	-
	-Southbound Approach		B (16.5)	C (24.8)	-

**Results reported via HCM 2000*

Recommendations for Site Mitigation Improvements

Improvements that are identified as mitigation improvements address deficiencies that are caused by site traffic and can be identified as related to the proposed development. Information on each intersection with a level-of-service below the allotted standard is outlined in the following narratives.

Howell Mill Rd @ 17th Street

After the addition of site traffic, the intersection will continue to operate at an overall level-of-service "E" in the PM peak hour. In order to bring the delay within an acceptable threshold, a system recommendation was made to construct a westbound dedicated right turn lane on 17th Street. The operations at the intersection with this proposed improvement are shown below in Table 7A.

TABLE 7A – FUTURE "BUILD" INTERSECTION OPERATIONS (IMPROVED)

	Intersection	Traffic Control	AM Peak	PM Peak	LOS Standard
1	**Howell Mill Rd @ 17th St**	Signalized	**C (22.1)**	**C (31.2)**	**D / D**
	-Westbound Approach		E (65.7)	E (59.8)	-
	-Northbound Approach		B (17.8)	C (22.1)	-
	-Southbound Approach		B (10.5)	C (22.1)	-

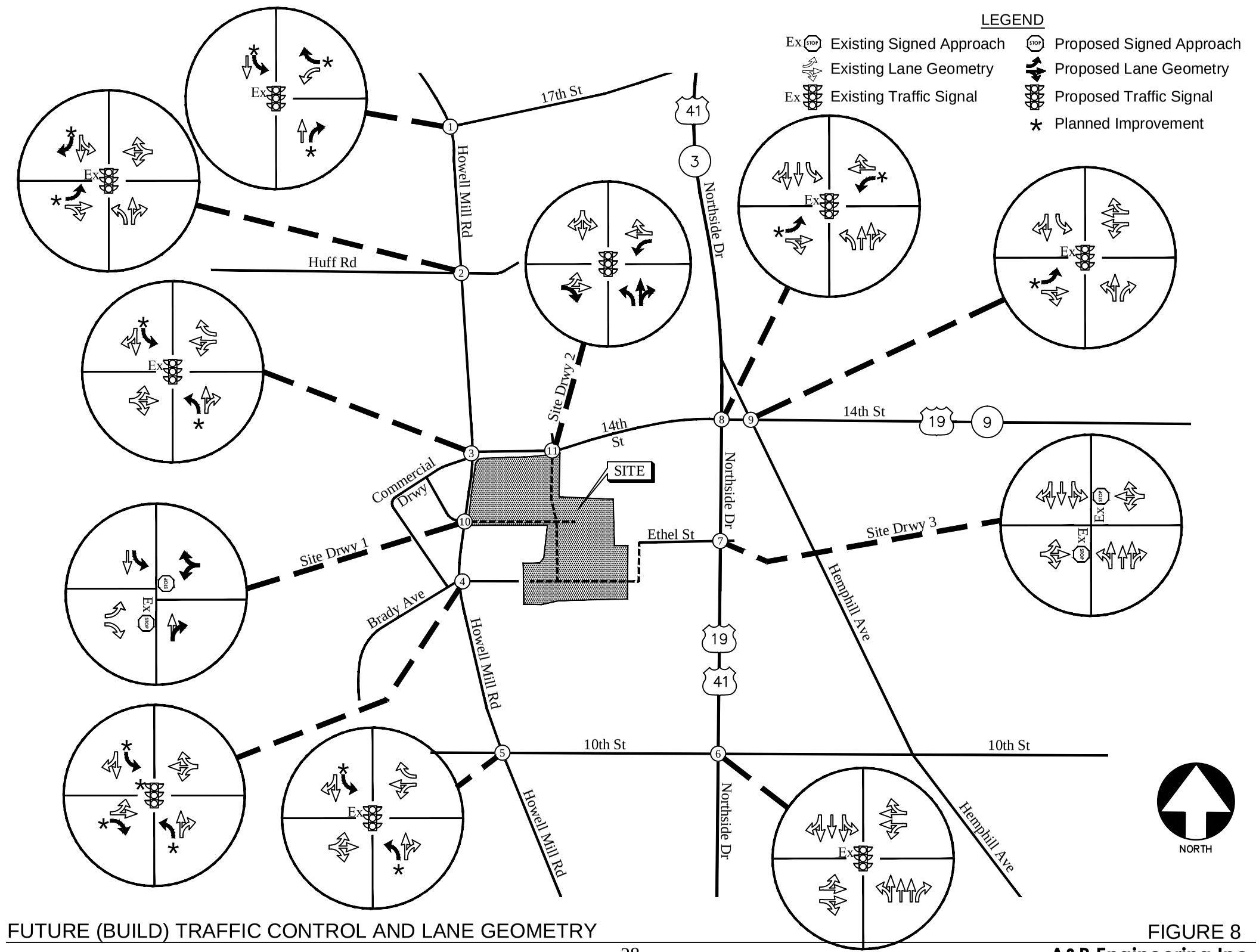
Northside Drive @ Ethel Street

After construction of the proposed project, the side-street approaches to the intersection of Northside Drive at Ethel Street will continue to operate at level-of-service "F". Delays are caused by side-street wait times to turn left onto the mainline. This intersection is approximately 600 feet south of the signalized intersection of Northside Drive at 14th Street which is less than the desired distance of 1,000

feet between signalized intersections. Moreover, as it is not unusual for stop-controlled site-streets along arterial roadways to have elevated delays during peak periods, no changes are recommended.

Northside Drive @ 14th Street

With the addition of site traffic to the intersection of Northside Drive at 14th Street after it is updated from the Howell Mill Road Complete Street Project, the intersection will operate at an overall level-of-service "F" in the PM peak hour. As the planned intersection improvements will be implemented several years from now, it is unclear as to the amount of traffic (not including site traffic) that will be using the intersection in the year 2020 after construction is complete. Moreover, due to geometric constraints of the roadway after the proposed improvements are implemented, no other improvements can be implemented without condemning property around the intersection.



FUTURE (BUILD) TRAFFIC CONTROL AND LANE GEOMETRY

FIGURE 8

CONCLUSIONS AND RECOMMENDATIONS

The purpose of this study is to determine the traffic impact that will result from the proposed Interlock mixed-use development located in the southeast corner of the intersection of Howell Mill Road at 14th Street in Atlanta, Georgia. The traffic analysis evaluates the current operations compared to the future conditions with the traffic generated by the development. The proposed development will consist of:

- Retail: 60,800 sf
- Office: 225,000 sf
- Hotel: 150 rooms
- Fitness Center: 35,000 sf
- Multifamily: 430 units
- Townhomes: 20 units

The development proposes three full-access driveways, one on Howell Mill Road, one on 14th Street and one via Ethel Street. Existing and future operations after completion of the project were analyzed at the intersections of:

1. Howell Mill Road at 17th Street
2. Howell Mill Road at Huff Road
3. Howell Mill Road at 14th Street
4. Howell Mill Road at Brady Avenue
5. Howell Mill Road at 10th Street
6. Northside Drive at 10th Street
7. Northside Drive at Ethel Street
8. Northside Drive at 14th Street
9. Hemphill Avenue at 14th Street

The analysis included the evaluation of Future operations for "No-Build" and "Build" conditions, both of which account for increases in annual growth of through traffic. The results of the analysis are listed below:

System Recommendations and Improvements

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

Summary of Recommended System Improvements

- Construct a dedicated westbound right turn lane on 17th Street at Howell Mill Road.

Site Access Configuration

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

- Site Driveway #1: Full-access driveway on Howell Mill Road
    - This driveway is assumed to consist of one entering lane and one exiting lane. The westbound (driveway) approach is recommended to have a shared left/right turn lane for exiting traffic.
    - Entering right turns are assumed to be made from the northbound through lane. No deceleration lane is recommended.
    - Entering left turns are assumed to be made from the southbound left-turn lane created by re-striping the proposed two-way-left-turn lane.
- Site Driveway #2: Full-access driveway on 14th Street
    - This driveway is assumed to consist of one entering lane and two exiting lanes. The northbound (driveway) approach will have a left and a shared through/right turn lane for exiting traffic.
    - The intersection is proposed to be signalized.
    - Entering right turns are assumed to be made from the eastbound through lane. No deceleration lane is recommended.
    - It is recommended a westbound left turn lane be created on 14th street and included in the designs for the 14th Street Road Diet project.
- Site Driveway #3: Full-access driveway on Ethel Street
    - This driveway is assumed to consist of one entering lane and one exiting lane.
    - The intersection is assumed to be un-signalized.
    - No auxiliary lanes are recommended.

Site Mitigation Improvements

Improvements that are identified as mitigation improvements address deficiencies that are caused by site traffic and can be identified as related to the proposed development. Information on each intersection with a level-of-service below the allotted standard is outlined on page 26.

Appendix

Existing Intersection Traffic Counts

Reliable Traffic Data Services

Tel: (770) 578-8158 | Fax: (770) 578-8159
info@reliabletraffic.org | www.reliabletraffic.org

TMC Data
Howell Mill Rd @ 17th St

7-9am | 4-6pm

File Name : 41490001
Site Code : 41490001
Start Date : 11/2/2017
Page No : 1

Groups Printed- Cars, Trucks, Buses

	Howell Mill Rd Northbound					Howell Mill Rd Southbound					Eastbound					17th St Westbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
07:00 AM	0	60	40	0	100	33	65	0	0	98	0	0	0	0	0	21	0	7	0	28	226
07:15 AM	0	68	50	0	118	41	55	0	0	96	0	0	0	0	0	16	0	12	0	28	242
07:30 AM	0	83	75	0	158	55	109	0	0	164	0	0	0	0	0	16	0	12	0	28	350
07:45 AM	0	89	63	0	152	67	113	0	0	180	0	0	0	0	0	40	0	14	0	54	386
Total	0	300	228	0	528	196	342	0	0	538	0	0	0	0	0	93	0	45	0	138	1204
08:00 AM	0	80	64	0	144	63	118	0	0	181	0	0	0	0	0	51	0	16	0	67	392
08:15 AM	0	87	62	0	149	67	108	0	0	175	0	0	0	0	0	35	0	17	0	52	376
08:30 AM	0	80	62	0	142	81	124	0	0	205	0	0	0	0	0	31	0	18	0	49	396
08:45 AM	0	70	53	0	123	77	119	0	0	196	0	0	0	0	0	41	0	18	0	59	378
Total	0	317	241	0	558	288	469	0	0	757	0	0	0	0	0	158	0	69	0	227	1542
*** BREAK ***																					
04:00 PM	0	120	50	0	170	31	147	0	0	178	0	0	0	0	0	72	0	29	0	101	449
04:15 PM	0	108	37	0	145	29	174	0	0	203	0	0	0	0	0	79	0	30	0	109	457
04:30 PM	0	100	54	0	154	37	209	0	0	246	0	0	0	0	0	89	0	49	0	138	538
04:45 PM	0	120	48	0	168	37	193	0	0	230	0	0	0	0	0	77	1	24	0	102	500
Total	0	448	189	0	637	134	723	0	0	857	0	0	0	0	0	317	1	132	0	450	1944
05:00 PM	0	100	46	0	146	39	176	0	0	215	0	0	0	0	0	97	0	39	0	136	497
05:15 PM	0	106	49	0	155	41	172	0	0	213	0	0	0	0	0	81	0	29	0	110	478
05:30 PM	0	118	45	0	163	37	197	0	0	234	0	0	0	0	0	99	0	34	0	133	530
05:45 PM	0	102	54	0	156	36	231	0	0	267	0	0	0	0	0	95	0	23	0	118	541
Total	0	426	194	0	620	153	776	0	0	929	0	0	0	0	0	372	0	125	0	497	2046
Grand Total	0	1491	852	0	2343	771	2310	0	0	3081	0	0	0	0	0	940	1	371	0	1312	6736
Apprch %	0	63.6	36.4	0		25	75	0	0		0	0	0	0		71.6	0.1	28.3	0		
Total %	0	22.1	12.6	0	34.8	11.4	34.3	0	0	45.7	0	0	0	0	0	14	0	5.5	0	19.5	

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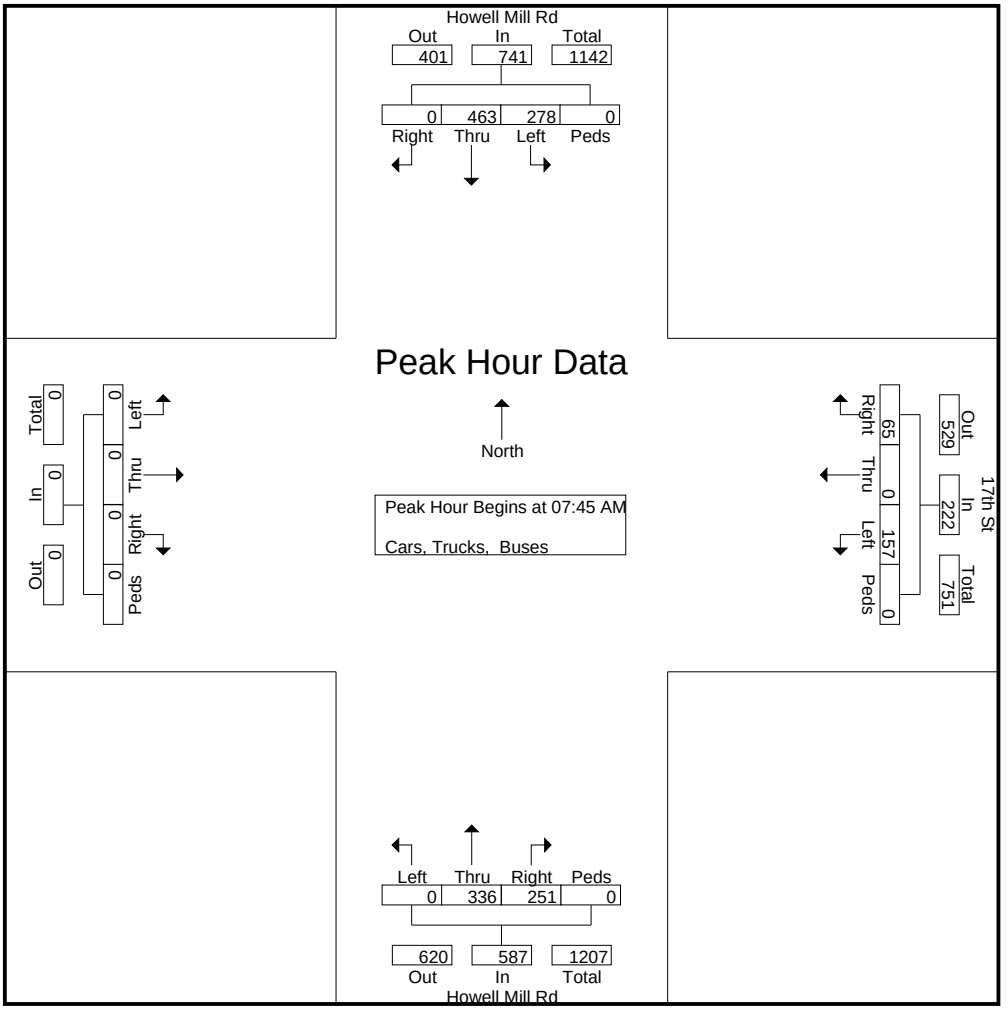
TMC Data
Howell Mill Rd @ 17th St

7-9am | 4-6pm

File Name : 41490001
Site Code : 41490001
Start Date : 11/2/2017

	Howell Mill Rd Northbound					Howell Mill Rd Southbound					Eastbound					17th St Westbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:45 AM																					
07:45 AM	0	**89**	63	0	**152**	67	113	0	0	180	0	0	0	0	0	40	0	14	0	54	386
08:00 AM	0	80	**64**	0	144	63	118	0	0	181	0	0	0	0	0	**51**	0	16	0	**67**	392
08:15 AM	0	87	62	0	149	67	108	0	0	175	0	0	0	0	0	35	0	17	0	52	376
08:30 AM	0	80	62	0	142	**81**	**124**	0	0	**205**	0	0	0	0	0	31	0	**18**	0	49	**396**
Total Volume	0	336	251	0	587	278	463	0	0	741	0	0	0	0	0	157	0	65	0	222	1550
% App. Total	0	57.2	42.8	0		37.5	62.5	0	0		0	0	0	0		70.7	0	29.3	0		
PHF	.000	.944	.980	.000	.965	.858	.933	.000	.000	.904	.000	.000	.000	.000	.000	.770	.000	.903	.000	.828	.979



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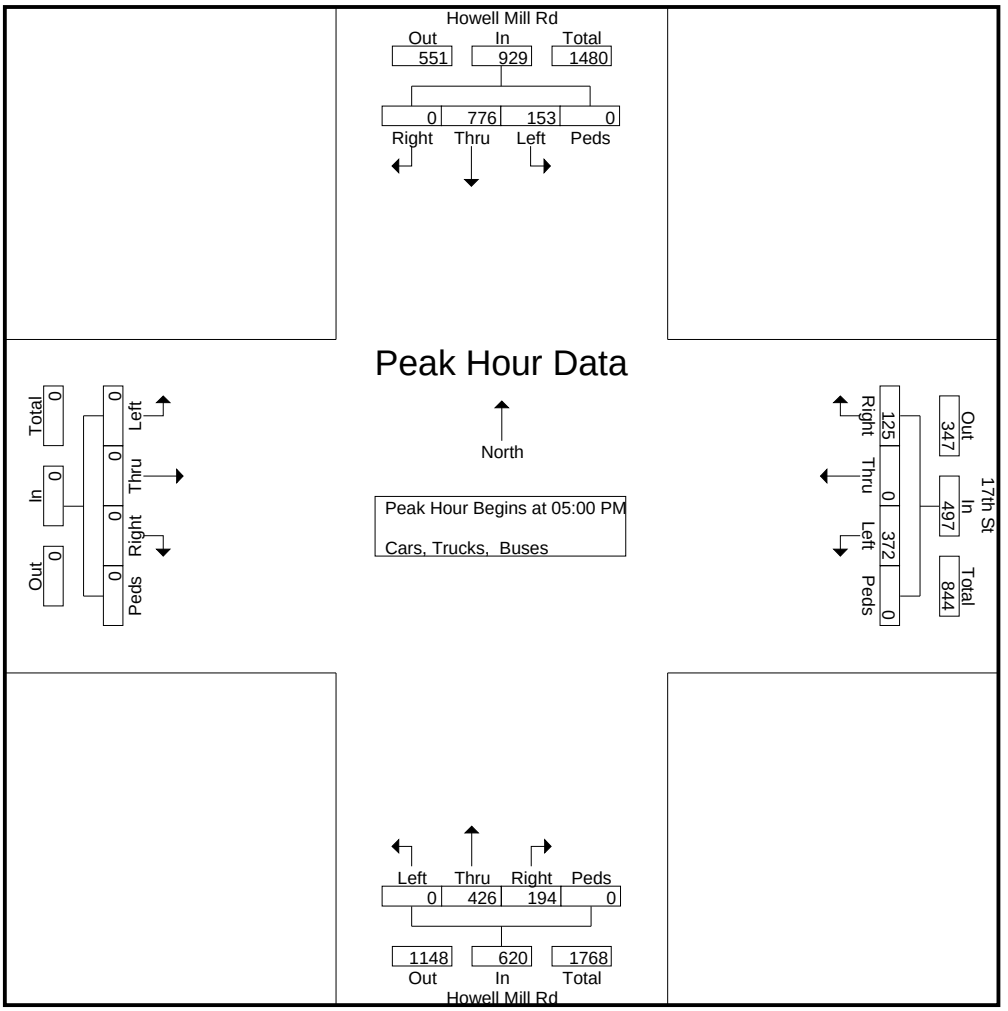
TMC Data
Howell Mill Rd @ 17th St

7-9am | 4-6pm

File Name : 41490001
Site Code : 41490001
Start Date : 11/2/2017

	Howell Mill Rd Northbound					Howell Mill Rd Southbound					Eastbound					17th St Westbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	0	100	46	0	146	39	176	0	0	215	0	0	0	0	0	97	0	**39**	0	**136**	497
05:15 PM	0	106	49	0	155	**41**	172	0	0	213	0	0	0	0	0	81	0	29	0	110	478
05:30 PM	0	**118**	45	0	**163**	37	197	0	0	234	0	0	0	0	0	**99**	0	34	0	133	530
05:45 PM	0	102	**54**	0	156	36	**231**	0	0	**267**	0	0	0	0	0	95	0	23	0	118	**541**
Total Volume	0	426	194	0	620	153	776	0	0	929	0	0	0	0	0	372	0	125	0	497	2046
% App. Total	0	68.7	31.3	0		16.5	83.5	0	0		0	0	0	0		74.8	0	25.2	0		
PHF	.000	.903	.898	.000	.951	.933	.840	.000	.000	.870	.000	.000	.000	.000	.000	.939	.000	.801	.000	.914	.945



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TMC Data
Howell Mill Rd @ Huff Rd

7-9am | 4-6pm

File Name : 41490002
Site Code : 41490002
Start Date : 11/2/2017
Page No : 1

Groups Printed- Cars, Trucks, Buses

	Howell Mill Rd Northbound					Howell Mill Rd Southbound					Huff Rd Eastbound					Hemphill Ave Westbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
07:00 AM	27	52	0	0	79	0	69	25	0	94	40	0	40	0	80	0	0	0	0	0	253
07:15 AM	21	61	2	0	84	0	68	21	0	89	49	0	51	0	100	0	0	0	0	0	273
07:30 AM	32	88	0	0	120	0	82	30	0	112	75	0	52	0	127	0	0	1	0	1	360
07:45 AM	49	80	2	0	131	0	92	57	0	149	71	0	55	0	126	0	0	1	0	1	407
Total	129	281	4	0	414	0	311	133	0	444	235	0	198	0	433	0	0	2	0	2	1293
08:00 AM	42	81	0	0	123	0	94	61	0	155	72	0	64	0	136	0	0	0	0	0	414
08:15 AM	45	72	0	0	117	0	109	54	0	163	70	0	73	0	143	0	0	0	0	0	423
08:30 AM	36	81	0	0	117	0	113	27	0	140	55	0	61	0	116	0	0	0	0	0	373
08:45 AM	22	87	0	0	109	0	135	30	0	165	40	0	40	0	80	0	0	1	0	1	355
Total	145	321	0	0	466	0	451	172	0	623	237	0	238	0	475	0	0	1	0	1	1565
*** BREAK ***																					
04:00 PM	56	123	2	0	181	1	180	42	0	223	47	0	40	0	87	3	1	6	0	10	501
04:15 PM	51	101	3	0	155	1	203	47	0	251	43	1	29	0	73	3	0	3	0	6	485
04:30 PM	43	104	0	0	147	0	239	47	0	286	54	1	37	0	92	3	1	3	0	7	532
04:45 PM	72	141	1	0	214	0	219	62	0	281	36	0	45	0	81	2	0	3	0	5	581
Total	222	469	6	0	697	2	841	198	0	1041	180	2	151	0	333	11	2	15	0	28	2099
05:00 PM	45	91	1	0	137	2	213	51	0	266	47	1	47	0	95	4	0	2	0	6	504
05:15 PM	56	108	0	0	164	1	187	54	0	242	38	0	46	0	84	1	1	0	0	2	492
05:30 PM	58	129	0	0	187	1	238	56	0	295	42	1	41	0	84	2	0	0	0	2	568
05:45 PM	59	90	1	0	150	1	255	69	0	325	55	1	38	0	94	0	1	2	0	3	572
Total	218	418	2	0	638	5	893	230	0	1128	182	3	172	0	357	7	2	4	0	13	2136
Grand Total	714	1489	12	0	2215	7	2496	733	0	3236	834	5	759	0	1598	18	4	22	0	44	7093
Apprch %	32.2	67.2	0.5	0		0.2	77.1	22.7	0		52.2	0.3	47.5	0		40.9	9.1	50	0		
Total %	10.1	21	0.2	0	31.2	0.1	35.2	10.3	0	45.6	11.8	0.1	10.7	0	22.5	0.3	0.1	0.3	0	0.6	

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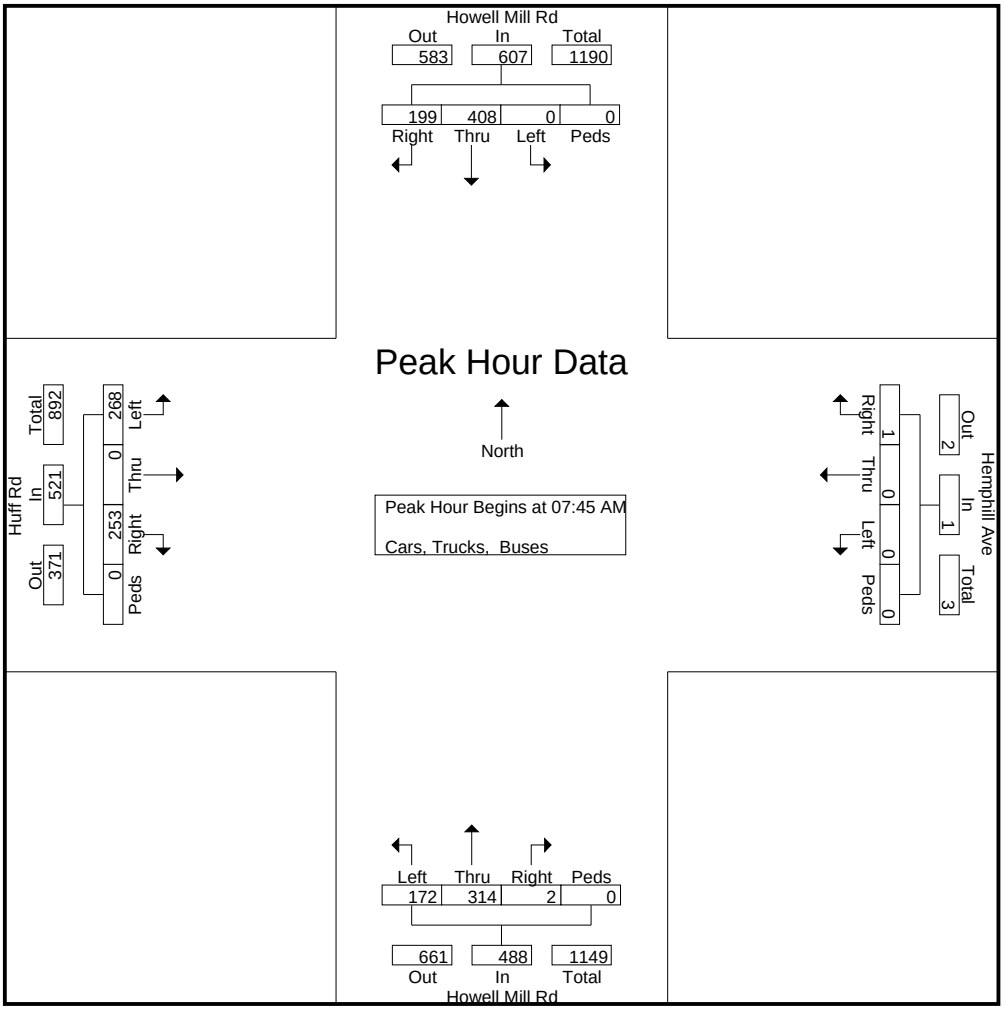
TMC Data
Howell Mill Rd @ Huff Rd

7-9am | 4-6pm

File Name : 41490002
Site Code : 41490002
Start Date : 11/2/2017

	Howell Mill Rd Northbound					Howell Mill Rd Southbound					Huff Rd Eastbound					Hemphill Ave Westbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:45 AM																					
07:45 AM	**49**	80	**2**	0	**131**	0	92	57	0	149	71	0	55	0	126	0	0	**1**	0	**1**	407
08:00 AM	42	**81**	0	0	123	0	94	**61**	0	155	**72**	0	64	0	136	0	0	0	0	0	414
08:15 AM	45	72	0	0	117	0	109	54	0	**163**	70	0	**73**	0	**143**	0	0	0	0	0	**423**
08:30 AM	36	81	0	0	117	0	**113**	27	0	140	55	0	61	0	116	0	0	0	0	0	373
Total Volume	172	314	2	0	488	0	408	199	0	607	268	0	253	0	521	0	0	1	0	1	1617
% App. Total	35.2	64.3	0.4	0		0	67.2	32.8	0		51.4	0	48.6	0		0	0	100	0		
PHF	.878	.969	.250	.000	.931	.000	.903	.816	.000	.931	.931	.000	.866	.000	.911	.000	.000	.250	.000	.250	.956



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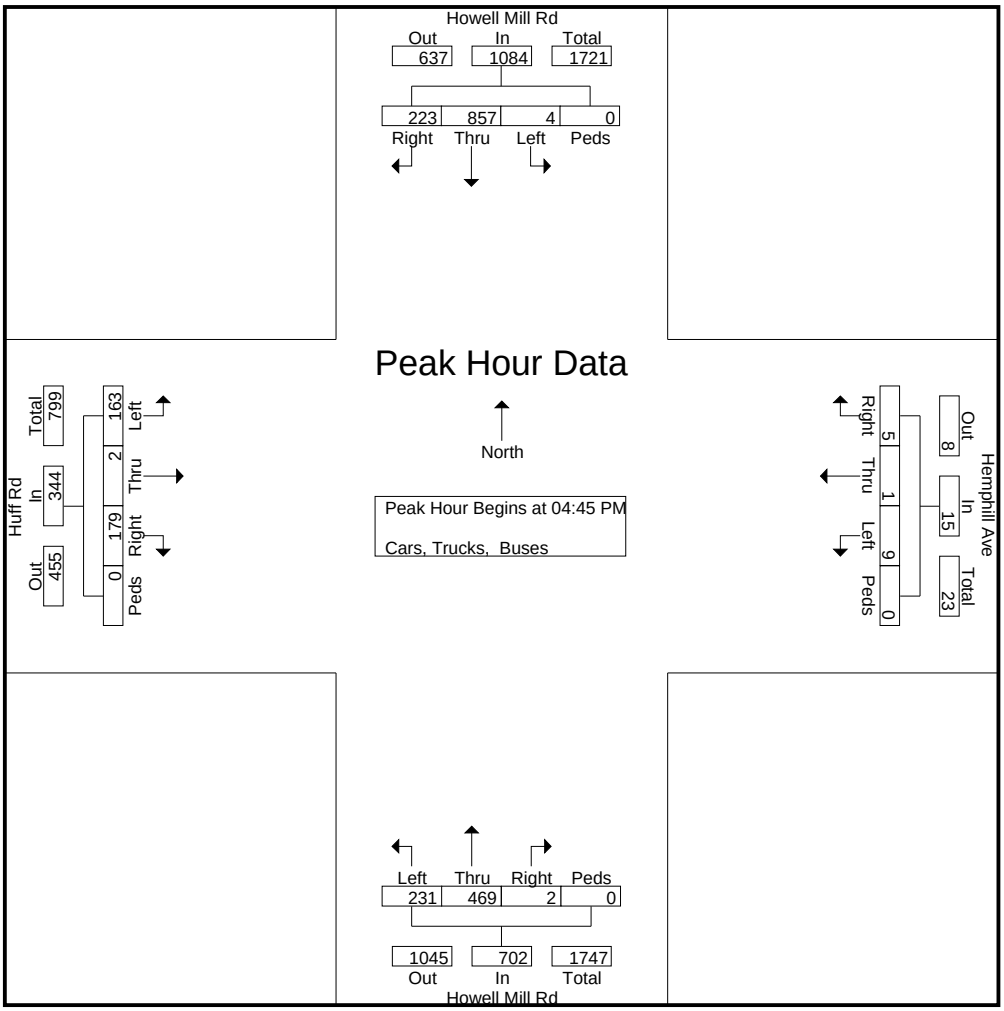
TMC Data
Howell Mill Rd @ Huff Rd

7-9am | 4-6pm

File Name : 41490002
Site Code : 41490002
Start Date : 11/2/2017

	Howell Mill Rd Northbound					Howell Mill Rd Southbound					Huff Rd Eastbound					Hemphill Ave Westbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	**72**	**141**	**1**	0	**214**	0	219	**62**	0	281	36	0	45	0	81	2	0	**3**	0	5	**581**
05:00 PM	45	91	1	0	137	**2**	213	51	0	266	**47**	**1**	**47**	0	**95**	**4**	0	2	0	**6**	504
05:15 PM	56	108	0	0	164	1	187	54	0	242	38	0	46	0	84	1	**1**	0	0	2	492
05:30 PM	58	129	0	0	187	1	**238**	56	0	**295**	42	1	41	0	84	2	0	0	0	2	568
Total Volume	231	469	2	0	702	4	857	223	0	1084	163	2	179	0	344	9	1	5	0	15	2145
% App. Total	32.9	66.8	0.3	0		0.4	79.1	20.6	0		47.4	0.6	52	0		60	6.7	33.3	0		
PHF	.802	.832	.500	.000	.820	.500	.900	.899	.000	.919	.867	.500	.952	.000	.905	.563	.250	.417	.000	.625	.923



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TMC Data
Howell Mill Rd @ 10th St

7-9am | 4-6pm

File Name : 41490003
Site Code : 41490003
Start Date : 11/2/2017
Page No : 1

Groups Printed- Cars, Trucks, Buses

	Howell Mill Rd Northbound					Howell Mill Rd Southbound					10th St Eastbound					10th St Westbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
07:00 AM	4	49	13	0	66	15	22	0	0	37	0	22	1	0	23	4	10	4	0	18	144
07:15 AM	2	53	13	0	68	20	30	4	0	54	3	22	0	0	25	3	11	8	0	22	169
07:30 AM	0	66	28	0	94	22	38	3	0	63	3	33	1	0	37	6	20	14	0	40	234
07:45 AM	1	69	28	0	98	35	45	1	0	81	4	31	3	0	38	2	16	15	0	33	250
Total	7	237	82	0	326	92	135	8	0	235	10	108	5	0	123	15	57	41	0	113	797
08:00 AM	1	79	43	0	123	36	43	1	0	80	7	58	2	0	67	2	27	18	0	47	317
08:15 AM	1	91	57	0	149	52	52	1	0	105	1	36	2	0	39	9	21	13	0	43	336
08:30 AM	0	75	57	0	132	46	50	1	0	97	5	45	3	0	53	11	19	19	0	49	331
08:45 AM	1	70	42	0	113	42	57	1	0	100	4	42	4	0	50	10	14	12	0	36	299
Total	3	315	199	0	517	176	202	4	0	382	17	181	11	0	209	32	81	62	0	175	1283
*** BREAK ***																					
04:00 PM	2	65	16	0	83	30	121	8	0	159	5	16	1	0	22	15	30	20	0	65	329
04:15 PM	3	70	15	0	88	27	117	4	0	148	5	12	1	0	18	15	45	15	0	75	329
04:30 PM	4	84	14	0	102	24	167	2	0	193	5	9	3	0	17	19	35	25	0	79	391
04:45 PM	3	75	10	0	88	32	154	3	0	189	3	15	1	0	19	19	30	26	0	75	371
Total	12	294	55	0	361	113	559	17	0	689	18	52	6	0	76	68	140	86	0	294	1420
05:00 PM	2	65	13	0	80	47	145	10	0	202	6	23	3	0	32	20	34	28	0	82	396
05:15 PM	3	80	24	0	107	54	135	11	0	200	9	26	5	0	40	20	44	31	0	95	442
05:30 PM	5	74	22	0	101	47	156	10	0	213	10	32	5	0	47	22	47	30	0	99	460
05:45 PM	2	78	15	0	95	41	132	13	0	186	4	26	2	0	32	20	43	29	0	92	405
Total	12	297	74	0	383	189	568	44	0	801	29	107	15	0	151	82	168	118	0	368	1703
Grand Total	34	1143	410	0	1587	570	1464	73	0	2107	74	448	37	0	559	197	446	307	0	950	5203
Apprch %	2.1	72	25.8	0		27.1	69.5	3.5	0		13.2	80.1	6.6	0		20.7	46.9	32.3	0		
Total %	0.7	22	7.9	0	30.5	11	28.1	1.4	0	40.5	1.4	8.6	0.7	0	10.7	3.8	8.6	5.9	0	18.3	

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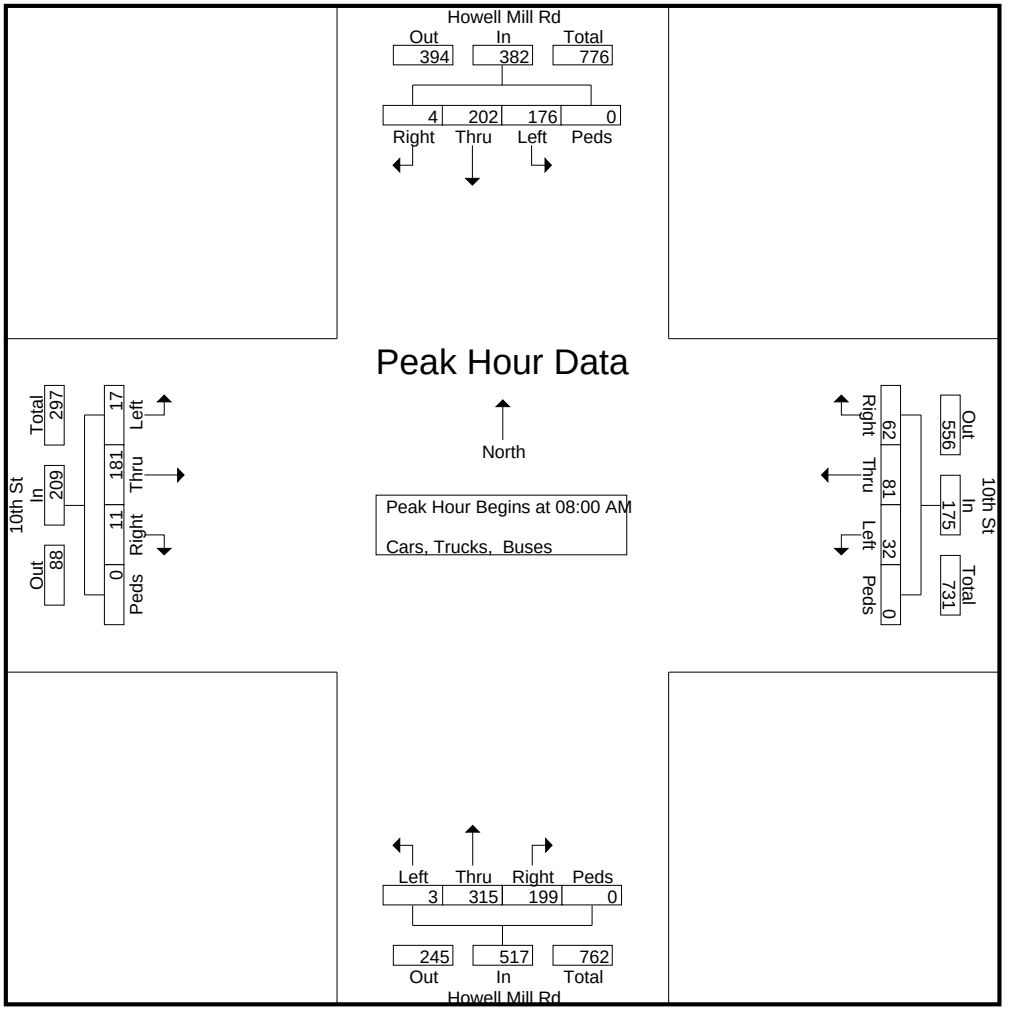
TMC Data
Howell Mill Rd @ 10th St

7-9am | 4-6pm

File Name : 41490003
Site Code : 41490003
Start Date : 11/2/2017

	Howell Mill Rd Northbound					Howell Mill Rd Southbound					10th St Eastbound					10th St Westbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	**1**	79	43	0	123	36	43	**1**	0	80	**7**	**58**	2	0	**67**	2	**27**	18	0	47	317
08:15 AM	1	**91**	**57**	0	**149**	**52**	52	1	0	**105**	1	36	2	0	39	9	21	13	0	43	**336**
08:30 AM	0	75	57	0	132	46	50	1	0	97	5	45	3	0	53	**11**	19	**19**	0	**49**	331
08:45 AM	1	70	42	0	113	42	**57**	1	0	100	4	42	**4**	0	50	10	14	12	0	36	299
Total Volume	3	315	199	0	517	176	202	4	0	382	17	181	11	0	209	32	81	62	0	175	1283
% App. Total	0.6	60.9	38.5	0		46.1	52.9	1	0		8.1	86.6	5.3	0		18.3	46.3	35.4	0		
PHF	.750	.865	.873	.000	.867	.846	.886	1.00	.000	.910	.607	.780	.688	.000	.780	.727	.750	.816	.000	.893	.955



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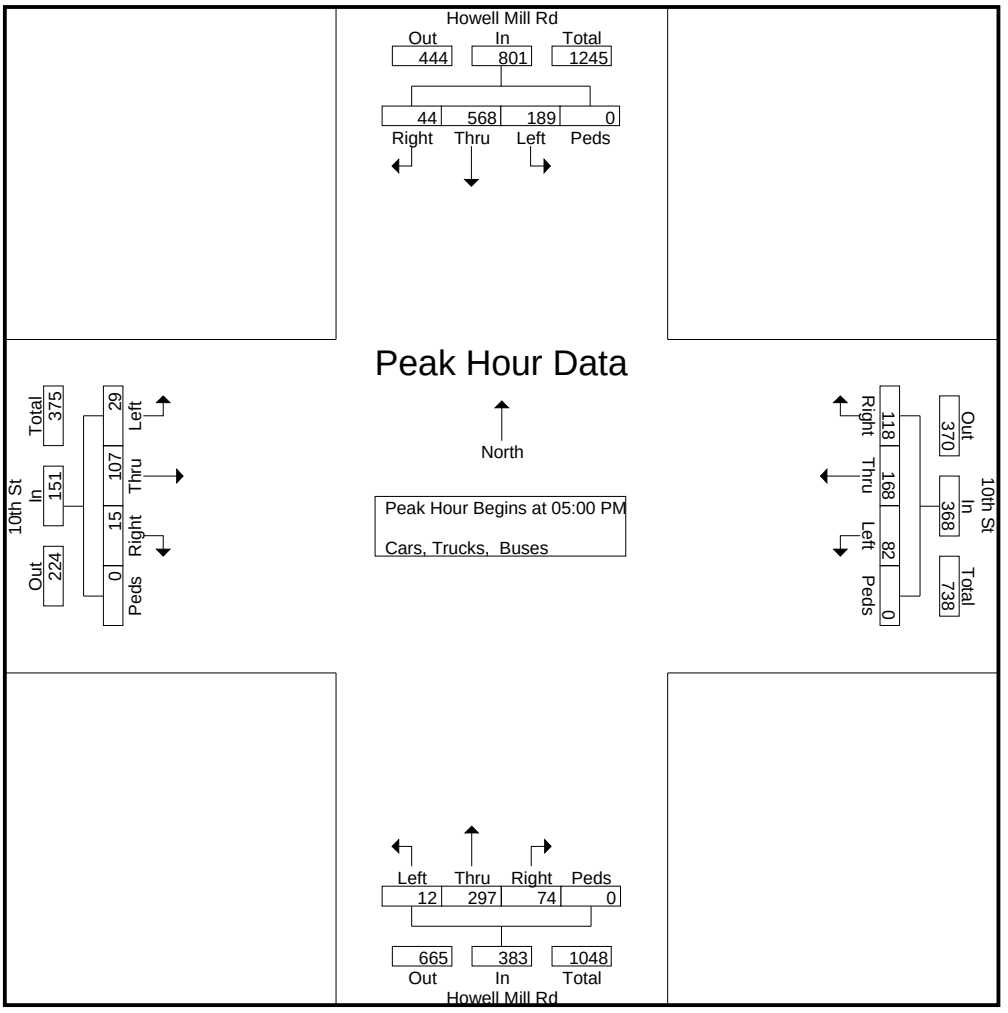
TMC Data
Howell Mill Rd @ 10th St

7-9am | 4-6pm

File Name : 41490003
Site Code : 41490003
Start Date : 11/2/2017

	Howell Mill Rd Northbound					Howell Mill Rd Southbound					10th St Eastbound					10th St Westbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	2	65	13	0	80	47	145	10	0	202	6	23	3	0	32	20	34	28	0	82	396
05:15 PM	3	**80**	**24**	0	**107**	**54**	135	11	0	200	9	26	**5**	0	40	20	44	**31**	0	95	442
05:30 PM	**5**	74	22	0	101	47	**156**	10	0	**213**	**10**	**32**	5	0	**47**	**22**	**47**	30	0	**99**	**460**
05:45 PM	2	78	15	0	95	41	132	**13**	0	186	4	26	2	0	32	20	43	29	0	92	405
Total Volume	12	297	74	0	383	189	568	44	0	801	29	107	15	0	151	82	168	118	0	368	1703
% App. Total	3.1	77.5	19.3	0		23.6	70.9	5.5	0		19.2	70.9	9.9	0		22.3	45.7	32.1	0		
PHF	.600	.928	.771	.000	.895	.875	.910	.846	.000	.940	.725	.836	.750	.000	.803	.932	.894	.952	.000	.929	.926



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TMC Data
US 19/ SR 41 (Northside Dr) @ 10th St

7-9am | 4-6pm

File Name : 41490005
Site Code : 41490005
Start Date : 11/2/2017
Page No : 1

Groups Printed- Cars, Trucks, Buses

	Northside Dr Northbound					Northside Dr Southbound					10th St Eastbound					10th St Westbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
07:00 AM	1	292	51	0	344	18	134	9	0	161	17	32	5	0	54	10	13	13	0	36	595
07:15 AM	2	281	52	0	335	15	171	7	0	193	18	48	4	0	70	5	12	8	0	25	623
07:30 AM	3	386	56	0	445	26	172	6	0	204	30	70	6	0	106	14	34	6	0	54	809
07:45 AM	6	362	60	0	428	21	214	15	0	250	26	91	3	0	120	11	28	16	0	55	853
Total	12	1321	219	0	1552	80	691	37	0	808	91	241	18	0	350	40	87	43	0	170	2880
08:00 AM	4	339	77	0	420	21	230	14	0	265	40	94	7	0	141	15	33	6	0	54	880
08:15 AM	4	322	80	0	406	26	241	16	0	283	43	104	13	0	160	8	31	9	0	48	897
08:30 AM	3	283	72	0	358	28	284	14	0	326	34	135	6	0	175	13	45	10	0	68	927
08:45 AM	12	299	82	0	393	32	306	14	0	352	33	100	5	0	138	11	43	11	0	65	948
Total	23	1243	311	0	1577	107	1061	58	0	1226	150	433	31	0	614	47	152	36	0	235	3652
*** BREAK ***																					
04:00 PM	8	284	35	0	327	10	422	18	0	450	17	56	11	0	84	45	60	14	0	119	980
04:15 PM	5	316	33	0	354	15	426	14	0	455	16	53	8	0	77	44	67	14	0	125	1011
04:30 PM	4	330	25	0	359	10	429	16	0	455	15	48	10	0	73	46	81	17	0	144	1031
04:45 PM	18	315	25	0	358	9	414	20	0	443	19	46	9	0	74	47	85	11	0	143	1018
Total	35	1245	118	0	1398	44	1691	68	0	1803	67	203	38	0	308	182	293	56	0	531	4040
05:00 PM	11	354	30	0	395	13	406	17	0	436	30	73	25	0	128	30	82	16	0	128	1087
05:15 PM	13	355	31	0	399	11	377	21	0	409	14	69	17	0	100	32	120	15	0	167	1075
05:30 PM	12	337	21	0	370	17	370	22	0	409	38	77	11	0	126	33	100	10	0	143	1048
05:45 PM	16	347	35	0	398	15	375	33	0	423	25	50	14	0	89	35	89	12	0	136	1046
Total	52	1393	117	0	1562	56	1528	93	0	1677	107	269	67	0	443	130	391	53	0	574	4256
Grand Total	122	5202	765	0	6089	287	4971	256	0	5514	415	1146	154	0	1715	399	923	188	0	1510	14828
Apprch %	2	85.4	12.6	0		5.2	90.2	4.6	0		24.2	66.8	9	0		26.4	61.1	12.5	0		
Total %	0.8	35.1	5.2	0	41.1	1.9	33.5	1.7	0	37.2	2.8	7.7	1	0	11.6	2.7	6.2	1.3	0	10.2	

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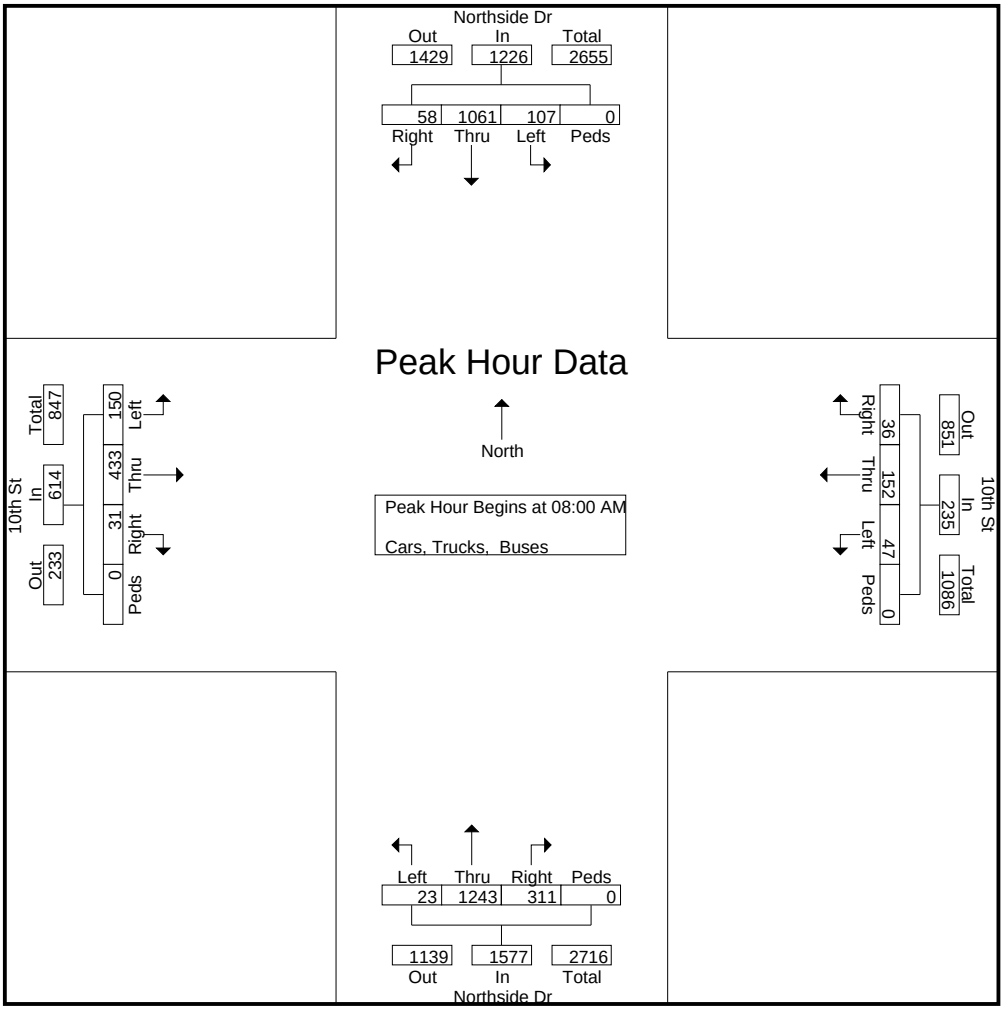
TMC Data
US 19/ SR 41 (Northside Dr) @ 10th St

7-9am | 4-6pm

File Name : 41490005
Site Code : 41490005
Start Date : 11/2/2017

	Northside Dr Northbound					Northside Dr Southbound					10th St Eastbound					10th St Westbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	4	**339**	77	0	**420**	21	230	14	0	265	40	94	7	0	141	**15**	33	6	0	54	880
08:15 AM	4	322	80	0	406	26	241	**16**	0	283	**43**	104	**13**	0	160	8	31	9	0	48	897
08:30 AM	3	283	72	0	358	28	284	14	0	326	34	**135**	6	0	**175**	13	**45**	10	0	**68**	927
08:45 AM	**12**	299	**82**	0	393	**32**	**306**	14	0	**352**	33	100	5	0	138	11	43	**11**	0	65	**948**
Total Volume	23	1243	311	0	1577	107	1061	58	0	1226	150	433	31	0	614	47	152	36	0	235	3652
% App. Total	1.5	78.8	19.7	0		8.7	86.5	4.7	0		24.4	70.5	5	0		20	64.7	15.3	0		
PHF	.479	.917	.948	.000	.939	.836	.867	.906	.000	.871	.872	.802	.596	.000	.877	.783	.844	.818	.000	.864	.963



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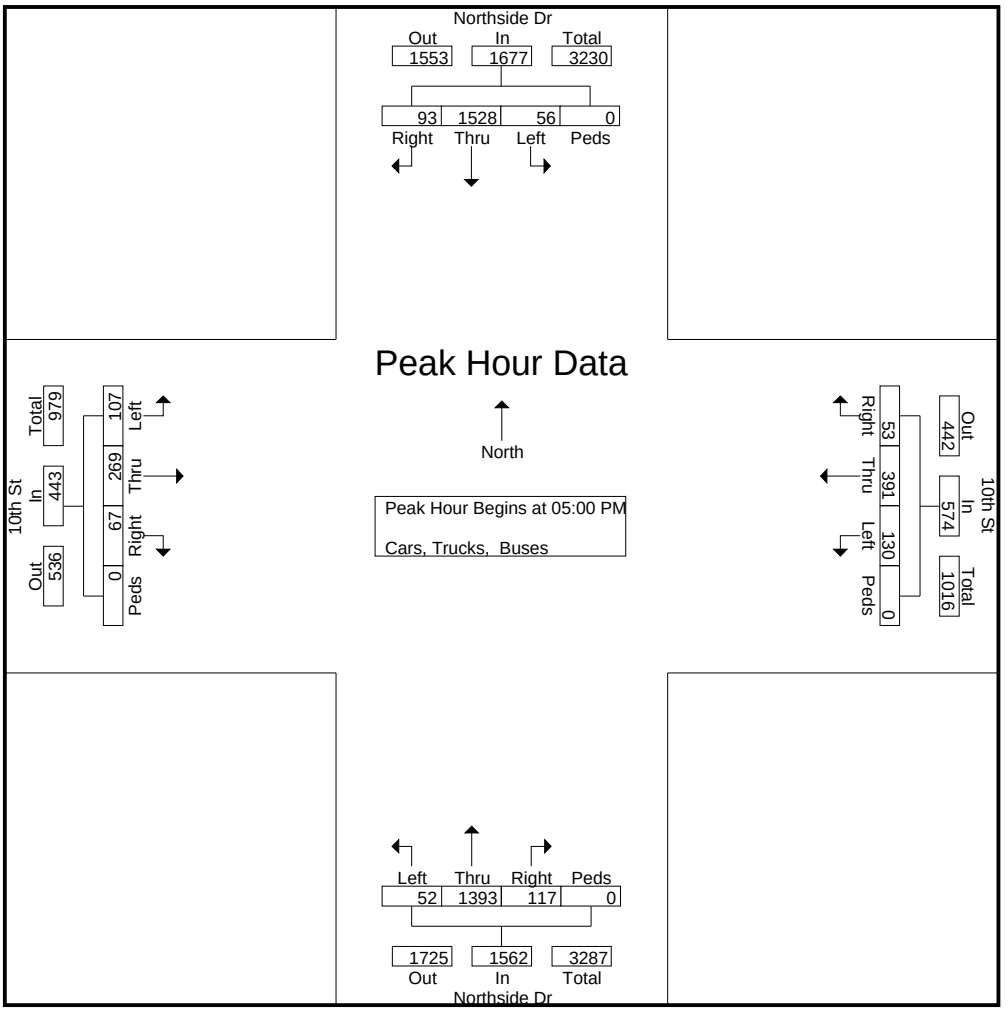
TMC Data
US 19/ SR 41 (Northside Dr) @ 10th St

7-9am | 4-6pm

File Name : 41490005
Site Code : 41490005
Start Date : 11/2/2017

	Northside Dr Northbound					Northside Dr Southbound					10th St Eastbound					10th St Westbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	11	354	30	0	395	13	**406**	17	0	**436**	30	73	**25**	0	**128**	30	82	**16**	0	128	**1087**
05:15 PM	13	**355**	31	0	**399**	11	377	21	0	409	14	69	17	0	100	32	**120**	15	0	**167**	1075
05:30 PM	12	337	21	0	370	**17**	370	22	0	409	**38**	**77**	11	0	126	33	100	10	0	143	1048
05:45 PM	**16**	347	**35**	0	398	15	375	**33**	0	423	25	50	14	0	89	**35**	89	12	0	136	1046
Total Volume	52	1393	117	0	1562	56	1528	93	0	1677	107	269	67	0	443	130	391	53	0	574	4256
% App. Total	3.3	89.2	7.5	0		3.3	91.1	5.5	0		24.2	60.7	15.1	0		22.6	68.1	9.2	0		
PHF	.813	.981	.836	.000	.979	.824	.941	.705	.000	.962	.704	.873	.670	.000	.865	.929	.815	.828	.000	.859	.979



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TMC Data
Northside Dr @ Ethel St
Atlanta, GA
7-9am I 4-6pm

File Name : 40800005
Site Code : 40800005
Start Date : 7/5/2017
Page No : 1

Groups Printed- Cars, Buses and Trucks

	Northside Dr Northbound					Northside Dr Southbound					Ethel St Eastbound					Waffle House Drwy Westbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
07:00 AM	5	204	6	0	215	3	152	3	0	158	2	0	4	0	6	2	0	2	0	4	383
07:15 AM	13	268	4	0	285	2	158	5	0	165	0	0	6	0	6	1	0	2	0	3	459
07:30 AM	19	299	6	0	324	1	166	3	0	170	3	0	16	0	19	3	0	4	0	7	520
07:45 AM	8	274	6	0	288	5	194	7	0	206	3	0	5	0	8	0	0	0	0	0	502
Total	45	1045	22	0	1112	11	670	18	0	699	8	0	31	0	39	6	0	8	0	14	1864
08:00 AM	11	289	4	0	304	0	216	4	0	220	5	0	13	0	18	0	0	2	0	2	544
08:15 AM	9	265	2	0	276	4	240	3	0	247	5	0	9	0	14	2	1	5	0	8	545
08:30 AM	12	274	4	0	290	0	264	5	0	269	3	0	5	0	8	1	0	1	0	2	569
08:45 AM	15	282	1	0	298	3	239	5	0	247	4	0	8	0	12	2	1	3	0	6	563
Total	47	1110	11	0	1168	7	959	17	0	983	17	0	35	0	52	5	2	11	0	18	2221
*** BREAK ***																					
04:00 PM	4	315	1	0	320	2	374	4	0	380	5	0	15	0	20	1	0	1	0	2	722
04:15 PM	2	326	2	0	330	0	393	1	0	394	2	0	7	0	9	2	0	2	0	4	737
04:30 PM	2	310	0	0	312	1	436	1	0	438	5	0	14	0	19	0	0	1	0	1	770
04:45 PM	3	296	1	0	300	0	400	0	0	400	5	0	8	0	13	0	0	1	0	1	714
Total	11	1247	4	0	1262	3	1603	6	0	1612	17	0	44	0	61	3	0	5	0	8	2943
05:00 PM	7	356	0	0	363	3	404	2	0	409	0	0	8	0	8	0	0	1	0	1	781
05:15 PM	4	368	1	0	373	1	416	2	0	419	2	0	5	0	7	0	0	1	0	1	800
05:30 PM	3	387	1	0	391	2	408	0	0	410	2	0	2	0	4	0	0	2	0	2	807
05:45 PM	3	383	1	0	387	0	416	2	0	418	4	0	1	0	5	1	0	0	0	1	811
Total	17	1494	3	0	1514	6	1644	6	0	1656	8	0	16	0	24	1	0	4	0	5	3199
Grand Total	120	4896	40	0	5056	27	4876	47	0	4950	50	0	126	0	176	15	2	28	0	45	10227
Apprch %	2.4	96.8	0.8	0		0.5	98.5	0.9	0		28.4	0	71.6	0		33.3	4.4	62.2	0		
Total %	1.2	47.9	0.4	0	49.4	0.3	47.7	0.5	0	48.4	0.5	0	1.2	0	1.7	0.1	0	0.3	0	0.4	

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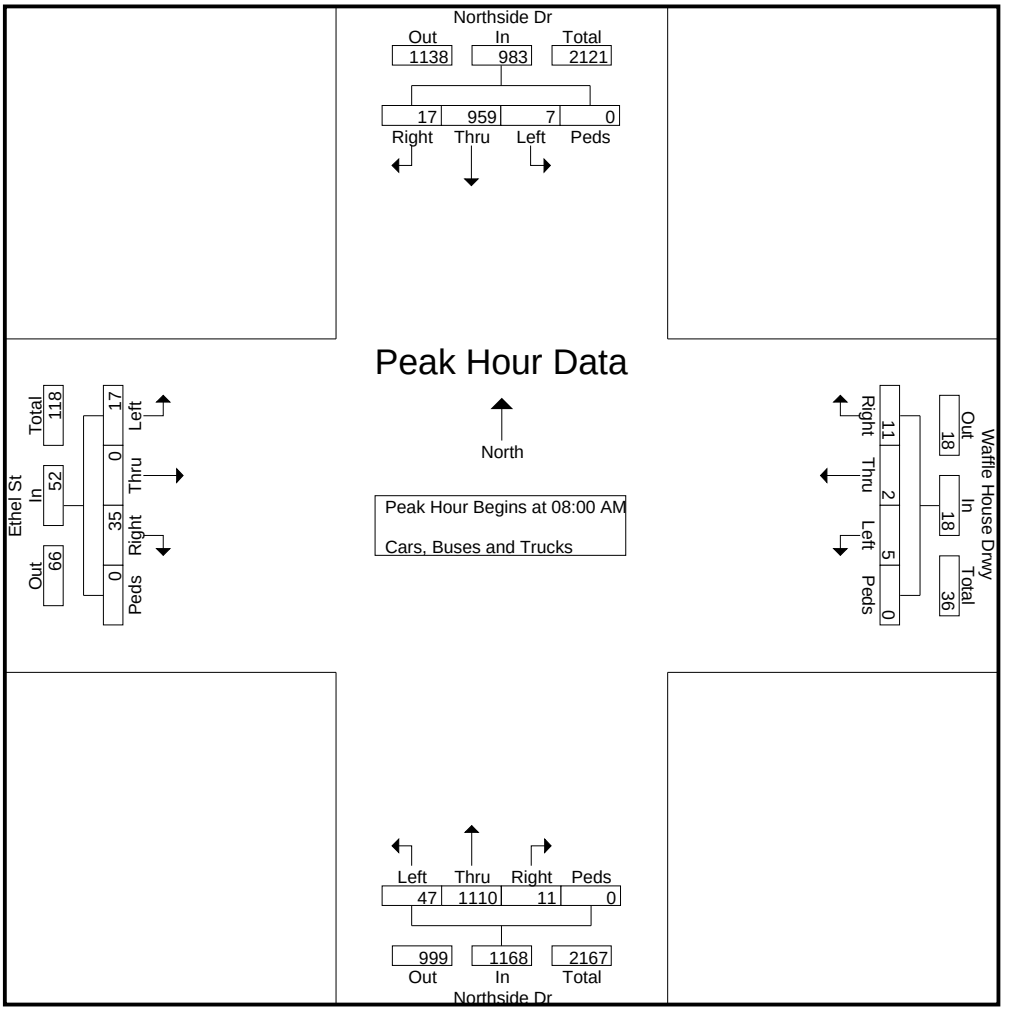
TMC Data
Northside Dr @ Ethel St
Atlanta, GA
7-9am I 4-6pm

File Name : 40800005
Site Code : 40800005
Start Date : 7/5/2017

	Northside Dr Northbound					Northside Dr Southbound					Ethel St Eastbound					Waffle House Drwy Westbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	11	**289**	**4**	0	**304**	0	216	4	0	220	**5**	0	**13**	0	**18**	0	0	2	0	2	544
08:15 AM	9	265	2	0	276	**4**	240	3	0	247	5	0	9	0	14	**2**	**1**	**5**	0	**8**	545
08:30 AM	12	274	4	0	290	0	**264**	**5**	0	**269**	3	0	5	0	8	1	0	1	0	2	**569**
08:45 AM	**15**	282	1	0	298	3	239	5	0	247	4	0	8	0	12	2	1	3	0	6	563
Total Volume	47	1110	11	0	1168	7	959	17	0	983	17	0	35	0	52	5	2	11	0	18	2221
% App. Total	4	95	0.9	0		0.7	97.6	1.7	0		32.7	0	67.3	0		27.8	11.1	61.1	0		
PHF	.783	.960	.688	.000	.961	.438	.908	.850	.000	.914	.850	.000	.673	.000	.722	.625	.500	.550	.000	.563	.976



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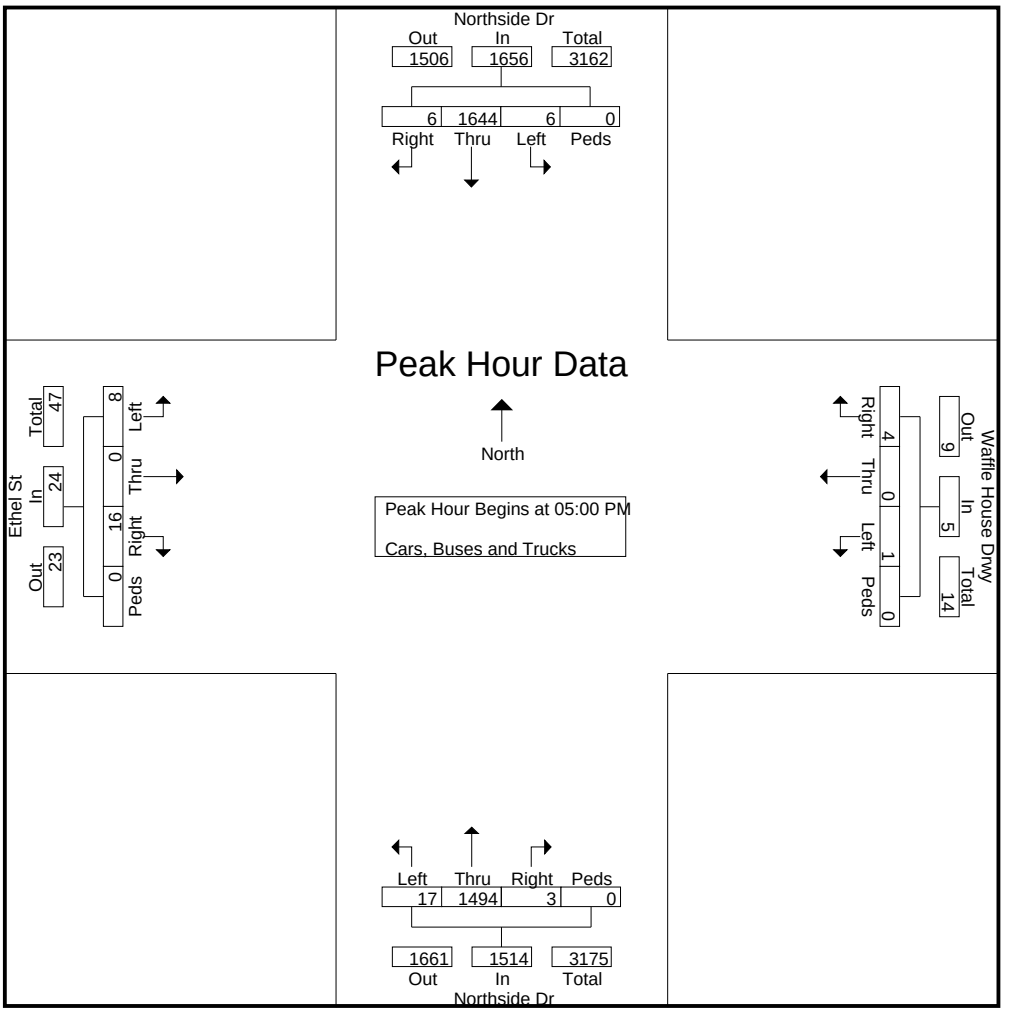
TMC Data
Northside Dr @ Ethel St
Atlanta, GA
7-9am I 4-6pm

File Name : 40800005
Site Code : 40800005
Start Date : 7/5/2017
Page No : 3

	Northside Dr Northbound					Northside Dr Southbound					Ethel St Eastbound					Waffle House Drwy Westbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	**7**	356	0	0	363	**3**	404	**2**	0	409	0	0	**8**	0	**8**	0	0	1	0	1	781
05:15 PM	4	368	**1**	0	373	1	**416**	2	0	**419**	2	0	5	0	7	0	0	1	0	1	800
05:30 PM	3	**387**	1	0	**391**	2	408	0	0	410	2	0	2	0	4	0	0	**2**	0	**2**	807
05:45 PM	3	383	1	0	387	0	416	2	0	418	**4**	0	1	0	5	**1**	0	0	0	1	**811**
Total Volume	17	1494	3	0	1514	6	1644	6	0	1656	8	0	16	0	24	1	0	4	0	5	3199
% App. Total	1.1	98.7	0.2	0		0.4	99.3	0.4	0		33.3	0	66.7	0		20	0	80	0		
PHF	.607	.965	.750	.000	.968	.500	.988	.750	.000	.988	.500	.000	.500	.000	.750	.250	.000	.500	.000	.625	.986



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TMC Data
US 19/ SR 41 (Northside Dr) @ 14th St

7-9am | 4-6pm

File Name : 41490004
Site Code : 41490004
Start Date : 11/2/2017
Page No : 1

Groups Printed- Cars, Trucks, Buses

	Northside Dr Northbound					Northside Dr Southbound					14th St Eastbound					14th St Westbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
07:00 AM	33	284	29	0	346	3	151	8	0	162	8	47	15	0	70	24	44	0	0	68	646
07:15 AM	20	223	13	0	256	1	141	8	0	150	12	49	14	0	75	31	46	0	0	77	558
07:30 AM	18	350	27	0	395	3	195	5	0	203	12	57	9	0	78	24	38	0	0	62	738
07:45 AM	28	399	22	0	449	1	233	7	0	241	12	73	19	0	104	28	59	0	0	87	881
Total	99	1256	91	0	1446	8	720	28	0	756	44	226	57	0	327	107	187	0	0	294	2823
08:00 AM	34	345	13	0	392	3	215	3	0	221	13	78	15	0	106	32	62	0	0	94	813
08:15 AM	25	284	23	0	332	5	281	6	0	292	17	80	16	0	113	37	65	1	0	103	840
08:30 AM	21	319	37	0	377	2	293	3	0	298	10	80	23	0	113	34	44	2	0	80	868
08:45 AM	30	239	21	0	290	0	263	5	0	268	10	81	12	0	103	41	49	0	0	90	751
Total	110	1187	94	0	1391	10	1052	17	0	1079	50	319	66	0	435	144	220	3	0	367	3272
*** BREAK ***																					
04:00 PM	33	261	15	0	309	2	419	5	0	426	9	49	31	0	89	72	95	0	0	167	991
04:15 PM	31	314	24	0	369	8	380	14	0	402	8	50	22	0	80	67	82	1	0	150	1001
04:30 PM	28	338	29	0	395	2	364	5	0	371	14	37	17	0	68	78	91	1	0	170	1004
04:45 PM	39	301	14	0	354	0	332	5	0	337	6	41	18	0	65	76	110	3	0	189	945
Total	131	1214	82	0	1427	12	1495	29	0	1536	37	177	88	0	302	293	378	5	0	676	3941
05:00 PM	31	328	16	0	375	1	357	6	0	364	11	45	37	0	93	70	113	1	0	184	1016
05:15 PM	44	330	22	0	396	3	343	3	0	349	14	42	20	0	76	75	112	0	0	187	1008
05:30 PM	44	329	14	0	387	2	360	9	0	371	7	40	16	0	63	75	101	0	0	176	997
05:45 PM	51	402	24	0	477	0	335	2	0	337	8	49	11	0	68	77	121	2	0	200	1082
Total	170	1389	76	0	1635	6	1395	20	0	1421	40	176	84	0	300	297	447	3	0	747	4103
Grand Total	510	5046	343	0	5899	36	4662	94	0	4792	171	898	295	0	1364	841	1232	11	0	2084	14139
Apprch %	8.6	85.5	5.8	0		0.8	97.3	2	0		12.5	65.8	21.6	0		40.4	59.1	0.5	0		
Total %	3.6	35.7	2.4	0	41.7	0.3	33	0.7	0	33.9	1.2	6.4	2.1	0	9.6	5.9	8.7	0.1	0	14.7	

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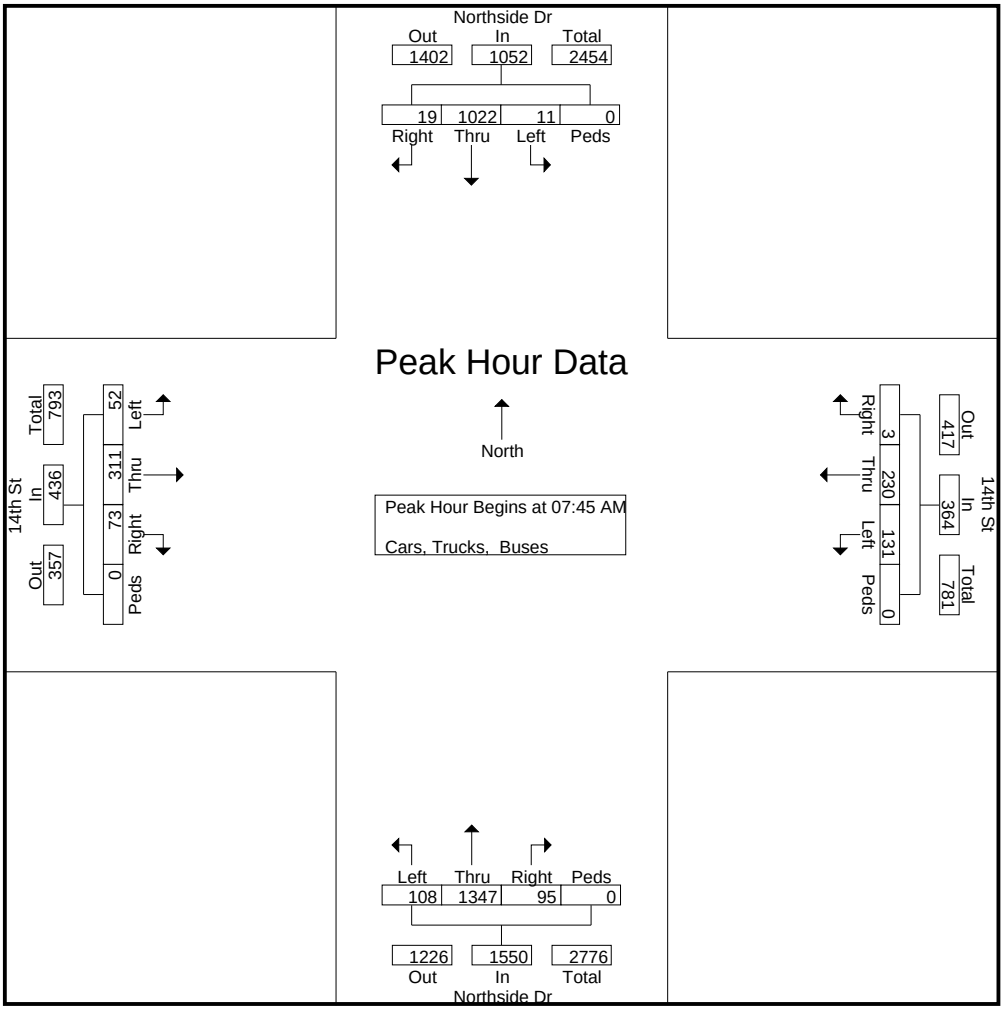
TMC Data
US 19/ SR 41 (Northside Dr) @ 14th St

7-9am | 4-6pm

File Name : 41490004
Site Code : 41490004
Start Date : 11/2/2017

	Northside Dr Northbound					Northside Dr Southbound					14th St Eastbound					14th St Westbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:45 AM																					
07:45 AM	28	**399**	22	0	**449**	1	233	**7**	0	241	12	73	19	0	104	28	59	0	0	87	**881**
08:00 AM	**34**	345	13	0	392	3	215	3	0	221	13	78	15	0	106	32	62	0	0	94	813
08:15 AM	25	284	23	0	332	**5**	281	6	0	292	**17**	**80**	16	0	**113**	**37**	**65**	1	0	**103**	840
08:30 AM	21	319	**37**	0	377	2	**293**	3	0	**298**	10	80	**23**	0	113	34	44	**2**	0	80	868
Total Volume	108	1347	95	0	1550	11	1022	19	0	1052	52	311	73	0	436	131	230	3	0	364	3402
% App. Total	7	86.9	6.1	0		1	97.1	1.8	0		11.9	71.3	16.7	0		36	63.2	0.8	0		
PHF	.794	.844	.642	.000	.863	.550	.872	.679	.000	.883	.765	.972	.793	.000	.965	.885	.885	.375	.000	.883	.965



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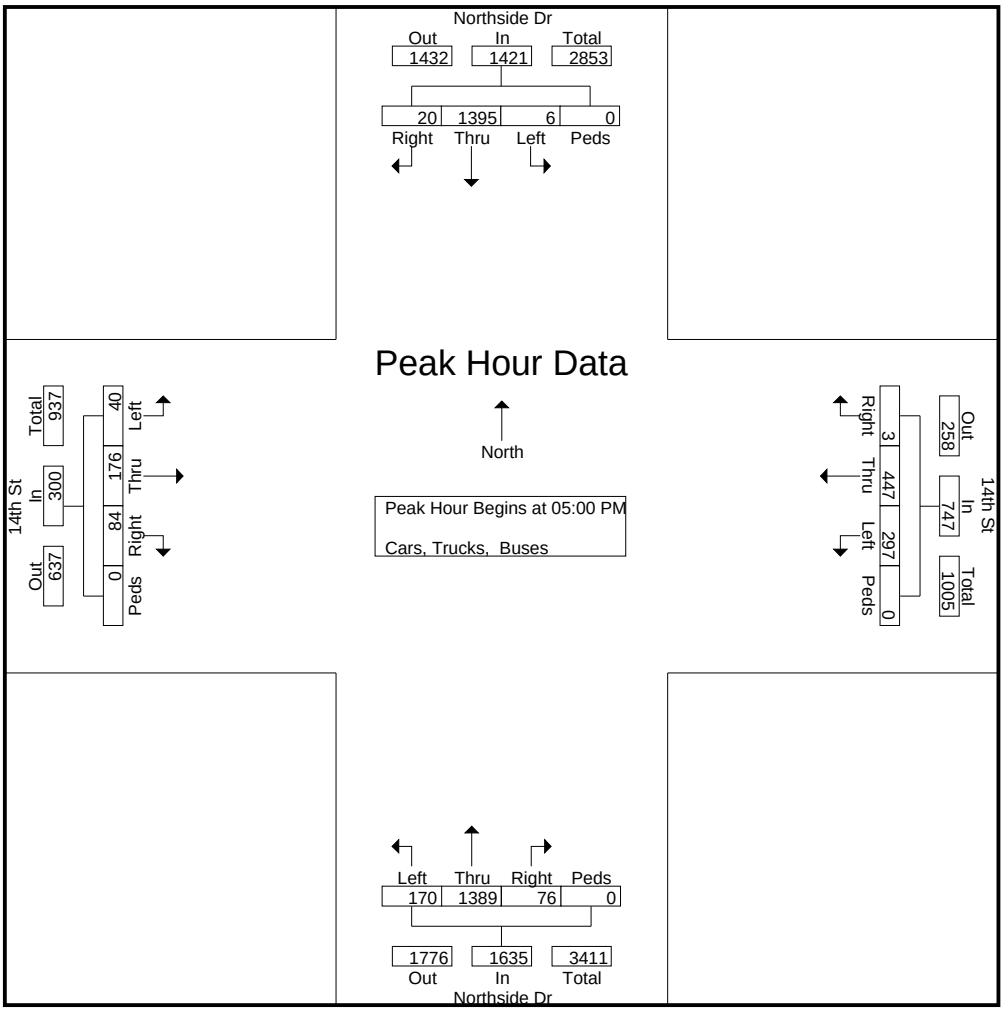
TMC Data
US 19/ SR 41 (Northside Dr) @ 14th St

7-9am | 4-6pm

File Name : 41490004
Site Code : 41490004
Start Date : 11/2/2017

	Northside Dr Northbound					Northside Dr Southbound					14th St Eastbound					14th St Westbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	31	328	16	0	375	1	357	6	0	364	11	45	**37**	0	**93**	70	113	1	0	184	1016
05:15 PM	44	330	22	0	396	**3**	343	3	0	349	**14**	42	20	0	76	75	112	0	0	187	1008
05:30 PM	44	329	14	0	387	2	**360**	**9**	0	**371**	7	40	16	0	63	75	101	0	0	176	997
05:45 PM	**51**	**402**	**24**	0	**477**	0	335	2	0	337	8	**49**	11	0	68	**77**	**121**	**2**	0	**200**	**1082**
Total Volume	170	1389	76	0	1635	6	1395	20	0	1421	40	176	84	0	300	297	447	3	0	747	4103
% App. Total	10.4	85	4.6	0		0.4	98.2	1.4	0		13.3	58.7	28	0		39.8	59.8	0.4	0		
PHF	.833	.864	.792	.000	.857	.500	.969	.556	.000	.958	.714	.898	.568	.000	.806	.964	.924	.375	.000	.934	.948



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TMC Data
Hemphill Ave @ 14th St

7-9am | 4-6pm

File Name : 41490006
Site Code : 41490006
Start Date : 11/2/2017
Page No : 1

Groups Printed- Cars, Trucks, Buses

	Hemphill Ave Northbound					Hemphill Ave Southbound					14th St Eastbound					14th St Westbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
07:00 AM	6	6	10	0	22	5	11	0	0	16	1	69	8	0	78	8	72	5	0	85	201
07:15 AM	6	4	11	0	21	10	22	0	0	32	0	62	9	0	71	10	65	5	0	80	204
07:30 AM	6	11	7	0	24	7	25	0	0	32	2	77	9	0	88	9	53	6	0	68	212
07:45 AM	11	19	13	0	43	19	27	0	0	46	1	81	12	0	94	5	84	6	0	95	278
Total	29	40	41	0	110	41	85	0	0	126	4	289	38	0	331	32	274	22	0	328	895
08:00 AM	11	11	7	0	29	23	33	0	0	56	2	87	11	0	100	7	92	8	0	107	292
08:15 AM	8	19	15	0	42	17	22	0	0	39	6	97	14	0	117	5	101	8	0	114	312
08:30 AM	11	15	11	0	37	20	31	0	0	51	4	92	12	0	108	7	77	6	0	90	286
08:45 AM	6	12	9	0	27	32	35	0	0	67	0	84	9	0	93	12	85	7	0	104	291
Total	36	57	42	0	135	92	121	0	0	213	12	360	46	0	418	31	355	29	0	415	1181
*** BREAK ***																					
04:00 PM	15	51	14	0	80	13	23	0	0	36	1	58	7	0	66	6	164	13	0	183	365
04:15 PM	14	46	8	0	68	8	18	1	0	27	2	79	7	0	88	8	137	11	0	156	339
04:30 PM	11	53	10	0	74	10	25	0	0	35	0	56	6	0	62	8	153	12	0	173	344
04:45 PM	15	44	7	0	66	10	23	1	0	34	0	55	5	0	60	4	161	19	0	184	344
Total	55	194	39	0	288	41	89	2	0	132	3	248	25	0	276	26	615	55	0	696	1392
05:00 PM	11	44	11	0	66	6	20	0	0	26	1	58	11	0	70	14	164	18	0	196	358
05:15 PM	17	55	5	0	77	11	26	0	0	37	1	56	13	0	70	6	166	18	0	190	374
05:30 PM	23	61	6	0	90	6	22	2	0	30	0	38	18	0	56	10	166	22	0	198	374
05:45 PM	23	43	14	0	80	5	26	1	0	32	0	64	16	0	80	8	181	21	0	210	402
Total	74	203	36	0	313	28	94	3	0	125	2	216	58	0	276	38	677	79	0	794	1508
Grand Total	194	494	158	0	846	202	389	5	0	596	21	1113	167	0	1301	127	1921	185	0	2233	4976
Apprch %	22.9	58.4	18.7	0		33.9	65.3	0.8	0		1.6	85.5	12.8	0		5.7	86	8.3	0		
Total %	3.9	9.9	3.2	0	17	4.1	7.8	0.1	0	12	0.4	22.4	3.4	0	26.1	2.6	38.6	3.7	0	44.9	

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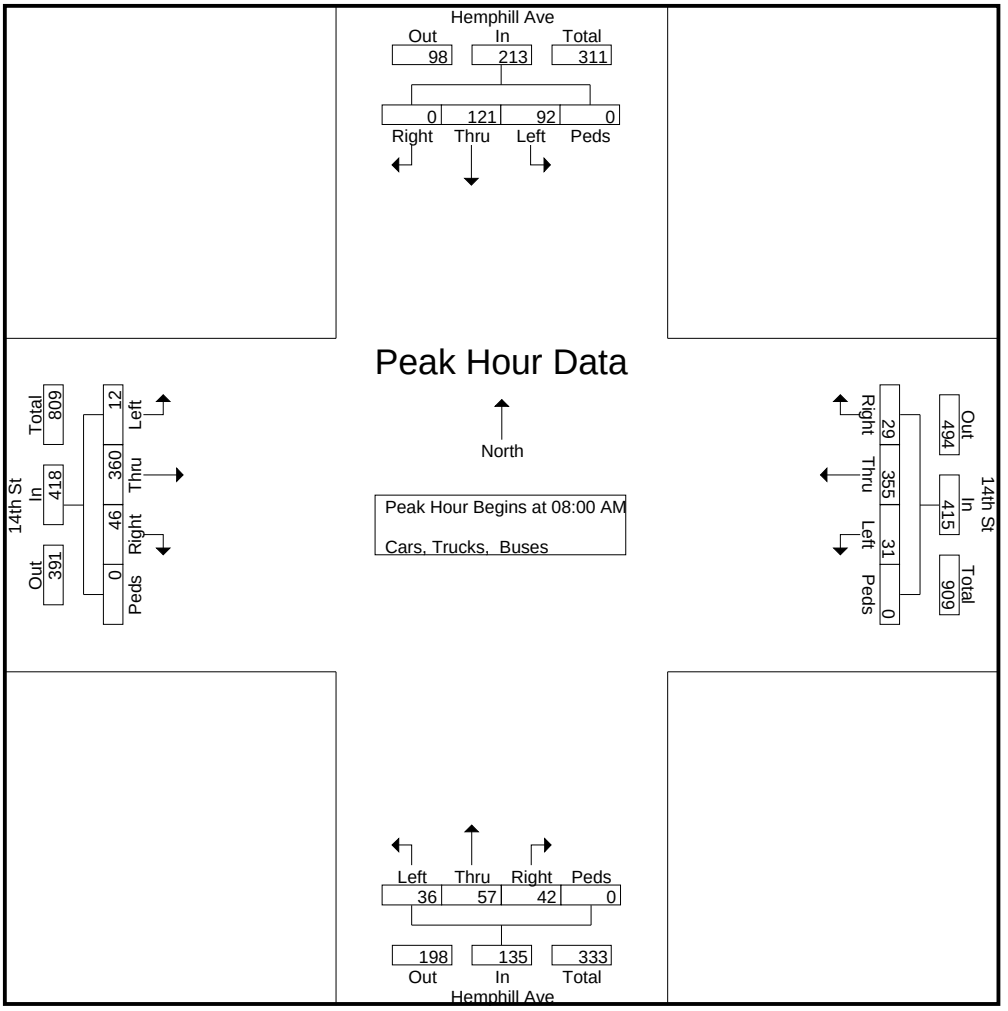
TMC Data
Hemphill Ave @ 14th St

7-9am | 4-6pm

File Name : 41490006
Site Code : 41490006
Start Date : 11/2/2017

	Hemphill Ave Northbound					Hemphill Ave Southbound					14th St Eastbound					14th St Westbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	**11**	11	7	0	29	23	33	0	0	56	2	87	11	0	100	7	92	**8**	0	107	292
08:15 AM	8	**19**	**15**	0	**42**	17	22	0	0	39	**6**	**97**	**14**	0	**117**	5	**101**	8	0	**114**	**312**
08:30 AM	11	15	11	0	37	20	31	0	0	51	4	92	12	0	108	7	77	6	0	90	286
08:45 AM	6	12	9	0	27	**32**	**35**	0	0	**67**	0	84	9	0	93	**12**	85	7	0	104	291
Total Volume	36	57	42	0	135	92	121	0	0	213	12	360	46	0	418	31	355	29	0	415	1181
% App. Total	26.7	42.2	31.1	0		43.2	56.8	0	0		2.9	86.1	11	0		7.5	85.5	7	0		
PHF	.818	.750	.700	.000	.804	.719	.864	.000	.000	.795	.500	.928	.821	.000	.893	.646	.879	.906	.000	.910	.946



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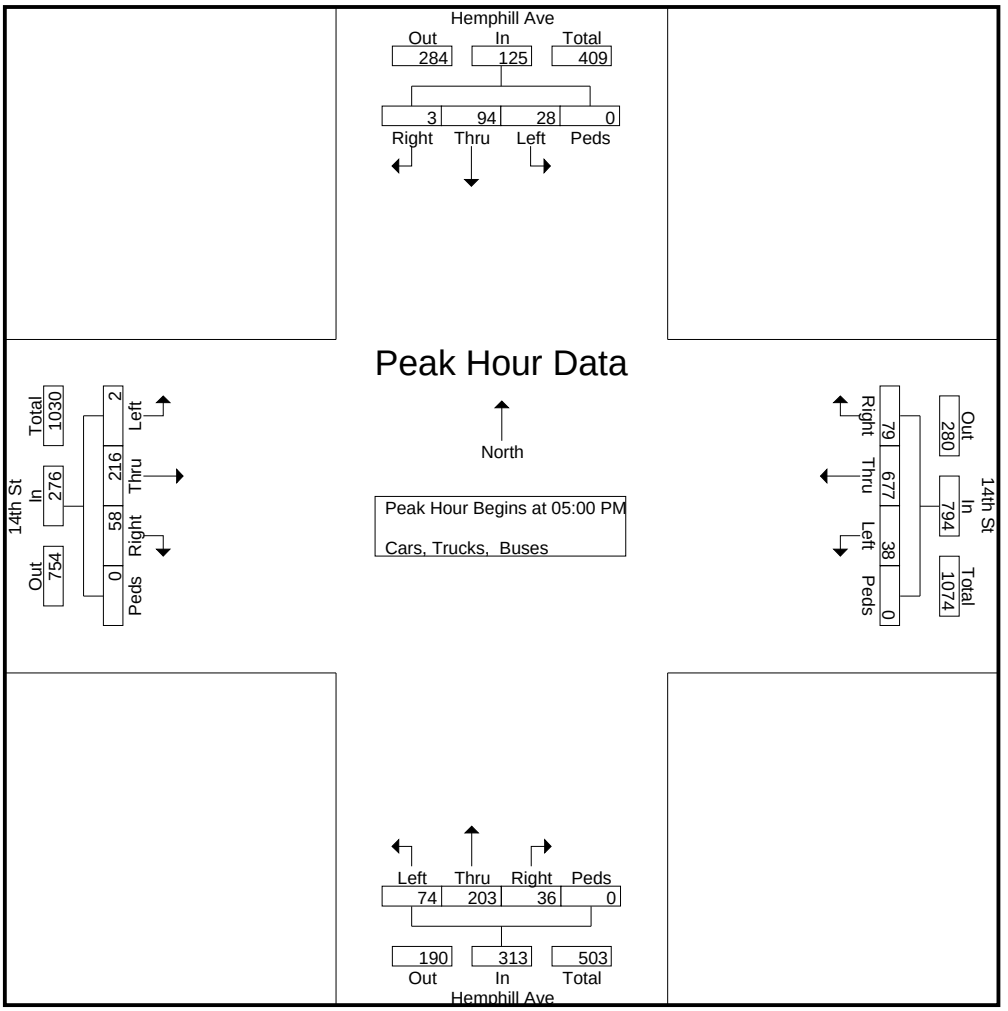
TMC Data
Hemphill Ave @ 14th St

7-9am | 4-6pm

File Name : 41490006
Site Code : 41490006
Start Date : 11/2/2017
Page No : 3

	Hemphill Ave Northbound					Hemphill Ave Southbound					14th St Eastbound					14th St Westbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	11	44	11	0	66	6	20	0	0	26	**1**	58	11	0	70	**14**	164	18	0	196	358
05:15 PM	17	55	5	0	77	**11**	**26**	0	0	**37**	1	56	13	0	70	6	166	18	0	190	374
05:30 PM	**23**	**61**	6	0	**90**	6	22	**2**	0	30	0	38	**18**	0	56	10	166	**22**	0	198	374
05:45 PM	23	43	**14**	0	80	5	26	1	0	32	0	**64**	16	0	**80**	8	**181**	21	0	**210**	**402**
Total Volume	74	203	36	0	313	28	94	3	0	125	2	216	58	0	276	38	677	79	0	794	1508
% App. Total	23.6	64.9	11.5	0		22.4	75.2	2.4	0		0.7	78.3	21	0		4.8	85.3	9.9	0		
PHF	.804	.832	.643	.000	.869	.636	.904	.375	.000	.845	.500	.844	.806	.000	.863	.679	.935	.898	.000	.945	.938



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TMC Data
Howell Mill Rd @ Ally Way (1-way)
Atlanta, GA
7-9am I 4-6pm

File Name : 40800002
Site Code : 40800002
Start Date : 7/5/2017
Page No : 1

Groups Printed- Cars, Buses and Trucks

	Howell Mill Rd Northbound					Howell Mill Rd Southbound					Ally Way (1-way) Eastbound					Westbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
07:00 AM	0	73	0	0	73	0	73	0	0	73	1	0	1	0	2	0	0	0	0	0	148
07:15 AM	0	88	0	0	88	0	75	0	0	75	0	0	2	0	2	0	0	0	0	0	165
07:30 AM	0	91	0	0	91	0	89	0	0	89	2	0	2	0	4	0	0	0	0	0	184
07:45 AM	0	84	0	0	84	0	107	0	0	107	0	0	1	0	1	0	0	0	0	0	192
Total	0	336	0	0	336	0	344	0	0	344	3	0	6	0	9	0	0	0	0	0	689
08:00 AM	0	95	0	0	95	0	118	0	0	118	1	0	2	0	3	0	0	0	0	0	216
08:15 AM	0	108	0	0	108	0	123	0	0	123	0	0	4	0	4	0	0	0	0	0	235
08:30 AM	0	113	0	0	113	0	117	0	0	117	1	0	1	0	2	0	0	0	0	0	232
08:45 AM	0	107	0	0	107	0	112	0	0	112	1	0	0	0	1	0	0	0	0	0	220
Total	0	423	0	0	423	0	470	0	0	470	3	0	7	0	10	0	0	0	0	0	903
*** BREAK ***																					
04:00 PM	0	106	0	0	106	0	211	0	0	211	1	0	2	0	3	0	0	0	0	0	320
04:15 PM	0	117	0	0	117	0	215	0	0	215	2	0	3	0	5	0	0	0	0	0	337
04:30 PM	0	132	0	0	132	0	223	0	0	223	3	0	5	0	8	0	0	0	0	0	363
04:45 PM	0	146	0	0	146	0	227	0	0	227	1	0	1	0	2	0	0	0	0	0	375
Total	0	501	0	0	501	0	876	0	0	876	7	0	11	0	18	0	0	0	0	0	1395
05:00 PM	0	149	0	0	149	0	274	0	0	274	1	0	3	0	4	0	0	0	0	0	427
05:15 PM	0	142	0	0	142	0	267	0	0	267	4	0	3	0	7	0	0	0	0	0	416
05:30 PM	0	134	0	0	134	0	262	0	0	262	1	0	2	0	3	0	0	0	0	0	399
05:45 PM	0	118	0	0	118	0	256	0	0	256	2	0	6	0	8	0	0	0	0	0	382
Total	0	543	0	0	543	0	1059	0	0	1059	8	0	14	0	22	0	0	0	0	0	1624
Grand Total	0	1803	0	0	1803	0	2749	0	0	2749	21	0	38	0	59	0	0	0	0	0	4611
Apprch %	0	100	0	0		0	100	0	0		35.6	0	64.4	0		0	0	0	0		
Total %	0	39.1	0	0	39.1	0	59.6	0	0	59.6	0.5	0	0.8	0	1.3	0	0	0	0	0	

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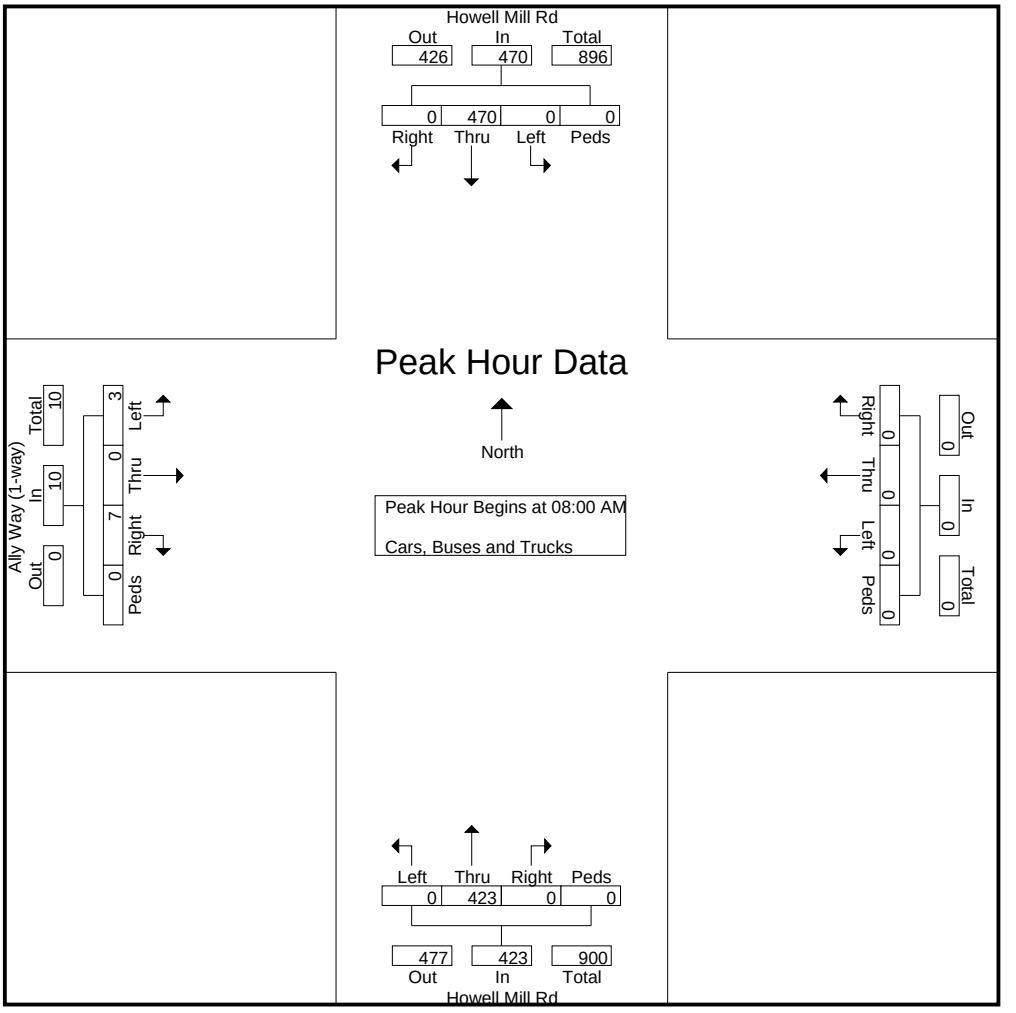
TMC Data
Howell Mill Rd @ Ally Way (1-way)
Atlanta, GA
7-9am I 4-6pm

File Name : 40800002
Site Code : 40800002
Start Date : 7/5/2017
Page No : 2

	Howell Mill Rd Northbound					Howell Mill Rd Southbound					Ally Way (1-way) Eastbound					Westbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	0	95	0	0	95	0	118	0	0	118	**1**	0	2	0	3	0	0	0	0	0	216
08:15 AM	0	108	0	0	108	0	**123**	0	0	**123**	0	0	**4**	0	**4**	0	0	0	0	0	**235**
08:30 AM	0	**113**	0	0	**113**	0	117	0	0	117	1	0	1	0	2	0	0	0	0	0	232
08:45 AM	0	107	0	0	107	0	112	0	0	112	1	0	0	0	1	0	0	0	0	0	220
Total Volume	0	423	0	0	423	0	470	0	0	470	3	0	7	0	10	0	0	0	0	0	903
% App. Total	0	100	0	0		0	100	0	0		30	0	70	0		0	0	0	0		
PHF	.000	.936	.000	.000	.936	.000	.955	.000	.000	.955	.750	.000	.438	.000	.625	.000	.000	.000	.000	.000	.961



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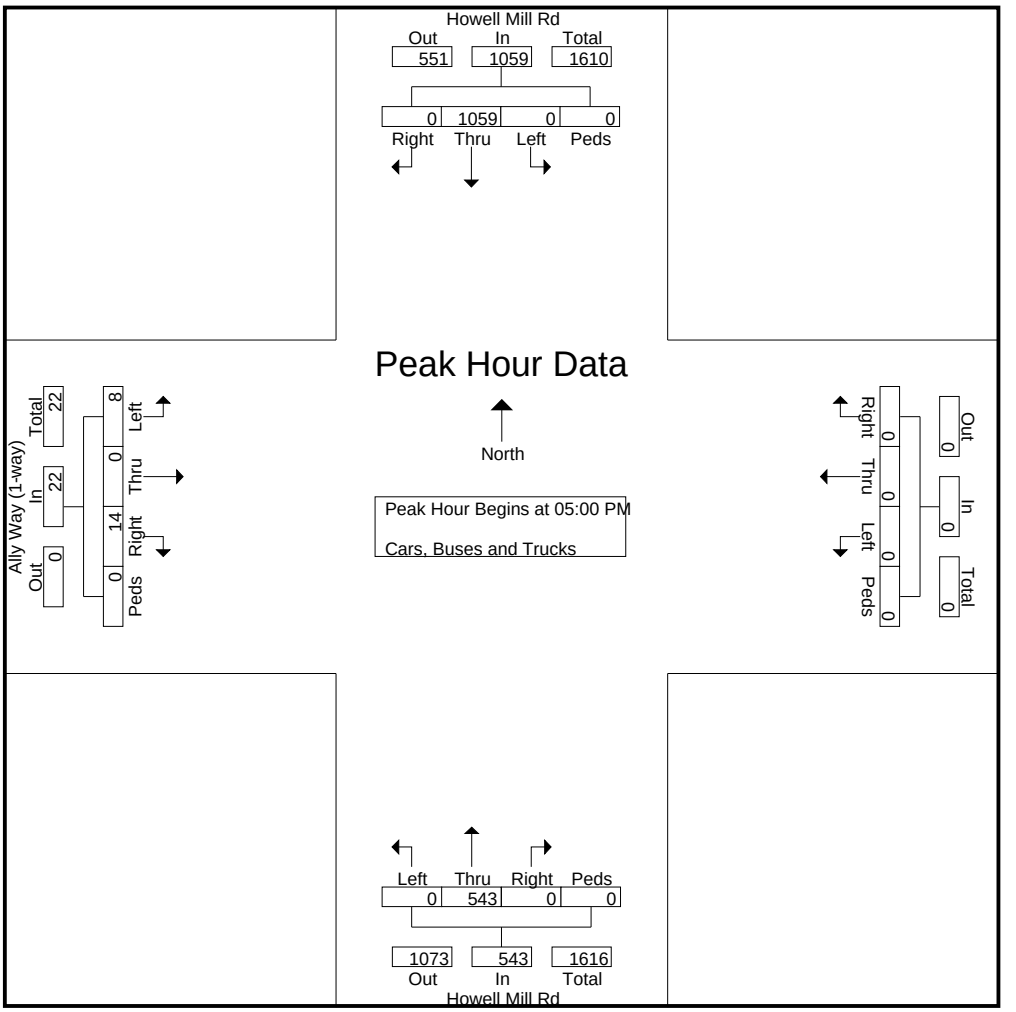
TMC Data
Howell Mill Rd @ Ally Way (1-way)
Atlanta, GA
7-9am I 4-6pm

File Name : 40800002
Site Code : 40800002
Start Date : 7/5/2017
Page No : 3

	Howell Mill Rd Northbound					Howell Mill Rd Southbound					Ally Way (1-way) Eastbound					Westbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	0	**149**	0	0	**149**	0	**274**	0	0	**274**	1	0	3	0	4	0	0	0	0	0	**427**
05:15 PM	0	142	0	0	142	0	267	0	0	267	**4**	0	3	0	7	0	0	0	0	0	416
05:30 PM	0	134	0	0	134	0	262	0	0	262	1	0	2	0	3	0	0	0	0	0	399
05:45 PM	0	118	0	0	118	0	256	0	0	256	2	0	**6**	0	**8**	0	0	0	0	0	382
Total Volume	0	543	0	0	543	0	1059	0	0	1059	8	0	14	0	22	0	0	0	0	0	1624
% App. Total	0	100	0	0		0	100	0	0		36.4	0	63.6	0		0	0	0	0		
PHF	.000	.911	.000	.000	.911	.000	.966	.000	.000	.966	.500	.000	.583	.000	.688	.000	.000	.000	.000	.000	.951



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TMC Data
14th St @ Elan Building rear Drwy
Atlanta, GA
7-9am I 4-6pm

File Name : 40800004
Site Code : 40800004
Start Date : 7/5/2017
Page No : 1

Groups Printed- Cars, Buses and Trucks

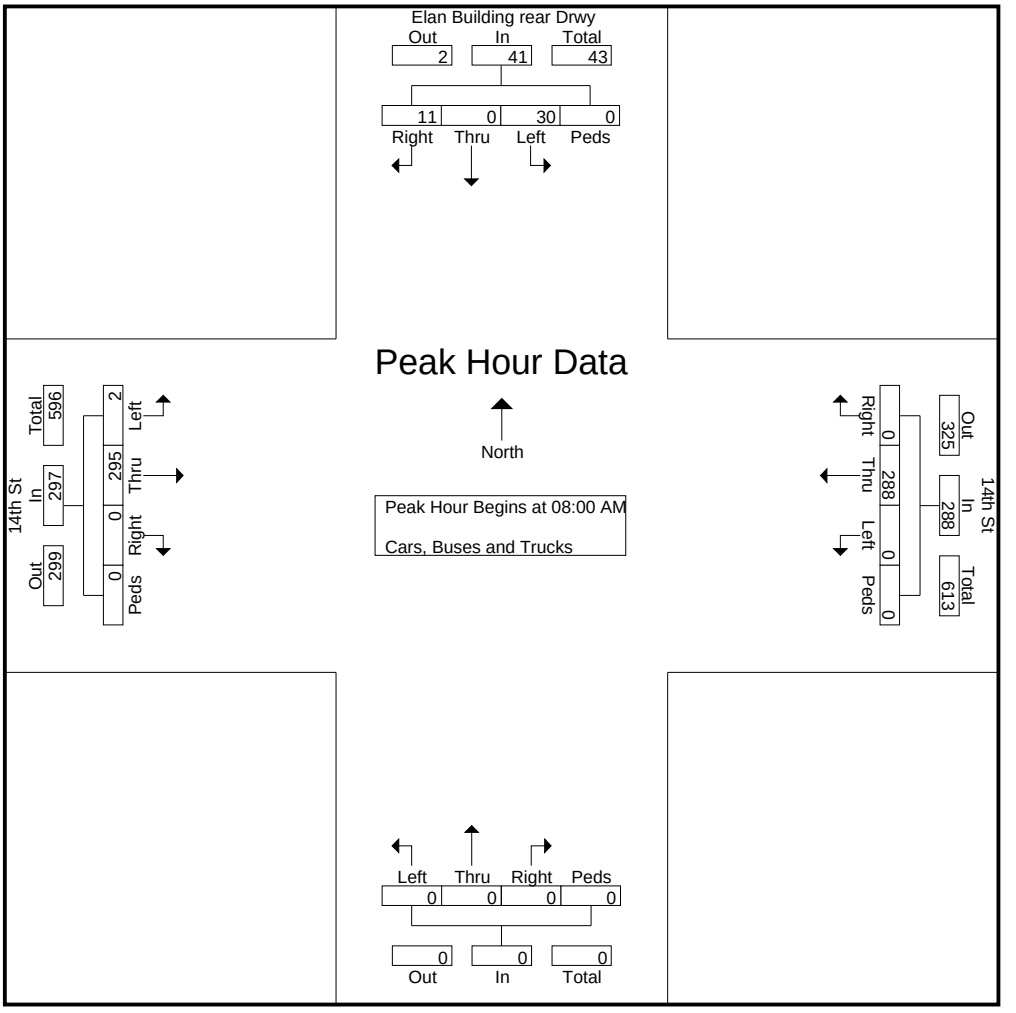
	Northbound					Elan Building rear Drwy Southbound					14th St Eastbound					14th St Westbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
07:00 AM	0	0	0	0	0	3	0	1	0	4	0	52	0	0	52	0	35	0	0	35	91
07:15 AM	0	0	0	0	0	5	0	0	0	5	0	52	0	0	52	0	48	0	0	48	105
07:30 AM	0	0	0	0	0	2	0	1	0	3	0	77	0	0	77	0	61	0	0	61	141
07:45 AM	0	0	0	0	0	6	0	1	0	7	0	76	0	0	76	0	62	0	0	62	145
Total	0	0	0	0	0	16	0	3	0	19	0	257	0	0	257	0	206	0	0	206	482
08:00 AM	0	0	0	0	0	9	0	4	0	13	1	79	0	0	80	0	60	0	0	60	153
08:15 AM	0	0	0	0	0	9	0	6	0	15	0	77	0	0	77	0	66	0	0	66	158
08:30 AM	0	0	0	0	0	4	0	0	0	4	0	61	0	0	61	0	81	0	0	81	146
08:45 AM	0	0	0	0	0	8	0	1	0	9	1	78	0	0	79	0	81	0	0	81	169
Total	0	0	0	0	0	30	0	11	0	41	2	295	0	0	297	0	288	0	0	288	626
*** BREAK ***																					
04:00 PM	0	0	0	0	0	1	0	0	0	1	0	58	0	0	58	0	116	0	0	116	175
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	45	0	0	45	0	132	0	0	132	177
04:30 PM	0	0	0	0	0	1	0	0	0	1	0	46	0	0	46	0	116	0	0	116	163
04:45 PM	0	0	0	0	0	0	0	3	0	3	1	50	0	0	51	0	150	0	0	150	204
Total	0	0	0	0	0	2	0	3	0	5	1	199	0	0	200	0	514	0	0	514	719
05:00 PM	0	0	0	0	0	3	0	1	0	4	0	73	0	0	73	0	157	0	0	157	234
05:15 PM	0	0	0	0	0	1	0	2	0	3	0	55	0	0	55	0	145	0	0	145	203
05:30 PM	0	0	0	0	0	1	0	1	0	2	0	49	0	0	49	0	161	0	0	161	212
05:45 PM	0	0	0	0	0	0	0	2	0	2	1	50	0	0	51	0	138	0	0	138	191
Total	0	0	0	0	0	5	0	6	0	11	1	227	0	0	228	0	601	0	0	601	840
Grand Total	0	0	0	0	0	53	0	23	0	76	4	978	0	0	982	0	1609	0	0	1609	2667
Apprch %	0	0	0	0		69.7	0	30.3	0		0.4	99.6	0	0		0	100	0	0		
Total %	0	0	0	0	0	2	0	0.9	0	2.8	0.1	36.7	0	0	36.8	0	60.3	0	0	60.3	

Reliable Traffic Data Services, LLC
Tel: (770) 578-8158 | Fax: (770) 578-8159
info@reliabletraffic.org | www.reliabletraffic.org

TMC Data
14th St @ Elan Building rear Drwy
Atlanta, GA
7-9am I 4-6pm

File Name : 40800004
Site Code : 40800004
Start Date : 7/5/2017

	Northbound					Elan Building rear Drwy Southbound					14th St Eastbound					14th St Westbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	0	0	0	0	0	**9**	0	4	0	13	**1**	**79**	0	0	**80**	0	60	0	0	60	153
08:15 AM	0	0	0	0	0	9	0	**6**	0	**15**	0	77	0	0	77	0	66	0	0	66	158
08:30 AM	0	0	0	0	0	4	0	0	0	4	0	61	0	0	61	0	**81**	0	0	**81**	146
08:45 AM	0	0	0	0	0	8	0	1	0	9	1	78	0	0	79	0	81	0	0	81	**169**
Total Volume	0	0	0	0	0	30	0	11	0	41	2	295	0	0	297	0	288	0	0	288	626
% App. Total	0	0	0	0		73.2	0	26.8	0		0.7	99.3	0	0		0	100	0	0		
PHF	.000	.000	.000	.000	.000	.833	.000	.458	.000	.683	.500	.934	.000	.000	.928	.000	.889	.000	.000	.889	.926

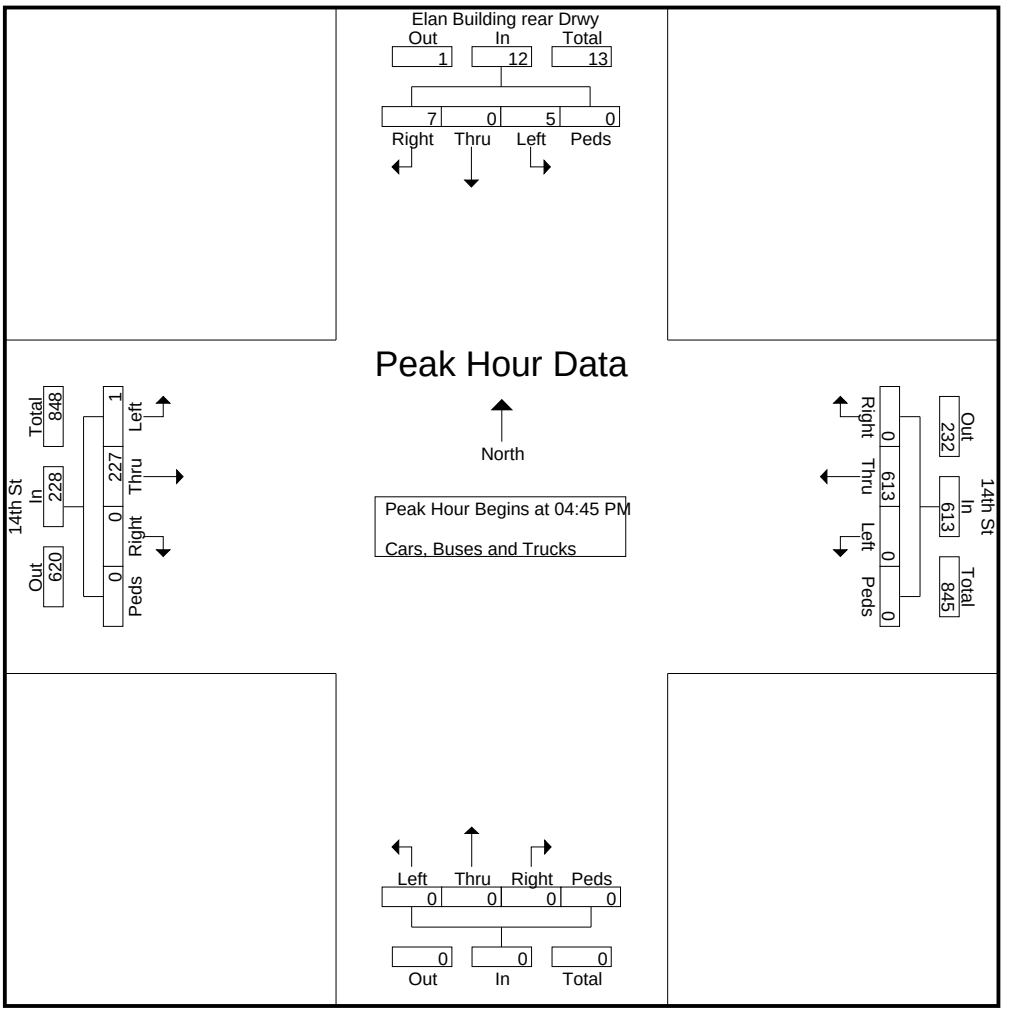


Reliable Traffic Data Services, LLC
Tel: (770) 578-8158 | Fax: (770) 578-8159
info@reliabletraffic.org | www.reliabletraffic.org

TMC Data
14th St @ Elan Building rear Drwy
Atlanta, GA
7-9am I 4-6pm

File Name : 40800004
Site Code : 40800004
Start Date : 7/5/2017
Page No : 3

	Northbound					Elan Building rear Drwy Southbound					14th St Eastbound					14th St Westbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	0	0	0	0	0	0	0	**3**	0	3	**1**	50	0	0	51	0	150	0	0	150	204
05:00 PM	0	0	0	0	0	**3**	0	1	0	**4**	0	**73**	0	0	**73**	0	157	0	0	157	**234**
05:15 PM	0	0	0	0	0	1	0	2	0	3	0	55	0	0	55	0	145	0	0	145	203
05:30 PM	0	0	0	0	0	1	0	1	0	2	0	49	0	0	49	0	**161**	0	0	**161**	212
Total Volume	0	0	0	0	0	5	0	7	0	12	1	227	0	0	228	0	613	0	0	613	853
% App. Total	0	0	0	0		41.7	0	58.3	0		0.4	99.6	0	0		0	100	0	0		
PHF	.000	.000	.000	.000	.000	.417	.000	.583	.000	.750	.250	.777	.000	.000	.781	.000	.952	.000	.000	.952	.911



GRTA Letter of Understanding

LETTER OF UNDERSTANDING

November 9, 2017

Matt Widmaier
S.J. Collins Enterprises
P.O. Box 214
Fairburn, GA 30213

RE: Tech West (DRI #:TBD)

Dear Mr. Widmaier:

The purpose of this letter is to inform you of the GRTA staff recommendation regarding your request for expedited review of the **DRI Tech West (DRI#:TBD),** Development of Regional Impact (DRI). Based on the information presented during the Pre-Review/Methodology meeting on November 6, 2017, the DRI meets the eligibility criteria for requesting expedited review under the DRI *Procedures and Principles for GRTA Development of Regional Impact Review* Section 3-102.F., Livable Centers Initiative. A Trip Generation and Access Analysis are required as part of the review under these criteria. Some of the following items were discussed in the meeting and should assist you and your team in preparing the DRI Review Package. Additional information may be requested for submittal in conjunction with DRI Review Package. Please see the notes below for this basic information.

Project Overview

- This proposed development is located in the City of Atlanta in the southeast corner of the intersection of Howell Mill Road and 14th Street.
- The DRI trigger for this development is a rezoning.
- The proposed mixed-use redevelopment consists of approximately 450 units of residential, 150 rooms of hotel, 35,000 SF of health and fitness, 225,000 SF of office, and 60,800 SF of retail and restaurants.
- The development currently proposes access via three full access site driveways. There will be one driveway on Ethel Street, one driveway on 14th Street and one driveway on Howell Mill Road.
- Trip generation is estimated at 10,243 gross daily trips based on the Institute of transportation Engineers (ITE) Trip Generation Manual, 10th Edition, 2017.
- The project will be built in one phase, to be completed by 2020.
- The applicant is applying for approval under GRTA's expedited review process under Section 3-1-2 F., Livable Centers Initiative (LCI). The site is in the Upper Westside LCI Study Area.

Methodology for Analysis

- All intersections identified as within the study network shall be analyzed during the AM and PM peak period for (1) existing conditions, (2) future "no-build" conditions and (3) future "build" conditions. This DRI shall be reviewed in one phase completed by 2020.

- A 3.0% annual background traffic rate shall be used for all roadways. Trip generation information for any other major developments currently underway in the study area shall be taken into consideration.

- Capacity analysis shall be based on turning movement counts collected not more than 12-months prior to the date of the actual DRI submittal to GRTA. As appropriate, pedestrian counts and heavy vehicle counts shall be collected with vehicle counts and considered within the capacity analysis. Turning movement counts shall be collected while local schools are in session and ordinarily not between the week of Thanksgiving and the second week of January or any week of a major holiday.

- Mixed-use, alternative mode and pass-by reductions are allowed per the ITE Trip Generation Manual. An alternative mode reduction of 15% is allowed due to the project site's proximity to a MARTA bus stop that services MARTA bus routes 1 and 12, expanded transit service from Georgia Institute of Technology, and the Howell Mill Complete Street Project that will resurface 14th Street.

- The Level of Service (LOS) standard for all analyses shall be LOS D.

- Default values should not be assumed in the traffic modeling. Existing conditions shall be taken into account.

- The applicant shall research TIP, STIP, RTP, and GDOT's construction work program, as well as any local government plans (SPLOST, CIP, etc.), to determine the open-to-traffic date, sponsor, cost of the project, funding source(s), for future roadway projects in the project vicinity. This information shall be included within the traffic analysis.

STUDY NETWORK

1. Howell Mill Road at 17th Street
2. Howell Mill Road at Huff Road
3. Howell Mill Road at 14th Street
4. Howell Mill Road at Brady Avenue
5. Howell Mill Road at 10th Street
6. US 19/41 (Northside Drive) at 14th Street
7. US 19/41 (Northside Drive) at Ethel Street
8. US 19/41 Northside Drive) at 10th Street
9. Hemphill Avenue at 14th Street

ADDITIONAL INFORMATION

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

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

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

DRI REVIEW PACKAGE CHECKLIST

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

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

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

DRI REVIEW PACKAGE SUBMITTAL

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

- Provide one (1) paper copy of all materials – of the Transportation analysis and of the Site Plan
- Provide one (1) CD-ROM with electronic versions of all submittal documents:
  - Provide a PDF of each document
  - Provide the native format for each document
    - .dwg is the preferred CAD format (AutoCAD)
    - .doc is the preferred word processing format (Word)
    - .xls is the preferred spreadsheet format (Excel)
    - .sy 8, .sy9 or .sy10 is the preferred capacity analysis format (Synchro)

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

SRTA/GRTA	**ATLANTA REGIONAL COMMISSION**	**CITY OF ATLANTA**	**GDOT DISTRICT 7**
Emily Estes 245 Peachtree Center Ave. Suite 2200 Atlanta, GA 30303	Andrew Smith International Tower 229 Peachtree St. NE Suite 100 Atlanta, GA 30303	Monique Forte 55 Trinity Ave. SW Atlanta, GA, 30303	Paul DeNard 5025 New Peachtree Rd. NE Chamblee, GA 30341

Expedited Review Recommendation

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

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

Sincerely,

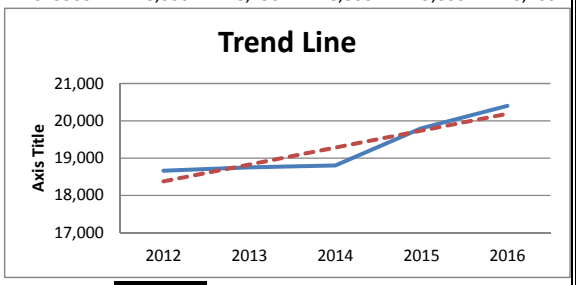
Emily Estes
Planner

cc: Jon West, DCA
Annie Gillespie, SRTA/GRTA
Andrew Smith, ARC
Marquitrice Mangham, ARC
Paul DeNard, GDOT District 7
Monique Forte, City of Atlanta
Jason Morgan, City of Atlanta
Greg Floyd, MARTA
Abby Rettig, A & R Engineering
Naser Omer, A & R Engineering
Abdul Amer, A & R Engineering
Jessica Hill, Morris, Manning and Martin LLP

Linear Regression of Daily Traffic

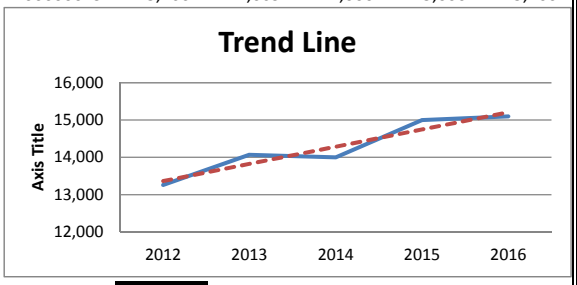
Location	Growth Rate	R Squared	Station ID	Route	2012	2013	2014	2015	2016
Howell Mill Rd (north of Huff R	2.4%	0.85	1215675	013503	18,660	18,750	18,800	19,800	20,400
14th St (west of McMillan St)	3.3%	0.90	121-5633	00000019	13,260	14,069	14,000	15,000	15,100
Huff Rd (west of N. Ashby St)	3.0%	0.85	1216082	010103	8,030	8,210	8,210	8,540	9,090
Northside Dr (south of 14th)	2.1%	0.53	121-5016	00000019	25,660	25,754	25,754	25,754	28,400
Weighted Average	**2.5%**	0.84	Sum of Count Stations =		65,610	66,783	66,764	69,094	72,990

Location	Traffic Counter	RCLINK	2012	2013	2014	2015	2016
Howell Mill Rd (north of Huff Rd)	1215675	013503	18,660	18,750	18,800	19,800	20,400



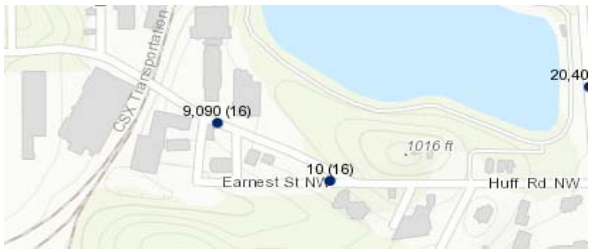
Growth Rate	2.4%	Intercept	-893,060	Slope	453.00
Trend Line	18,376	18,829	19,282	19,735	20,188

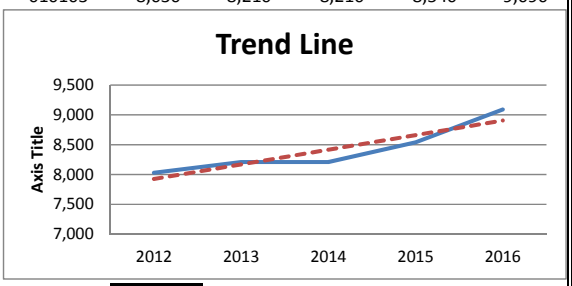
Location	Traffic Counter	RCLINK	2012	2013	2014	2015	2016
14th St (west of McMillan St)	121-5633	00000019	13,260	14,069	14,000	15,000	15,100



Growth Rate	3.3%	Intercept	-914,370	Slope	461.10
Trend Line	13,364	13,825	14,286	14,747	15,208

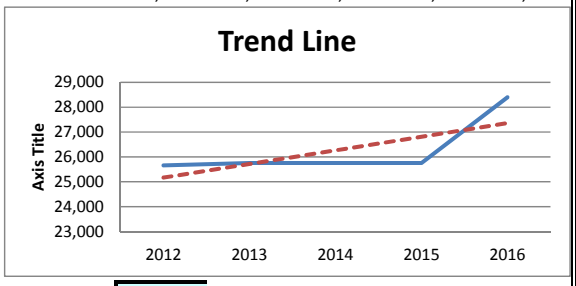
Location	Traffic Counter	RCLINK	2012	2013	2014	2015	2016
Huff Rd (west of N. Ashby St)	1216082	010103	8,030	8,210	8,210	8,540	9,090





Growth Rate	3.0%	Intercept	-485,014	Slope	245.00
Trend Line	7,926	8,171	8,416	8,661	8,906

Location	Traffic Counter	RCLINK	2012	2013	2014	2015	2016
Northside Dr (south of 14th)	121-5016	00000019	25,660	25,754	25,754	25,754	28,400



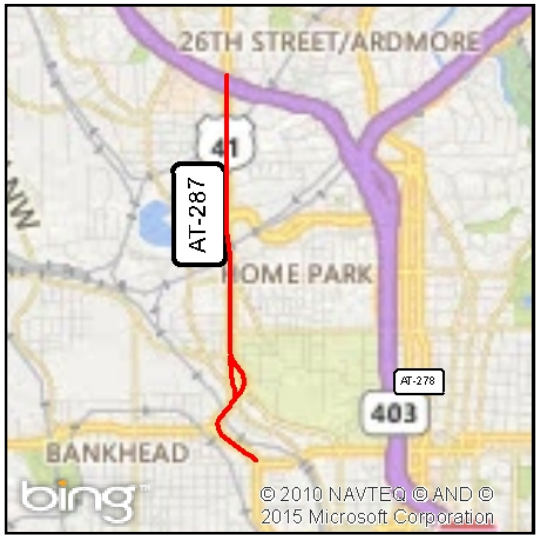
Growth Rate	2.1%	Intercept	-1,077,408	Slope	548.00
Trend Line	25,168	25,716	26,264	26,812	27,360

Fact Sheets for Planned and Programmed Improvements

AT-287

Atlanta Region's Plan RTP (2016) PROJECT FACT SHEET

Short Title	US 19/41 (NORTHSIDE DRIVE) SIGNAL UPGRADES AT 13 LOCATIONS
GDOT Project No.	0012823
Federal ID No.	
Status	Programmed
Service Type	Roadway / Operations & Safety
Sponsor	GDOT
Jurisdiction	City of Atlanta
Analysis Level	Exempt from Air Quality Analysis (40 CFR 93)



Existing Thru Lane	6	**LCI**		**Network Year**	TBD
Planned Thru Lane	6	**Flex**		**Corridor Length**	N/A miles

Detailed Description and Justification

Signal upgrades on SR 3 (Northside Drive) and Hemphill Avenue at SR 9 in the City of Atlanta and Georgia Tech area. Total corridor length is approximately 2.5 miles, with 11 signal upgrades: North Avenue, Donald Lee Hollowell Parkway NW, Marietta Street, 10th Street, 14th Street, 17th Street, Deering Road, Bellemeade Avenue, I-75 SB, I-75 NB, and at Hemphill Avenue/14th Street.

Phase Status & Funding Information		Status	FISCAL YEAR	TOTAL PHASE COST	BREAKDOWN OF TOTAL PHASE COST BY FUNDING SOURCE			
					FEDERAL	STATE	BONDS	LOCAL/PRIVATE
PE	STP - Urban (>200K) (ARC)	AUTH	2014	**$325,000**	~~$325,000~~	~~$0,000~~	~~$0,000~~	~~$0,000~~
ROW	Congestion Mitigation & Air Quality Improvement (CMAQ)		2018	**$650,000**	$520,000	$130,000	$0,000	$0,000
CST	Congestion Mitigation & Air Quality Improvement (CMAQ)		2019	**$1,690,000**	$1,352,000	$338,000	$0,000	$0,000
				$2,665,000	**$2,197,000**	**$468,000**	**$0,000**	**$0,000**

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

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

Report Generated: 09/19/2017

PRECONSTRUCTION STATUS REPORT

PROJ ID	COUNTY	DESCRIPTION
0012823	Fulton	**SR 3 @ 13 LOCS IN FULTON**

Mgmt Let Date:

The project will upgrade equipment, accommodate pedestrians, and update pedestrian facilities to meet current ADA standards. The Office of Traffic Operations has justified these upgrade based on the following deficiencies: pedestrian Accommodations, ADA Compliance, old conductor cable, 332 cabinet w/2070, support poles/mast arms, utility issues, and signal interconnect.

The following intersections are in this project:

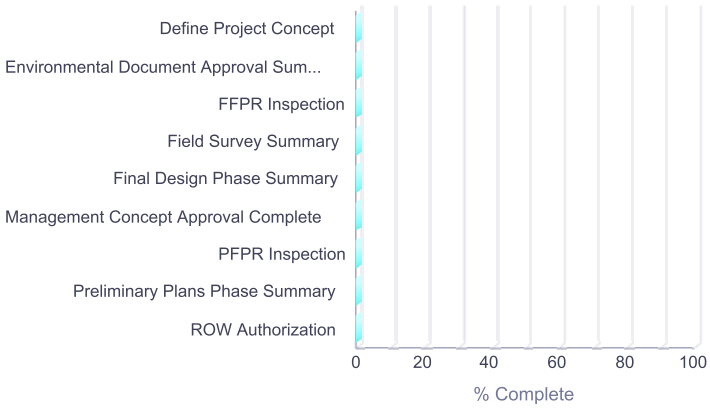
1.) SR 3 @ Wells St
2.) SR 3 @ Whitehall St
3.) SR 3 @ Chapel St
4.) SR 3 @ McDaniel
5.) SR 3 @ Fair St
6.) SR 3 @ Chapel St
7.) I-20 WB Ramps @ SR 70/Fulton Industrial Blvd
8.) I-20 EB Ramps @ SR 70/Fulton Industrial Blvd
9.) SR 70/Fulton Industrial Blvd @ Patton Drive
10.) SR 3 @ Magnolia St
11.) SR 3 @ Thurmond St
12.) SR 70 @ Marvin Miller Dr
13.) SR 3 @ Cameron Madison Alexander Blvd

Intersections Removed from Project:
SR 3 @ Mitchell St
SR 3 @ MLK Jr Dr
SR 3 @ Carter St
SR 3 @ Ivan Allen Jr Blvd

PROJ NO:		**SPONSOR:**	GDOT
MPO TIP#:	AT-287	**PROJ MGR:**	D'Ambrosio, Kate
MPO:	Atlanta TMA	**DOT DIST:**	7
PROJ LENGTH (MI):	0.00	**CONG DIST:**	005
TYPE WORK:	Signals	**HOUSE DIST:**	053, 054, 055, 056, 057, 058, 059, 060, 061, 062, 063, 064, 074, 075, 076, 077, 078, 080, 082, 083, 084, 085, 086, 089, 090
LET RESPONSIBILITY:	GDOT Let	**SENATE DIST:**	006, 010, 034, 035, 036, 038, 039, 042, 044
BIKE PROVISIONS INCLUDED?	N		

Phase	FY Approved	Approved FY Estimate*	Fund	Phase Status
Construction	2017	$1,690,000.00	Z400S	PRECST
Engineering	2014	$325,000.00	M230F	AUTHORIZED
Right of Way	2015	$650,000.00	Z400S	PRECST

PRECONSTRUCTION STATUS REPORT



Activity	Actual Start Date	Actual Finish Date
FFPR Inspection		
Environmental Document Approval Summary (11412 through 18100)		
Final Design Phase Summary		
Field Survey Summary		
Define Project Concept		
Preliminary Plans Phase Summary		
ROW Authorization		
Management Concept Approval Complete		
PFPR Inspection		

Right of Way Acquisition Information:

Preliminary Parcel Count: **Total Parcel Count:** **Acquired by :** DOT

COMPLETE STREETS

HOWELL MILL ROAD COMPLETE STREET PROJECT

Complete Street improvements inclusive of milling, resurfacing and installation of bicycle lanes along Howell Mill Road between Collier Road and W. Marietta Street, including streetscape and pedestrian safety improvements. The Renew Atlanta bond program is one of multiple funding sources for the "Howell Mill Road Complete Street" project. A public meeting for this project was held on October 26, 2016.

Project Name: Howell Mill Road Complete Street Project

Project Type:

Project Start: 01-2016 Construction Start: 03-2018

Project completion: 09-2018

Project Budget: $5,798,210.00

Council District: 3, 8, 9 NPU: C, D, E

Complete: 13%

ROADWAYS

14TH STREET, PHASE 1

The 14th Street resurfacing project is part of the Howell Mill Road Complete Street project and will be implemented in 3 phases. Initial phases for implementation include:

- Phase 1: Resurfacing from Howell Mill Road to Hemphill Avenue
- Phase 2: Resurfacing from Piedmont Avenue to Peachtree Street
- Phase 3: Resurfacing from Peachtree Street to West Paces Ferry Road

Project Name: 14th Street, Phase 1

Project Type:

Project Start: 01-2016 Construction Start: 01-2018

Project completion: 06-2018

Project Budget: $308,695

Council District: 3 NPU: E

Complete: 11%

PRECONSTRUCTION STATUS REPORT

PROJ ID	COUNTY	DESCRIPTION
0015288	Fulton	SR 3/US 41 FROM CS 1704/TECH PKWY TO CS 696/HEMPHILL AVE

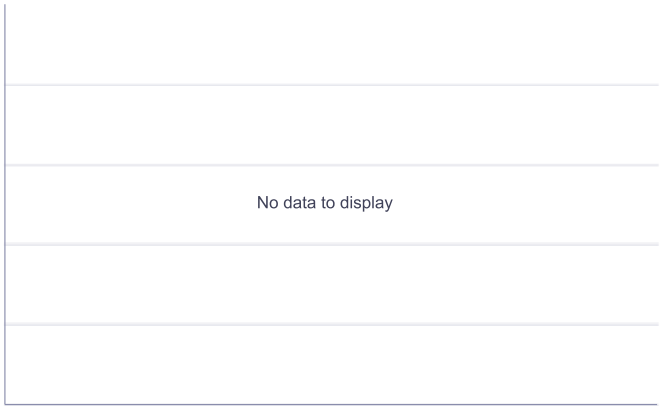
Mgmt Let Date:

This project proposes to physically prohibit left turns at 8th Street; create a center turn lane reducing the number of through lanes; and redesign the intersections of SR 3, 14th St, and Hemphill Ave to remove the shared southbound lane and provide additional flexibility for signal timing. During design consider eliminating northbound right onto 14th St. B/C would be 7.80 if removed.

PROJ NO:
MPO TIP#:
MPO: Atlanta TMA
PROJ LENGTH (MI): 0.62
TYPE WORK: Operational Improvement
LET RESPONSIBILITY: GDOT Let
BIKE PROVISIONS INCLUDED? N

SPONSOR: GDOT
PROJ MGR: Atnip, Lindsay
DOT DIST: 7
CONG DIST: 005
HOUSE DIST: 56
SENATE DIST: 39

Phase	FY Approved	Approved FY Estimate*	Fund	Phase Status
Engineering	2017	$180,000.00	315	AUTHORIZED
Construction		$1,488,233.00	Z001	PRECST
Utility		$223,233.00	Z001	PRECST
Right of Way		$532,751.00	Z001	PRECST



Activity	Actual Start Date	Actual Finish Date

Right of Way Acquisition Information:
Preliminary Parcel Count: 3 **Total Parcel Count:** **Acquired by :** N/R

Existing Intersection Analysis

Lane Group	WBL	NBT	SBL	SBT
Lane Configurations				
Traffic Volume (vph)	157	336	278	463
Future Volume (vph)	157	336	278	463
Turn Type	Prot	NA	pm+pt	NA
Protected Phases	8	2	1	6
Permitted Phases			6	
Detector Phase	8	2	1	6
Switch Phase				
Minimum Initial (s)	6.0	15.0	5.0	15.0
Minimum Split (s)	23.5	23.5	10.5	23.5
Total Split (s)	39.0	70.5	10.5	81.0
Total Split (%)	32.5%	58.8%	8.8%	67.5%
Yellow Time (s)	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0
Total Lost Time (s)	5.5	5.5		5.5
Lead/Lag		Lag	Lead	
Lead-Lag Optimize?				
Recall Mode	None	C-Min	None	C-Min

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 29 (24%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 65
Control Type: Actuated-Coordinated

Splits and Phases: 1: Howell Mill Rd & 17th St

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	157	65	336	251	278	463
Future Volume (vph)	157	65	336	251	278	463
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5		5.5			5.5
Lane Util. Factor	1.00		1.00			0.95
Frt	0.96		0.94			1.00
Flt Protected	0.96		1.00			0.98
Satd. Flow (prot)	1733		1758			3471
Flt Permitted	0.96		1.00			0.59
Satd. Flow (perm)	1733		1758			2079
Peak-hour factor, PHF	0.77	0.90	0.94	0.98	0.86	0.93
Adj. Flow (vph)	204	72	357	256	323	498
RTOR Reduction (vph)	12	0	14	0	0	0
Lane Group Flow (vph)	264	0	599	0	0	821
Turn Type	Prot		NA		pm+pt	NA
Protected Phases	8		2		1	6
Permitted Phases					6	
Actuated Green, G (s)	23.5		85.5			85.5
Effective Green, g (s)	23.5		85.5			85.5
Actuated g/C Ratio	0.20		0.71			0.71
Clearance Time (s)	5.5		5.5			5.5
Vehicle Extension (s)	3.0		5.0			5.0
Lane Grp Cap (vph)	339		1252			1481
v/s Ratio Prot	c0.15		0.34			
v/s Ratio Perm						c0.39
v/c Ratio	0.78		0.48			0.55
Uniform Delay, d1	45.8		7.5			8.2
Progression Factor	1.00		0.83			1.00
Incremental Delay, d2	10.8		1.1			0.5
Delay (s)	56.5		7.4			8.6
Level of Service	E		A			A
Approach Delay (s)	56.5		7.4			8.6
Approach LOS	E		A			A

Intersection Summary			
HCM 2000 Control Delay	15.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.5
Intersection Capacity Utilization	80.3%	ICU Level of Service	D
Analysis Period (min)	15		

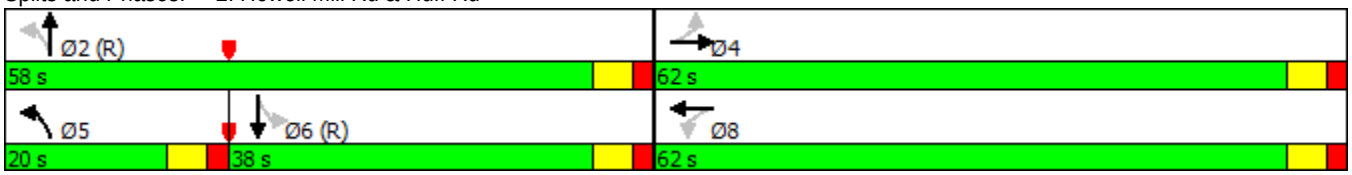
c Critical Lane Group

Lane Group	EBL	EBT	WBT	NBL	NBT	SBT
Lane Configurations						
Traffic Volume (vph)	268	0	0	172	314	408
Future Volume (vph)	268	0	0	172	314	408
Turn Type	Perm	NA	NA	pm+pt	NA	NA
Protected Phases		4	8	5	2	6
Permitted Phases	4			2		
Detector Phase	4	4	8	5	2	6
Switch Phase						
Minimum Initial (s)	6.0	6.0	6.0	5.0	15.0	15.0
Minimum Split (s)	28.5	28.5	23.5	10.5	23.5	24.5
Total Split (s)	62.0	62.0	62.0	20.0	58.0	38.0
Total Split (%)	51.7%	51.7%	51.7%	16.7%	48.3%	31.7%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		5.5	5.5	5.5	5.5	5.5
Lead/Lag				Lead		Lag
Lead-Lag Optimize?						
Recall Mode	None	None	None	None	C-Min	C-Min

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 43 (36%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated

Splits and Phases: 2: Howell Mill Rd & Huff Rd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	268	0	253	0	0	1	172	314	2	0	408	199
Future Volume (veh/h)	268	0	253	0	0	1	172	314	2	0	408	199
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1900	1863	1863	1900	1900	1863	1900
Adj Flow Rate, veh/h	288	0	291	0	0	4	195	324	8	0	453	0
Adj No. of Lanes	0	1	0	0	1	0	1	1	0	0	2	0
Peak Hour Factor	0.93	0.92	0.87	0.92	0.92	0.25	0.88	0.97	0.25	0.92	0.90	0.82
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	347	0	305	0	0	648	513	904	22	0	1300	0
Arrive On Green	0.41	0.00	0.41	0.00	0.00	0.41	0.17	1.00	1.00	0.00	0.73	0.00
Sat Flow, veh/h	739	0	746	0	0	1583	1774	1810	45	0	3725	0
Grp Volume(v), veh/h	579	0	0	0	0	4	195	0	332	0	453	0
Grp Sat Flow(s),veh/h/ln	1485	0	0	0	0	1583	1774	0	1855	0	1770	0
Q Serve(g_s), s	45.2	0.0	0.0	0.0	0.0	0.2	8.1	0.0	0.1	0.0	5.5	0.0
Cycle Q Clear(g_c), s	45.3	0.0	0.0	0.0	0.0	0.2	8.1	0.0	0.1	0.0	5.5	0.0
Prop In Lane	0.50		0.50	0.00		1.00	1.00		0.02	0.00		0.00
Lane Grp Cap(c), veh/h	652	0	0	0	0	648	513	0	926	0	1300	0
V/C Ratio(X)	0.89	0.00	0.00	0.00	0.00	0.01	0.38	0.00	0.36	0.00	0.35	0.00
Avail Cap(c_a), veh/h	744	0	0	0	0	745	575	0	926	0	1300	0
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	0.00	0.00	0.00	0.00	1.00	0.93	0.00	0.93	0.00	0.75	0.00
Uniform Delay (d), s/veh	34.4	0.0	0.0	0.0	0.0	21.0	17.5	0.0	0.0	0.0	10.8	0.0
Incr Delay (d2), s/veh	11.5	0.0	0.0	0.0	0.0	0.0	0.4	0.0	1.0	0.0	0.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	28.0	0.0	0.0	0.0	0.0	0.1	7.1	0.0	0.5	0.0	4.9	0.0
LnGrp Delay(d),s/veh	46.0	0.0	0.0	0.0	0.0	21.0	17.9	0.0	1.1	0.0	11.4	0.0
LnGrp LOS	D					C	B		A		B	
Approach Vol, veh/h		579			4			527			453	
Approach Delay, s/veh		46.0			21.0			7.3			11.4	
Approach LOS		D			C			A			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		8
Phs Duration (G+Y+Rc), s		65.4		54.6	15.8	49.6		54.6
Change Period (Y+Rc), s		5.5		5.5	5.5	5.5		5.5
Max Green Setting (Gmax), s		52.5		56.5	14.5	32.5		56.5
Max Q Clear Time (g_c+I1), s		2.1		47.3	10.1	7.5		2.2
Green Ext Time (p_c), s		24.0		1.7	0.2	15.6		2.6

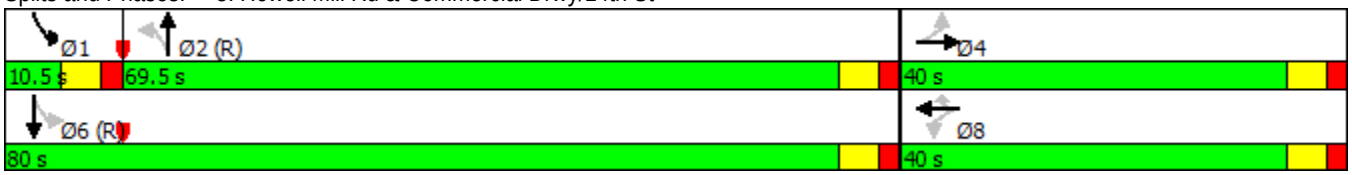
Intersection Summary	
HCM 2010 Ctrl Delay	22.8
HCM 2010 LOS	C

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	18	11	106	33	155	7	332	180	363
Future Volume (vph)	18	11	106	33	155	7	332	180	363
Turn Type	Perm	NA	Perm	NA	Perm	Perm	NA	pm+pt	NA
Protected Phases		4		8			2	1	6
Permitted Phases	4		8		8	2		6	
Detector Phase	4	4	8	8	8	2	2	1	6
Switch Phase									
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	15.0	15.0	5.0	15.0
Minimum Split (s)	29.5	29.5	29.5	29.5	29.5	25.5	25.5	10.5	23.5
Total Split (s)	40.0	40.0	40.0	40.0	40.0	69.5	69.5	10.5	80.0
Total Split (%)	33.3%	33.3%	33.3%	33.3%	33.3%	57.9%	57.9%	8.8%	66.7%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)		0.0		0.0	0.0		0.0		0.0
Total Lost Time (s)		5.5		5.5	5.5		5.5		5.5
Lead/Lag						Lag	Lag	Lead	
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	None	C-Min	C-Min	None	C-Min

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 23 (19%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated

Splits and Phases: 3: Howell Mill Rd & Commercial Drwy/14th St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	18	11	7	106	33	155	7	332	101	180	363	42
Future Volume (vph)	18	11	7	106	33	155	7	332	101	180	363	42
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	
Lane Util. Factor		1.00			1.00	1.00		1.00			0.95	
Frt		0.98			1.00	0.85		0.97			0.99	
Flt Protected		0.98			0.96	1.00		1.00			0.98	
Satd. Flow (prot)		1784			1796	1583		1801			3439	
Flt Permitted		0.63			0.73	1.00		0.98			0.68	
Satd. Flow (perm)		1160			1359	1583		1768			2391	
Peak-hour factor, PHF	0.41	0.34	0.58	0.83	0.75	0.92	0.58	0.95	0.90	0.88	0.90	0.70
Adj. Flow (vph)	44	32	12	128	44	168	12	349	112	205	403	60
RTOR Reduction (vph)	0	6	0	0	0	139	0	5	0	0	4	0
Lane Group Flow (vph)	0	82	0	0	172	29	0	468	0	0	664	0
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)		20.4			20.4	20.4		88.6			88.6	
Effective Green, g (s)		20.4			20.4	20.4		88.6			88.6	
Actuated g/C Ratio		0.17			0.17	0.17		0.74			0.74	
Clearance Time (s)		5.5			5.5	5.5		5.5			5.5	
Vehicle Extension (s)		3.0			3.0	3.0		5.0			5.0	
Lane Grp Cap (vph)		197			231	269		1305			1765	
v/s Ratio Prot												
v/s Ratio Perm		0.07			c0.13	0.02		0.26			c0.28	
v/c Ratio		0.42			0.74	0.11		0.36			0.38	
Uniform Delay, d1		44.5			47.3	42.1		5.6			5.7	
Progression Factor		1.00			0.63	0.34		0.55			0.67	
Incremental Delay, d2		1.4			10.8	0.2		0.7			0.1	
Delay (s)		45.9			40.6	14.6		3.8			3.9	
Level of Service		D			D	B		A			A	
Approach Delay (s)		45.9			27.8			3.8			3.9	
Approach LOS		D			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	11.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.5
Intersection Capacity Utilization	65.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	4.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↕	
Traffic Vol, veh/h	107	0	27	3	0	3	39	305	1	2	346	147
Future Vol, veh/h	107	0	27	3	0	3	39	305	1	2	346	147
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	92	94	58	25	67	85	88	56	83	87	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	115	0	29	5	0	4	46	347	2	2	398	160

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	923	922	279	643	1001	347	557	0	0	348	0	0
Stage 1	482	482	-	439	439	-	-	-	-	-	-	-
Stage 2	441	440	-	204	562	-	-	-	-	-	-	-
Critical Hdwy	7.33	6.53	6.93	7.33	6.53	6.23	4.13	-	-	4.13	-	-
Critical Hdwy Stg 1	6.53	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.13	5.53	-	6.53	5.53	-	-	-	-	-	-	-
Follow-up Hdwy	3.519	4.019	3.319	3.519	4.019	3.319	2.219	-	-	2.219	-	-
Pot Cap-1 Maneuver	237	269	719	372	242	695	1012	-	-	1209	-	-
Stage 1	535	552	-	596	577	-	-	-	-	-	-	-
Stage 2	594	577	-	779	509	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	225	253	719	341	228	695	1012	-	-	1209	-	-
Mov Cap-2 Maneuver	225	253	-	341	228	-	-	-	-	-	-	-
Stage 1	505	551	-	563	545	-	-	-	-	-	-	-
Stage 2	557	545	-	746	508	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	34.5	13.2	1	0
HCM LOS	D	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1012	-	-	261	447	1209	-	-
HCM Lane V/C Ratio	0.045	-	-	0.551	0.022	0.002	-	-
HCM Control Delay (s)	8.7	0	-	34.5	13.2	8	0	-
HCM Lane LOS	A	A	-	D	B	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	3	0.1	0	-	-

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	17	181	32	81	62	3	315	176	202
Future Volume (vph)	17	181	32	81	62	3	315	176	202
Turn Type	Perm	NA	Perm	NA	Perm	Perm	NA	Perm	NA
Protected Phases		4		8			2		6
Permitted Phases	4		8		8	2		6	
Detector Phase	4	4	8	8	8	2	2	6	6
Switch Phase									
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	15.0	15.0	15.0	15.0
Minimum Split (s)	23.5	23.5	24.5	24.5	24.5	26.5	26.5	26.5	26.5
Total Split (s)	45.0	45.0	45.0	45.0	45.0	75.0	75.0	75.0	75.0
Total Split (%)	37.5%	37.5%	37.5%	37.5%	37.5%	62.5%	62.5%	62.5%	62.5%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)		0.0		0.0	0.0		0.0		0.0
Total Lost Time (s)		5.5		5.5	5.5		5.5		5.5
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	None	C-Min	C-Min	C-Min	C-Min

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 108 (90%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

Splits and Phases: 5: Howell Mill Rd & 10th St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	17	181	11	32	81	62	3	315	199	176	202	4
Future Volume (veh/h)	17	181	11	32	81	62	3	315	199	176	202	4
Number	7	4	14	3	8	18	5	2	12	1	6	16
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	0.90	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1863	1900	1863	1900	1900	1863	1900
Adj Flow Rate, veh/h	28	232	16	44	108	76	4	366	229	207	227	4
Adj No. of Lanes	0	1	0	0	1	1	0	1	0	0	2	0
Peak Hour Factor	0.61	0.78	0.69	0.73	0.75	0.82	0.75	0.86	0.87	0.85	0.89	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	53	278	18	93	209	328	32	753	467	563	1164	21
Arrive On Green	0.21	0.21	0.21	0.35	0.35	0.35	0.70	0.70	0.70	1.00	1.00	1.00
Sat Flow, veh/h	94	1341	88	263	1008	1583	3	1074	667	718	1661	29
Grp Volume(v), veh/h	276	0	0	152	0	76	599	0	0	207	0	231
Grp Sat Flow(s),veh/h/ln	1523	0	0	1271	0	1583	1743	0	0	718	0	1690
Q Serve(g_s), s	11.0	0.0	0.0	0.0	0.0	4.1	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	21.2	0.0	0.0	10.2	0.0	4.1	18.7	0.0	0.0	0.0	0.0	0.0
Prop In Lane	0.10		0.06	0.29		1.00	0.01		0.38	1.00		0.02
Lane Grp Cap(c), veh/h	349	0	0	302	0	328	1253	0	0	563	0	1185
V/C Ratio(X)	0.79	0.00	0.00	0.50	0.00	0.23	0.48	0.00	0.00	0.37	0.00	0.19
Avail Cap(c_a), veh/h	540	0	0	493	0	521	1253	0	0	563	0	1185
HCM Platoon Ratio	1.00	1.00	1.00	1.67	1.67	1.67	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	0.00	0.91	0.00	0.91	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	46.0	0.0	0.0	33.8	0.0	32.4	8.2	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	4.4	0.0	0.0	1.2	0.0	0.3	1.3	0.0	0.0	1.8	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	14.3	0.0	0.0	7.3	0.0	3.3	14.5	0.0	0.0	0.5	0.0	0.2
LnGrp Delay(d),s/veh	50.4	0.0	0.0	35.0	0.0	32.8	9.5	0.0	0.0	1.8	0.0	0.4
LnGrp LOS	D			D		C	A			A		A
Approach Vol, veh/h		276			228			599			438	
Approach Delay, s/veh		50.4			34.3			9.5			1.1	
Approach LOS		D			C			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		89.6		30.4		89.6		30.4
Change Period (Y+Rc), s		5.5		5.5		5.5		5.5
Max Green Setting (Gmax), s		69.5		39.5		69.5		39.5
Max Q Clear Time (g_c+I1), s		20.7		23.2		2.0		12.2
Green Ext Time (p_c), s		33.8		1.7		42.1		1.8

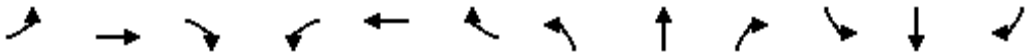
Intersection Summary		
HCM 2010 Ctrl Delay		18.1
HCM 2010 LOS		B

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	150	433	47	152	23	1243	311	107	1061
Future Volume (vph)	150	433	47	152	23	1243	311	107	1061
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	pm+pt	NA
Protected Phases		4		8		2		1	6
Permitted Phases	4		8		2		2	6	
Detector Phase	4	4	8	8	2	2	2	1	6
Switch Phase									
Minimum Initial (s)	6.0	6.0	6.0	6.0	15.0	15.0	15.0	5.0	15.0
Minimum Split (s)	23.5	23.5	33.5	33.5	25.5	25.5	25.5	10.5	27.5
Total Split (s)	49.0	49.0	49.0	49.0	60.5	60.5	60.5	10.5	71.0
Total Split (%)	40.8%	40.8%	40.8%	40.8%	50.4%	50.4%	50.4%	8.8%	59.2%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)		0.0		0.0		0.0	0.0		0.0
Total Lost Time (s)		5.5		5.5		5.5	5.5		5.5
Lead/Lag					Lag	Lag	Lag	Lead	
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	C-Min	C-Min	C-Min	None	C-Min

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 4 (3%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated

Splits and Phases: 6: Northside Dr & 10th St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	150	433	31	47	152	36	23	1243	311	107	1061	58
Future Volume (vph)	150	433	31	47	152	36	23	1243	311	107	1061	58
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	
Lane Util. Factor		0.95			0.95			0.91	1.00		0.91	
Frt		0.99			0.98			1.00	0.85		0.99	
Flt Protected		0.99			0.99			1.00	1.00		1.00	
Satd. Flow (prot)		3464			3421			5077	1583		5028	
Flt Permitted		0.77			0.60			0.80	1.00		0.65	
Satd. Flow (perm)		2690			2088			4083	1583		3286	
Peak-hour factor, PHF	0.87	0.80	0.60	0.78	0.84	0.82	0.48	0.92	0.95	0.84	0.87	0.91
Adj. Flow (vph)	172	541	52	60	181	44	48	1351	327	127	1220	64
RTOR Reduction (vph)	0	5	0	0	14	0	0	0	87	0	4	0
Lane Group Flow (vph)	0	760	0	0	271	0	0	1399	240	0	1407	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)		38.7			38.7			70.3	70.3		70.3	
Effective Green, g (s)		38.7			38.7			70.3	70.3		70.3	
Actuated g/C Ratio		0.32			0.32			0.59	0.59		0.59	
Clearance Time (s)		5.5			5.5			5.5	5.5		5.5	
Vehicle Extension (s)		3.0			3.0			5.0	5.0		5.0	
Lane Grp Cap (vph)		867			673			2391	927		1925	
v/s Ratio Prot												
v/s Ratio Perm		c0.28			0.13			0.34	0.15		c0.43	
v/c Ratio		0.88			0.40			0.59	0.26		0.73	
Uniform Delay, d1		38.4			31.7			15.7	12.1		18.0	
Progression Factor		0.93			1.00			1.00	1.00		0.96	
Incremental Delay, d2		9.4			0.4			1.1	0.7		1.3	
Delay (s)		45.2			32.1			16.7	12.8		18.6	
Level of Service		D			C			B	B		B	
Approach Delay (s)		45.2			32.1			16.0			18.6	
Approach LOS		D			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	23.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.5
Intersection Capacity Utilization	90.8%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	5.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	17	0	35	5	2	11	47	1110	11	7	959	17
Future Vol, veh/h	17	0	35	5	2	11	47	1110	11	7	959	17
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	92	67	62	50	55	78	96	69	44	91	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	20	0	52	8	4	20	60	1156	16	16	1054	20

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1681	2389	537	1738	2391	586	1074	0	0	1172	0	0
Stage 1	1096	1096	-	1285	1285	-	-	-	-	-	-	-
Stage 2	585	1293	-	453	1106	-	-	-	-	-	-	-
Critical Hdwy	6.44	6.54	7.14	6.44	6.54	7.14	5.34	-	-	5.34	-	-
Critical Hdwy Stg 1	7.34	5.54	-	7.34	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.74	5.54	-	6.74	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.82	4.02	3.92	3.82	4.02	3.92	3.12	-	-	3.12	-	-
Pot Cap-1 Maneuver	100	33	418	92	33	389	360	-	-	323	-	-
Stage 1	171	287	-	126	233	-	-	-	-	-	-	-
Stage 2	423	231	-	508	284	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	44	15	418	46	15	389	360	-	-	323	-	-
Mov Cap-2 Maneuver	44	15	-	46	15	-	-	-	-	-	-	-
Stage 1	89	252	-	66	121	-	-	-	-	-	-	-
Stage 2	202	120	-	390	249	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	67.3	105.4	3.1	0.9
HCM LOS	F	F		

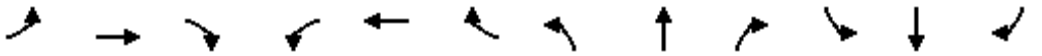
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	360	-	-	125	65	323	-	-
HCM Lane V/C Ratio	0.167	-	-	0.578	0.493	0.049	-	-
HCM Control Delay (s)	17	2.4	-	67.3	105.4	16.7	0.7	-
HCM Lane LOS	C	A	-	F	F	C	A	-
HCM 95th %tile Q(veh)	0.6	-	-	2.9	2	0.2	-	-

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	52	311	131	230	108	1347	11	1022
Future Volume (vph)	52	311	131	230	108	1347	11	1022
Turn Type	Perm	NA	pm+pt	NA	pm+pt	NA	Perm	NA
Protected Phases		4	3	8	5	2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	3	8	5	2	6	6
Switch Phase								
Minimum Initial (s)	6.0	6.0	5.0	6.0	5.0	15.0	15.0	15.0
Minimum Split (s)	35.5	35.5	10.5	34.5	10.5	27.5	26.5	26.5
Total Split (s)	36.0	36.0	10.5	46.5	16.0	73.5	57.5	57.5
Total Split (%)	30.0%	30.0%	8.8%	38.8%	13.3%	61.3%	47.9%	47.9%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		5.5		5.5	5.5	5.5	5.5	5.5
Lead/Lag	Lag	Lag	Lead		Lead		Lag	Lag
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	None	C-Min	C-Min	C-Min

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 8 (7%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 95
Control Type: Actuated-Coordinated

Splits and Phases: 8: Northside Dr & 14th St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	52	311	73	131	230	3	108	1347	95	11	1022	19
Future Volume (vph)	52	311	73	131	230	3	108	1347	95	11	1022	19
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	5.5	
Lane Util. Factor		0.95			0.95		1.00	0.95		1.00	0.95	
Frt		0.97			1.00		1.00	0.99		1.00	1.00	
Flt Protected		0.99			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3414			3467		1770	3494		1770	3527	
Flt Permitted		0.73			0.59		0.13	1.00		0.08	1.00	
Satd. Flow (perm)		2509			2093		247	3494		158	3527	
Peak-hour factor, PHF	0.77	0.97	0.79	0.89	0.89	0.38	0.79	0.84	0.64	0.55	0.87	0.68
Adj. Flow (vph)	68	321	92	147	258	8	137	1604	148	20	1175	28
RTOR Reduction (vph)	0	17	0	0	1	0	0	4	0	0	1	0
Lane Group Flow (vph)	0	464	0	0	412	0	137	1748	0	20	1202	0
Turn Type	Perm	NA		pm+pt	NA		pm+pt	NA		Perm	NA	
Protected Phases		4		3	8		5	2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		30.4			30.4		78.6	78.6		64.2	64.2	
Effective Green, g (s)		30.4			30.4		78.6	78.6		64.2	64.2	
Actuated g/C Ratio		0.25			0.25		0.65	0.65		0.54	0.54	
Clearance Time (s)		5.5			5.5		5.5	5.5		5.5	5.5	
Vehicle Extension (s)		3.0			3.0		3.0	5.0		5.0	5.0	
Lane Grp Cap (vph)		635			530		274	2288		84	1886	
v/s Ratio Prot							0.04	c0.50			0.34	
v/s Ratio Perm		0.18			c0.20		0.29			0.13		
v/c Ratio		0.73			0.93dl		0.50	0.76		0.24	0.64	
Uniform Delay, d1		41.0			41.6		13.3	14.3		14.9	19.7	
Progression Factor		0.87			0.72		1.51	0.71		0.90	0.89	
Incremental Delay, d2		4.2			6.9		1.4	2.4		5.2	1.3	
Delay (s)		40.1			37.0		21.4	12.5		18.6	18.7	
Level of Service		D			D		C	B		B	B	
Approach Delay (s)		40.1			37.0			13.2			18.7	
Approach LOS		D			D			B			B	

Intersection Summary			
HCM 2000 Control Delay	20.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	93.8%	ICU Level of Service	F
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

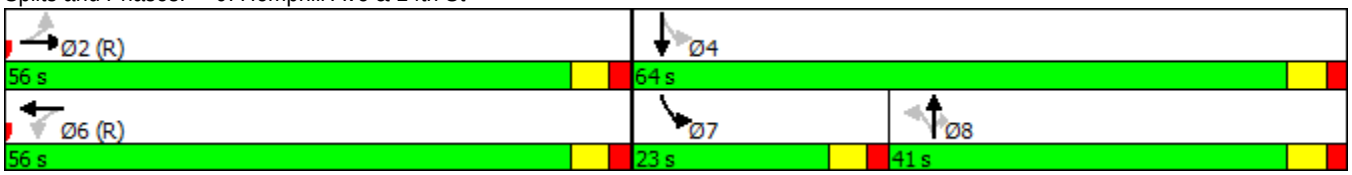
c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	12	360	31	355	36	57	42	92	121
Future Volume (vph)	12	360	31	355	36	57	42	92	121
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	pm+pt	NA
Protected Phases		2		6		8		7	4
Permitted Phases	2		6		8		8	4	
Detector Phase	2	2	6	6	8	8	8	7	4
Switch Phase									
Minimum Initial (s)	15.0	15.0	15.0	15.0	6.0	6.0	6.0	5.0	6.0
Minimum Split (s)	28.5	28.5	23.5	23.5	28.5	28.5	28.5	10.5	23.5
Total Split (s)	56.0	56.0	56.0	56.0	41.0	41.0	41.0	23.0	64.0
Total Split (%)	46.7%	46.7%	46.7%	46.7%	34.2%	34.2%	34.2%	19.2%	53.3%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)		0.0		0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)		5.5		5.5		5.5	5.5	5.5	5.5
Lead/Lag					Lag	Lag	Lag	Lead	
Lead-Lag Optimize?									
Recall Mode	C-Min	C-Min	C-Min	C-Min	None	None	None	None	None

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 88 (73%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated

Splits and Phases: 9: Hemphill Ave & 14th St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	12	360	46	31	355	29	36	57	42	92	121	0
Future Volume (veh/h)	12	360	46	31	355	29	36	57	42	92	121	0
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.90	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1900	1900	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	24	387	56	48	403	32	44	76	60	128	141	0
Adj No. of Lanes	0	2	0	0	2	0	0	1	1	1	1	0
Peak Hour Factor	0.50	0.93	0.82	0.65	0.88	0.91	0.82	0.75	0.70	0.72	0.86	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	120	1885	270	209	1774	145	97	133	166	259	449	0
Arrive On Green	0.22	0.22	0.22	0.67	0.67	0.67	0.12	0.12	0.12	0.03	0.08	0.00
Sat Flow, veh/h	131	2825	405	260	2658	217	479	1144	1425	1774	1863	0
Grp Volume(v), veh/h	242	0	225	239	0	244	120	0	60	128	141	0
Grp Sat Flow(s),veh/h/ln	1737	0	1624	1479	0	1657	1624	0	1425	1774	1863	0
Q Serve(g_s), s	0.0	0.0	13.6	1.0	0.0	6.9	5.9	0.0	4.7	7.4	8.6	0.0
Cycle Q Clear(g_c), s	12.7	0.0	13.6	14.6	0.0	6.9	8.3	0.0	4.7	7.4	8.6	0.0
Prop In Lane	0.10		0.25	0.20		0.13	0.37		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	1192	0	1083	1023	0	1105	230	0	166	259	449	0
V/C Ratio(X)	0.20	0.00	0.21	0.23	0.00	0.22	0.52	0.00	0.36	0.49	0.31	0.00
Avail Cap(c_a), veh/h	1192	0	1083	1023	0	1105	513	0	422	378	908	0
HCM Platoon Ratio	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	0.62	0.00	0.62	1.00	0.00	1.00	1.00	0.00	1.00	0.78	0.78	0.00
Uniform Delay (d), s/veh	20.5	0.0	20.9	7.8	0.0	7.8	50.4	0.0	48.9	43.0	45.9	0.0
Incr Delay (d2), s/veh	0.2	0.0	0.3	0.5	0.0	0.5	1.8	0.0	1.3	1.1	0.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	10.0	0.0	9.4	5.6	0.0	5.9	7.1	0.0	3.4	6.5	7.5	0.0
LnGrp Delay(d),s/veh	20.8	0.0	21.1	8.3	0.0	8.3	52.2	0.0	50.2	44.1	46.2	0.0
LnGrp LOS	C		C	A		A	D		D	D	D	
Approach Vol, veh/h		467			483			180			269	
Approach Delay, s/veh		20.9			8.3			51.5			45.2	
Approach LOS		C			A			D			D	

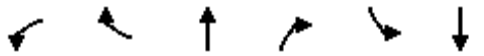
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6	7	8
Phs Duration (G+Y+Rc), s		85.6		34.4		85.6	15.0	19.5
Change Period (Y+Rc), s		5.5		5.5		5.5	5.5	5.5
Max Green Setting (Gmax), s		50.5		58.5		50.5	17.5	35.5
Max Q Clear Time (g_c+I1), s		15.6		10.6		16.6	9.4	10.3
Green Ext Time (p_c), s		9.4		4.3		9.3	0.2	3.7

Intersection Summary	
HCM 2010 Ctrl Delay	25.2
HCM 2010 LOS	C

Lane Group	WBL	NBT	SBL	SBT
Lane Configurations				
Traffic Volume (vph)	372	426	153	776
Future Volume (vph)	372	426	153	776
Turn Type	Prot	NA	pm+pt	NA
Protected Phases	8	2	1	6
Permitted Phases			6	
Detector Phase	8	2	1	6
Switch Phase				
Minimum Initial (s)	6.0	15.0	5.0	15.0
Minimum Split (s)	23.5	23.5	10.5	23.5
Total Split (s)	45.0	64.5	10.5	75.0
Total Split (%)	37.5%	53.8%	8.8%	62.5%
Yellow Time (s)	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0
Total Lost Time (s)	5.5	5.5		5.5
Lead/Lag		Lag	Lead	
Lead-Lag Optimize?				
Recall Mode	None	C-Min	None	C-Min

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 77 (64%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated

Splits and Phases: 1: Howell Mill Rd & 17th St



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	372	125	426	194	153	776
Future Volume (vph)	372	125	426	194	153	776
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5		5.5			5.5
Lane Util. Factor	1.00		1.00			0.95
Frt	0.96		0.96			1.00
Flt Protected	0.97		1.00			0.99
Satd. Flow (prot)	1730		1784			3513
Flt Permitted	0.97		1.00			0.60
Satd. Flow (perm)	1730		1784			2127
Peak-hour factor, PHF	0.94	0.80	0.90	0.90	0.93	0.84
Adj. Flow (vph)	396	156	473	216	165	924
RTOR Reduction (vph)	12	0	11	0	0	0
Lane Group Flow (vph)	540	0	678	0	0	1089
Turn Type	Prot		NA		pm+pt	NA
Protected Phases	8		2		1	6
Permitted Phases					6	
Actuated Green, G (s)	38.8		70.2			70.2
Effective Green, g (s)	38.8		70.2			70.2
Actuated g/C Ratio	0.32		0.59			0.59
Clearance Time (s)	5.5		5.5			5.5
Vehicle Extension (s)	3.0		5.0			5.0
Lane Grp Cap (vph)	559		1043			1244
v/s Ratio Prot	c0.31		0.38			
v/s Ratio Perm						c0.51
v/c Ratio	0.97		0.65			0.88
Uniform Delay, d1	39.9		16.7			21.2
Progression Factor	1.00		0.60			1.00
Incremental Delay, d2	29.3		2.6			7.1
Delay (s)	69.2		12.6			28.3
Level of Service	E		B			C
Approach Delay (s)	69.2		12.6			28.3
Approach LOS	E		B			C

Intersection Summary			
HCM 2000 Control Delay	33.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.5
Intersection Capacity Utilization	102.1%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	163	2	9	1	231	469	4	857
Future Volume (vph)	163	2	9	1	231	469	4	857
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	Perm	NA
Protected Phases		4		8	5	2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	5	2	6	6
Switch Phase								
Minimum Initial (s)	6.0	6.0	6.0	6.0	5.0	15.0	15.0	15.0
Minimum Split (s)	28.5	28.5	23.5	23.5	10.5	23.5	24.5	24.5
Total Split (s)	40.4	40.4	40.4	40.4	23.0	79.6	56.6	56.6
Total Split (%)	33.7%	33.7%	33.7%	33.7%	19.2%	66.3%	47.2%	47.2%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0		0.0
Total Lost Time (s)		5.5		5.5	5.5	5.5		5.5
Lead/Lag					Lead		Lag	Lag
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	None	C-Min	C-Min	C-Min

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 88 (73%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated

Splits and Phases: 2: Howell Mill Rd & Huff Rd

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	163	2	179	9	1	5	231	469	2	4	857	223
Future Volume (veh/h)	163	2	179	9	1	5	231	469	2	4	857	223
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1900	1863	1863	1900	1900	1863	1900
Adj Flow Rate, veh/h	187	4	188	16	4	12	289	565	4	8	952	0
Adj No. of Lanes	0	1	0	0	1	0	1	1	0	0	2	0
Peak Hour Factor	0.87	0.50	0.95	0.56	0.25	0.42	0.80	0.83	0.50	0.50	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	242	5	200	202	57	129	525	1183	8	35	1694	0
Arrive On Green	0.27	0.27	0.27	0.27	0.27	0.27	0.21	1.00	1.00	0.98	0.98	0.00
Sat Flow, veh/h	738	19	745	585	214	479	1774	1847	13	9	3537	0
Grp Volume(v), veh/h	379	0	0	32	0	0	289	0	569	514	446	0
Grp Sat Flow(s),veh/h/ln	1501	0	0	1278	0	0	1774	0	1860	1852	1610	0
Q Serve(g_s), s	28.0	0.0	0.0	0.0	0.0	0.0	10.0	0.0	0.0	0.0	1.4	0.0
Cycle Q Clear(g_c), s	29.6	0.0	0.0	1.6	0.0	0.0	10.0	0.0	0.0	1.4	1.4	0.0
Prop In Lane	0.49		0.50	0.50		0.37	1.00		0.01	0.02		0.00
Lane Grp Cap(c), veh/h	447	0	0	388	0	0	525	0	1191	939	790	0
V/C Ratio(X)	0.85	0.00	0.00	0.08	0.00	0.00	0.55	0.00	0.48	0.55	0.57	0.00
Avail Cap(c_a), veh/h	481	0	0	419	0	0	600	0	1191	939	790	0
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	0.00	0.00	1.00	0.00	0.00	0.80	0.00	0.80	0.30	0.30	0.00
Uniform Delay (d), s/veh	42.8	0.0	0.0	32.7	0.0	0.0	9.8	0.0	0.0	0.6	0.6	0.0
Incr Delay (d2), s/veh	12.6	0.0	0.0	0.1	0.0	0.0	0.7	0.0	1.1	0.7	0.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	20.0	0.0	0.0	1.4	0.0	0.0	8.2	0.0	0.7	0.9	0.8	0.0
LnGrp Delay(d),s/veh	55.4	0.0	0.0	32.8	0.0	0.0	10.5	0.0	1.1	1.3	1.5	0.0
LnGrp LOS	E			C			B		A	A	A	
Approach Vol, veh/h		379			32			858			960	
Approach Delay, s/veh		55.4			32.8			4.3			1.4	
Approach LOS		E			C			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		8
Phs Duration (G+Y+Rc), s		82.3		37.7	18.0	64.4		37.7
Change Period (Y+Rc), s		5.5		5.5	5.5	5.5		5.5
Max Green Setting (Gmax), s		74.1		34.9	17.5	51.1		34.9
Max Q Clear Time (g_c+I1), s		2.0		31.6	12.0	3.4		3.6
Green Ext Time (p_c), s		59.8		0.5	0.5	41.9		1.6

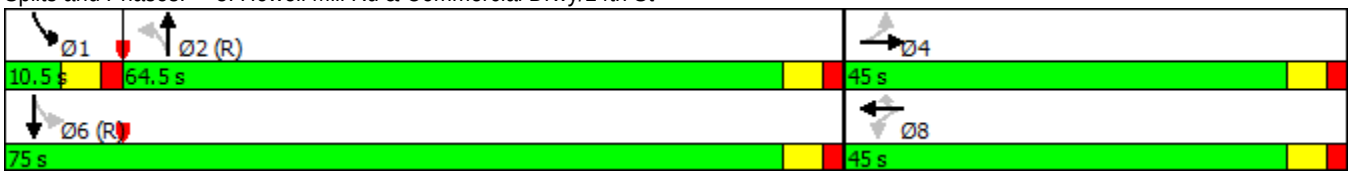
Intersection Summary	
HCM 2010 Ctrl Delay	12.1
HCM 2010 LOS	B

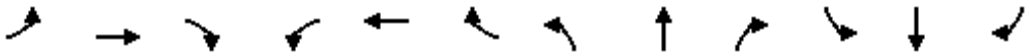
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	47	22	280	25	292	12	470	141	787
Future Volume (vph)	47	22	280	25	292	12	470	141	787
Turn Type	Perm	NA	Perm	NA	Perm	Perm	NA	pm+pt	NA
Protected Phases		4		8			2	1	6
Permitted Phases	4		8		8	2		6	
Detector Phase	4	4	8	8	8	2	2	1	6
Switch Phase									
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	15.0	15.0	5.0	15.0
Minimum Split (s)	29.5	29.5	29.5	29.5	29.5	25.5	25.5	10.5	23.5
Total Split (s)	45.0	45.0	45.0	45.0	45.0	64.5	64.5	10.5	75.0
Total Split (%)	37.5%	37.5%	37.5%	37.5%	37.5%	53.8%	53.8%	8.8%	62.5%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)		0.0		0.0	0.0		0.0		0.0
Total Lost Time (s)		5.5		5.5	5.5		5.5		5.5
Lead/Lag						Lag	Lag	Lead	
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	None	C-Min	C-Min	None	C-Min

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 88 (73%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated

Splits and Phases: 3: Howell Mill Rd & Commercial Drwy/14th St





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	47	22	9	280	25	292	12	470	73	141	787	37
Future Volume (vph)	47	22	9	280	25	292	12	470	73	141	787	37
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	
Lane Util. Factor		1.00			1.00	1.00		1.00			0.95	
Frt		0.99			1.00	0.85		0.98			0.99	
Flt Protected		0.97			0.96	1.00		1.00			0.99	
Satd. Flow (prot)		1784			1783	1583		1825			3485	
Flt Permitted		0.46			0.67	1.00		0.95			0.68	
Satd. Flow (perm)		847			1253	1583		1733			2374	
Peak-hour factor, PHF	0.65	0.61	0.75	0.95	0.69	0.94	0.60	0.86	0.79	0.77	0.91	0.71
Adj. Flow (vph)	72	36	12	295	36	311	20	547	92	183	865	52
RTOR Reduction (vph)	0	4	0	0	0	220	0	4	0	0	3	0
Lane Group Flow (vph)	0	116	0	0	331	91	0	655	0	0	1097	0
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)		35.2			35.2	35.2		73.8			73.8	
Effective Green, g (s)		35.2			35.2	35.2		73.8			73.8	
Actuated g/C Ratio		0.29			0.29	0.29		0.61			0.61	
Clearance Time (s)		5.5			5.5	5.5		5.5			5.5	
Vehicle Extension (s)		3.0			3.0	3.0		5.0			5.0	
Lane Grp Cap (vph)		248			367	464		1065			1460	
v/s Ratio Prot												
v/s Ratio Perm		0.14			c0.26	0.06		0.38			c0.46	
v/c Ratio		0.47			0.90	0.20		0.62			0.75	
Uniform Delay, d1		34.7			40.7	31.8		14.3			16.5	
Progression Factor		1.00			0.58	1.33		0.78			0.52	
Incremental Delay, d2		1.4			9.5	0.1		2.6			1.3	
Delay (s)		36.2			33.2	42.5		13.8			9.9	
Level of Service		D			C	D		B			A	
Approach Delay (s)		36.2			37.7			13.8			9.9	
Approach LOS		D			D			B			A	

Intersection Summary			
HCM 2000 Control Delay	19.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.5
Intersection Capacity Utilization	94.1%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	34.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	97	0	34	7	2	8	34	436	9	10	646	427
Future Vol, veh/h	97	0	34	7	2	8	34	436	9	10	646	427
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	92	94	58	25	67	85	88	56	83	87	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	104	0	36	12	8	12	40	495	16	12	743	464

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1592	1591	603	978	1814	503	1207	0	0	512	0	0
Stage 1	999	999	-	583	583	-	-	-	-	-	-	-
Stage 2	593	592	-	395	1231	-	-	-	-	-	-	-
Critical Hdwy	7.33	6.53	6.93	7.33	6.53	6.23	4.13	-	-	4.13	-	-
Critical Hdwy Stg 1	6.53	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.13	5.53	-	6.53	5.53	-	-	-	-	-	-	-
Follow-up Hdwy	3.519	4.019	3.319	3.519	4.019	3.319	2.219	-	-	2.219	-	-
Pot Cap-1 Maneuver	~ 79	107	443	217	78	568	576	-	-	1051	-	-
Stage 1	262	320	-	497	498	-	-	-	-	-	-	-
Stage 2	491	493	-	602	249	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	~ 63	93	443	179	68	568	576	-	-	1051	-	-
Mov Cap-2 Maneuver	~ 63	93	-	179	68	-	-	-	-	-	-	-
Stage 1	237	307	-	449	450	-	-	-	-	-	-	-
Stage 2	426	445	-	530	239	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	$ 463.6	34.2	0.8	0.2
HCM LOS	F	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	576	-	-	81	155	1051	-	-
HCM Lane V/C Ratio	0.069	-	-	1.734	0.207	0.011	-	-
HCM Control Delay (s)	11.7	0	-	$ 463.6	34.2	8.5	0.2	-
HCM Lane LOS	B	A	-	F	D	A	A	-
HCM 95th %tile Q(veh)	0.2	-	-	11.9	0.7	0	-	-

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

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	29	107	82	168	118	12	297	189	568
Future Volume (vph)	29	107	82	168	118	12	297	189	568
Turn Type	Perm	NA	Perm	NA	Perm	Perm	NA	Perm	NA
Protected Phases		4		8			2		6
Permitted Phases	4		8		8	2		6	
Detector Phase	4	4	8	8	8	2	2	6	6
Switch Phase									
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	15.0	15.0	15.0	15.0
Minimum Split (s)	23.5	23.5	24.5	24.5	24.5	26.5	26.5	26.5	26.5
Total Split (s)	45.0	45.0	45.0	45.0	45.0	75.0	75.0	75.0	75.0
Total Split (%)	37.5%	37.5%	37.5%	37.5%	37.5%	62.5%	62.5%	62.5%	62.5%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)		0.0		0.0	0.0		0.0		0.0
Total Lost Time (s)		5.5		5.5	5.5		5.5		5.5
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	None	C-Min	C-Min	C-Min	C-Min

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 96 (80%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

Splits and Phases: 5: Howell Mill Rd & 10th St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	29	107	15	82	168	118	12	297	74	189	568	44
Future Volume (veh/h)	29	107	15	82	168	118	12	297	74	189	568	44
Number	7	4	14	3	8	18	5	2	12	1	6	16
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	0.90	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1863	1900	1863	1900	1900	1863	1900
Adj Flow Rate, veh/h	40	127	20	88	189	124	20	319	96	215	624	52
Adj No. of Lanes	0	1	0	0	1	1	0	1	0	0	2	0
Peak Hour Factor	0.72	0.84	0.75	0.93	0.89	0.95	0.60	0.93	0.77	0.88	0.91	0.85
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	61	168	23	128	244	486	56	788	230	437	1169	98
Arrive On Green	0.31	0.31	0.31	0.51	0.51	0.51	0.60	0.60	0.60	1.00	1.00	1.00
Sat Flow, veh/h	81	547	75	288	793	1583	41	1311	383	647	1945	164
Grp Volume(v), veh/h	187	0	0	277	0	124	435	0	0	362	0	529
Grp Sat Flow(s),veh/h/ln	704	0	0	1081	0	1583	1736	0	0	1090	0	1666
Q Serve(g_s), s	7.0	0.0	0.0	0.0	0.0	5.3	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	34.0	0.0	0.0	27.0	0.0	5.3	15.3	0.0	0.0	0.0	0.0	0.0
Prop In Lane	0.21		0.11	0.32		1.00	0.05		0.22	0.59		0.10
Lane Grp Cap(c), veh/h	253	0	0	372	0	486	1075	0	0	703	0	1002
V/C Ratio(X)	0.74	0.00	0.00	0.75	0.00	0.25	0.40	0.00	0.00	0.51	0.00	0.53
Avail Cap(c_a), veh/h	284	0	0	407	0	521	1075	0	0	703	0	1002
HCM Platoon Ratio	1.00	1.00	1.00	1.67	1.67	1.67	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	0.00	0.24	0.00	0.24	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	39.5	0.0	0.0	25.7	0.0	21.5	12.6	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	8.8	0.0	0.0	1.7	0.0	0.1	1.1	0.0	0.0	2.7	0.0	2.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	10.9	0.0	0.0	10.3	0.0	3.5	12.4	0.0	0.0	0.9	0.0	1.0
LnGrp Delay(d),s/veh	48.2	0.0	0.0	27.4	0.0	21.6	13.7	0.0	0.0	2.7	0.0	2.0
LnGrp LOS	D			C		C	B			A		A
Approach Vol, veh/h		187			401			435			891	
Approach Delay, s/veh		48.2			25.6			13.7			2.3	
Approach LOS		D			C			B			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		77.6		42.4		77.6		42.4
Change Period (Y+Rc), s		5.5		5.5		5.5		5.5
Max Green Setting (Gmax), s		69.5		39.5		69.5		39.5
Max Q Clear Time (g_c+I1), s		17.3		36.0		2.0		29.0
Green Ext Time (p_c), s		42.1		0.8		51.6		1.7

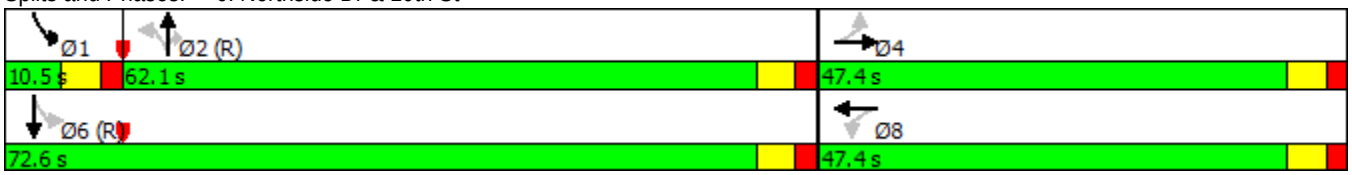
Intersection Summary	
HCM 2010 Ctrl Delay	14.3
HCM 2010 LOS	B

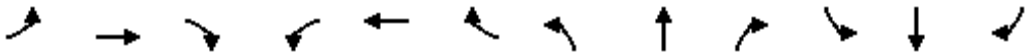
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	107	269	130	391	52	1393	117	56	1528
Future Volume (vph)	107	269	130	391	52	1393	117	56	1528
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	pm+pt	NA
Protected Phases		4		8		2		1	6
Permitted Phases	4		8		2		2	6	
Detector Phase	4	4	8	8	2	2	2	1	6
Switch Phase									
Minimum Initial (s)	6.0	6.0	6.0	6.0	15.0	15.0	15.0	5.0	15.0
Minimum Split (s)	23.5	23.5	33.5	33.5	25.5	25.5	25.5	10.5	27.5
Total Split (s)	47.4	47.4	47.4	47.4	62.1	62.1	62.1	10.5	72.6
Total Split (%)	39.5%	39.5%	39.5%	39.5%	51.8%	51.8%	51.8%	8.8%	60.5%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)		0.0		0.0		0.0	0.0		0.0
Total Lost Time (s)		5.5		5.5		5.5	5.5		5.5
Lead/Lag					Lag	Lag	Lag	Lead	
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	C-Min	C-Min	C-Min	None	C-Min

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 85 (71%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated

Splits and Phases: 6: Northside Dr & 10th St





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	107	269	67	130	391	53	52	1393	117	56	1528	93
Future Volume (vph)	107	269	67	130	391	53	52	1393	117	56	1528	93
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	
Lane Util. Factor		0.95			0.95			0.91	1.00		0.91	
Frt		0.97			0.99			1.00	0.85		0.99	
Flt Protected		0.99			0.99			1.00	1.00		1.00	
Satd. Flow (prot)		3398			3455			5074	1583		5020	
Flt Permitted		0.56			0.63			0.70	1.00		0.74	
Satd. Flow (perm)		1922			2208			3585	1583		3744	
Peak-hour factor, PHF	0.70	0.87	0.67	0.93	0.81	0.83	0.81	0.98	0.84	0.82	0.94	0.70
Adj. Flow (vph)	153	309	100	140	483	64	64	1421	139	68	1626	133
RTOR Reduction (vph)	0	15	0	0	7	0	0	0	59	0	7	0
Lane Group Flow (vph)	0	547	0	0	680	0	0	1485	80	0	1820	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)		39.6			39.6			69.4	69.4		69.4	
Effective Green, g (s)		39.6			39.6			69.4	69.4		69.4	
Actuated g/C Ratio		0.33			0.33			0.58	0.58		0.58	
Clearance Time (s)		5.5			5.5			5.5	5.5		5.5	
Vehicle Extension (s)		3.0			3.0			5.0	5.0		5.0	
Lane Grp Cap (vph)		634			728			2073	915		2165	
v/s Ratio Prot												
v/s Ratio Perm		0.28			c0.31			0.41	0.05		c0.49	
v/c Ratio		0.93dl			0.93			0.72	0.09		0.84	
Uniform Delay, d1		37.7			38.9			18.2	11.2		20.8	
Progression Factor		1.08			1.00			1.00	1.00		0.53	
Incremental Delay, d2		11.1			19.0			2.2	0.2		1.5	
Delay (s)		51.9			58.0			20.4	11.4		12.5	
Level of Service		D			E			C	B		B	
Approach Delay (s)		51.9			58.0			19.6			12.5	
Approach LOS		D			E			B			B	

Intersection Summary			
HCM 2000 Control Delay	26.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.5
Intersection Capacity Utilization	108.0%	ICU Level of Service	G
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.
c Critical Lane Group

Intersection	
Int Delay, s/veh	7.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	8	0	16	1	0	4	17	1494	3	6	1644	6
Future Vol, veh/h	8	0	16	1	0	4	17	1494	3	6	1644	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	50	92	50	25	50	50	61	96	75	50	99	75
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	16	0	32	4	0	8	28	1556	4	12	1661	8

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2367	3305	834	2302	3307	780	1669	0	0	1560	0	0
Stage 1	1689	1689	-	1614	1614	-	-	-	-	-	-	-
Stage 2	678	1616	-	688	1693	-	-	-	-	-	-	-
Critical Hdwy	6.44	6.54	7.14	6.44	6.54	7.14	5.34	-	-	5.34	-	-
Critical Hdwy Stg 1	7.34	5.54	-	7.34	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.74	5.54	-	6.74	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.82	4.02	3.92	3.82	4.02	3.92	3.12	-	-	3.12	-	-
Pot Cap-1 Maneuver	37	8	267	41	8	290	184	-	-	208	-	-
Stage 1	65	148	-	73	161	-	-	-	-	-	-	-
Stage 2	371	161	-	366	147	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	0	267	-	0	290	184	-	-	208	-	-
Mov Cap-2 Maneuver	-	0	-	-	0	-	-	-	-	-	-	-
Stage 1	65	30	-	73	0	-	-	-	-	-	-	-
Stage 2	-	0	-	64	29	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s			9.2	6.2
HCM LOS	-	-		

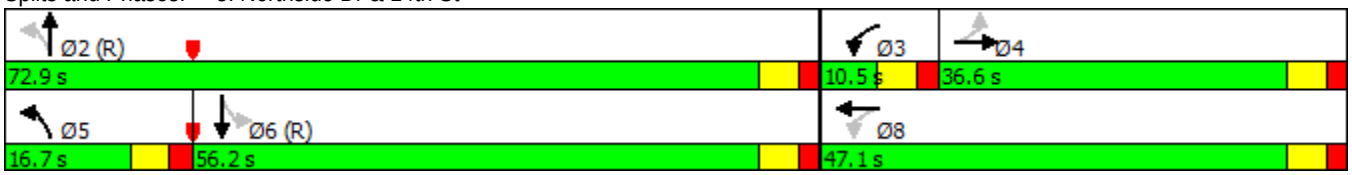
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	184	-	-	-	-	208	-	-
HCM Lane V/C Ratio	0.151	-	-	-	-	0.058	-	-
HCM Control Delay (s)	28	8.9	-	-	-	23.4	6.1	-
HCM Lane LOS	D	A	-	-	-	C	A	-
HCM 95th %tile Q(veh)	0.5	-	-	-	-	0.2	-	-

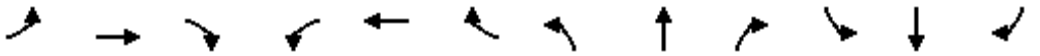
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	40	176	297	447	170	1389	6	1395
Future Volume (vph)	40	176	297	447	170	1389	6	1395
Turn Type	Perm	NA	pm+pt	NA	pm+pt	NA	Perm	NA
Protected Phases		4	3	8	5	2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	3	8	5	2	6	6
Switch Phase								
Minimum Initial (s)	6.0	6.0	5.0	6.0	5.0	15.0	15.0	15.0
Minimum Split (s)	35.5	35.5	10.5	34.5	10.5	27.5	26.5	26.5
Total Split (s)	36.6	36.6	10.5	47.1	16.7	72.9	56.2	56.2
Total Split (%)	30.5%	30.5%	8.8%	39.3%	13.9%	60.8%	46.8%	46.8%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		5.5		5.5	5.5	5.5	5.5	5.5
Lead/Lag	Lag	Lag	Lead		Lead		Lag	Lag
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	None	C-Min	C-Min	C-Min

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 44 (37%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 125
Control Type: Actuated-Coordinated

Splits and Phases: 8: Northside Dr & 14th St





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	40	176	84	297	447	3	170	1389	76	6	1395	20
Future Volume (vph)	40	176	84	297	447	3	170	1389	76	6	1395	20
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	5.5	
Lane Util. Factor		0.95			0.95		1.00	0.95		1.00	0.95	
Frt		0.94			1.00		1.00	0.99		1.00	1.00	
Flt Protected		0.99			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3320			3467		1770	3509		1770	3526	
Flt Permitted		0.65			0.65		0.07	1.00		0.08	1.00	
Satd. Flow (perm)		2161			2296		133	3509		147	3526	
Peak-hour factor, PHF	0.71	0.90	0.57	0.96	0.92	0.38	0.83	0.86	0.79	0.50	0.97	0.56
Adj. Flow (vph)	56	196	147	309	486	8	205	1615	96	12	1438	36
RTOR Reduction (vph)	0	61	0	0	1	0	0	4	0	0	2	0
Lane Group Flow (vph)	0	338	0	0	802	0	205	1707	0	12	1472	0
Turn Type	Perm	NA		pm+pt	NA		pm+pt	NA		Perm	NA	
Protected Phases		4		3	8		5	2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		41.6			41.6		67.4	67.4		50.7	50.7	
Effective Green, g (s)		41.6			41.6		67.4	67.4		50.7	50.7	
Actuated g/C Ratio		0.35			0.35		0.56	0.56		0.42	0.42	
Clearance Time (s)		5.5			5.5		5.5	5.5		5.5	5.5	
Vehicle Extension (s)		3.0			3.0		3.0	5.0		5.0	5.0	
Lane Grp Cap (vph)		749			795		227	1970		62	1489	
v/s Ratio Prot							0.08	c0.49			c0.42	
v/s Ratio Perm		0.16			c0.35		0.42			0.08		
v/c Ratio		0.45			1.05dl		0.90	0.87		0.19	0.99	
Uniform Delay, d1		30.4			39.2		35.7	22.5		21.8	34.4	
Progression Factor		0.99			0.70		0.68	1.46		0.84	0.88	
Incremental Delay, d2		0.4			32.3		29.8	4.5		5.5	18.4	
Delay (s)		30.3			59.9		53.9	37.3		23.9	48.6	
Level of Service		C			E		D	D		C	D	
Approach Delay (s)		30.3			59.9			39.1			48.4	
Approach LOS		C			E			D			D	

Intersection Summary			
HCM 2000 Control Delay	45.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.06		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	101.4%	ICU Level of Service	G
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

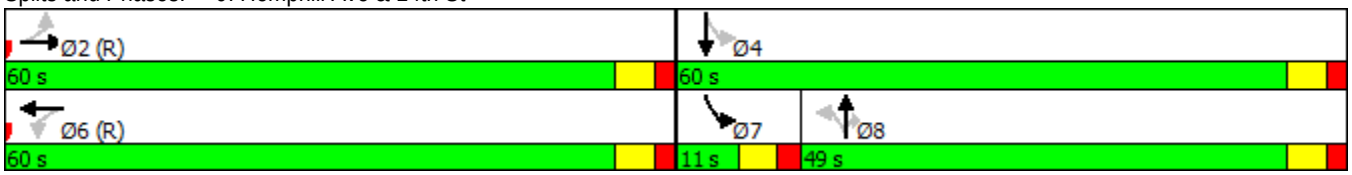
c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	2	216	38	677	74	203	36	28	94
Future Volume (vph)	2	216	38	677	74	203	36	28	94
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	pm+pt	NA
Protected Phases		2		6		8		7	4
Permitted Phases	2		6		8		8	4	
Detector Phase	2	2	6	6	8	8	8	7	4
Switch Phase									
Minimum Initial (s)	15.0	15.0	15.0	15.0	6.0	6.0	6.0	5.0	6.0
Minimum Split (s)	28.5	28.5	23.5	23.5	28.5	28.5	28.5	10.5	23.5
Total Split (s)	60.0	60.0	60.0	60.0	49.0	49.0	49.0	11.0	60.0
Total Split (%)	50.0%	50.0%	50.0%	50.0%	40.8%	40.8%	40.8%	9.2%	50.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)		0.0		0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)		5.5		5.5		5.5	5.5	5.5	5.5
Lead/Lag					Lag	Lag	Lag	Lead	
Lead-Lag Optimize?									
Recall Mode	C-Min	C-Min	C-Min	C-Min	None	None	None	None	None

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 88 (73%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated

Splits and Phases: 9: Hemphill Ave & 14th St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	216	58	38	677	79	74	203	36	28	94	3
Future Volume (veh/h)	2	216	58	38	677	79	74	203	36	28	94	3
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.90	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1900	1900	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	4	257	72	56	720	88	92	245	56	44	104	8
Adj No. of Lanes	0	2	0	0	2	0	0	1	1	1	1	0
Peak Hour Factor	0.50	0.84	0.81	0.68	0.94	0.90	0.80	0.83	0.64	0.64	0.90	0.38
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	38	1540	419	132	1644	198	144	317	361	187	566	44
Arrive On Green	1.00	1.00	1.00	0.58	0.58	0.58	0.25	0.25	0.25	0.03	0.33	0.33
Sat Flow, veh/h	13	2668	726	171	2850	343	418	1252	1425	1774	1708	131
Grp Volume(v), veh/h	178	0	155	445	0	419	337	0	56	44	0	112
Grp Sat Flow(s),veh/h/ln	1840	0	1567	1729	0	1634	1670	0	1425	1774	0	1840
Q Serve(g_s), s	0.0	0.0	0.0	2.5	0.0	17.5	20.3	0.0	3.7	2.1	0.0	5.2
Cycle Q Clear(g_c), s	0.0	0.0	0.0	16.2	0.0	17.5	22.6	0.0	3.7	2.1	0.0	5.2
Prop In Lane	0.02		0.46	0.13		0.21	0.27		1.00	1.00		0.07
Lane Grp Cap(c), veh/h	1092	0	904	1032	0	943	462	0	361	187	0	610
V/C Ratio(X)	0.16	0.00	0.17	0.43	0.00	0.44	0.73	0.00	0.16	0.23	0.00	0.18
Avail Cap(c_a), veh/h	1092	0	904	1032	0	943	642	0	517	212	0	835
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.87	0.00	0.87	1.00	0.00	1.00	1.00	0.00	1.00	0.75	0.00	0.75
Uniform Delay (d), s/veh	0.0	0.0	0.0	14.1	0.0	14.4	41.7	0.0	34.8	32.6	0.0	28.6
Incr Delay (d2), s/veh	0.3	0.0	0.4	1.3	0.0	1.5	2.6	0.0	0.2	0.5	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.2	0.0	0.2	13.3	0.0	12.9	16.1	0.0	2.6	1.9	0.0	4.8
LnGrp Delay(d),s/veh	0.3	0.0	0.4	15.4	0.0	16.0	44.4	0.0	35.0	33.1	0.0	28.7
LnGrp LOS	A		A	B		B	D		D	C		C
Approach Vol, veh/h		333			864			393			156	
Approach Delay, s/veh		0.3			15.7			43.0			29.9	
Approach LOS		A			B			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6	7	8
Phs Duration (G+Y+Rc), s		74.7		45.3		74.7	9.3	35.9
Change Period (Y+Rc), s		5.5		5.5		5.5	5.5	5.5
Max Green Setting (Gmax), s		54.5		54.5		54.5	5.5	43.5
Max Q Clear Time (g_c+I1), s		2.0		7.2		19.5	4.1	24.6
Green Ext Time (p_c), s		14.4		8.1		12.9	0.0	5.9

Intersection Summary	
HCM 2010 Ctrl Delay	20.2
HCM 2010 LOS	C

RIGHT TURN LANE ANALYSIS
per NCHRP 457 guidelines

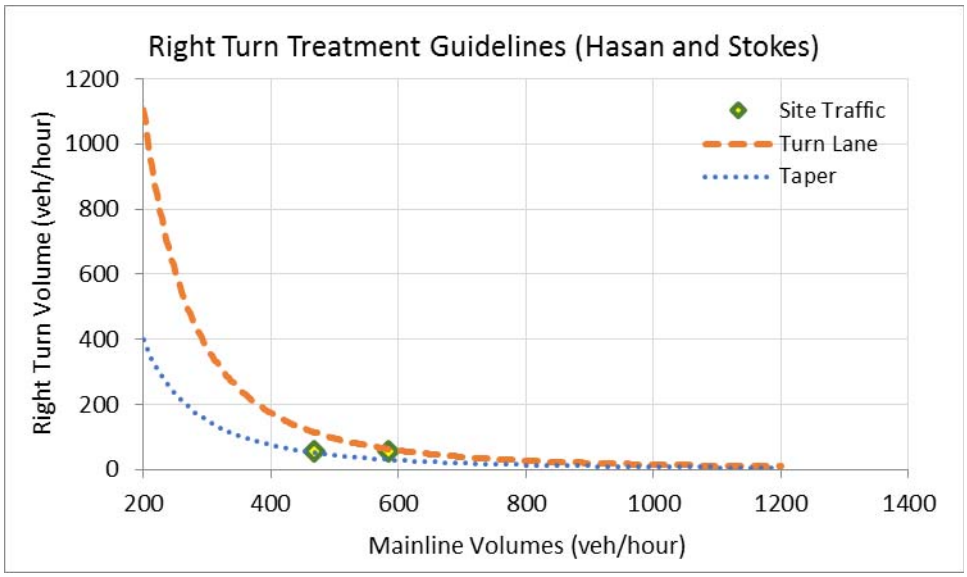
The following right turn lane analysis was used to determine the need for dedicated turn bays at the proposed site driveway locations that are not located on State Routes.

Methodology

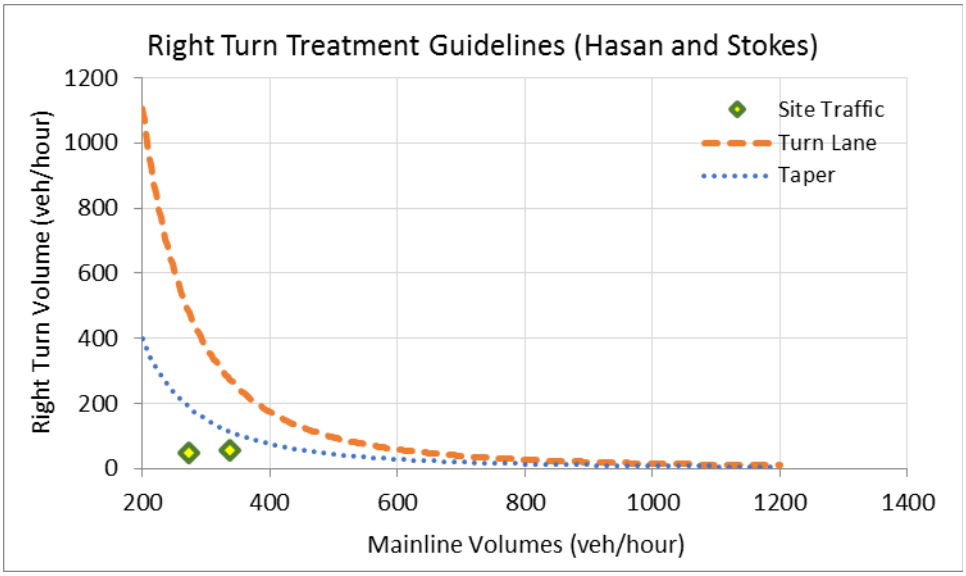
Guidelines for determining when to provide a right-turn bay on the major road of a two-way stop-controlled intersection are provided in Hasan, T. and Stokes, R.W. "Guidelines for Right-Turn Treatments at Unsignalized Intersections and Driveways on Rural Highways" (Transportation Research Record 1579). These guidelines were based on an evaluation of the operating and collisions costs associated with the right turn maneuver relative to the cost of construction. The operating costs included those of road-user fuel and delay. Separate guidelines were developed for two-lane and four-lane roadways, which are found in the NCHRP Report 457 “Evaluating Intersection Improvements: An Engineering Study Guide”.

Results

An evaluation of site traffic in relation to these guidelines is shown graphically in the following figures.



NCHRP 457 Right Turn Lane Guidelines: Howell Mill Road at Site Drwy 1



NCHRP 457 Right Turn Lane Guidelines: 14th Street @ Site Drwy 2

Findings

The low volumes and speeds on the roadway would lessen the need for deceleration outside of the through lane. Therefore, unless stopping sight distance is obstructed, a right turn lane is not warranted on the mainline at the site driveways on Howell Mill Road and 14th Street using the criteria in the NCHRP Report 457.

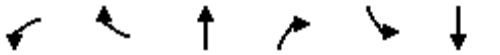
Future “No-Build” Intersection Analysis

Lane Group	WBL	NBT	SBL	SBT
Lane Configurations				
Traffic Volume (vph)	172	367	304	506
Future Volume (vph)	172	367	304	506
Turn Type	Prot	NA	pm+pt	NA
Protected Phases	8	2	1	6
Permitted Phases			6	
Detector Phase	8	2	1	6
Switch Phase				
Minimum Initial (s)	6.0	15.0	5.0	15.0
Minimum Split (s)	23.5	23.5	10.5	23.5
Total Split (s)	31.0	60.0	29.0	89.0
Total Split (%)	25.8%	50.0%	24.2%	74.2%
Yellow Time (s)	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5
Lead/Lag		Lag	Lead	
Lead-Lag Optimize?				
Recall Mode	None	C-Min	None	C-Min

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 86 (72%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated

Splits and Phases: 1: Howell Mill Rd & 17th St



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	172	71	367	274	304	506
Future Volume (veh/h)	172	71	367	274	304	506
Number	3	18	2	12	1	6
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1900	1863	1900	1863	1863
Adj Flow Rate, veh/h	223	79	390	280	353	544
Adj No. of Lanes	0	0	1	0	1	1
Peak Hour Factor	0.77	0.90	0.94	0.98	0.86	0.93
Percent Heavy Veh, %	0	0	2	2	2	2
Cap, veh/h	243	86	573	411	429	1334
Arrive On Green	0.19	0.19	0.38	0.38	0.10	0.72
Sat Flow, veh/h	1266	449	1010	725	1774	1863
Grp Volume(v), veh/h	303	0	0	670	353	544
Grp Sat Flow(s),veh/h/ln	1720	0	0	1735	1774	1863
Q Serve(g_s), s	20.7	0.0	0.0	38.7	9.3	14.0
Cycle Q Clear(g_c), s	20.7	0.0	0.0	38.7	9.3	14.0
Prop In Lane	0.74	0.26		0.42	1.00	
Lane Grp Cap(c), veh/h	330	0	0	985	429	1334
V/C Ratio(X)	0.92	0.00	0.00	0.68	0.82	0.41
Avail Cap(c_a), veh/h	366	0	0	985	594	1334
HCM Platoon Ratio	1.00	1.00	0.67	0.67	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.82	1.00	1.00
Uniform Delay (d), s/veh	47.5	0.0	0.0	28.1	20.0	6.8
Incr Delay (d2), s/veh	26.0	0.0	0.0	3.1	6.5	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	18.0	0.0	0.0	26.0	12.2	11.9
LnGrp Delay(d),s/veh	73.5	0.0	0.0	31.2	26.5	7.7
LnGrp LOS	E			C	C	A
Approach Vol, veh/h	303		670			897
Approach Delay, s/veh	73.5		31.2			15.1
Approach LOS	E		C			B

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	17.8	73.6				91.5		28.5
Change Period (Y+Rc), s	5.5	5.5				5.5		5.5
Max Green Setting (Gmax), s	23.5	54.5				83.5		25.5
Max Q Clear Time (g_c+I1), s	11.3	40.7				16.0		22.7
Green Ext Time (p_c), s	1.0	12.5				49.2		0.3

Intersection Summary	
HCM 2010 Ctrl Delay	30.4
HCM 2010 LOS	C

Notes

Lane Group	EBL	EBT	WBT	NBL	NBT	SBT	SBR
Lane Configurations							
Traffic Volume (vph)	293	0	0	188	343	446	217
Future Volume (vph)	293	0	0	188	343	446	217
Turn Type	Perm	NA	NA	pm+pt	NA	NA	Perm
Protected Phases		4	8	5	2	6	
Permitted Phases	4			2			6
Detector Phase	4	4	8	5	2	6	6
Switch Phase							
Minimum Initial (s)	6.0	6.0	6.0	5.0	15.0	15.0	15.0
Minimum Split (s)	28.5	28.5	23.5	10.5	23.5	24.5	24.5
Total Split (s)	46.6	46.6	46.6	21.0	73.4	52.4	52.4
Total Split (%)	38.8%	38.8%	38.8%	17.5%	61.2%	43.7%	43.7%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag				Lead		Lag	Lag
Lead-Lag Optimize?							
Recall Mode	None	None	None	None	C-Min	C-Min	C-Min

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 44 (37%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated

Splits and Phases: 2: Howell Mill Rd & Huff Rd

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	293	0	276	0	0	1	188	343	2	0	446	217
Future Volume (veh/h)	293	0	276	0	0	1	188	343	2	0	446	217
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1900	1863	1900	1863	1863	1900	1900	1863	1863
Adj Flow Rate, veh/h	315	0	317	0	0	4	214	354	8	0	496	0
Adj No. of Lanes	1	1	0	0	1	0	1	1	0	0	1	1
Peak Hour Factor	0.93	0.92	0.87	0.92	0.92	0.25	0.88	0.97	0.25	0.92	0.90	0.82
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	412	0	400	0	0	400	486	1190	27	0	998	848
Arrive On Green	0.25	0.00	0.25	0.00	0.00	0.25	0.15	1.00	1.00	0.00	0.36	0.00
Sat Flow, veh/h	1407	0	1583	0	0	1583	1774	1815	41	0	1863	1583
Grp Volume(v), veh/h	315	0	317	0	0	4	214	0	362	0	496	0
Grp Sat Flow(s),veh/h/ln	1407	0	1583	0	0	1583	1774	0	1856	0	1863	1583
Q Serve(g_s), s	26.0	0.0	22.5	0.0	0.0	0.2	6.5	0.0	0.0	0.0	24.9	0.0
Cycle Q Clear(g_c), s	26.2	0.0	22.5	0.0	0.0	0.2	6.5	0.0	0.0	0.0	24.9	0.0
Prop In Lane	1.00		1.00	0.00		1.00	1.00		0.02	0.00		1.00
Lane Grp Cap(c), veh/h	412	0	400	0	0	400	486	0	1217	0	998	848
V/C Ratio(X)	0.76	0.00	0.79	0.00	0.00	0.01	0.44	0.00	0.30	0.00	0.50	0.00
Avail Cap(c_a), veh/h	539	0	542	0	0	542	584	0	1217	0	998	848
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	0.67	0.67	0.67
Upstream Filter(I)	1.00	0.00	1.00	0.00	0.00	1.00	0.88	0.00	0.88	0.00	0.79	0.00
Uniform Delay (d), s/veh	43.4	0.0	41.9	0.0	0.0	33.6	12.4	0.0	0.0	0.0	25.8	0.0
Incr Delay (d2), s/veh	4.7	0.0	5.7	0.0	0.0	0.0	0.6	0.0	0.5	0.0	1.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	15.9	0.0	15.8	0.0	0.0	0.2	5.7	0.0	0.3	0.0	18.6	0.0
LnGrp Delay(d),s/veh	48.1	0.0	47.6	0.0	0.0	33.6	12.9	0.0	0.5	0.0	27.3	0.0
LnGrp LOS	D		D			C	B		A		C	
Approach Vol, veh/h		632			4			576			496	
Approach Delay, s/veh		47.9			33.6			5.1			27.3	
Approach LOS		D			C			A			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		8
Phs Duration (G+Y+Rc), s		84.2		35.8	14.4	69.8		35.8
Change Period (Y+Rc), s		5.5		5.5	5.5	5.5		5.5
Max Green Setting (Gmax), s		67.9		41.1	15.5	46.9		41.1
Max Q Clear Time (g_c+I1), s		2.0		28.2	8.5	26.9		2.2
Green Ext Time (p_c), s		31.1		2.1	0.4	14.3		2.6

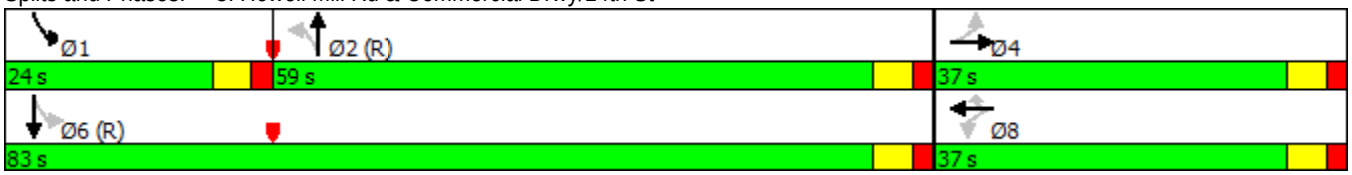
Intersection Summary	
HCM 2010 Ctrl Delay	27.4
HCM 2010 LOS	C

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	20	12	116	36	169	8	363	197	397
Future Volume (vph)	20	12	116	36	169	8	363	197	397
Turn Type	Perm	NA	Perm	NA	Perm	Perm	NA	pm+pt	NA
Protected Phases		4		8			2	1	6
Permitted Phases	4		8		8	2		6	
Detector Phase	4	4	8	8	8	2	2	1	6
Switch Phase									
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	15.0	15.0	5.0	15.0
Minimum Split (s)	29.5	29.5	29.5	29.5	29.5	25.5	25.5	10.5	23.5
Total Split (s)	37.0	37.0	37.0	37.0	37.0	59.0	59.0	24.0	83.0
Total Split (%)	30.8%	30.8%	30.8%	30.8%	30.8%	49.2%	49.2%	20.0%	69.2%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		5.5		5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag						Lag	Lag	Lead	
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	None	C-Min	C-Min	None	C-Min

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 72 (60%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated

Splits and Phases: 3: Howell Mill Rd & Commercial Drwy/14th St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	12	8	116	36	169	8	363	110	197	397	46
Future Volume (veh/h)	20	12	8	116	36	169	8	363	110	197	397	46
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	49	35	0	140	48	184	14	382	122	224	441	66
Adj No. of Lanes	0	1	0	0	1	1	1	1	0	1	1	0
Peak Hour Factor	0.41	0.34	0.58	0.83	0.75	0.92	0.58	0.95	0.90	0.88	0.90	0.70
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	102	61	0	250	68	337	573	781	250	479	1102	165
Arrive On Green	0.21	0.21	0.00	0.21	0.21	0.21	0.19	0.19	0.19	0.15	1.00	1.00
Sat Flow, veh/h	259	289	0	931	319	1583	889	1354	432	1774	1584	237
Grp Volume(v), veh/h	84	0	0	188	0	184	14	0	504	224	0	507
Grp Sat Flow(s),veh/h/ln	548	0	0	1250	0	1583	889	0	1786	1774	0	1821
Q Serve(g_s), s	5.3	0.0	0.0	0.0	0.0	12.4	1.5	0.0	30.2	6.2	0.0	0.0
Cycle Q Clear(g_c), s	22.5	0.0	0.0	17.2	0.0	12.4	1.5	0.0	30.2	6.2	0.0	0.0
Prop In Lane	0.58		0.00	0.74		1.00	1.00		0.24	1.00		0.13
Lane Grp Cap(c), veh/h	164	0	0	318	0	337	573	0	1031	479	0	1267
V/C Ratio(X)	0.51	0.00	0.00	0.59	0.00	0.55	0.02	0.00	0.49	0.47	0.00	0.40
Avail Cap(c_a), veh/h	232	0	0	391	0	416	573	0	1031	623	0	1267
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	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	0.83	0.00	0.83
Uniform Delay (d), s/veh	49.4	0.0	0.0	44.0	0.0	42.1	21.2	0.0	32.8	12.3	0.0	0.0
Incr Delay (d2), s/veh	2.5	0.0	0.0	1.8	0.0	1.4	0.1	0.0	1.7	0.6	0.0	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	5.1	0.0	0.0	10.0	0.0	9.4	0.7	0.0	21.9	5.5	0.0	0.5
LnGrp Delay(d),s/veh	51.9	0.0	0.0	45.7	0.0	43.5	21.2	0.0	34.4	12.9	0.0	0.8
LnGrp LOS	D			D		D	C		C	B		A
Approach Vol, veh/h		84			372			518			731	
Approach Delay, s/veh		51.9			44.6			34.1			4.5	
Approach LOS		D			D			C			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		8
Phs Duration (G+Y+Rc), s	14.2	74.7		31.0		89.0		31.0
Change Period (Y+Rc), s	5.5	5.5		5.5		5.5		5.5
Max Green Setting (Gmax), s	18.5	53.5		31.5		77.5		31.5
Max Q Clear Time (g_c+I1), s	8.2	32.2		24.5		2.0		19.2
Green Ext Time (p_c), s	0.5	16.9		1.0		42.4		1.4

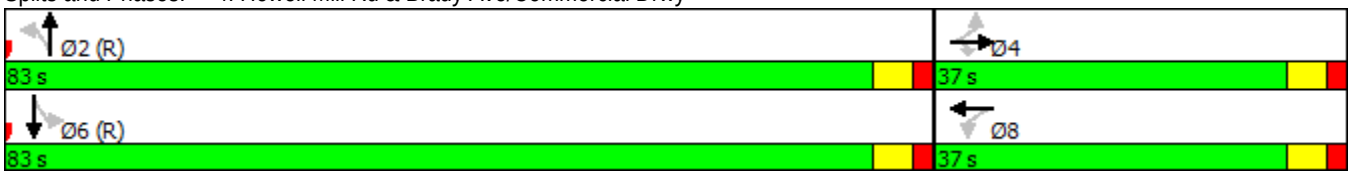
Intersection Summary	
HCM 2010 Ctrl Delay	24.6
HCM 2010 LOS	C

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	117	0	30	3	0	43	333	2	378
Future Volume (vph)	117	0	30	3	0	43	333	2	378
Turn Type	Perm	NA	Perm	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4			8		2		6
Permitted Phases	4		4	8		2		6	
Detector Phase	4	4	4	8	8	2	2	6	6
Switch Phase									
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	15.0	15.0	15.0	15.0
Minimum Split (s)	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5
Total Split (s)	37.0	37.0	37.0	37.0	37.0	83.0	83.0	83.0	83.0
Total Split (%)	30.8%	30.8%	30.8%	30.8%	30.8%	69.2%	69.2%	69.2%	69.2%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		5.5	5.5		5.5	5.5	5.5	5.5	5.5
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	None	C-Min	C-Min	C-Min	C-Min

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 19 (16%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

Splits and Phases: 4: Howell Mill Rd & Brady Ave/Commercial Drwy



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	117	0	30	3	0	3	43	333	1	2	378	161
Future Volume (veh/h)	117	0	30	3	0	3	43	333	1	2	378	161
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1863	1900	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	126	0	32	5	0	4	51	378	2	2	434	175
Adj No. of Lanes	0	1	1	0	1	0	1	1	0	1	1	0
Peak Hour Factor	0.93	0.92	0.94	0.58	0.25	0.67	0.85	0.88	0.56	0.83	0.87	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	212	0	213	63	13	24	686	1433	8	833	978	394
Arrive On Green	0.13	0.00	0.13	0.13	0.00	0.13	1.00	1.00	1.00	1.00	1.00	1.00
Sat Flow, veh/h	1132	0	1583	124	95	175	809	1851	10	999	1263	509
Grp Volume(v), veh/h	126	0	32	9	0	0	51	0	380	2	0	609
Grp Sat Flow(s),veh/h/ln	1132	0	1583	394	0	0	809	0	1861	999	0	1773
Q Serve(g_s), s	0.0	0.0	2.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	13.7	0.0	2.1	13.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop In Lane	1.00		1.00	0.56		0.44	1.00		0.01	1.00		0.29
Lane Grp Cap(c), veh/h	212	0	213	100	0	0	686	0	1440	833	0	1372
V/C Ratio(X)	0.59	0.00	0.15	0.09	0.00	0.00	0.07	0.00	0.26	0.00	0.00	0.44
Avail Cap(c_a), veh/h	392	0	416	286	0	0	686	0	1440	833	0	1372
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	0.00	1.00	1.00	0.00	0.00	0.86	0.00	0.86	1.00	0.00	1.00
Uniform Delay (d), s/veh	50.9	0.0	45.9	45.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	2.6	0.0	0.3	0.4	0.0	0.0	0.2	0.0	0.4	0.0	0.0	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	7.6	0.0	1.7	0.5	0.0	0.0	0.1	0.0	0.3	0.0	0.0	0.7
LnGrp Delay(d),s/veh	53.5	0.0	46.2	46.2	0.0	0.0	0.2	0.0	0.4	0.0	0.0	1.0
LnGrp LOS	D		D	D			A		A	A		A
Approach Vol, veh/h		158			9			431			611	
Approach Delay, s/veh		52.0			46.2			0.4			1.0	
Approach LOS		D			D			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		98.4		21.6		98.4		21.6
Change Period (Y+Rc), s		5.5		5.5		5.5		5.5
Max Green Setting (Gmax), s		77.5		31.5		77.5		31.5
Max Q Clear Time (g_c+I1), s		2.0		15.7		2.0		15.7
Green Ext Time (p_c), s		42.9		0.4		42.9		0.4

Intersection Summary	
HCM 2010 Ctrl Delay	7.8
HCM 2010 LOS	A

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	19	198	35	89	68	3	344	192	221
Future Volume (vph)	19	198	35	89	68	3	344	192	221
Turn Type	Perm	NA	Perm	NA	Perm	Perm	NA	Perm	NA
Protected Phases		4		8			2		6
Permitted Phases	4		8		8	2		6	
Detector Phase	4	4	8	8	8	2	2	6	6
Switch Phase									
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	15.0	15.0	15.0	15.0
Minimum Split (s)	23.5	23.5	24.5	24.5	24.5	26.5	26.5	26.5	26.5
Total Split (s)	39.0	39.0	39.0	39.0	39.0	81.0	81.0	81.0	81.0
Total Split (%)	32.5%	32.5%	32.5%	32.5%	32.5%	67.5%	67.5%	67.5%	67.5%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		5.5		5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	None	C-Min	C-Min	C-Min	C-Min

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 40 (33%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 65
Control Type: Actuated-Coordinated

Splits and Phases: 5: Howell Mill Rd & 10th St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	19	198	12	35	89	68	3	344	217	192	221	4
Future Volume (veh/h)	19	198	12	35	89	68	3	344	217	192	221	4
Number	7	4	14	3	8	18	5	2	12	1	6	16
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	0.90	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	31	254	17	48	119	83	4	400	249	226	248	4
Adj No. of Lanes	0	1	0	0	1	1	1	1	0	1	1	0
Peak Hour Factor	0.61	0.78	0.69	0.73	0.75	0.82	0.75	0.86	0.87	0.85	0.89	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	52	294	19	97	222	401	795	704	438	411	1197	19
Arrive On Green	0.25	0.25	0.25	0.08	0.08	0.08	0.65	0.65	0.65	1.00	1.00	1.00
Sat Flow, veh/h	75	1161	74	232	877	1583	1123	1075	669	779	1828	29
Grp Volume(v), veh/h	302	0	0	167	0	83	4	0	649	226	0	252
Grp Sat Flow(s),veh/h/ln	1310	0	0	1109	0	1583	1123	0	1745	779	0	1858
Q Serve(g_s), s	11.3	0.0	0.0	0.0	0.0	5.9	0.1	0.0	24.5	19.5	0.0	0.0
Cycle Q Clear(g_c), s	27.6	0.0	0.0	16.3	0.0	5.9	0.1	0.0	24.5	44.0	0.0	0.0
Prop In Lane	0.10		0.06	0.29		1.00	1.00		0.38	1.00		0.02
Lane Grp Cap(c), veh/h	365	0	0	320	0	401	795	0	1142	411	0	1216
V/C Ratio(X)	0.83	0.00	0.00	0.52	0.00	0.21	0.01	0.00	0.57	0.55	0.00	0.21
Avail Cap(c_a), veh/h	405	0	0	360	0	442	795	0	1142	411	0	1216
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	0.00	0.90	0.00	0.90	1.00	0.00	1.00	0.91	0.00	0.91
Uniform Delay (d), s/veh	43.6	0.0	0.0	47.1	0.0	43.7	7.2	0.0	11.4	6.9	0.0	0.0
Incr Delay (d2), s/veh	12.3	0.0	0.0	1.2	0.0	0.2	0.0	0.0	2.1	4.7	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	16.4	0.0	0.0	9.1	0.0	4.7	0.1	0.0	18.1	8.0	0.0	0.2
LnGrp Delay(d),s/veh	55.8	0.0	0.0	48.3	0.0	44.0	7.2	0.0	13.4	11.6	0.0	0.4
LnGrp LOS	E			D		D	A		B	B		A
Approach Vol, veh/h		302			250			653			478	
Approach Delay, s/veh		55.8			46.9			13.4			5.7	
Approach LOS		E			D			B			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		84.1		35.9		84.1		35.9
Change Period (Y+Rc), s		5.5		5.5		5.5		5.5
Max Green Setting (Gmax), s		75.5		33.5		75.5		33.5
Max Q Clear Time (g_c+I1), s		26.5		29.6		46.0		18.3
Green Ext Time (p_c), s		33.8		0.8		22.9		1.8

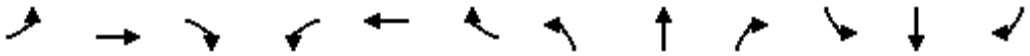
Intersection Summary	
HCM 2010 Ctrl Delay	23.8
HCM 2010 LOS	C

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	164	473	51	166	25	1358	340	117	1159
Future Volume (vph)	164	473	51	166	25	1358	340	117	1159
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	pm+pt	NA
Protected Phases		4		8		2		1	6
Permitted Phases	4		8		2		2	6	
Detector Phase	4	4	8	8	2	2	2	1	6
Switch Phase									
Minimum Initial (s)	6.0	6.0	6.0	6.0	15.0	15.0	15.0	5.0	15.0
Minimum Split (s)	23.5	23.5	33.5	33.5	25.5	25.5	25.5	10.5	27.5
Total Split (s)	49.0	49.0	49.0	49.0	60.5	60.5	60.5	10.5	71.0
Total Split (%)	40.8%	40.8%	40.8%	40.8%	50.4%	50.4%	50.4%	8.8%	59.2%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)		0.0		0.0		0.0	0.0		0.0
Total Lost Time (s)		5.5		5.5		5.5	5.5		5.5
Lead/Lag					Lag	Lag	Lag	Lead	
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	C-Min	C-Min	C-Min	None	C-Min

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 20 (17%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated

Splits and Phases: 6: Northside Dr & 10th St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	164	473	34	51	166	39	25	1358	340	117	1159	63
Future Volume (vph)	164	473	34	51	166	39	25	1358	340	117	1159	63
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	
Lane Util. Factor		0.95			0.95			0.91	1.00		0.91	
Frt		0.99			0.98			1.00	0.85		0.99	
Flt Protected		0.99			0.99			1.00	1.00		1.00	
Satd. Flow (prot)		3464			3422			5077	1583		5028	
Flt Permitted		0.76			0.58			0.77	1.00		0.64	
Satd. Flow (perm)		2646			2018			3920	1583		3215	
Peak-hour factor, PHF	0.87	0.80	0.60	0.78	0.84	0.82	0.48	0.92	0.95	0.84	0.87	0.91
Adj. Flow (vph)	189	591	57	65	198	48	52	1476	358	139	1332	69
RTOR Reduction (vph)	0	5	0	0	12	0	0	0	80	0	4	0
Lane Group Flow (vph)	0	832	0	0	299	0	0	1528	278	0	1536	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)		41.2			41.2			67.8	67.8		67.8	
Effective Green, g (s)		41.2			41.2			67.8	67.8		67.8	
Actuated g/C Ratio		0.34			0.34			0.56	0.56		0.56	
Clearance Time (s)		5.5			5.5			5.5	5.5		5.5	
Vehicle Extension (s)		3.0			3.0			5.0	5.0		5.0	
Lane Grp Cap (vph)		908			692			2214	894		1816	
v/s Ratio Prot												
v/s Ratio Perm		c0.31			0.15			0.39	0.18		c0.48	
v/c Ratio		0.92			0.43			0.69	0.31		1.12dl	
Uniform Delay, d1		37.8			30.4			18.6	13.8		21.7	
Progression Factor		1.04			1.00			1.00	1.00		1.26	
Incremental Delay, d2		12.3			0.4			1.8	0.9		2.9	
Delay (s)		51.7			30.8			20.4	14.7		30.3	
Level of Service		D			C			C	B		C	
Approach Delay (s)		51.7			30.8			19.3			30.3	
Approach LOS		D			C			B			C	

Intersection Summary			
HCM 2000 Control Delay	29.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.5
Intersection Capacity Utilization	97.5%	ICU Level of Service	F
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

c Critical Lane Group

Intersection	
Int Delay, s/veh	22.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	19	0	38	5	2	12	51	1213	12	8	1048	19
Future Vol, veh/h	19	0	38	5	2	12	51	1213	12	8	1048	19
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	300	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	92	67	62	50	55	78	96	69	44	91	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	22	0	57	8	4	22	65	1264	17	18	1152	22

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1837	2611	587	1900	2613	640	1174	0	0	1281	0	0
Stage 1	1199	1199	-	1403	1403	-	-	-	-	-	-	-
Stage 2	638	1412	-	497	1210	-	-	-	-	-	-	-
Critical Hdwy	6.44	6.54	7.14	6.44	6.54	7.14	5.34	-	-	5.34	-	-
Critical Hdwy Stg 1	7.34	5.54	-	7.34	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.74	5.54	-	6.74	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.82	4.02	3.92	3.82	4.02	3.92	3.12	-	-	3.12	-	-
Pot Cap-1 Maneuver	80	24	388	73	24	358	322	-	-	286	-	-
Stage 1	145	257	-	104	205	-	-	-	-	-	-	-
Stage 2	393	203	-	478	254	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	~ 15	6	388	24	6	358	322	-	-	286	-	-
Mov Cap-2 Maneuver	~ 15	6	-	24	6	-	-	-	-	-	-	-
Stage 1	43	210	-	31	60	-	-	-	-	-	-	-
Stage 2	102	60	-	334	208	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	$ 502.8	$ 362.6	4.6	1.3
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	322	-	-	48	32	286	-	-
HCM Lane V/C Ratio	0.203	-	-	1.647	1.059	0.064	-	-
HCM Control Delay (s)	19	3.9	-	$ 502.8	$ 362.6	18.4	1.1	-
HCM Lane LOS	C	A	-	F	F	C	A	-
HCM 95th %tile Q(veh)	0.7	-	-	7.7	3.7	0.2	-	-

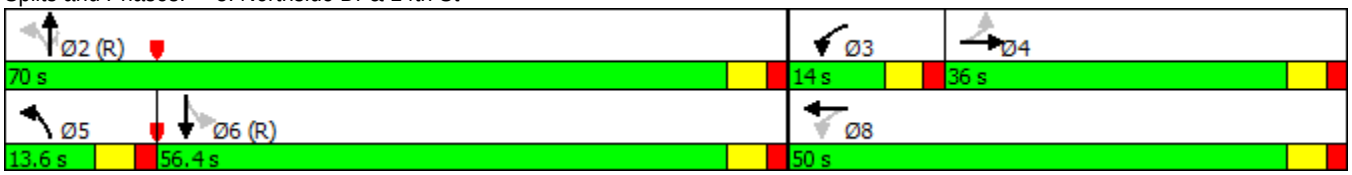
Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	70	340	143	251	118	1472	104	12	1117
Future Volume (vph)	70	340	143	251	118	1472	104	12	1117
Turn Type	Perm	NA	pm+pt	NA	pm+pt	NA	Perm	Perm	NA
Protected Phases		4	3	8	5	2			6
Permitted Phases	4		8		2		2	6	
Detector Phase	4	4	3	8	5	2	2	6	6
Switch Phase									
Minimum Initial (s)	6.0	6.0	5.0	6.0	5.0	15.0	15.0	15.0	15.0
Minimum Split (s)	35.5	35.5	10.5	34.5	10.5	27.5	27.5	26.5	26.5
Total Split (s)	36.0	36.0	14.0	50.0	13.6	70.0	70.0	56.4	56.4
Total Split (%)	30.0%	30.0%	11.7%	41.7%	11.3%	58.3%	58.3%	47.0%	47.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag	Lag	Lag	Lead		Lead			Lag	Lag
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	None	C-Min	C-Min	C-Min	C-Min

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 23 (19%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 105
Control Type: Actuated-Coordinated

Splits and Phases: 8: Northside Dr & 14th St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	340	80	143	251	0	118	1472	104	12	1117	21
Future Volume (veh/h)	70	340	80	143	251	0	118	1472	104	12	1117	21
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	0	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	91	351	101	161	282	0	149	1752	162	22	1284	31
Adj No. of Lanes	1	1	0	1	1	0	1	2	1	1	2	0
Peak Hour Factor	0.77	0.97	0.79	0.89	0.89	0.38	0.79	0.84	0.64	0.55	0.87	0.68
Percent Heavy Veh, %	2	2	2	2	2	0	2	2	2	2	2	2
Cap, veh/h	338	354	102	188	691	0	271	1902	851	160	1515	37
Arrive On Green	0.08	0.08	0.08	0.14	0.74	0.00	0.13	1.00	1.00	0.86	0.86	0.86
Sat Flow, veh/h	1093	1392	400	1774	1863	0	1774	3539	1583	233	3532	85
Grp Volume(v), veh/h	91	0	452	161	282	0	149	1752	162	22	643	672
Grp Sat Flow(s),veh/h/ln	1093	0	1792	1774	1863	0	1774	1770	1583	233	1770	1848
Q Serve(g_s), s	9.4	0.0	30.2	8.1	6.7	0.0	5.6	0.0	0.0	2.0	22.7	22.8
Cycle Q Clear(g_c), s	9.4	0.0	30.2	8.1	6.7	0.0	5.6	0.0	0.0	2.0	22.7	22.8
Prop In Lane	1.00		0.22	1.00		0.00	1.00		1.00	1.00		0.05
Lane Grp Cap(c), veh/h	338	0	455	188	691	0	271	1902	851	160	759	793
V/C Ratio(X)	0.27	0.00	0.99	0.86	0.41	0.00	0.55	0.92	0.19	0.14	0.85	0.85
Avail Cap(c_a), veh/h	338	0	455	188	691	0	279	1902	851	160	759	793
HCM Platoon Ratio	0.33	0.33	0.33	2.00	2.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	0.97	0.97	0.00	1.00	1.00	1.00	0.55	0.55	0.55
Uniform Delay (d), s/veh	45.3	0.0	54.9	30.5	10.6	0.0	18.4	0.0	0.0	5.0	6.5	6.5
Incr Delay (d2), s/veh	0.4	0.0	40.1	29.9	0.4	0.0	2.2	8.8	0.5	1.0	6.6	6.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	5.2	0.0	27.4	9.3	6.1	0.0	5.0	4.2	0.2	0.3	15.5	16.0
LnGrp Delay(d),s/veh	45.7	0.0	94.9	60.4	11.0	0.0	20.5	8.8	0.5	6.0	13.1	12.9
LnGrp LOS	D		F	E	B		C	A	A	A	B	B
Approach Vol, veh/h		543			443			2063			1337	
Approach Delay, s/veh		86.7			29.0			9.0			12.9	
Approach LOS		F			C			A			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4	5	6		8
Phs Duration (G+Y+Rc), s		70.0	14.0	36.0	13.0	57.0		50.0
Change Period (Y+Rc), s		5.5	5.5	5.5	5.5	5.5		5.5
Max Green Setting (Gmax), s		64.5	8.5	30.5	8.1	50.9		44.5
Max Q Clear Time (g_c+I1), s		2.0	10.1	32.2	7.6	24.8		8.7
Green Ext Time (p_c), s		62.3	0.0	0.0	0.0	26.1		3.3

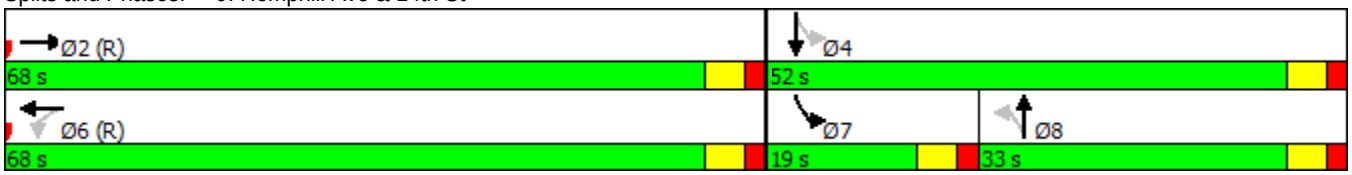
Intersection Summary	
HCM 2010 Ctrl Delay	21.8
HCM 2010 LOS	C

Lane Group	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	393	34	388	39	62	101	132
Future Volume (vph)	393	34	388	39	62	101	132
Turn Type	NA	Perm	NA	Perm	NA	pm+pt	NA
Protected Phases	2		6		8	7	4
Permitted Phases		6		8		4	
Detector Phase	2	6	6	8	8	7	4
Switch Phase							
Minimum Initial (s)	15.0	15.0	15.0	6.0	6.0	5.0	6.0
Minimum Split (s)	28.5	23.5	23.5	28.5	28.5	10.5	23.5
Total Split (s)	68.0	68.0	68.0	33.0	33.0	19.0	52.0
Total Split (%)	56.7%	56.7%	56.7%	27.5%	27.5%	15.8%	43.3%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
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				Lag	Lag	Lead	
Lead-Lag Optimize?							
Recall Mode	C-Min	C-Min	C-Min	None	None	None	None

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 105 (88%), Referenced to phase 2:EBT and 6:WBTL, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated

Splits and Phases: 9: Hemphill Ave & 14th St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	393	50	34	388	35	39	62	46	101	132	0
Future Volume (veh/h)	0	393	50	34	388	35	39	62	46	101	132	0
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.90	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1863	1900	1900	1863	1900	1900	1863	1900	1863	1863	0
Adj Flow Rate, veh/h	0	423	61	52	441	38	48	83	66	140	153	0
Adj No. of Lanes	0	1	0	0	2	0	0	2	0	1	1	0
Peak Hour Factor	0.50	0.93	0.82	0.65	0.88	0.91	0.82	0.75	0.70	0.72	0.86	0.92
Percent Heavy Veh, %	0	2	2	2	2	2	2	2	2	2	2	0
Cap, veh/h	0	1054	152	185	1658	153	108	154	121	279	459	0
Arrive On Green	0.00	0.44	0.44	0.66	0.66	0.66	0.12	0.12	0.12	0.03	0.08	0.00
Sat Flow, veh/h	0	1593	230	225	2504	231	559	1320	1038	1774	1863	0
Grp Volume(v), veh/h	0	0	484	258	0	273	112	0	85	140	153	0
Grp Sat Flow(s),veh/h/ln	0	0	1822	1306	0	1654	1575	0	1342	1774	1863	0
Q Serve(g_s), s	0.0	0.0	21.6	2.8	0.0	8.0	5.8	0.0	7.2	8.1	9.3	0.0
Cycle Q Clear(g_c), s	0.0	0.0	21.6	24.3	0.0	8.0	7.9	0.0	7.2	8.1	9.3	0.0
Prop In Lane	0.00		0.13	0.20		0.14	0.43		0.77	1.00		0.00
Lane Grp Cap(c), veh/h	0	0	1206	900	0	1095	226	0	156	279	459	0
V/C Ratio(X)	0.00	0.00	0.40	0.29	0.00	0.25	0.49	0.00	0.55	0.50	0.33	0.00
Avail Cap(c_a), veh/h	0	0	1206	900	0	1095	398	0	308	329	722	0
HCM Platoon Ratio	1.00	0.67	0.67	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	1.00
Upstream Filter(I)	0.00	0.00	0.58	1.00	0.00	1.00	1.00	0.00	1.00	0.57	0.57	0.00
Uniform Delay (d), s/veh	0.0	0.0	17.3	8.9	0.0	8.2	50.2	0.0	50.0	42.8	45.8	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.6	0.8	0.0	0.5	1.7	0.0	3.0	0.8	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	0.0	15.2	6.3	0.0	6.8	6.5	0.0	5.1	6.5	7.6	0.0
LnGrp Delay(d),s/veh	0.0	0.0	17.9	9.7	0.0	8.8	51.8	0.0	53.0	43.6	46.1	0.0
LnGrp LOS			B	A		A	D		D	D	D	
Approach Vol, veh/h		484			531			197			293	
Approach Delay, s/veh		17.9			9.2			52.3			44.9	
Approach LOS		B			A			D			D	

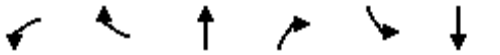
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6	7	8
Phs Duration (G+Y+Rc), s		84.9		35.1		84.9	15.6	19.5
Change Period (Y+Rc), s		5.5		5.5		5.5	5.5	5.5
Max Green Setting (Gmax), s		62.5		46.5		62.5	13.5	27.5
Max Q Clear Time (g_c+I1), s		23.6		11.3		26.3	10.1	9.9
Green Ext Time (p_c), s		10.9		5.5		10.7	0.1	4.1

Intersection Summary	
HCM 2010 Ctrl Delay	24.6
HCM 2010 LOS	C

Lane Group	WBL	NBT	SBL	SBT
Lane Configurations				
Traffic Volume (vph)	406	466	167	848
Future Volume (vph)	406	466	167	848
Turn Type	Prot	NA	pm+pt	NA
Protected Phases	8	2	1	6
Permitted Phases			6	
Detector Phase	8	2	1	6
Switch Phase				
Minimum Initial (s)	6.0	15.0	5.0	15.0
Minimum Split (s)	23.5	23.5	10.5	23.5
Total Split (s)	44.7	61.0	14.3	75.3
Total Split (%)	37.3%	50.8%	11.9%	62.8%
Yellow Time (s)	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5
Lead/Lag		Lag	Lead	
Lead-Lag Optimize?				
Recall Mode	None	C-Min	None	C-Min

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 111 (93%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated

Splits and Phases: 1: Howell Mill Rd & 17th St



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	406	137	466	212	167	848
Future Volume (veh/h)	406	137	466	212	167	848
Number	3	18	2	12	1	6
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1900	1863	1900	1863	1863
Adj Flow Rate, veh/h	432	171	518	236	180	1010
Adj No. of Lanes	0	0	1	0	1	1
Peak Hour Factor	0.94	0.80	0.90	0.90	0.93	0.84
Percent Heavy Veh, %	0	0	2	2	2	2
Cap, veh/h	401	159	568	259	214	1083
Arrive On Green	0.33	0.33	0.15	0.15	0.07	0.58
Sat Flow, veh/h	1227	486	1213	553	1774	1863
Grp Volume(v), veh/h	604	0	0	754	180	1010
Grp Sat Flow(s),veh/h/ln	1716	0	0	1765	1774	1863
Q Serve(g_s), s	39.2	0.0	0.0	50.4	6.1	59.5
Cycle Q Clear(g_c), s	39.2	0.0	0.0	50.4	6.1	59.5
Prop In Lane	0.72	0.28		0.31	1.00	
Lane Grp Cap(c), veh/h	560	0	0	827	214	1083
V/C Ratio(X)	1.08	0.00	0.00	0.91	0.84	0.93
Avail Cap(c_a), veh/h	560	0	0	827	224	1083
HCM Platoon Ratio	1.00	1.00	0.33	0.33	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.81	1.00	1.00
Uniform Delay (d), s/veh	40.4	0.0	0.0	48.3	26.9	22.9
Incr Delay (d2), s/veh	60.6	0.0	0.0	13.6	23.5	15.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	50.3	0.0	0.0	35.6	7.7	44.6
LnGrp Delay(d),s/veh	101.0	0.0	0.0	61.9	50.4	38.2
LnGrp LOS	F			E	D	D
Approach Vol, veh/h	604		754			1190
Approach Delay, s/veh	101.0		61.9			40.0
Approach LOS	F		E			D

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	13.6	61.7				75.3		44.7
Change Period (Y+Rc), s	5.5	5.5				5.5		5.5
Max Green Setting (Gmax), s	8.8	55.5				69.8		39.2
Max Q Clear Time (g_c+I1), s	8.1	52.4				61.5		41.2
Green Ext Time (p_c), s	0.0	3.0				8.3		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	61.0
HCM 2010 LOS	E

Notes

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	178	2	10	1	252	512	4	936	244
Future Volume (vph)	178	2	10	1	252	512	4	936	244
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	Perm	NA	Perm
Protected Phases		4		8	5	2		6	
Permitted Phases	4		8		2		6		6
Detector Phase	4	4	8	8	5	2	6	6	6
Switch Phase									
Minimum Initial (s)	6.0	6.0	6.0	6.0	5.0	15.0	15.0	15.0	15.0
Minimum Split (s)	28.5	28.5	23.5	23.5	10.5	23.5	24.5	24.5	24.5
Total Split (s)	28.5	28.5	28.5	28.5	20.4	91.5	71.1	71.1	71.1
Total Split (%)	23.8%	23.8%	23.8%	23.8%	17.0%	76.3%	59.3%	59.3%	59.3%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	5.5	5.5		5.5	5.5	5.5		5.5	5.5
Lead/Lag					Lead		Lag	Lag	Lag
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	None	C-Min	C-Min	C-Min	C-Min

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 19 (16%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 140
Control Type: Actuated-Coordinated

Splits and Phases: 2: Howell Mill Rd & Huff Rd

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	178	2	196	10	1	5	252	512	2	4	936	244
Future Volume (veh/h)	178	2	196	10	1	5	252	512	2	4	936	244
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1900	1863	1900	1863	1863	1900	1900	1863	1863
Adj Flow Rate, veh/h	205	4	206	18	4	12	315	617	4	8	1040	0
Adj No. of Lanes	1	1	0	0	1	0	1	1	0	0	1	1
Peak Hour Factor	0.87	0.50	0.95	0.56	0.25	0.42	0.80	0.83	0.50	0.50	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	280	6	299	95	28	42	335	1325	9	33	1018	870
Arrive On Green	0.19	0.19	0.19	0.19	0.19	0.19	0.24	1.00	1.00	0.73	0.73	0.00
Sat Flow, veh/h	1392	30	1558	256	145	218	1774	1849	12	5	1852	1583
Grp Volume(v), veh/h	205	0	210	34	0	0	315	0	621	1048	0	0
Grp Sat Flow(s),veh/h/ln	1392	0	1588	618	0	0	1774	0	1861	1857	0	1583
Q Serve(g_s), s	6.1	0.0	14.8	0.5	0.0	0.0	12.5	0.0	0.0	21.1	0.0	0.0
Cycle Q Clear(g_c), s	21.4	0.0	14.8	15.3	0.0	0.0	12.5	0.0	0.0	66.0	0.0	0.0
Prop In Lane	1.00		0.98	0.53		0.35	1.00		0.01	0.01		1.00
Lane Grp Cap(c), veh/h	280	0	304	164	0	0	335	0	1333	1051	0	870
V/C Ratio(X)	0.73	0.00	0.69	0.21	0.00	0.00	0.94	0.00	0.47	1.00	0.00	0.00
Avail Cap(c_a), veh/h	280	0	304	164	0	0	340	0	1333	1051	0	870
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	0.00	1.00	1.00	0.00	0.00	0.65	0.00	0.65	0.15	0.00	0.00
Uniform Delay (d), s/veh	48.6	0.0	45.2	41.5	0.0	0.0	21.6	0.0	0.0	16.9	0.0	0.0
Incr Delay (d2), s/veh	9.4	0.0	6.5	0.6	0.0	0.0	25.3	0.0	0.8	10.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	11.9	0.0	11.4	2.0	0.0	0.0	16.9	0.0	0.5	41.3	0.0	0.0
LnGrp Delay(d),s/veh	58.0	0.0	51.6	42.1	0.0	0.0	46.9	0.0	0.8	27.0	0.0	0.0
LnGrp LOS	E		D	D			D		A	C		
Approach Vol, veh/h		415			34			936			1048	
Approach Delay, s/veh		54.8			42.1			16.3			27.0	
Approach LOS		D			D			B			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		8
Phs Duration (G+Y+Rc), s		91.5		28.5	20.0	71.5		28.5
Change Period (Y+Rc), s		5.5		5.5	5.5	5.5		5.5
Max Green Setting (Gmax), s		86.0		23.0	14.9	65.6		23.0
Max Q Clear Time (g_c+I1), s		2.0		23.4	14.5	68.0		17.3
Green Ext Time (p_c), s		77.5		0.0	0.1	0.0		0.9

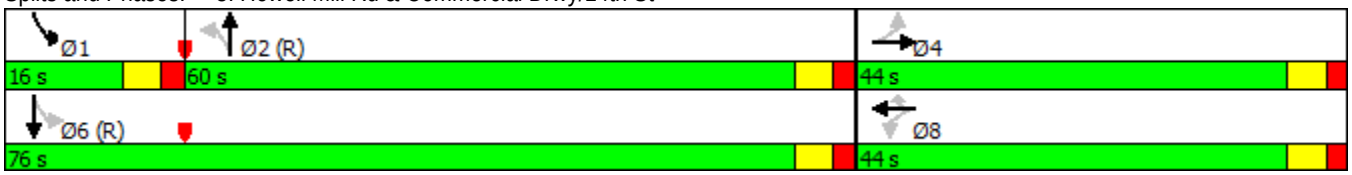
Intersection Summary	
HCM 2010 Ctrl Delay	27.8
HCM 2010 LOS	C

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	51	24	306	27	319	13	514	154	860
Future Volume (vph)	51	24	306	27	319	13	514	154	860
Turn Type	Perm	NA	Perm	NA	Perm	Perm	NA	pm+pt	NA
Protected Phases		4		8			2	1	6
Permitted Phases	4		8		8	2		6	
Detector Phase	4	4	8	8	8	2	2	1	6
Switch Phase									
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	15.0	15.0	5.0	15.0
Minimum Split (s)	29.5	29.5	29.5	29.5	29.5	25.5	25.5	10.5	23.5
Total Split (s)	44.0	44.0	44.0	44.0	44.0	60.0	60.0	16.0	76.0
Total Split (%)	36.7%	36.7%	36.7%	36.7%	36.7%	50.0%	50.0%	13.3%	63.3%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		5.5		5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag						Lag	Lag	Lead	
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	None	C-Min	C-Min	None	C-Min

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 44 (37%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated

Splits and Phases: 3: Howell Mill Rd & Commercial Drwy/14th St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	51	24	10	306	27	319	13	514	80	154	860	40
Future Volume (veh/h)	51	24	10	306	27	319	13	514	80	154	860	40
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	78	39	0	322	39	339	22	598	101	200	945	56
Adj No. of Lanes	0	1	0	0	1	1	1	1	0	1	1	0
Peak Hour Factor	0.65	0.61	0.75	0.95	0.69	0.94	0.60	0.86	0.79	0.77	0.91	0.71
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	94	38	0	425	45	508	115	727	123	459	1023	61
Arrive On Green	0.32	0.32	0.00	0.32	0.32	0.32	0.94	0.94	0.94	0.07	0.59	0.59
Sat Flow, veh/h	139	118	0	1149	139	1583	561	1554	262	1774	1741	103
Grp Volume(v), veh/h	117	0	0	361	0	339	22	0	699	200	0	1001
Grp Sat Flow(s),veh/h/ln	256	0	0	1288	0	1583	561	0	1816	1774	0	1845
Q Serve(g_s), s	6.8	0.0	0.0	0.0	0.0	22.2	4.1	0.0	12.8	6.7	0.0	58.7
Cycle Q Clear(g_c), s	38.5	0.0	0.0	31.7	0.0	22.2	48.5	0.0	12.8	6.7	0.0	58.7
Prop In Lane	0.67		0.00	0.89		1.00	1.00		0.14	1.00		0.06
Lane Grp Cap(c), veh/h	132	0	0	470	0	508	115	0	850	459	0	1084
V/C Ratio(X)	0.88	0.00	0.00	0.77	0.00	0.67	0.19	0.00	0.82	0.44	0.00	0.92
Avail Cap(c_a), veh/h	132	0	0	470	0	508	115	0	850	484	0	1084
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	1.00	1.00	0.00	1.00	0.09	0.00	0.09
Uniform Delay (d), s/veh	53.0	0.0	0.0	38.5	0.0	35.2	23.0	0.0	2.4	14.4	0.0	22.3
Incr Delay (d2), s/veh	45.5	0.0	0.0	7.5	0.0	3.3	3.7	0.0	8.8	0.1	0.0	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(95%),veh/ln	9.4	0.0	0.0	17.9	0.0	15.4	1.4	0.0	11.5	4.1	0.0	33.0
LnGrp Delay(d),s/veh	98.5	0.0	0.0	46.0	0.0	38.5	26.6	0.0	11.3	14.5	0.0	24.0
LnGrp LOS	F			D		D	C		B	B		C
Approach Vol, veh/h		117			700			721			1201	
Approach Delay, s/veh		98.5			42.4			11.7			22.5	
Approach LOS		F			D			B			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		8
Phs Duration (G+Y+Rc), s	14.3	61.7		44.0		76.0		44.0
Change Period (Y+Rc), s	5.5	5.5		5.5		5.5		5.5
Max Green Setting (Gmax), s	10.5	54.5		38.5		70.5		38.5
Max Q Clear Time (g_c+I1), s	8.7	50.5		40.5		60.7		33.7
Green Ext Time (p_c), s	0.1	4.0		0.0		9.6		1.6

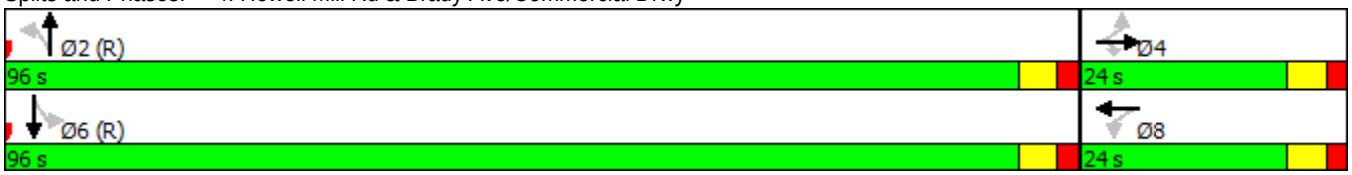
Intersection Summary		
HCM 2010 Ctrl Delay		28.0
HCM 2010 LOS		C

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	106	0	37	8	2	37	476	11	706
Future Volume (vph)	106	0	37	8	2	37	476	11	706
Turn Type	Perm	NA	Perm	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4			8		2		6
Permitted Phases	4		4	8		2		6	
Detector Phase	4	4	4	8	8	2	2	6	6
Switch Phase									
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	15.0	15.0	15.0	15.0
Minimum Split (s)	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5
Total Split (s)	24.0	24.0	24.0	24.0	24.0	96.0	96.0	96.0	96.0
Total Split (%)	20.0%	20.0%	20.0%	20.0%	20.0%	80.0%	80.0%	80.0%	80.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		5.5	5.5		5.5	5.5	5.5	5.5	5.5
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	None	C-Min	C-Min	C-Min	C-Min

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 20 (17%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 110
Control Type: Actuated-Coordinated

Splits and Phases: 4: Howell Mill Rd & Brady Ave/Commercial Drwy



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	106	0	37	8	2	9	37	476	10	11	706	467
Future Volume (veh/h)	106	0	37	8	2	9	37	476	10	11	706	467
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1863	1900	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	114	0	39	14	8	13	44	541	18	13	811	508
Adj No. of Lanes	0	1	1	0	1	0	1	1	0	1	1	0
Peak Hour Factor	0.93	0.92	0.94	0.58	0.25	0.67	0.85	0.88	0.56	0.83	0.87	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	196	0	244	53	34	26	61	1352	45	699	809	507
Arrive On Green	0.15	0.00	0.15	0.15	0.15	0.15	1.00	1.00	1.00	1.00	1.00	1.00
Sat Flow, veh/h	879	0	1583	72	218	171	415	1793	60	847	1072	672
Grp Volume(v), veh/h	114	0	39	35	0	0	44	0	559	13	0	1319
Grp Sat Flow(s),veh/h/ln	879	0	1583	461	0	0	415	0	1852	847	0	1744
Q Serve(g_s), s	0.0	0.0	2.6	0.3	0.0	0.0	0.2	0.0	0.0	0.0	0.0	90.5
Cycle Q Clear(g_c), s	16.3	0.0	2.6	16.6	0.0	0.0	90.5	0.0	0.0	0.0	0.0	90.5
Prop In Lane	1.00		1.00	0.40		0.37	1.00		0.03	1.00		0.39
Lane Grp Cap(c), veh/h	196	0	244	113	0	0	61	0	1397	699	0	1315
V/C Ratio(X)	0.58	0.00	0.16	0.31	0.00	0.00	0.73	0.00	0.40	0.02	0.00	1.00
Avail Cap(c_a), veh/h	196	0	244	113	0	0	61	0	1397	699	0	1315
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	0.00	1.00	1.00	0.00	0.00	0.94	0.00	0.94	1.00	0.00	1.00
Uniform Delay (d), s/veh	49.8	0.0	44.0	44.6	0.0	0.0	45.2	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	4.4	0.0	0.3	1.5	0.0	0.0	51.9	0.0	0.8	0.0	0.0	25.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	7.1	0.0	2.1	1.9	0.0	0.0	4.2	0.0	0.6	0.0	0.0	16.8
LnGrp Delay(d),s/veh	54.2	0.0	44.3	46.1	0.0	0.0	97.2	0.0	0.8	0.0	0.0	25.5
LnGrp LOS	D		D	D			F		A	A		F
Approach Vol, veh/h		153			35			603			1332	
Approach Delay, s/veh		51.7			46.1			7.8			25.2	
Approach LOS		D			D			A			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		96.0		24.0		96.0		24.0
Change Period (Y+Rc), s		5.5		5.5		5.5		5.5
Max Green Setting (Gmax), s		90.5		18.5		90.5		18.5
Max Q Clear Time (g_c+I1), s		92.5		18.3		92.5		18.6
Green Ext Time (p_c), s		0.0		0.0		0.0		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	22.5
HCM 2010 LOS	C

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	32	117	90	184	129	13	325	207	621
Future Volume (vph)	32	117	90	184	129	13	325	207	621
Turn Type	Perm	NA	Perm	NA	Perm	Perm	NA	Perm	NA
Protected Phases		4		8			2		6
Permitted Phases	4		8		8	2		6	
Detector Phase	4	4	8	8	8	2	2	6	6
Switch Phase									
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	15.0	15.0	15.0	15.0
Minimum Split (s)	23.5	23.5	24.5	24.5	24.5	26.5	26.5	26.5	26.5
Total Split (s)	46.0	46.0	46.0	46.0	46.0	74.0	74.0	74.0	74.0
Total Split (%)	38.3%	38.3%	38.3%	38.3%	38.3%	61.7%	61.7%	61.7%	61.7%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		5.5		5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	None	C-Min	C-Min	C-Min	C-Min

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 54 (45%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

Splits and Phases: 5: Howell Mill Rd & 10th St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	32	117	16	90	184	129	13	325	81	207	621	48
Future Volume (veh/h)	32	117	16	90	184	129	13	325	81	207	621	48
Number	7	4	14	3	8	18	5	2	12	1	6	16
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	0.90	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	44	139	21	97	207	136	22	349	105	235	682	56
Adj No. of Lanes	0	1	0	0	1	1	1	1	0	1	1	0
Peak Hour Factor	0.72	0.84	0.75	0.93	0.89	0.95	0.60	0.93	0.77	0.88	0.91	0.85
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	48	124	15	130	243	534	469	785	236	457	970	80
Arrive On Green	0.34	0.34	0.34	0.11	0.11	0.11	0.57	0.57	0.57	1.00	1.00	1.00
Sat Flow, veh/h	33	367	46	268	721	1583	717	1376	414	933	1699	139
Grp Volume(v), veh/h	204	0	0	304	0	136	22	0	454	235	0	738
Grp Sat Flow(s),veh/h/ln	446	0	0	989	0	1583	717	0	1790	933	0	1838
Q Serve(g_s), s	4.4	0.0	0.0	0.0	0.0	9.4	1.6	0.0	17.5	13.8	0.0	0.0
Cycle Q Clear(g_c), s	40.5	0.0	0.0	36.1	0.0	9.4	1.6	0.0	17.5	31.3	0.0	0.0
Prop In Lane	0.22		0.10	0.32		1.00	1.00		0.23	1.00		0.08
Lane Grp Cap(c), veh/h	187	0	0	373	0	534	469	0	1022	457	0	1049
V/C Ratio(X)	1.09	0.00	0.00	0.81	0.00	0.25	0.05	0.00	0.44	0.51	0.00	0.70
Avail Cap(c_a), veh/h	187	0	0	373	0	534	469	0	1022	457	0	1049
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	0.00	0.18	0.00	0.18	1.00	0.00	1.00	0.26	0.00	0.26
Uniform Delay (d), s/veh	39.8	0.0	0.0	50.0	0.0	39.5	11.4	0.0	14.8	4.0	0.0	0.0
Incr Delay (d2), s/veh	92.3	0.0	0.0	2.6	0.0	0.0	0.2	0.0	1.4	1.1	0.0	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	19.7	0.0	0.0	12.5	0.0	5.5	0.6	0.0	13.9	5.2	0.0	0.5
LnGrp Delay(d),s/veh	132.1	0.0	0.0	52.6	0.0	39.6	11.6	0.0	16.2	5.1	0.0	1.0
LnGrp LOS	F			D		D	B		B	A		A
Approach Vol, veh/h		204			440			476			973	
Approach Delay, s/veh		132.1			48.5			16.0			2.0	
Approach LOS		F			D			B			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		74.0		46.0		74.0		46.0
Change Period (Y+Rc), s		5.5		5.5		5.5		5.5
Max Green Setting (Gmax), s		68.5		40.5		68.5		40.5
Max Q Clear Time (g_c+I1), s		19.5		42.5		33.3		38.1
Green Ext Time (p_c), s		41.0		0.0		30.7		0.7

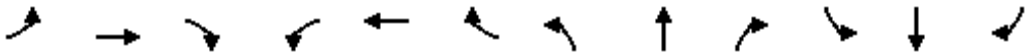
Intersection Summary	
HCM 2010 Ctrl Delay	27.7
HCM 2010 LOS	C

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	117	294	142	427	57	1522	128	61	1670
Future Volume (vph)	117	294	142	427	57	1522	128	61	1670
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	pm+pt	NA
Protected Phases		4		8		2		1	6
Permitted Phases	4		8		2		2	6	
Detector Phase	4	4	8	8	2	2	2	1	6
Switch Phase									
Minimum Initial (s)	6.0	6.0	6.0	6.0	15.0	15.0	15.0	5.0	15.0
Minimum Split (s)	23.5	23.5	33.5	33.5	25.5	25.5	25.5	10.5	27.5
Total Split (s)	46.1	46.1	46.1	46.1	63.4	63.4	63.4	10.5	73.9
Total Split (%)	38.4%	38.4%	38.4%	38.4%	52.8%	52.8%	52.8%	8.8%	61.6%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)		0.0		0.0		0.0	0.0		0.0
Total Lost Time (s)		5.5		5.5		5.5	5.5		5.5
Lead/Lag					Lag	Lag	Lag	Lead	
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	C-Min	C-Min	C-Min	None	C-Min

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 34 (28%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated

Splits and Phases: 6: Northside Dr & 10th St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	117	294	73	142	427	58	57	1522	128	61	1670	102
Future Volume (vph)	117	294	73	142	427	58	57	1522	128	61	1670	102
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	
Lane Util. Factor		0.95			0.95			0.91	1.00		0.91	
Frt		0.97			0.98			1.00	0.85		0.99	
Flt Protected		0.99			0.99			1.00	1.00		1.00	
Satd. Flow (prot)		3395			3447			5074	1583		5020	
Flt Permitted		0.56			0.61			0.68	1.00		0.72	
Satd. Flow (perm)		1915			2126			3466	1583		3603	
Peak-hour factor, PHF	0.70	0.92	0.67	0.93	0.92	0.83	0.81	0.98	0.84	0.82	0.94	0.70
Adj. Flow (vph)	167	320	109	153	464	70	70	1553	152	74	1777	146
RTOR Reduction (vph)	0	11	0	0	7	0	0	0	64	0	7	0
Lane Group Flow (vph)	0	585	0	0	680	0	0	1623	88	0	1990	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)		39.8			39.8			69.2	69.2		69.2	
Effective Green, g (s)		39.8			39.8			69.2	69.2		69.2	
Actuated g/C Ratio		0.33			0.33			0.58	0.58		0.58	
Clearance Time (s)		5.5			5.5			5.5	5.5		5.5	
Vehicle Extension (s)		3.0			3.0			5.0	5.0		5.0	
Lane Grp Cap (vph)		635			705			1998	912		2077	
v/s Ratio Prot												
v/s Ratio Perm		0.31			c0.32			0.47	0.06		c0.55	
v/c Ratio		1.02dl			0.96			1.13dl	0.10		0.96	
Uniform Delay, d1		38.6			39.4			20.2	11.4		24.0	
Progression Factor		1.02			1.00			1.00	1.00		0.49	
Incremental Delay, d2		18.2			25.1			3.7	0.2		1.5	
Delay (s)		57.7			64.5			24.0	11.6		13.3	
Level of Service		E			E			C	B		B	
Approach Delay (s)		57.7			64.5			22.9			13.3	
Approach LOS		E			E			C			B	

Intersection Summary			
HCM 2000 Control Delay	28.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	1.01		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.5
Intersection Capacity Utilization	116.3%	ICU Level of Service	H
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

c Critical Lane Group

Intersection	
Int Delay, s/veh	5.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	9	0	17	1	0	4	19	1633	3	7	1796	7
Future Vol, veh/h	9	0	17	1	0	4	19	1633	3	7	1796	7
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	300	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	50	92	50	25	50	50	61	96	75	50	99	75
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	18	0	34	4	0	8	31	1701	4	14	1814	9

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2590	3614	912	2519	3616	853	1823	0	0	1705	0	0
Stage 1	1847	1847	-	1765	1765	-	-	-	-	-	-	-
Stage 2	743	1767	-	754	1851	-	-	-	-	-	-	-
Critical Hdwy	6.44	6.54	7.14	6.44	6.54	7.14	5.34	-	-	5.34	-	-
Critical Hdwy Stg 1	7.34	5.54	-	7.34	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.74	5.54	-	6.74	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.82	4.02	3.92	3.82	4.02	3.92	3.12	-	-	3.12	-	-
Pot Cap-1 Maneuver	27	5	237	30	5	260	154	-	-	176	-	-
Stage 1	50	123	-	57	136	-	-	-	-	-	-	-
Stage 2	339	135	-	334	123	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	0	237	-	0	260	154	-	-	176	-	-
Mov Cap-2 Maneuver	-	0	-	-	0	-	-	-	-	-	-	-
Stage 1	50	123	-	57	0	-	-	-	-	-	-	-
Stage 2	-	0	-	286	123	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s			11.2	0.2
HCM LOS	-	-		

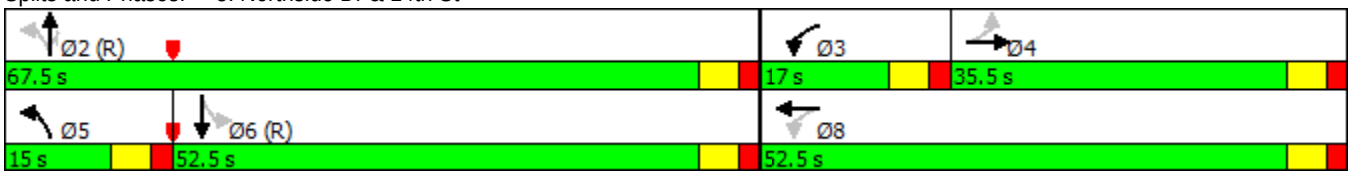
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	154	-	-	-	-	176	-	-
HCM Lane V/C Ratio	0.202	-	-	-	-	0.08	-	-
HCM Control Delay (s)	34.2	10.8	-	-	-	27.2	0	-
HCM Lane LOS	D	B	-	-	-	D	A	-
HCM 95th %tile Q(veh)	0.7	-	-	-	-	0.3	-	-

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	46	192	325	488	186	1518	83	7	1527
Future Volume (vph)	46	192	325	488	186	1518	83	7	1527
Turn Type	Perm	NA	pm+pt	NA	pm+pt	NA	Perm	Perm	NA
Protected Phases		4	3	8	5	2			6
Permitted Phases	4		8		2		2	6	
Detector Phase	4	4	3	8	5	2	2	6	6
Switch Phase									
Minimum Initial (s)	6.0	6.0	5.0	6.0	5.0	15.0	15.0	15.0	15.0
Minimum Split (s)	35.5	35.5	10.5	34.5	10.5	27.5	27.5	26.5	26.5
Total Split (s)	35.5	35.5	17.0	52.5	15.0	67.5	67.5	52.5	52.5
Total Split (%)	29.6%	29.6%	14.2%	43.8%	12.5%	56.3%	56.3%	43.8%	43.8%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag	Lag	Lag	Lead		Lead			Lag	Lag
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	None	C-Min	C-Min	C-Min	C-Min

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 145
Control Type: Actuated-Coordinated

Splits and Phases: 8: Northside Dr & 14th St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	46	192	92	325	488	0	186	1518	83	7	1527	22
Future Volume (veh/h)	46	192	92	325	488	0	186	1518	83	7	1527	22
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	0	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	61	213	139	339	530	0	224	1765	105	14	1574	39
Adj No. of Lanes	1	1	0	1	1	0	1	2	1	1	2	0
Peak Hour Factor	0.76	0.90	0.66	0.96	0.92	0.38	0.83	0.86	0.79	0.50	0.97	0.56
Percent Heavy Veh, %	2	2	2	2	2	0	2	2	2	2	2	2
Cap, veh/h	236	242	158	260	692	0	200	1900	850	74	1453	36
Arrive On Green	0.08	0.08	0.08	0.19	0.74	0.00	0.05	0.36	0.36	0.41	0.41	0.41
Sat Flow, veh/h	870	1054	688	1774	1863	0	1774	3539	1583	243	3530	87
Grp Volume(v), veh/h	61	0	352	339	530	0	224	1765	105	14	788	825
Grp Sat Flow(s),veh/h/ln	870	0	1741	1774	1863	0	1774	1770	1583	243	1770	1847
Q Serve(g_s), s	8.0	0.0	24.0	11.5	20.4	0.0	9.5	57.6	5.3	6.9	49.4	49.4
Cycle Q Clear(g_c), s	11.4	0.0	24.0	11.5	20.4	0.0	9.5	57.6	5.3	49.4	49.4	49.4
Prop In Lane	1.00		0.39	1.00		0.00	1.00		1.00	1.00		0.05
Lane Grp Cap(c), veh/h	236	0	400	260	692	0	200	1900	850	74	729	761
V/C Ratio(X)	0.26	0.00	0.88	1.30	0.77	0.00	1.12	0.93	0.12	0.19	1.08	1.08
Avail Cap(c_a), veh/h	253	0	435	260	730	0	200	1900	850	74	729	761
HCM Platoon Ratio	0.33	0.33	0.33	2.00	2.00	1.00	0.67	0.67	0.67	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.87	0.87	0.00	1.00	1.00	1.00	0.69	0.69	0.69
Uniform Delay (d), s/veh	49.6	0.0	53.8	34.1	12.3	0.0	37.7	36.2	19.5	56.6	35.3	35.3
Incr Delay (d2), s/veh	0.6	0.0	17.4	158.0	4.1	0.0	98.7	9.6	0.3	3.9	52.3	53.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	3.6	0.0	19.6	25.9	15.8	0.0	21.8	39.7	4.3	1.0	62.4	65.5
LnGrp Delay(d),s/veh	50.1	0.0	71.2	192.1	16.4	0.0	136.4	45.8	19.8	60.5	87.6	88.5
LnGrp LOS	D		E	F	B		F	D	B	E	F	F
Approach Vol, veh/h		413			869			2094			1627	
Approach Delay, s/veh		68.1			84.9			54.2			87.8	
Approach LOS		E			F			D			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4	5	6		8
Phs Duration (G+Y+Rc), s		69.9	17.0	33.1	15.0	54.9		50.1
Change Period (Y+Rc), s		5.5	5.5	5.5	5.5	5.5		5.5
Max Green Setting (Gmax), s		62.0	11.5	30.0	9.5	47.0		47.0
Max Q Clear Time (g_c+I1), s		59.6	13.5	26.0	11.5	51.4		22.4
Green Ext Time (p_c), s		2.4	0.0	1.6	0.0	0.0		3.9

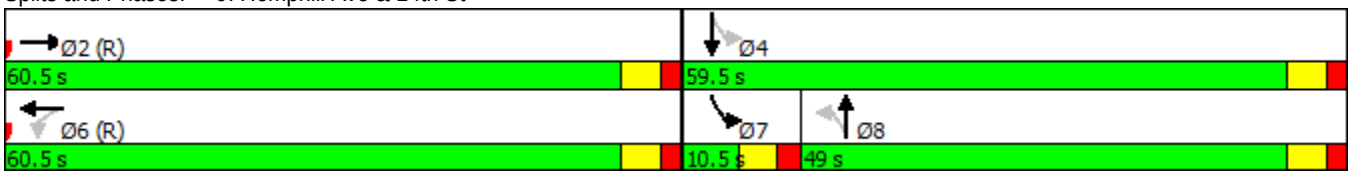
Intersection Summary	
HCM 2010 Ctrl Delay	71.6
HCM 2010 LOS	E

Lane Group	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	236	42	740	81	222	31	103
Future Volume (vph)	236	42	740	81	222	31	103
Turn Type	NA	Perm	NA	Perm	NA	pm+pt	NA
Protected Phases	2		6		8	7	4
Permitted Phases		6		8		4	
Detector Phase	2	6	6	8	8	7	4
Switch Phase							
Minimum Initial (s)	15.0	15.0	15.0	6.0	6.0	5.0	6.0
Minimum Split (s)	28.5	23.5	23.5	28.5	28.5	10.5	23.5
Total Split (s)	60.5	60.5	60.5	49.0	49.0	10.5	59.5
Total Split (%)	50.4%	50.4%	50.4%	40.8%	40.8%	8.8%	49.6%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
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				Lag	Lag	Lead	
Lead-Lag Optimize?							
Recall Mode	C-Min	C-Min	C-Min	None	None	None	None

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 52 (43%), Referenced to phase 2:EBT and 6:WBTL, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated

Splits and Phases: 9: Hemphill Ave & 14th St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	236	63	42	740	89	81	222	39	31	103	0
Future Volume (veh/h)	0	236	63	42	740	89	81	222	39	31	103	0
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.90	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1863	1900	1900	1863	1900	1900	1863	1900	1863	1863	0
Adj Flow Rate, veh/h	0	281	78	62	787	99	101	267	61	48	114	0
Adj No. of Lanes	0	1	0	0	2	0	0	2	0	1	1	0
Peak Hour Factor	0.50	0.84	0.81	0.68	0.94	0.90	0.80	0.83	0.64	0.64	0.90	0.38
Percent Heavy Veh, %	0	2	2	2	2	2	2	2	2	2	2	0
Cap, veh/h	0	859	239	141	1729	215	183	417	97	217	552	0
Arrive On Green	0.00	0.81	0.81	0.61	0.61	0.61	0.22	0.22	0.22	0.03	0.30	0.00
Sat Flow, veh/h	0	1404	390	175	2826	351	644	1919	448	1774	1863	0
Grp Volume(v), veh/h	0	0	359	487	0	461	232	0	197	48	114	0
Grp Sat Flow(s),veh/h/ln	0	0	1794	1718	0	1633	1564	0	1447	1774	1863	0
Q Serve(g_s), s	0.0	0.0	6.1	3.3	0.0	18.3	15.1	0.0	14.8	2.4	5.5	0.0
Cycle Q Clear(g_c), s	0.0	0.0	6.1	16.9	0.0	18.3	16.3	0.0	14.8	2.4	5.5	0.0
Prop In Lane	0.00		0.22	0.13		0.21	0.44		0.31	1.00		0.00
Lane Grp Cap(c), veh/h	0	0	1098	1085	0	999	383	0	314	217	552	0
V/C Ratio(X)	0.00	0.00	0.33	0.45	0.00	0.46	0.61	0.00	0.63	0.22	0.21	0.00
Avail Cap(c_a), veh/h	0	0	1098	1085	0	999	608	0	524	232	838	0
HCM Platoon Ratio	1.00	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	0.68	1.00	0.00	1.00	1.00	0.00	1.00	0.43	0.43	0.00
Uniform Delay (d), s/veh	0.0	0.0	4.9	12.2	0.0	12.6	43.0	0.0	42.5	34.3	31.6	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.5	1.3	0.0	1.5	1.5	0.0	2.1	0.2	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	0.0	5.5	13.8	0.0	13.4	11.7	0.0	10.1	2.2	4.6	0.0
LnGrp Delay(d),s/veh	0.0	0.0	5.4	13.6	0.0	14.1	44.6	0.0	44.6	34.6	31.7	0.0
LnGrp LOS			A	B		B	D		D	C	C	
Approach Vol, veh/h		359			948			429			162	
Approach Delay, s/veh		5.4			13.8			44.6			32.6	
Approach LOS		A			B			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6	7	8
Phs Duration (G+Y+Rc), s		78.9		41.1		78.9	9.5	31.6
Change Period (Y+Rc), s		5.5		5.5		5.5	5.5	5.5
Max Green Setting (Gmax), s		55.0		54.0		55.0	5.0	43.5
Max Q Clear Time (g_c+I1), s		8.1		7.5		20.3	4.4	18.3
Green Ext Time (p_c), s		16.3		9.6		14.7	0.0	7.8

Intersection Summary	
HCM 2010 Ctrl Delay	20.8
HCM 2010 LOS	C

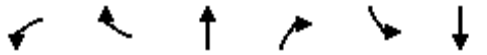
Future “No-Build” Improved Intersection Analysis

Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Configurations					
Traffic Volume (vph)	172	71	367	304	506
Future Volume (vph)	172	71	367	304	506
Turn Type	Prot	Perm	NA	pm+pt	NA
Protected Phases	8		2	1	6
Permitted Phases		8		6	
Detector Phase	8	8	2	1	6
Switch Phase					
Minimum Initial (s)	6.0	6.0	15.0	5.0	15.0
Minimum Split (s)	23.5	23.5	23.5	10.5	23.5
Total Split (s)	27.0	27.0	64.0	29.0	93.0
Total Split (%)	22.5%	22.5%	53.3%	24.2%	77.5%
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			Lag	Lead	
Lead-Lag Optimize?					
Recall Mode	None	None	C-Min	None	C-Min

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 86 (72%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated

Splits and Phases: 1: Howell Mill Rd & 17th St



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	172	71	367	274	304	506
Future Volume (veh/h)	172	71	367	274	304	506
Number	3	18	2	12	1	6
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1900	1863	1863
Adj Flow Rate, veh/h	223	79	390	280	353	544
Adj No. of Lanes	1	1	1	0	1	1
Peak Hour Factor	0.77	0.90	0.94	0.98	0.86	0.93
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	255	228	634	455	471	1424
Arrive On Green	0.14	0.14	0.42	0.42	0.09	0.76
Sat Flow, veh/h	1774	1583	1010	725	1774	1863
Grp Volume(v), veh/h	223	79	0	670	353	544
Grp Sat Flow(s),veh/h/ln	1774	1583	0	1735	1774	1863
Q Serve(g_s), s	14.8	5.4	0.0	36.2	7.9	11.7
Cycle Q Clear(g_c), s	14.8	5.4	0.0	36.2	7.9	11.7
Prop In Lane	1.00	1.00		0.42	1.00	
Lane Grp Cap(c), veh/h	255	228	0	1089	471	1424
V/C Ratio(X)	0.87	0.35	0.00	0.62	0.75	0.38
Avail Cap(c_a), veh/h	318	284	0	1089	656	1424
HCM Platoon Ratio	1.00	1.00	0.67	0.67	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.82	1.00	1.00
Uniform Delay (d), s/veh	50.3	46.3	0.0	23.5	16.6	4.7
Incr Delay (d2), s/veh	19.5	0.9	0.0	2.1	3.1	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	13.4	4.4	0.0	24.3	11.7	10.3
LnGrp Delay(d),s/veh	69.8	47.2	0.0	25.6	19.6	5.5
LnGrp LOS	E	D		C	B	A
Approach Vol, veh/h	302		670			897
Approach Delay, s/veh	63.9		25.6			11.1
Approach LOS	E		C			B

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	16.5	80.8				97.3		22.7
Change Period (Y+Rc), s	5.5	5.5				5.5		5.5
Max Green Setting (Gmax), s	23.5	58.5				87.5		21.5
Max Q Clear Time (g_c+I1), s	9.9	38.2				13.7		16.8
Green Ext Time (p_c), s	1.1	17.9				52.6		0.5

Intersection Summary	
HCM 2010 Ctrl Delay	24.8
HCM 2010 LOS	C

Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Configurations					
Traffic Volume (vph)	406	137	466	167	848
Future Volume (vph)	406	137	466	167	848
Turn Type	Prot	Perm	NA	pm+pt	NA
Protected Phases	8		2	1	6
Permitted Phases		8		6	
Detector Phase	8	8	2	1	6
Switch Phase					
Minimum Initial (s)	6.0	6.0	15.0	5.0	15.0
Minimum Split (s)	23.5	23.5	23.5	10.5	23.5
Total Split (s)	40.3	40.3	63.0	16.7	79.7
Total Split (%)	33.6%	33.6%	52.5%	13.9%	66.4%
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			Lag	Lead	
Lead-Lag Optimize?					
Recall Mode	None	None	C-Min	None	C-Min

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 111 (93%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated

Splits and Phases: 1: Howell Mill Rd & 17th St

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	406	137	466	212	167	848
Future Volume (veh/h)	406	137	466	212	167	848
Number	3	18	2	12	1	6
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1900	1863	1863
Adj Flow Rate, veh/h	432	171	518	236	180	1010
Adj No. of Lanes	1	1	1	0	1	1
Peak Hour Factor	0.94	0.80	0.90	0.90	0.93	0.84
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	466	416	653	297	260	1202
Arrive On Green	0.26	0.26	0.18	0.18	0.06	0.65
Sat Flow, veh/h	1774	1583	1213	553	1774	1863
Grp Volume(v), veh/h	432	171	0	754	180	1010
Grp Sat Flow(s),veh/h/ln	1774	1583	0	1765	1774	1863
Q Serve(g_s), s	28.5	10.7	0.0	49.1	5.2	50.4
Cycle Q Clear(g_c), s	28.5	10.7	0.0	49.1	5.2	50.4
Prop In Lane	1.00	1.00		0.31	1.00	
Lane Grp Cap(c), veh/h	466	416	0	950	260	1202
V/C Ratio(X)	0.93	0.41	0.00	0.79	0.69	0.84
Avail Cap(c_a), veh/h	514	459	0	950	317	1202
HCM Platoon Ratio	1.00	1.00	0.33	0.33	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.81	1.00	1.00
Uniform Delay (d), s/veh	43.1	36.6	0.0	43.0	24.4	16.5
Incr Delay (d2), s/veh	21.9	0.7	0.0	5.6	4.8	7.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	23.5	8.3	0.0	33.0	6.6	36.6
LnGrp Delay(d),s/veh	65.0	37.2	0.0	48.5	29.2	23.6
LnGrp LOS	E	D		D	C	C
Approach Vol, veh/h	603		754			1190
Approach Delay, s/veh	57.1		48.5			24.5
Approach LOS	E		D			C

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	12.9	70.1				83.0		37.0
Change Period (Y+Rc), s	5.5	5.5				5.5		5.5
Max Green Setting (Gmax), s	11.2	57.5				74.2		34.8
Max Q Clear Time (g_c+I1), s	7.2	51.1				52.4		30.5
Green Ext Time (p_c), s	0.2	6.4				21.4		1.1

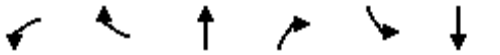
Intersection Summary	
HCM 2010 Ctrl Delay	39.3
HCM 2010 LOS	D

Future “Build” Intersections Analysis

Lane Group	WBL	NBT	SBL	SBT
Lane Configurations				
Traffic Volume (vph)	188	396	304	555
Future Volume (vph)	188	396	304	555
Turn Type	Prot	NA	pm+pt	NA
Protected Phases	8	2	1	6
Permitted Phases			6	
Detector Phase	8	2	1	6
Switch Phase				
Minimum Initial (s)	6.0	15.0	5.0	15.0
Minimum Split (s)	23.5	23.5	10.5	23.5
Total Split (s)	31.0	61.0	28.0	89.0
Total Split (%)	25.8%	50.8%	23.3%	74.2%
Yellow Time (s)	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5
Lead/Lag		Lag	Lead	
Lead-Lag Optimize?				
Recall Mode	None	C-Min	None	C-Min

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 91 (76%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated

Splits and Phases: 1: Howell Mill Rd & 17th St



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	188	71	396	284	304	555
Future Volume (veh/h)	188	71	396	284	304	555
Number	3	18	2	12	1	6
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1900	1863	1900	1863	1863
Adj Flow Rate, veh/h	244	79	421	290	353	597
Adj No. of Lanes	0	0	1	0	1	1
Peak Hour Factor	0.77	0.90	0.94	0.98	0.86	0.93
Percent Heavy Veh, %	0	0	2	2	2	2
Cap, veh/h	263	85	571	393	428	1314
Arrive On Green	0.20	0.20	0.55	0.55	0.11	0.71
Sat Flow, veh/h	1298	420	1029	709	1774	1863
Grp Volume(v), veh/h	324	0	0	711	353	597
Grp Sat Flow(s),veh/h/ln	1724	0	0	1738	1774	1863
Q Serve(g_s), s	22.1	0.0	0.0	37.0	9.6	16.7
Cycle Q Clear(g_c), s	22.1	0.0	0.0	37.0	9.6	16.7
Prop In Lane	0.75	0.24		0.41	1.00	
Lane Grp Cap(c), veh/h	349	0	0	964	428	1314
V/C Ratio(X)	0.93	0.00	0.00	0.74	0.83	0.45
Avail Cap(c_a), veh/h	366	0	0	964	574	1314
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.80	1.00	1.00
Uniform Delay (d), s/veh	47.0	0.0	0.0	20.1	19.8	7.7
Incr Delay (d2), s/veh	28.7	0.0	0.0	4.1	7.2	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	19.3	0.0	0.0	25.0	12.0	13.8
LnGrp Delay(d),s/veh	75.6	0.0	0.0	24.2	27.1	8.8
LnGrp LOS	E			C	C	A
Approach Vol, veh/h	324		711			950
Approach Delay, s/veh	75.6		24.2			15.6
Approach LOS	E		C			B

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	18.1	72.1				90.2		29.8
Change Period (Y+Rc), s	5.5	5.5				5.5		5.5
Max Green Setting (Gmax), s	22.5	55.5				83.5		25.5
Max Q Clear Time (g_c+I1), s	11.6	39.0				18.7		24.1
Green Ext Time (p_c), s	1.0	15.2				51.3		0.2

Intersection Summary	
HCM 2010 Ctrl Delay	28.5
HCM 2010 LOS	C

Notes

Lane Group	EBL	EBT	WBT	NBL	NBT	SBT	SBR
Lane Configurations							
Traffic Volume (vph)	293	0	0	198	382	512	217
Future Volume (vph)	293	0	0	198	382	512	217
Turn Type	Perm	NA	NA	pm+pt	NA	NA	Perm
Protected Phases		4	8	5	2	6	
Permitted Phases	4			2			6
Detector Phase	4	4	8	5	2	6	6
Switch Phase							
Minimum Initial (s)	6.0	6.0	6.0	5.0	15.0	15.0	15.0
Minimum Split (s)	28.5	28.5	23.5	10.5	23.5	24.5	24.5
Total Split (s)	44.0	44.0	44.0	20.0	76.0	56.0	56.0
Total Split (%)	36.7%	36.7%	36.7%	16.7%	63.3%	46.7%	46.7%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag				Lead		Lag	Lag
Lead-Lag Optimize?							
Recall Mode	None	None	None	None	C-Min	C-Min	C-Min

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 49 (41%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated

Splits and Phases: 2: Howell Mill Rd & Huff Rd

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	293	0	292	0	0	1	198	382	2	0	512	217
Future Volume (veh/h)	293	0	292	0	0	1	198	382	2	0	512	217
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1900	1863	1900	1863	1863	1900	1900	1863	1863
Adj Flow Rate, veh/h	315	0	336	0	0	4	225	394	8	0	569	0
Adj No. of Lanes	1	1	0	0	1	0	1	1	0	0	1	1
Peak Hour Factor	0.93	0.92	0.87	0.92	0.92	0.25	0.88	0.97	0.25	0.92	0.90	0.82
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	411	0	398	0	0	398	438	1195	24	0	994	845
Arrive On Green	0.25	0.00	0.25	0.00	0.00	0.25	0.15	1.00	1.00	0.00	0.36	0.00
Sat Flow, veh/h	1407	0	1583	0	0	1583	1774	1819	37	0	1863	1583
Grp Volume(v), veh/h	315	0	336	0	0	4	225	0	402	0	569	0
Grp Sat Flow(s),veh/h/ln	1407	0	1583	0	0	1583	1774	0	1856	0	1863	1583
Q Serve(g_s), s	26.0	0.0	24.2	0.0	0.0	0.2	7.0	0.0	0.0	0.0	29.6	0.0
Cycle Q Clear(g_c), s	26.2	0.0	24.2	0.0	0.0	0.2	7.0	0.0	0.0	0.0	29.6	0.0
Prop In Lane	1.00		1.00	0.00		1.00	1.00		0.02	0.00		1.00
Lane Grp Cap(c), veh/h	411	0	398	0	0	398	438	0	1219	0	994	845
V/C Ratio(X)	0.77	0.00	0.84	0.00	0.00	0.01	0.51	0.00	0.33	0.00	0.57	0.00
Avail Cap(c_a), veh/h	509	0	508	0	0	508	515	0	1219	0	994	845
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	0.67	0.67	0.67
Upstream Filter(I)	1.00	0.00	1.00	0.00	0.00	1.00	0.83	0.00	0.83	0.00	0.76	0.00
Uniform Delay (d), s/veh	43.5	0.0	42.7	0.0	0.0	33.7	13.9	0.0	0.0	0.0	27.5	0.0
Incr Delay (d2), s/veh	5.5	0.0	10.0	0.0	0.0	0.0	0.8	0.0	0.6	0.0	1.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	16.1	0.0	17.3	0.0	0.0	0.2	6.1	0.0	0.4	0.0	21.4	0.0
LnGrp Delay(d),s/veh	49.0	0.0	52.7	0.0	0.0	33.7	14.6	0.0	0.6	0.0	29.3	0.0
LnGrp LOS	D		D			C	B		A		C	
Approach Vol, veh/h		651			4			627			569	
Approach Delay, s/veh		50.9			33.7			5.6			29.3	
Approach LOS		D			C			A			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		8
Phs Duration (G+Y+Rc), s		84.3		35.7	14.8	69.5		35.7
Change Period (Y+Rc), s		5.5		5.5	5.5	5.5		5.5
Max Green Setting (Gmax), s		70.5		38.5	14.5	50.5		38.5
Max Q Clear Time (g_c+I1), s		2.0		28.2	9.0	31.6		2.2
Green Ext Time (p_c), s		37.6		2.0	0.3	14.8		2.7

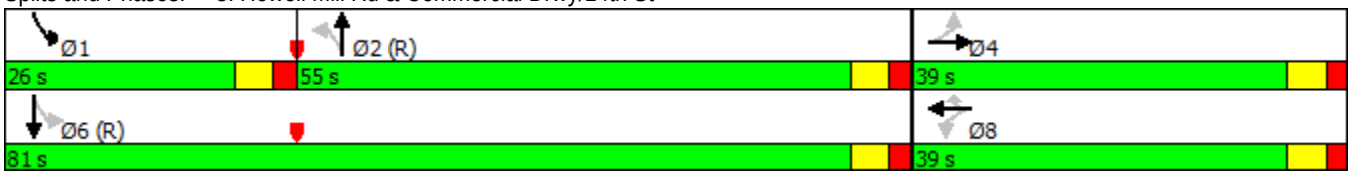
Intersection Summary	
HCM 2010 Ctrl Delay	28.9
HCM 2010 LOS	C

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	20	12	159	36	208	8	373	246	430
Future Volume (vph)	20	12	159	36	208	8	373	246	430
Turn Type	Perm	NA	Perm	NA	Perm	Perm	NA	pm+pt	NA
Protected Phases		4		8			2	1	6
Permitted Phases	4		8		8	2		6	
Detector Phase	4	4	8	8	8	2	2	1	6
Switch Phase									
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	15.0	15.0	5.0	15.0
Minimum Split (s)	29.5	29.5	29.5	29.5	29.5	25.5	25.5	10.5	23.5
Total Split (s)	39.0	39.0	39.0	39.0	39.0	55.0	55.0	26.0	81.0
Total Split (%)	32.5%	32.5%	32.5%	32.5%	32.5%	45.8%	45.8%	21.7%	67.5%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		5.5		5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag						Lag	Lag	Lead	
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	None	C-Min	C-Min	None	C-Min

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 77 (64%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated

Splits and Phases: 3: Howell Mill Rd & Commercial Drwy/14th St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	12	8	159	36	208	8	373	130	246	430	46
Future Volume (veh/h)	20	12	8	159	36	208	8	373	130	246	430	46
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	49	35	0	192	48	226	14	393	144	280	478	66
Adj No. of Lanes	0	1	0	0	1	1	1	1	0	1	1	0
Peak Hour Factor	0.41	0.34	0.58	0.83	0.75	0.92	0.58	0.95	0.90	0.88	0.90	0.70
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	100	60	0	303	62	407	495	659	241	433	1044	144
Arrive On Green	0.26	0.26	0.00	0.26	0.26	0.26	0.17	0.17	0.17	0.20	1.00	1.00
Sat Flow, veh/h	206	234	0	968	242	1583	859	1302	477	1774	1602	221
Grp Volume(v), veh/h	84	0	0	240	0	226	14	0	537	280	0	544
Grp Sat Flow(s),veh/h/ln	440	0	0	1210	0	1583	859	0	1779	1774	0	1824
Q Serve(g_s), s	5.4	0.0	0.0	0.0	0.0	14.8	1.6	0.0	33.5	9.3	0.0	0.0
Cycle Q Clear(g_c), s	28.0	0.0	0.0	22.6	0.0	14.8	1.6	0.0	33.5	9.3	0.0	0.0
Prop In Lane	0.58		0.00	0.80		1.00	1.00		0.27	1.00		0.12
Lane Grp Cap(c), veh/h	160	0	0	365	0	407	495	0	900	433	0	1188
V/C Ratio(X)	0.52	0.00	0.00	0.66	0.00	0.56	0.03	0.00	0.60	0.65	0.00	0.46
Avail Cap(c_a), veh/h	190	0	0	397	0	442	495	0	900	559	0	1188
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	0.00	0.00	0.80	0.00	0.80	1.00	0.00	1.00	0.76	0.00	0.76
Uniform Delay (d), s/veh	48.1	0.0	0.0	41.5	0.0	38.7	25.4	0.0	38.6	15.7	0.0	0.0
Incr Delay (d2), s/veh	2.6	0.0	0.0	2.8	0.0	1.0	0.1	0.0	2.9	1.2	0.0	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	5.1	0.0	0.0	11.7	0.0	10.3	0.7	0.0	24.1	7.5	0.0	0.6
LnGrp Delay(d),s/veh	50.7	0.0	0.0	44.4	0.0	39.7	25.5	0.0	41.6	17.0	0.0	1.0
LnGrp LOS	D			D		D	C		D	B		A
Approach Vol, veh/h		84			466			551			824	
Approach Delay, s/veh		50.7			42.1			41.1			6.4	
Approach LOS		D			D			D			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		8
Phs Duration (G+Y+Rc), s	17.5	66.2		36.3		83.7		36.3
Change Period (Y+Rc), s	5.5	5.5		5.5		5.5		5.5
Max Green Setting (Gmax), s	20.5	49.5		33.5		75.5		33.5
Max Q Clear Time (g_c+I1), s	11.3	35.5		30.0		2.0		24.6
Green Ext Time (p_c), s	0.7	12.1		0.8		45.6		1.5

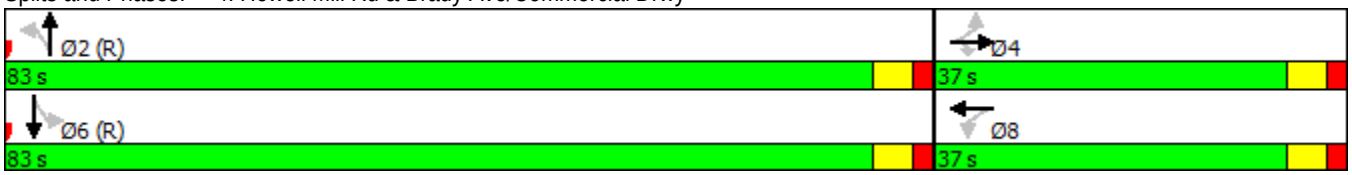
Intersection Summary		
HCM 2010 Ctrl Delay		26.9
HCM 2010 LOS		C

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	127	0	30	3	0	43	382	2	407
Future Volume (vph)	127	0	30	3	0	43	382	2	407
Turn Type	Perm	NA	Perm	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4			8		2		6
Permitted Phases	4		4	8		2		6	
Detector Phase	4	4	4	8	8	2	2	6	6
Switch Phase									
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	15.0	15.0	15.0	15.0
Minimum Split (s)	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5
Total Split (s)	37.0	37.0	37.0	37.0	37.0	83.0	83.0	83.0	83.0
Total Split (%)	30.8%	30.8%	30.8%	30.8%	30.8%	69.2%	69.2%	69.2%	69.2%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		5.5	5.5		5.5	5.5	5.5	5.5	5.5
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	None	C-Min	C-Min	C-Min	C-Min

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 20 (17%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

Splits and Phases: 4: Howell Mill Rd & Brady Ave/Commercial Drwy



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	127	0	30	3	0	3	43	382	1	2	407	167
Future Volume (veh/h)	127	0	30	3	0	3	43	382	1	2	407	167
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1863	1900	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	137	0	32	5	0	4	51	434	2	2	468	182
Adj No. of Lanes	0	1	1	0	1	0	1	1	0	1	1	0
Peak Hour Factor	0.93	0.92	0.94	0.58	0.25	0.67	0.85	0.88	0.56	0.83	0.87	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	223	0	231	64	13	24	653	1412	7	783	974	379
Arrive On Green	0.15	0.00	0.15	0.15	0.00	0.15	1.00	1.00	1.00	1.00	1.00	1.00
Sat Flow, veh/h	1117	0	1583	115	87	162	778	1853	9	949	1278	497
Grp Volume(v), veh/h	137	0	32	9	0	0	51	0	436	2	0	650
Grp Sat Flow(s),veh/h/ln	1117	0	1583	365	0	0	778	0	1861	949	0	1775
Q Serve(g_s), s	0.0	0.0	2.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	15.0	0.0	2.1	15.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop In Lane	1.00		1.00	0.56		0.44	1.00		0.00	1.00		0.28
Lane Grp Cap(c), veh/h	223	0	231	100	0	0	653	0	1419	783	0	1353
V/C Ratio(X)	0.61	0.00	0.14	0.09	0.00	0.00	0.08	0.00	0.31	0.00	0.00	0.48
Avail Cap(c_a), veh/h	387	0	416	270	0	0	653	0	1419	783	0	1353
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	0.00	1.00	1.00	0.00	0.00	0.85	0.00	0.85	1.00	0.00	1.00
Uniform Delay (d), s/veh	50.2	0.0	44.6	44.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	2.7	0.0	0.3	0.4	0.0	0.0	0.2	0.0	0.5	0.0	0.0	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	8.1	0.0	1.7	0.5	0.0	0.0	0.1	0.0	0.3	0.0	0.0	0.8
LnGrp Delay(d),s/veh	52.9	0.0	44.9	45.1	0.0	0.0	0.2	0.0	0.5	0.0	0.0	1.2
LnGrp LOS	D		D	D			A		A	A		A
Approach Vol, veh/h		169			9			487			652	
Approach Delay, s/veh		51.4			45.1			0.4			1.2	
Approach LOS		D			D			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		97.0		23.0		97.0		23.0
Change Period (Y+Rc), s		5.5		5.5		5.5		5.5
Max Green Setting (Gmax), s		77.5		31.5		77.5		31.5
Max Q Clear Time (g_c+I1), s		2.0		17.0		2.0		17.1
Green Ext Time (p_c), s		48.3		0.5		48.3		0.5

Intersection Summary	
HCM 2010 Ctrl Delay	7.7
HCM 2010 LOS	A

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	19	198	35	89	94	3	367	208	235
Future Volume (vph)	19	198	35	89	94	3	367	208	235
Turn Type	Perm	NA	Perm	NA	Perm	Perm	NA	Perm	NA
Protected Phases		4		8			2		6
Permitted Phases	4		8		8	2		6	
Detector Phase	4	4	8	8	8	2	2	6	6
Switch Phase									
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	15.0	15.0	15.0	15.0
Minimum Split (s)	23.5	23.5	24.5	24.5	24.5	26.5	26.5	26.5	26.5
Total Split (s)	38.0	38.0	38.0	38.0	38.0	82.0	82.0	82.0	82.0
Total Split (%)	31.7%	31.7%	31.7%	31.7%	31.7%	68.3%	68.3%	68.3%	68.3%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		5.5		5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	None	C-Min	C-Min	C-Min	C-Min

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 36 (30%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated

Splits and Phases: 5: Howell Mill Rd & 10th St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	19	198	12	35	89	94	3	367	217	208	235	4
Future Volume (veh/h)	19	198	12	35	89	94	3	367	217	208	235	4
Number	7	4	14	3	8	18	5	2	12	1	6	16
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	0.90	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	31	254	17	48	119	115	4	427	249	245	264	4
Adj No. of Lanes	0	1	0	0	1	1	1	1	0	1	1	0
Peak Hour Factor	0.61	0.78	0.69	0.73	0.75	0.82	0.75	0.86	0.87	0.85	0.89	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	52	293	19	97	221	401	785	724	422	393	1199	18
Arrive On Green	0.25	0.25	0.25	0.08	0.08	0.08	0.66	0.66	0.66	1.00	1.00	1.00
Sat Flow, veh/h	74	1156	73	230	874	1583	1107	1105	644	760	1830	28
Grp Volume(v), veh/h	302	0	0	167	0	115	4	0	676	245	0	268
Grp Sat Flow(s),veh/h/ln	1304	0	0	1104	0	1583	1107	0	1749	760	0	1858
Q Serve(g_s), s	11.4	0.0	0.0	0.0	0.0	8.2	0.2	0.0	26.1	25.3	0.0	0.0
Cycle Q Clear(g_c), s	27.7	0.0	0.0	16.3	0.0	8.2	0.2	0.0	26.1	51.3	0.0	0.0
Prop In Lane	0.10		0.06	0.29		1.00	1.00		0.37	1.00		0.01
Lane Grp Cap(c), veh/h	363	0	0	318	0	401	785	0	1146	393	0	1217
V/C Ratio(X)	0.83	0.00	0.00	0.52	0.00	0.29	0.01	0.00	0.59	0.62	0.00	0.22
Avail Cap(c_a), veh/h	391	0	0	346	0	429	785	0	1146	393	0	1217
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	0.00	0.85	0.00	0.85	1.00	0.00	1.00	0.88	0.00	0.88
Uniform Delay (d), s/veh	43.6	0.0	0.0	47.2	0.0	44.8	7.2	0.0	11.6	8.5	0.0	0.0
Incr Delay (d2), s/veh	13.4	0.0	0.0	1.1	0.0	0.3	0.0	0.0	2.2	6.5	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	16.6	0.0	0.0	9.0	0.0	6.5	0.1	0.0	19.0	9.6	0.0	0.2
LnGrp Delay(d),s/veh	57.0	0.0	0.0	48.3	0.0	45.1	7.2	0.0	13.9	15.0	0.0	0.4
LnGrp LOS	E			D		D	A		B	B		A
Approach Vol, veh/h		302			282			680			513	
Approach Delay, s/veh		57.0			47.0			13.8			7.4	
Approach LOS		E			D			B			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		84.1		35.9		84.1		35.9
Change Period (Y+Rc), s		5.5		5.5		5.5		5.5
Max Green Setting (Gmax), s		76.5		32.5		76.5		32.5
Max Q Clear Time (g_c+I1), s		28.1		29.7		53.3		18.3
Green Ext Time (p_c), s		35.3		0.7		19.3		1.9

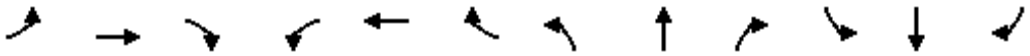
Intersection Summary	
HCM 2010 Ctrl Delay	24.6
HCM 2010 LOS	C

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	164	478	51	174	43	1412	340	128	1191
Future Volume (vph)	164	478	51	174	43	1412	340	128	1191
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	pm+pt	NA
Protected Phases		4		8		2		1	6
Permitted Phases	4		8		2		2	6	
Detector Phase	4	4	8	8	2	2	2	1	6
Switch Phase									
Minimum Initial (s)	6.0	6.0	6.0	6.0	15.0	15.0	15.0	5.0	15.0
Minimum Split (s)	23.5	23.5	33.5	33.5	25.5	25.5	25.5	10.5	27.5
Total Split (s)	45.6	45.6	45.6	45.6	63.9	63.9	63.9	10.5	74.4
Total Split (%)	38.0%	38.0%	38.0%	38.0%	53.3%	53.3%	53.3%	8.8%	62.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)		0.0		0.0		0.0	0.0		0.0
Total Lost Time (s)		5.5		5.5		5.5	5.5		5.5
Lead/Lag					Lag	Lag	Lag	Lead	
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	C-Min	C-Min	C-Min	None	C-Min

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 91 (76%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 110
Control Type: Actuated-Coordinated

Splits and Phases: 6: Northside Dr & 10th St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	164	478	45	51	174	57	43	1412	340	128	1191	63
Future Volume (vph)	164	478	45	51	174	57	43	1412	340	128	1191	63
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	
Lane Util. Factor		0.95			0.95			0.91	1.00		0.91	
Frt		0.99			0.97			1.00	0.85		0.99	
Flt Protected		0.99			0.99			1.00	1.00		1.00	
Satd. Flow (prot)		3455			3398			5071	1583		5028	
Flt Permitted		0.74			0.57			0.68	1.00		0.63	
Satd. Flow (perm)		2584			1971			3458	1583		3182	
Peak-hour factor, PHF	0.87	0.80	0.60	0.78	0.84	0.82	0.48	0.92	0.95	0.84	0.87	0.91
Adj. Flow (vph)	189	598	75	65	207	70	90	1535	358	152	1369	69
RTOR Reduction (vph)	0	6	0	0	19	0	0	0	69	0	4	0
Lane Group Flow (vph)	0	856	0	0	323	0	0	1625	289	0	1586	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)		40.1			40.1			68.9	68.9		68.9	
Effective Green, g (s)		40.1			40.1			68.9	68.9		68.9	
Actuated g/C Ratio		0.33			0.33			0.57	0.57		0.57	
Clearance Time (s)		5.5			5.5			5.5	5.5		5.5	
Vehicle Extension (s)		3.0			3.0			5.0	5.0		5.0	
Lane Grp Cap (vph)		863			658			1985	908		1826	
v/s Ratio Prot												
v/s Ratio Perm		c0.33			0.16			0.47	0.18		c0.50	
v/c Ratio		0.99			0.49			0.82	0.32		1.37dl	
Uniform Delay, d1		39.8			31.8			20.5	13.3		21.7	
Progression Factor		0.89			1.00			1.00	1.00		1.07	
Incremental Delay, d2		26.2			0.6			3.9	0.9		3.1	
Delay (s)		61.4			32.4			24.4	14.2		26.2	
Level of Service		E			C			C	B		C	
Approach Delay (s)		61.4			32.4			22.6			26.2	
Approach LOS		E			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	31.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.5
Intersection Capacity Utilization	101.0%	ICU Level of Service	G
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

c Critical Lane Group

Intersection	
Int Delay, s/veh	177.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	33	0	54	5	2	12	71	1265	12	8	1075	42
Future Vol, veh/h	33	0	54	5	2	12	71	1265	12	8	1075	42
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	300	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	62	50	55	92	96	69	44	91	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	36	0	59	8	4	22	77	1318	17	18	1181	46

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1924	2730	613	1990	2744	668	1227	0	0	1335	0	0
Stage 1	1241	1241	-	1481	1481	-	-	-	-	-	-	-
Stage 2	683	1489	-	509	1263	-	-	-	-	-	-	-
Critical Hdwy	6.44	6.54	7.14	6.44	6.54	7.14	5.34	-	-	5.34	-	-
Critical Hdwy Stg 1	7.34	5.54	-	7.34	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.74	5.54	-	6.74	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.82	4.02	3.92	3.82	4.02	3.92	3.12	-	-	3.12	-	-
Pot Cap-1 Maneuver	71	20	373	64	20	344	304	-	-	269	-	-
Stage 1	135	245	-	91	187	-	-	-	-	-	-	-
Stage 2	369	186	-	470	239	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	~ 4	0	373	~ 3	0	344	304	-	-	269	-	-
Mov Cap-2 Maneuver	~ 4	0	-	~ 3	0	-	-	-	-	-	-	-
Stage 1	~ 2	193	-	~ 1	~ 2	-	-	-	-	-	-	-
Stage 2	-	2	-	311	188	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	$ 4537.6	$ 1620.5	6.5	1.5
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	304	-	-	10	11	269	-	-
HCM Lane V/C Ratio	0.254	-	-	9.457	3.08	0.068	-	-
HCM Control Delay (s)	20.8	5.8	$ 4537.6	$ 1620.5	19.4	1.3	-	
HCM Lane LOS	C	A	-	F	F	C	A	-
HCM 95th %tile Q(veh)	1	-	-	13.2	5.3	0.2	-	-

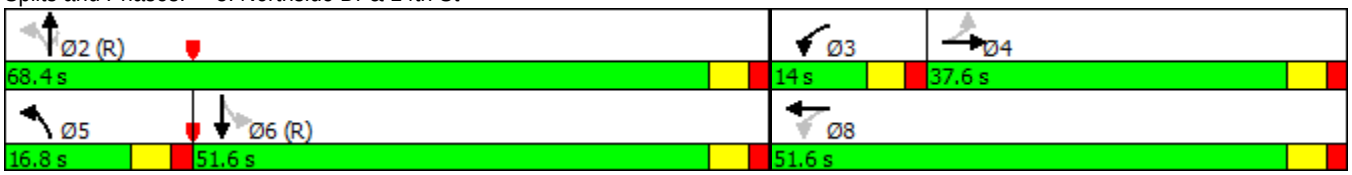
Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	93	371	156	303	170	1478	112	12	1127
Future Volume (vph)	93	371	156	303	170	1478	112	12	1127
Turn Type	Perm	NA	pm+pt	NA	pm+pt	NA	Perm	Perm	NA
Protected Phases		4	3	8	5	2			6
Permitted Phases	4		8		2		2	6	
Detector Phase	4	4	3	8	5	2	2	6	6
Switch Phase									
Minimum Initial (s)	6.0	6.0	5.0	6.0	5.0	15.0	15.0	15.0	15.0
Minimum Split (s)	35.5	35.5	10.5	34.5	10.5	27.5	27.5	26.5	26.5
Total Split (s)	37.6	37.6	14.0	51.6	16.8	68.4	68.4	51.6	51.6
Total Split (%)	31.3%	31.3%	11.7%	43.0%	14.0%	57.0%	57.0%	43.0%	43.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag	Lag	Lag	Lead		Lead			Lag	Lag
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	None	C-Min	C-Min	C-Min	C-Min

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 24 (20%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 115
Control Type: Actuated-Coordinated

Splits and Phases: 8: Northside Dr & 14th St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	93	371	107	156	303	0	170	1478	112	12	1127	60
Future Volume (veh/h)	93	371	107	156	303	0	170	1478	112	12	1127	60
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	0	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	121	382	124	175	329	0	215	1607	175	22	1295	88
Adj No. of Lanes	1	1	0	1	1	0	1	2	1	1	2	0
Peak Hour Factor	0.77	0.97	0.86	0.89	0.92	0.38	0.79	0.92	0.64	0.55	0.87	0.68
Percent Heavy Veh, %	2	2	2	2	2	0	2	2	2	2	2	2
Cap, veh/h	340	361	117	186	716	0	227	1855	830	94	1292	88
Arrive On Green	0.09	0.09	0.09	0.14	0.77	0.00	0.09	0.52	0.52	0.77	0.77	0.77
Sat Flow, veh/h	1047	1348	438	1774	1863	0	1774	3539	1583	265	3364	228
Grp Volume(v), veh/h	121	0	506	175	329	0	215	1607	175	22	680	703
Grp Sat Flow(s),veh/h/ln	1047	0	1786	1774	1863	0	1774	1770	1583	265	1770	1822
Q Serve(g_s), s	13.1	0.0	32.1	8.5	7.6	0.0	10.4	47.5	7.1	8.9	46.1	46.1
Cycle Q Clear(g_c), s	13.1	0.0	32.1	8.5	7.6	0.0	10.4	47.5	7.1	39.6	46.1	46.1
Prop In Lane	1.00		0.25	1.00		0.00	1.00		1.00	1.00		0.13
Lane Grp Cap(c), veh/h	340	0	478	186	716	0	227	1855	830	94	680	700
V/C Ratio(X)	0.36	0.00	1.06	0.94	0.46	0.00	0.95	0.87	0.21	0.23	1.00	1.00
Avail Cap(c_a), veh/h	340	0	478	186	716	0	227	1855	830	94	680	700
HCM Platoon Ratio	0.33	0.33	0.33	2.00	2.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	0.60	0.00	0.60	0.96	0.96	0.00	1.00	1.00	1.00	0.51	0.51	0.51
Uniform Delay (d), s/veh	46.1	0.0	54.7	30.8	9.4	0.0	35.6	24.9	15.3	26.8	13.9	13.9
Incr Delay (d2), s/veh	0.4	0.0	48.7	48.5	0.4	0.0	45.0	5.7	0.6	3.0	24.8	25.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	6.3	0.0	40.2	10.8	6.7	0.0	15.1	32.6	5.8	1.3	46.5	48.1
LnGrp Delay(d),s/veh	46.4	0.0	103.4	79.3	9.9	0.0	80.5	30.6	15.9	29.8	38.7	39.3
LnGrp LOS	D		F	E	A		F	C	B	C	F	F
Approach Vol, veh/h		627			504			1997			1405	
Approach Delay, s/veh		92.4			34.0			34.7			38.8	
Approach LOS		F			C			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4	5	6		8
Phs Duration (G+Y+Rc), s		68.4	14.0	37.6	16.8	51.6		51.6
Change Period (Y+Rc), s		5.5	5.5	5.5	5.5	5.5		5.5
Max Green Setting (Gmax), s		62.9	8.5	32.1	11.3	46.1		46.1
Max Q Clear Time (g_c+I1), s		49.5	10.5	34.1	12.4	48.1		9.6
Green Ext Time (p_c), s		13.4	0.0	0.0	0.0	0.0		4.1

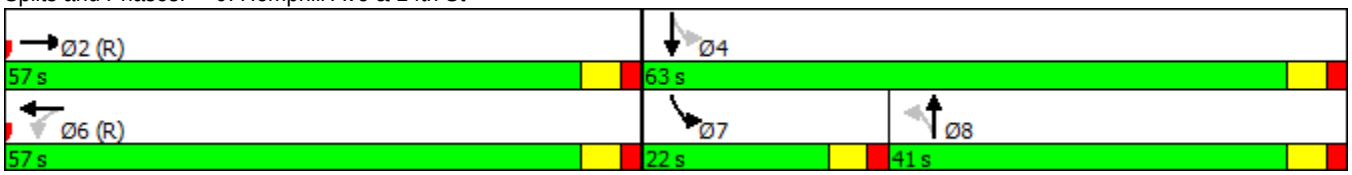
Intersection Summary	
HCM 2010 Ctrl Delay	43.9
HCM 2010 LOS	D

Lane Group	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	416	34	427	65	62	101	132
Future Volume (vph)	416	34	427	65	62	101	132
Turn Type	NA	Perm	NA	Perm	NA	pm+pt	NA
Protected Phases	2		6		8	7	4
Permitted Phases		6		8		4	
Detector Phase	2	6	6	8	8	7	4
Switch Phase							
Minimum Initial (s)	15.0	15.0	15.0	6.0	6.0	5.0	6.0
Minimum Split (s)	28.5	23.5	23.5	28.5	28.5	10.5	23.5
Total Split (s)	57.0	57.0	57.0	41.0	41.0	22.0	63.0
Total Split (%)	47.5%	47.5%	47.5%	34.2%	34.2%	18.3%	52.5%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
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				Lag	Lag	Lead	
Lead-Lag Optimize?							
Recall Mode	C-Min	C-Min	C-Min	None	None	None	None

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 70 (58%), Referenced to phase 2:EBT and 6:WBTL, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated

Splits and Phases: 9: Hemphill Ave & 14th St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	416	66	34	427	35	65	62	46	101	132	0
Future Volume (veh/h)	0	416	66	34	427	35	65	62	46	101	132	0
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.90	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1863	1900	1900	1863	1900	1900	1863	1900	1863	1863	0
Adj Flow Rate, veh/h	0	447	80	52	485	38	79	83	66	140	153	0
Adj No. of Lanes	0	1	0	0	2	0	0	2	0	1	1	0
Peak Hour Factor	0.50	0.93	0.82	0.65	0.88	0.91	0.82	0.75	0.70	0.72	0.86	0.92
Percent Heavy Veh, %	0	2	2	2	2	2	2	2	2	2	2	0
Cap, veh/h	0	980	175	194	1766	138	166	154	129	299	505	0
Arrive On Green	0.00	1.00	1.00	0.64	0.64	0.64	0.14	0.14	0.14	0.03	0.09	0.00
Sat Flow, veh/h	0	1539	275	249	2771	217	824	1077	903	1774	1863	0
Grp Volume(v), veh/h	0	0	527	285	0	290	128	0	100	140	153	0
Grp Sat Flow(s),veh/h/ln	0	0	1814	1580	0	1657	1438	0	1366	1774	1863	0
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	9.3	9.0	0.0	8.1	7.8	9.2	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	7.9	0.0	9.3	9.9	0.0	8.1	7.8	9.2	0.0
Prop In Lane	0.00		0.15	0.18		0.13	0.62		0.66	1.00		0.00
Lane Grp Cap(c), veh/h	0	0	1156	1042	0	1056	254	0	195	299	505	0
V/C Ratio(X)	0.00	0.00	0.46	0.27	0.00	0.28	0.51	0.00	0.51	0.47	0.30	0.00
Avail Cap(c_a), veh/h	0	0	1156	1042	0	1056	470	0	404	397	893	0
HCM Platoon Ratio	1.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	1.00
Upstream Filter(I)	0.00	0.00	0.49	1.00	0.00	1.00	1.00	0.00	1.00	0.51	0.51	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	9.3	0.0	9.6	48.2	0.0	47.6	40.2	44.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.6	0.6	0.0	0.6	1.6	0.0	2.1	0.6	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	0.0	0.4	7.6	0.0	7.8	7.4	0.0	5.7	6.2	7.4	0.0
LnGrp Delay(d),s/veh	0.0	0.0	0.6	10.0	0.0	10.2	49.8	0.0	49.6	40.8	44.2	0.0
LnGrp LOS			A	A		B	D		D	D	D	
Approach Vol, veh/h		527			575			228			293	
Approach Delay, s/veh		0.6			10.1			49.7			42.6	
Approach LOS		A			B			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6	7	8
Phs Duration (G+Y+Rc), s		82.0		38.0		82.0	15.4	22.6
Change Period (Y+Rc), s		5.5		5.5		5.5	5.5	5.5
Max Green Setting (Gmax), s		51.5		57.5		51.5	16.5	35.5
Max Q Clear Time (g_c+I1), s		2.0		11.2		11.3	9.8	11.9
Green Ext Time (p_c), s		13.0		6.4		12.4	0.2	5.2

Intersection Summary	
HCM 2010 Ctrl Delay	18.5
HCM 2010 LOS	B

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	0	8	15	0	25	0	467	54	55	534	0
Future Vol, veh/h	3	0	8	15	0	25	0	467	54	55	534	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	25	-	0	-	-	-	-	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	75	92	44	92	92	92	92	94	92	92	95	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	0	18	16	0	27	0	497	59	60	562	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1222	-	562	1208	1208	526	-	0	0	556	0	0
Stage 1	682	-	-	526	526	-	-	-	-	-	-	-
Stage 2	540	-	-	682	682	-	-	-	-	-	-	-
Critical Hdwy	7.12	-	6.22	7.12	6.52	6.22	-	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	-	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	-	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	-	3.318	3.518	4.018	3.318	-	-	-	2.218	-	-
Pot Cap-1 Maneuver	156	0	526	160	183	552	0	-	-	1015	-	0
Stage 1	440	0	-	535	529	-	0	-	-	-	-	0
Stage 2	526	0	-	440	450	-	0	-	-	-	-	0
Platoon blocked, %								-	-		-	
Mov Cap-1 Maneuver	142	-	526	147	172	552	-	-	-	1015	-	-
Mov Cap-2 Maneuver	266	-	-	274	292	-	-	-	-	-	-	-
Stage 1	440	-	-	535	529	-	-	-	-	-	-	-
Stage 2	500	-	-	400	423	-	-	-	-	-	-	-

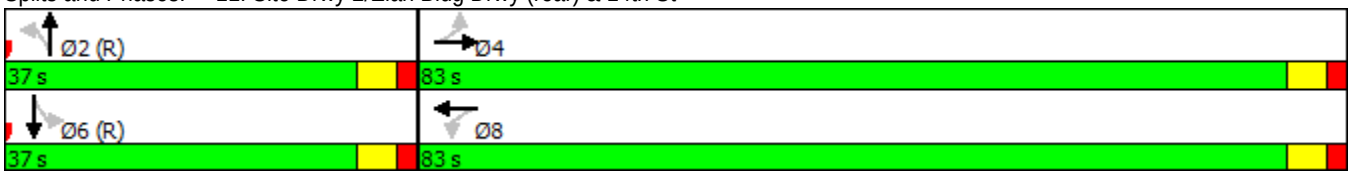
Approach	EB	WB	NB	SB
HCM Control Delay, s	13.3	15.1	0	0.8
HCM LOS	B	C		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	266	526	400	1015	-
HCM Lane V/C Ratio	-	-	0.015	0.035	0.109	0.059	-
HCM Control Delay (s)	-	-	18.7	12.1	15.1	8.8	-
HCM Lane LOS	-	-	C	B	C	A	-
HCM 95th %tile Q(veh)	-	-	0	0.1	0.4	0.2	-

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	2	338	122	338	59	0	33	0
Future Volume (vph)	2	338	122	338	59	0	33	0
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5
Total Split (s)	83.0	83.0	83.0	83.0	37.0	37.0	37.0	37.0
Total Split (%)	69.2%	69.2%	69.2%	69.2%	30.8%	30.8%	30.8%	30.8%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)		0.0	0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)		5.5	5.5	5.5	5.5	5.5		5.5
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated

Splits and Phases: 11: Site Drwy 2/Elan Bldg Drwy (rear) & 14th St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	338	54	122	338	0	59	0	65	33	0	12
Future Volume (veh/h)	2	338	54	122	338	0	59	0	65	33	0	12
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1900	1863	1863	1900	1863	1863	1900	1900	1863	1900
Adj Flow Rate, veh/h	4	363	59	133	380	0	64	0	71	40	0	26
Adj No. of Lanes	0	1	0	1	1	0	1	1	0	0	1	0
Peak Hour Factor	0.50	0.93	0.92	0.92	0.89	0.92	0.92	0.92	0.92	0.83	0.92	0.46
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	32	642	104	340	767	0	756	0	786	454	11	271
Arrive On Green	0.41	0.41	0.41	0.14	0.14	0.00	0.50	0.00	0.50	0.50	0.00	0.50
Sat Flow, veh/h	4	1559	251	961	1863	0	1379	0	1583	817	23	546
Grp Volume(v), veh/h	426	0	0	133	380	0	64	0	71	66	0	0
Grp Sat Flow(s),veh/h/ln	1815	0	0	961	1863	0	1379	0	1583	1386	0	0
Q Serve(g_s), s	0.0	0.0	0.0	8.6	22.7	0.0	0.0	0.0	2.8	1.4	0.0	0.0
Cycle Q Clear(g_c), s	21.6	0.0	0.0	30.2	22.7	0.0	2.4	0.0	2.8	4.3	0.0	0.0
Prop In Lane	0.01		0.14	1.00		0.00	1.00		1.00	0.61		0.39
Lane Grp Cap(c), veh/h	778	0	0	340	767	0	756	0	786	736	0	0
V/C Ratio(X)	0.55	0.00	0.00	0.39	0.50	0.00	0.08	0.00	0.09	0.09	0.00	0.00
Avail Cap(c_a), veh/h	1200	0	0	565	1203	0	756	0	786	736	0	0
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.86	0.00	0.00	0.71	0.71	0.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	27.1	0.0	0.0	47.3	40.3	0.0	15.8	0.0	15.9	16.2	0.0	0.0
Incr Delay (d2), s/veh	0.5	0.0	0.0	0.5	0.4	0.0	0.2	0.0	0.2	0.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	15.9	0.0	0.0	7.1	16.6	0.0	2.1	0.0	2.3	2.2	0.0	0.0
LnGrp Delay(d),s/veh	27.6	0.0	0.0	47.8	40.6	0.0	16.0	0.0	16.2	16.5	0.0	0.0
LnGrp LOS	C			D	D		B		B	B		
Approach Vol, veh/h		426			513			135			66	
Approach Delay, s/veh		27.6			42.5			16.1			16.5	
Approach LOS		C			D			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		65.1		54.9		65.1		54.9
Change Period (Y+Rc), s		5.5		5.5		5.5		5.5
Max Green Setting (Gmax), s		31.5		77.5		31.5		77.5
Max Q Clear Time (g_c+I1), s		4.8		23.6		6.3		32.2
Green Ext Time (p_c), s		2.2		18.3		2.2		17.2

Intersection Summary		
HCM 2010 Ctrl Delay		32.3
HCM 2010 LOS		C

Lane Group	WBL	NBT	SBL	SBT
Lane Configurations				
Traffic Volume (vph)	419	520	167	887
Future Volume (vph)	419	520	167	887
Turn Type	Prot	NA	pm+pt	NA
Protected Phases	8	2	1	6
Permitted Phases			6	
Detector Phase	8	2	1	6
Switch Phase				
Minimum Initial (s)	6.0	15.0	5.0	15.0
Minimum Split (s)	23.5	23.5	10.5	23.5
Total Split (s)	46.0	59.2	14.8	74.0
Total Split (%)	38.3%	49.3%	12.3%	61.7%
Yellow Time (s)	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5
Lead/Lag		Lag	Lead	
Lead-Lag Optimize?				
Recall Mode	None	C-Min	None	C-Min

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 56 (47%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 110
Control Type: Actuated-Coordinated

Splits and Phases: 1: Howell Mill Rd & 17th St

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	419	137	520	230	167	887
Future Volume (veh/h)	419	137	520	230	167	887
Number	3	18	2	12	1	6
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1900	1863	1900	1863	1863
Adj Flow Rate, veh/h	446	171	553	256	180	964
Adj No. of Lanes	0	0	1	0	1	1
Peak Hour Factor	0.94	0.80	0.94	0.90	0.93	0.92
Percent Heavy Veh, %	0	0	2	2	2	2
Cap, veh/h	418	160	540	250	197	1063
Arrive On Green	0.34	0.34	0.45	0.45	0.08	0.57
Sat Flow, veh/h	1239	475	1206	558	1774	1863
Grp Volume(v), veh/h	618	0	0	809	180	964
Grp Sat Flow(s),veh/h/ln	1717	0	0	1764	1774	1863
Q Serve(g_s), s	40.5	0.0	0.0	53.7	8.0	55.2
Cycle Q Clear(g_c), s	40.5	0.0	0.0	53.7	8.0	55.2
Prop In Lane	0.72	0.28		0.32	1.00	
Lane Grp Cap(c), veh/h	579	0	0	789	197	1063
V/C Ratio(X)	1.07	0.00	0.00	1.02	0.91	0.91
Avail Cap(c_a), veh/h	579	0	0	789	197	1063
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.77	1.00	1.00
Uniform Delay (d), s/veh	39.8	0.0	0.0	33.2	35.1	22.9
Incr Delay (d2), s/veh	56.4	0.0	0.0	34.6	40.2	12.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	50.8	0.0	0.0	60.6	12.8	41.1
LnGrp Delay(d),s/veh	96.1	0.0	0.0	67.8	75.3	35.5
LnGrp LOS	F			F	E	D
Approach Vol, veh/h	618		809			1144
Approach Delay, s/veh	96.1		67.8			41.8
Approach LOS	F		E			D

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	14.8	59.2				74.0		46.0
Change Period (Y+Rc), s	5.5	5.5				5.5		5.5
Max Green Setting (Gmax), s	9.3	53.7				68.5		40.5
Max Q Clear Time (g_c+I1), s	10.0	55.7				57.2		42.5
Green Ext Time (p_c), s	0.0	0.0				11.1		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	63.0
HCM 2010 LOS	E

Notes

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	178	2	10	1	270	584	4	988	244
Future Volume (vph)	178	2	10	1	270	584	4	988	244
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	Perm	NA	Perm
Protected Phases		4		8	5	2		6	
Permitted Phases	4		8		2		6		6
Detector Phase	4	4	8	8	5	2	6	6	6
Switch Phase									
Minimum Initial (s)	6.0	6.0	6.0	6.0	5.0	15.0	15.0	15.0	15.0
Minimum Split (s)	28.5	28.5	23.5	23.5	10.5	23.5	24.5	24.5	24.5
Total Split (s)	28.5	28.5	28.5	28.5	20.0	91.5	71.5	71.5	71.5
Total Split (%)	23.8%	23.8%	23.8%	23.8%	16.7%	76.3%	59.6%	59.6%	59.6%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	5.5	5.5		5.5	5.5	5.5		5.5	5.5
Lead/Lag					Lead		Lag	Lag	Lag
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	None	C-Min	C-Min	C-Min	C-Min

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 82 (68%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 150
Control Type: Actuated-Coordinated

Splits and Phases: 2: Howell Mill Rd & Huff Rd

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	178	2	209	10	1	5	270	584	2	4	988	244
Future Volume (veh/h)	178	2	209	10	1	5	270	584	2	4	988	244
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1900	1863	1900	1863	1863	1900	1900	1863	1863
Adj Flow Rate, veh/h	205	4	220	18	4	12	338	704	4	8	1098	0
Adj No. of Lanes	1	1	0	0	1	0	1	1	0	0	1	1
Peak Hour Factor	0.87	0.50	0.95	0.56	0.25	0.42	0.80	0.83	0.50	0.50	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	275	5	299	88	26	37	334	1326	8	33	1019	871
Arrive On Green	0.19	0.19	0.19	0.19	0.19	0.19	0.24	1.00	1.00	1.00	1.00	0.00
Sat Flow, veh/h	1392	28	1559	218	136	193	1774	1850	11	4	1852	1583
Grp Volume(v), veh/h	205	0	224	34	0	0	338	0	708	1106	0	0
Grp Sat Flow(s),veh/h/ln	1392	0	1588	548	0	0	1774	0	1861	1856	0	1583
Q Serve(g_s), s	5.5	0.0	15.9	0.6	0.0	0.0	14.5	0.0	0.0	21.1	0.0	0.0
Cycle Q Clear(g_c), s	21.9	0.0	15.9	16.5	0.0	0.0	14.5	0.0	0.0	66.0	0.0	0.0
Prop In Lane	1.00		0.98	0.53		0.35	1.00		0.01	0.01		1.00
Lane Grp Cap(c), veh/h	275	0	304	151	0	0	334	0	1334	1051	0	871
V/C Ratio(X)	0.74	0.00	0.74	0.23	0.00	0.00	1.01	0.00	0.53	1.05	0.00	0.00
Avail Cap(c_a), veh/h	275	0	304	151	0	0	334	0	1334	1051	0	871
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	0.00	1.00	1.00	0.00	0.00	0.42	0.00	0.42	0.19	0.00	0.00
Uniform Delay (d), s/veh	48.8	0.0	45.6	41.7	0.0	0.0	23.4	0.0	0.0	0.9	0.0	0.0
Incr Delay (d2), s/veh	10.4	0.0	9.0	0.7	0.0	0.0	35.1	0.0	0.6	28.8	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	12.0	0.0	12.3	2.0	0.0	0.0	25.4	0.0	0.4	40.0	0.0	0.0
LnGrp Delay(d),s/veh	59.2	0.0	54.6	42.4	0.0	0.0	58.6	0.0	0.6	29.7	0.0	0.0
LnGrp LOS	E		D	D			F		A	F		
Approach Vol, veh/h		429			34			1046			1106	
Approach Delay, s/veh		56.8			42.4			19.4			29.7	
Approach LOS		E			D			B			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		8
Phs Duration (G+Y+Rc), s		91.5		28.5	20.0	71.5		28.5
Change Period (Y+Rc), s		5.5		5.5	5.5	5.5		5.5
Max Green Setting (Gmax), s		86.0		23.0	14.5	66.0		23.0
Max Q Clear Time (g_c+I1), s		2.0		23.9	16.5	68.0		18.5
Green Ext Time (p_c), s		80.2		0.0	0.0	0.0		0.8

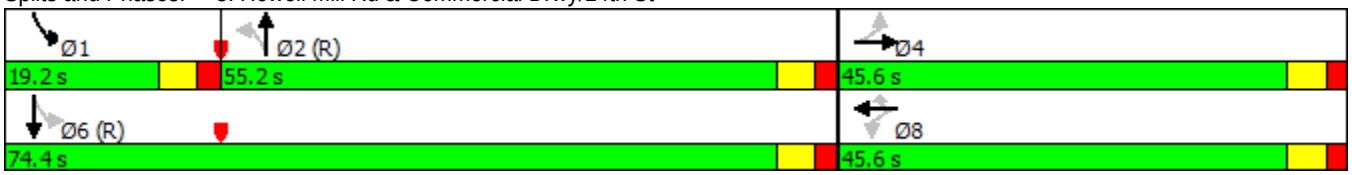
Intersection Summary		
HCM 2010 Ctrl Delay		30.2
HCM 2010 LOS		C

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	51	24	361	27	391	13	532	193	886
Future Volume (vph)	51	24	361	27	391	13	532	193	886
Turn Type	Perm	NA	Perm	NA	Perm	Perm	NA	pm+pt	NA
Protected Phases		4		8			2	1	6
Permitted Phases	4		8		8	2		6	
Detector Phase	4	4	8	8	8	2	2	1	6
Switch Phase									
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	15.0	15.0	5.0	15.0
Minimum Split (s)	29.5	29.5	29.5	29.5	29.5	25.5	25.5	10.5	23.5
Total Split (s)	45.6	45.6	45.6	45.6	45.6	55.2	55.2	19.2	74.4
Total Split (%)	38.0%	38.0%	38.0%	38.0%	38.0%	46.0%	46.0%	16.0%	62.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		5.5		5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag						Lag	Lag	Lead	
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	None	C-Min	C-Min	None	C-Min

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 112 (93%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated

Splits and Phases: 3: Howell Mill Rd & Commercial Drwy/14th St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	51	24	10	361	27	391	13	532	113	193	886	40
Future Volume (veh/h)	51	24	10	361	27	391	13	532	113	193	886	40
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	78	39	0	380	39	416	22	619	143	251	974	56
Adj No. of Lanes	0	1	0	0	1	1	1	1	0	1	1	0
Peak Hour Factor	0.65	0.61	0.75	0.95	0.69	0.94	0.60	0.86	0.79	0.77	0.91	0.71
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	58	20	0	446	40	529	286	607	140	263	1002	58
Arrive On Green	0.33	0.33	0.00	0.33	0.33	0.33	0.28	0.28	0.28	0.23	1.00	1.00
Sat Flow, veh/h	24	58	0	1162	119	1583	545	1465	338	1774	1745	100
Grp Volume(v), veh/h	117	0	0	419	0	416	22	0	762	251	0	1030
Grp Sat Flow(s),veh/h/ln	82	0	0	1282	0	1583	545	0	1803	1774	0	1845
Q Serve(g_s), s	1.3	0.0	0.0	0.0	0.0	28.5	3.6	0.0	49.7	12.6	0.0	0.0
Cycle Q Clear(g_c), s	40.1	0.0	0.0	38.8	0.0	28.5	3.6	0.0	49.7	12.6	0.0	0.0
Prop In Lane	0.67		0.00	0.91		1.00	1.00		0.19	1.00		0.05
Lane Grp Cap(c), veh/h	78	0	0	485	0	529	286	0	747	263	0	1059
V/C Ratio(X)	1.51	0.00	0.00	0.86	0.00	0.79	0.08	0.00	1.02	0.96	0.00	0.97
Avail Cap(c_a), veh/h	78	0	0	485	0	529	286	0	747	263	0	1059
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.67	0.67	0.67	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	0.00	0.72	0.00	0.72	1.00	0.00	1.00	0.09	0.00	0.09
Uniform Delay (d), s/veh	52.0	0.0	0.0	39.5	0.0	36.1	26.7	0.0	43.4	31.3	0.0	0.0
Incr Delay (d2), s/veh	284.4	0.0	0.0	11.2	0.0	5.7	0.5	0.0	38.2	8.7	0.0	4.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	15.6	0.0	0.0	20.7	0.0	18.4	1.0	0.0	58.8	10.2	0.0	1.7
LnGrp Delay(d),s/veh	336.4	0.0	0.0	50.8	0.0	41.8	27.2	0.0	81.5	40.0	0.0	4.0
LnGrp LOS	F			D		D	C		F	D		A
Approach Vol, veh/h		117			835			784			1281	
Approach Delay, s/veh		336.4			46.3			80.0			11.1	
Approach LOS		F			D			F			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		8
Phs Duration (G+Y+Rc), s	19.2	55.2		45.6		74.4		45.6
Change Period (Y+Rc), s	5.5	5.5		5.5		5.5		5.5
Max Green Setting (Gmax), s	13.7	49.7		40.1		68.9		40.1
Max Q Clear Time (g_c+I1), s	14.6	51.7		42.1		2.0		40.8
Green Ext Time (p_c), s	0.0	0.0		0.0		64.1		0.0

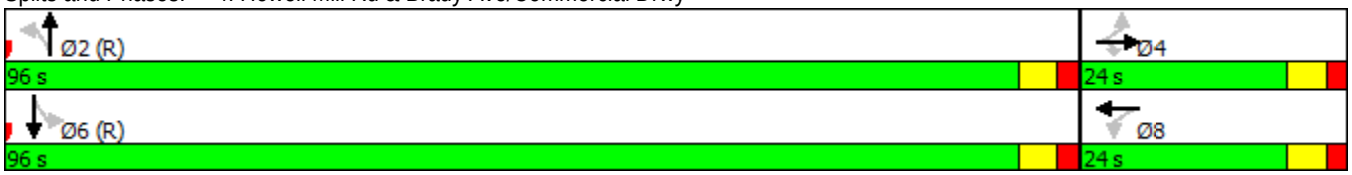
Intersection Summary	
HCM 2010 Ctrl Delay	51.4
HCM 2010 LOS	D

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	114	0	37	8	2	37	515	11	760
Future Volume (vph)	114	0	37	8	2	37	515	11	760
Turn Type	Perm	NA	Perm	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4			8		2		6
Permitted Phases	4		4	8		2		6	
Detector Phase	4	4	4	8	8	2	2	6	6
Switch Phase									
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	15.0	15.0	15.0	15.0
Minimum Split (s)	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5
Total Split (s)	24.0	24.0	24.0	24.0	24.0	96.0	96.0	96.0	96.0
Total Split (%)	20.0%	20.0%	20.0%	20.0%	20.0%	80.0%	80.0%	80.0%	80.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		5.5	5.5		5.5	5.5	5.5	5.5	5.5
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	None	C-Min	C-Min	C-Min	C-Min

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 63 (53%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 130
Control Type: Actuated-Coordinated

Splits and Phases: 4: Howell Mill Rd & Brady Ave/Commercial Drwy



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	114	0	37	8	2	9	37	515	10	11	760	478
Future Volume (veh/h)	114	0	37	8	2	9	37	515	10	11	760	478
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1863	1900	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	123	0	39	14	8	13	44	585	18	13	874	520
Adj No. of Lanes	0	1	1	0	1	0	1	1	0	1	1	0
Peak Hour Factor	0.93	0.92	0.94	0.58	0.25	0.67	0.85	0.88	0.56	0.83	0.87	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	184	0	244	43	28	17	74	1356	42	673	826	492
Arrive On Green	0.15	0.00	0.15	0.15	0.15	0.15	1.00	1.00	1.00	1.00	1.00	1.00
Sat Flow, veh/h	803	0	1583	5	179	109	386	1798	55	813	1096	652
Grp Volume(v), veh/h	123	0	39	35	0	0	44	0	603	13	0	1394
Grp Sat Flow(s),veh/h/ln	803	0	1583	293	0	0	386	0	1853	813	0	1748
Q Serve(g_s), s	0.0	0.0	2.6	0.1	0.0	0.0	4.5	0.0	0.0	0.0	0.0	86.0
Cycle Q Clear(g_c), s	18.4	0.0	2.6	18.5	0.0	0.0	90.5	0.0	0.0	0.0	0.0	86.0
Prop In Lane	1.00		1.00	0.40		0.37	1.00		0.03	1.00		0.37
Lane Grp Cap(c), veh/h	184	0	244	87	0	0	74	0	1397	673	0	1318
V/C Ratio(X)	0.67	0.00	0.16	0.40	0.00	0.00	0.59	0.00	0.43	0.02	0.00	1.06
Avail Cap(c_a), veh/h	184	0	244	87	0	0	74	0	1397	673	0	1318
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	0.00	1.00	1.00	0.00	0.00	0.93	0.00	0.93	1.00	0.00	1.00
Uniform Delay (d), s/veh	50.7	0.0	44.0	44.8	0.0	0.0	44.5	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	9.0	0.0	0.3	3.0	0.0	0.0	28.3	0.0	0.9	0.1	0.0	41.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	8.0	0.0	2.1	1.9	0.0	0.0	3.7	0.0	0.6	0.0	0.0	27.4
LnGrp Delay(d),s/veh	59.7	0.0	44.3	47.8	0.0	0.0	72.8	0.0	0.9	0.1	0.0	41.6
LnGrp LOS	E		D	D			E		A	A		F
Approach Vol, veh/h		162			35			647			1407	
Approach Delay, s/veh		56.0			47.8			5.8			41.2	
Approach LOS		E			D			A			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		96.0		24.0		96.0		24.0
Change Period (Y+Rc), s		5.5		5.5		5.5		5.5
Max Green Setting (Gmax), s		90.5		18.5		90.5		18.5
Max Q Clear Time (g_c+I1), s		92.5		20.4		88.0		20.5
Green Ext Time (p_c), s		0.0		0.0		2.5		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	32.2
HCM 2010 LOS	C

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	32	117	90	184	150	13	343	236	646
Future Volume (vph)	32	117	90	184	150	13	343	236	646
Turn Type	Perm	NA	Perm	NA	Perm	Perm	NA	Perm	NA
Protected Phases		4		8			2		6
Permitted Phases	4		8		8	2		6	
Detector Phase	4	4	8	8	8	2	2	6	6
Switch Phase									
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	15.0	15.0	15.0	15.0
Minimum Split (s)	23.5	23.5	24.5	24.5	24.5	26.5	26.5	26.5	26.5
Total Split (s)	45.0	45.0	45.0	45.0	45.0	75.0	75.0	75.0	75.0
Total Split (%)	37.5%	37.5%	37.5%	37.5%	37.5%	62.5%	62.5%	62.5%	62.5%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		5.5		5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	None	C-Min	C-Min	C-Min	C-Min

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 102 (85%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

Splits and Phases: 5: Howell Mill Rd & 10th St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	32	117	16	90	184	150	13	343	81	236	646	48
Future Volume (veh/h)	32	117	16	90	184	150	13	343	81	236	646	48
Number	7	4	14	3	8	18	5	2	12	1	6	16
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	0.90	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	44	139	21	97	207	158	22	369	105	268	710	56
Adj No. of Lanes	0	1	0	0	1	1	1	1	0	1	1	0
Peak Hour Factor	0.72	0.84	0.75	0.93	0.89	0.95	0.60	0.93	0.77	0.88	0.91	0.85
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	53	140	18	128	237	521	465	808	230	452	987	78
Arrive On Green	0.33	0.33	0.33	0.55	0.55	0.55	0.58	0.58	0.58	1.00	1.00	1.00
Sat Flow, veh/h	49	426	55	269	721	1583	699	1396	397	916	1705	134
Grp Volume(v), veh/h	204	0	0	304	0	158	22	0	474	268	0	766
Grp Sat Flow(s),veh/h/ln	530	0	0	991	0	1583	699	0	1793	916	0	1839
Q Serve(g_s), s	6.5	0.0	0.0	0.0	0.0	6.5	1.6	0.0	18.2	18.5	0.0	0.0
Cycle Q Clear(g_c), s	39.5	0.0	0.0	33.0	0.0	6.5	1.6	0.0	18.2	36.7	0.0	0.0
Prop In Lane	0.22		0.10	0.32		1.00	1.00		0.22	1.00		0.07
Lane Grp Cap(c), veh/h	211	0	0	366	0	521	465	0	1038	452	0	1065
V/C Ratio(X)	0.97	0.00	0.00	0.83	0.00	0.30	0.05	0.00	0.46	0.59	0.00	0.72
Avail Cap(c_a), veh/h	211	0	0	366	0	521	465	0	1038	452	0	1065
HCM Platoon Ratio	1.00	1.00	1.00	1.67	1.67	1.67	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	0.00	0.13	0.00	0.13	1.00	0.00	1.00	0.12	0.00	0.12
Uniform Delay (d), s/veh	41.4	0.0	0.0	24.4	0.0	19.6	11.0	0.0	14.4	4.8	0.0	0.0
Incr Delay (d2), s/veh	52.5	0.0	0.0	2.2	0.0	0.0	0.2	0.0	1.4	0.7	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	15.0	0.0	0.0	11.0	0.0	3.8	0.6	0.0	14.4	5.9	0.0	0.3
LnGrp Delay(d),s/veh	93.9	0.0	0.0	26.6	0.0	19.6	11.2	0.0	15.9	5.5	0.0	0.5
LnGrp LOS	F			C		B	B		B	A		A
Approach Vol, veh/h		204			462			496			1034	
Approach Delay, s/veh		93.9			24.2			15.7			1.8	
Approach LOS		F			C			B			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		75.0		45.0		75.0		45.0
Change Period (Y+Rc), s		5.5		5.5		5.5		5.5
Max Green Setting (Gmax), s		69.5		39.5		69.5		39.5
Max Q Clear Time (g_c+I1), s		20.2		41.5		38.7		35.0
Green Ext Time (p_c), s		42.6		0.0		27.9		1.2

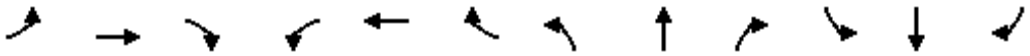
Intersection Summary	
HCM 2010 Ctrl Delay	18.2
HCM 2010 LOS	B

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	117	303	142	433	71	1565	128	81	1729
Future Volume (vph)	117	303	142	433	71	1565	128	81	1729
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	pm+pt	NA
Protected Phases		4		8		2		1	6
Permitted Phases	4		8		2		2	6	
Detector Phase	4	4	8	8	2	2	2	1	6
Switch Phase									
Minimum Initial (s)	6.0	6.0	6.0	6.0	15.0	15.0	15.0	5.0	15.0
Minimum Split (s)	23.5	23.5	33.5	33.5	25.5	25.5	25.5	10.5	27.5
Total Split (s)	46.0	46.0	46.0	46.0	63.5	63.5	63.5	10.5	74.0
Total Split (%)	38.3%	38.3%	38.3%	38.3%	52.9%	52.9%	52.9%	8.8%	61.7%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)		0.0		0.0		0.0	0.0		0.0
Total Lost Time (s)		5.5		5.5		5.5	5.5		5.5
Lead/Lag					Lag	Lag	Lag	Lead	
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	C-Min	C-Min	C-Min	None	C-Min

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 86 (72%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 120
Control Type: Actuated-Coordinated

Splits and Phases: 6: Northside Dr & 10th St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	117	303	93	142	433	72	71	1565	128	81	1729	102
Future Volume (vph)	117	303	93	142	433	72	71	1565	128	81	1729	102
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	
Lane Util. Factor		0.95			0.95			0.91	1.00		0.91	
Frt		0.97			0.98			1.00	0.85		0.99	
Flt Protected		0.99			0.99			1.00	1.00		1.00	
Satd. Flow (prot)		3392			3437			5072	1583		5020	
Flt Permitted		0.55			0.61			0.65	1.00		0.67	
Satd. Flow (perm)		1899			2113			3303	1583		3357	
Peak-hour factor, PHF	0.70	0.92	0.80	0.93	0.92	0.83	0.81	0.98	0.84	0.82	0.94	0.70
Adj. Flow (vph)	167	329	116	153	471	87	88	1597	152	99	1839	146
RTOR Reduction (vph)	0	9	0	0	9	0	0	0	65	0	7	0
Lane Group Flow (vph)	0	603	0	0	702	0	0	1685	87	0	2077	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)		40.5			40.5			68.5	68.5		68.5	
Effective Green, g (s)		40.5			40.5			68.5	68.5		68.5	
Actuated g/C Ratio		0.34			0.34			0.57	0.57		0.57	
Clearance Time (s)		5.5			5.5			5.5	5.5		5.5	
Vehicle Extension (s)		3.0			3.0			5.0	5.0		5.0	
Lane Grp Cap (vph)		640			713			1885	903		1916	
v/s Ratio Prot												
v/s Ratio Perm		0.32			c0.33			0.51	0.05		c0.62	
v/c Ratio		1.06dl			0.98			1.44dl	0.10		1.08	
Uniform Delay, d1		38.6			39.4			22.6	11.7		25.8	
Progression Factor		1.01			1.00			1.00	1.00		1.18	
Incremental Delay, d2		21.1			29.5			7.0	0.2		38.8	
Delay (s)		60.1			69.0			29.6	11.9		69.2	
Level of Service		E			E			C	B		E	
Approach Delay (s)		60.1			69.0			28.1			69.2	
Approach LOS		E			E			C			E	

Intersection Summary			
HCM 2000 Control Delay	53.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.10		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.5
Intersection Capacity Utilization	120.5%	ICU Level of Service	H
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

c Critical Lane Group

Intersection	
Int Delay, s/veh	6.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	34	0	47	1	0	4	35	1674	3	7	1846	25
Future Vol, veh/h	34	0	47	1	0	4	35	1674	3	7	1846	25
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	300	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	25	50	50	92	96	75	50	99	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	37	0	51	4	0	8	38	1744	4	14	1865	27

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2680	3730	946	2596	3742	874	1892	0	0	1748	0	0
Stage 1	1906	1906	-	1822	1822	-	-	-	-	-	-	-
Stage 2	774	1824	-	774	1920	-	-	-	-	-	-	-
Critical Hdwy	6.44	6.54	7.14	6.44	6.54	7.14	5.34	-	-	5.34	-	-
Critical Hdwy Stg 1	7.34	5.54	-	7.34	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.74	5.54	-	6.74	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.82	4.02	3.92	3.82	4.02	3.92	3.12	-	-	3.12	-	-
Pot Cap-1 Maneuver	~ 24	4	225	27	4	252	142	-	-	168	-	-
Stage 1	45	115	-	52	127	-	-	-	-	-	-	-
Stage 2	324	127	-	324	113	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	0	225	-	0	252	142	-	-	168	-	-
Mov Cap-2 Maneuver	-	0	-	-	0	-	-	-	-	-	-	-
Stage 1	45	115	-	52	0	-	-	-	-	-	-	-
Stage 2	-	0	-	250	113	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s			12.8	0.2
HCM LOS	-	-		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	142	-	-	-	-	168	-	-
HCM Lane V/C Ratio	0.268	-	-	-	-	0.083	-	-
HCM Control Delay (s)	39.4	12.3	-	-	-	28.4	0	-
HCM Lane LOS	E	B	-	-	-	D	A	-
HCM 95th %tile Q(veh)	1	-	-	-	-	0.3	-	-

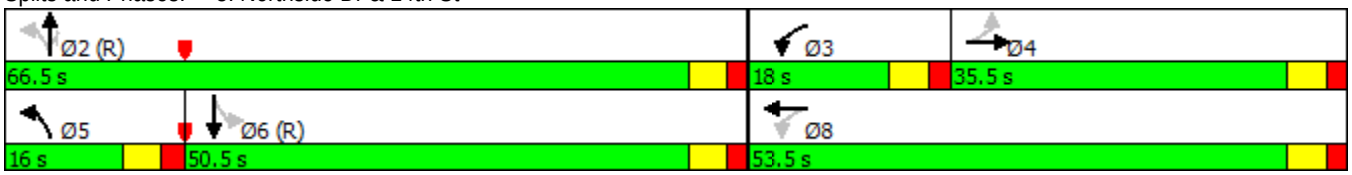
Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	89	250	335	529	227	1529	97	7	1535
Future Volume (vph)	89	250	335	529	227	1529	97	7	1535
Turn Type	Perm	NA	pm+pt	NA	pm+pt	NA	Perm	Perm	NA
Protected Phases		4	3	8	5	2			6
Permitted Phases	4		8		2		2	6	
Detector Phase	4	4	3	8	5	2	2	6	6
Switch Phase									
Minimum Initial (s)	6.0	6.0	5.0	6.0	5.0	15.0	15.0	15.0	15.0
Minimum Split (s)	35.5	35.5	10.5	34.5	10.5	27.5	27.5	26.5	26.5
Total Split (s)	35.5	35.5	18.0	53.5	16.0	66.5	66.5	50.5	50.5
Total Split (%)	29.6%	29.6%	15.0%	44.6%	13.3%	55.4%	55.4%	42.1%	42.1%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag	Lag	Lag	Lead		Lead			Lag	Lag
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	None	C-Min	C-Min	C-Min	C-Min

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 11 (9%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 135
Control Type: Actuated-Coordinated

Splits and Phases: 8: Northside Dr & 14th St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	89	250	142	335	529	0	227	1529	97	7	1535	53
Future Volume (veh/h)	89	250	142	335	529	0	227	1529	97	7	1535	53
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	0	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	103	266	203	349	575	0	273	1778	123	14	1582	66
Adj No. of Lanes	1	1	0	1	1	0	1	2	1	1	2	0
Peak Hour Factor	0.86	0.94	0.70	0.96	0.92	0.38	0.83	0.86	0.79	0.50	0.97	0.80
Percent Heavy Veh, %	2	2	2	2	2	0	2	2	2	2	2	2
Cap, veh/h	259	245	187	245	745	0	215	1799	805	149	1299	54
Arrive On Green	0.08	0.08	0.08	0.21	0.80	0.00	0.17	1.00	1.00	0.38	0.38	0.38
Sat Flow, veh/h	835	982	749	1774	1863	0	1774	3539	1583	236	3463	144
Grp Volume(v), veh/h	103	0	469	349	575	0	273	1778	123	14	806	842
Grp Sat Flow(s),veh/h/ln	835	0	1731	1774	1863	0	1774	1770	1583	236	1770	1837
Q Serve(g_s), s	14.2	0.0	30.0	12.5	19.4	0.0	10.5	0.0	0.0	4.7	45.0	45.0
Cycle Q Clear(g_c), s	15.6	0.0	30.0	12.5	19.4	0.0	10.5	0.0	0.0	4.7	45.0	45.0
Prop In Lane	1.00		0.43	1.00		0.00	1.00		1.00	1.00		0.08
Lane Grp Cap(c), veh/h	259	0	433	245	745	0	215	1799	805	149	664	689
V/C Ratio(X)	0.40	0.00	1.08	1.43	0.77	0.00	1.27	0.99	0.15	0.09	1.21	1.22
Avail Cap(c_a), veh/h	259	0	433	245	745	0	215	1799	805	149	664	689
HCM Platoon Ratio	0.33	0.33	0.33	2.00	2.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	0.91	0.00	0.91	0.84	0.84	0.00	1.00	1.00	1.00	0.67	0.67	0.67
Uniform Delay (d), s/veh	49.1	0.0	55.1	28.6	9.1	0.0	30.6	0.0	0.0	24.9	37.5	37.5
Incr Delay (d2), s/veh	0.9	0.0	66.0	210.4	4.2	0.0	152.2	18.6	0.4	0.8	105.9	108.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	6.0	0.0	40.2	40.2	14.9	0.0	29.1	8.2	0.2	0.6	74.6	78.5
LnGrp Delay(d),s/veh	50.0	0.0	121.0	239.0	13.4	0.0	182.8	18.6	0.4	25.8	143.4	146.4
LnGrp LOS	D		F	F	B		F	B	A	C	F	F
Approach Vol, veh/h		572			924			2174			1662	
Approach Delay, s/veh		108.2			98.6			38.2			143.9	
Approach LOS		F			F			D			F	

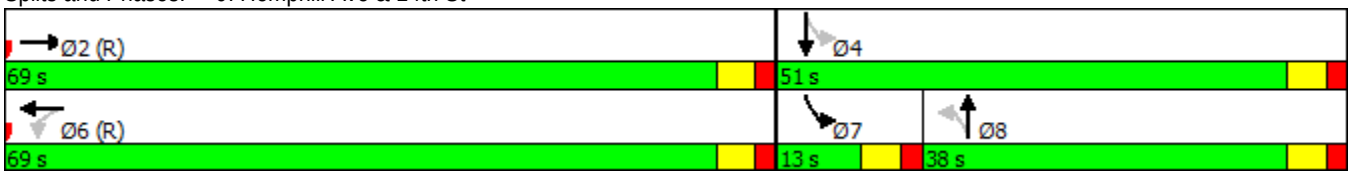
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4	5	6		8
Phs Duration (G+Y+Rc), s		66.5	18.0	35.5	16.0	50.5		53.5
Change Period (Y+Rc), s		5.5	5.5	5.5	5.5	5.5		5.5
Max Green Setting (Gmax), s		61.0	12.5	30.0	10.5	45.0		48.0
Max Q Clear Time (g_c+I1), s		2.0	14.5	32.0	12.5	47.0		21.4
Green Ext Time (p_c), s		58.8	0.0	0.0	0.0	0.0		5.2

Intersection Summary	
HCM 2010 Ctrl Delay	89.1
HCM 2010 LOS	F

Lane Group	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	279	42	771	102	222	31	103
Future Volume (vph)	279	42	771	102	222	31	103
Turn Type	NA	Perm	NA	Perm	NA	pm+pt	NA
Protected Phases	2		6		8	7	4
Permitted Phases		6		8		4	
Detector Phase	2	6	6	8	8	7	4
Switch Phase							
Minimum Initial (s)	15.0	15.0	15.0	6.0	6.0	5.0	6.0
Minimum Split (s)	28.5	23.5	23.5	28.5	28.5	10.5	23.5
Total Split (s)	69.0	69.0	69.0	38.0	38.0	13.0	51.0
Total Split (%)	57.5%	57.5%	57.5%	31.7%	31.7%	10.8%	42.5%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
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				Lag	Lag	Lead	
Lead-Lag Optimize?							
Recall Mode	C-Min	C-Min	C-Min	None	None	None	None

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 57 (48%), Referenced to phase 2:EBT and 6:WBTL, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated

Splits and Phases: 9: Hemphill Ave & 14th St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	279	92	42	771	89	102	222	39	31	103	0
Future Volume (veh/h)	0	279	92	42	771	89	102	222	39	31	103	0
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.90	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1863	1900	1900	1863	1900	1900	1863	1900	1863	1863	0
Adj Flow Rate, veh/h	0	332	114	62	820	99	128	267	61	48	114	0
Adj No. of Lanes	0	1	0	0	2	0	0	2	0	1	1	0
Peak Hour Factor	0.50	0.84	0.81	0.68	0.94	0.90	0.80	0.83	0.64	0.64	0.90	0.38
Percent Heavy Veh, %	0	2	2	2	2	2	2	2	2	2	2	0
Cap, veh/h	0	816	280	136	1742	207	213	375	90	203	546	0
Arrive On Green	0.00	1.00	1.00	0.62	0.62	0.62	0.21	0.21	0.21	0.03	0.29	0.00
Sat Flow, veh/h	0	1327	456	166	2831	337	782	1752	418	1774	1863	0
Grp Volume(v), veh/h	0	0	446	501	0	480	244	0	212	48	114	0
Grp Sat Flow(s),veh/h/ln	0	0	1782	1699	0	1636	1501	0	1452	1774	1863	0
Q Serve(g_s), s	0.0	0.0	0.0	3.4	0.0	19.2	18.2	0.0	16.1	2.5	5.5	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	17.5	0.0	19.2	18.3	0.0	16.1	2.5	5.5	0.0
Prop In Lane	0.00		0.26	0.12		0.21	0.52		0.29	1.00		0.00
Lane Grp Cap(c), veh/h	0	0	1097	1079	0	1006	367	0	311	203	546	0
V/C Ratio(X)	0.00	0.00	0.41	0.46	0.00	0.48	0.67	0.00	0.68	0.24	0.21	0.00
Avail Cap(c_a), veh/h	0	0	1097	1079	0	1006	452	0	393	255	706	0
HCM Platoon Ratio	1.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	0.45	1.00	0.00	1.00	1.00	0.00	1.00	0.34	0.34	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	12.2	0.0	12.6	44.3	0.0	43.4	34.8	31.9	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.5	1.4	0.0	1.6	2.7	0.0	3.3	0.2	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	0.0	0.3	14.2	0.0	13.9	12.5	0.0	11.0	2.2	4.5	0.0
LnGrp Delay(d),s/veh	0.0	0.0	0.5	13.6	0.0	14.2	47.0	0.0	46.7	35.0	32.0	0.0
LnGrp LOS			A	B		B	D		D	D	C	
Approach Vol, veh/h		446			981			456			162	
Approach Delay, s/veh		0.5			13.9			46.9			32.9	
Approach LOS		A			B			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6	7	8
Phs Duration (G+Y+Rc), s		79.3		40.7		79.3	9.5	31.2
Change Period (Y+Rc), s		5.5		5.5		5.5	5.5	5.5
Max Green Setting (Gmax), s		63.5		45.5		63.5	7.5	32.5
Max Q Clear Time (g_c+I1), s		2.0		7.5		21.2	4.5	20.3
Green Ext Time (p_c), s		20.3		9.7		18.0	0.0	5.3

Intersection Summary	
HCM 2010 Ctrl Delay	19.8
HCM 2010 LOS	B

Intersection	
Int Delay, s/veh	3.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	9	0	15	52	0	60	0	585	55	68	1170	0
Future Vol, veh/h	9	0	15	52	0	60	0	585	55	68	1170	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	25	-	0	-	-	-	-	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	50	92	58	92	92	92	92	91	92	92	97	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	18	0	26	57	0	65	0	643	60	74	1206	0

Major/Minor	Minor2		Minor1			Major1				Major2		
Conflicting Flow All	2059	-	1206	2027	2027	673	-	0	0	703	0	0
Stage 1	1354	-	-	673	673	-	-	-	-	-	-	-
Stage 2	705	-	-	1354	1354	-	-	-	-	-	-	-
Critical Hdwy	7.12	-	6.22	7.12	6.52	6.22	-	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	-	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	-	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	-	3.318	3.518	4.018	3.318	-	-	-	2.218	-	-
Pot Cap-1 Maneuver	40	0	224	~ 43	58	455	0	-	-	895	-	0
Stage 1	185	0	-	445	454	-	0	-	-	-	-	0
Stage 2	427	0	-	185	218	-	0	-	-	-	-	0
Platoon blocked, %								-	-		-	
Mov Cap-1 Maneuver	32	-	224	~ 36	53	455	-	-	-	895	-	-
Mov Cap-2 Maneuver	117	-	-	114	147	-	-	-	-	-	-	-
Stage 1	185	-	-	445	454	-	-	-	-	-	-	-
Stage 2	366	-	-	150	200	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	30.6	52.6	0	0.5
HCM LOS	D	F		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	117	224	190	895	-
HCM Lane V/C Ratio	-	-	0.154	0.115	0.641	0.083	-
HCM Control Delay (s)	-	-	41.3	23.2	52.6	9.4	-
HCM Lane LOS	-	-	E	C	F	A	-
HCM 95th %tile Q(veh)	-	-	0.5	0.4	3.7	0.3	-

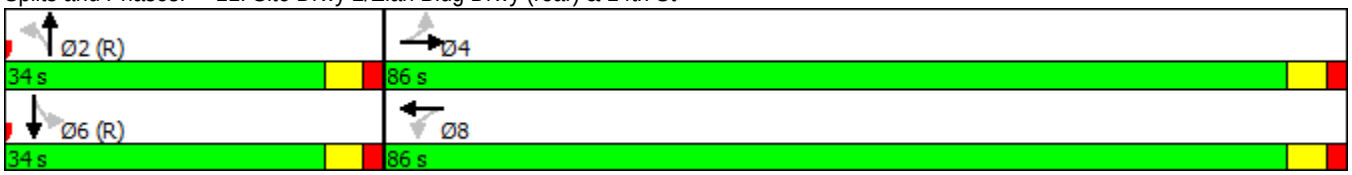
Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	1	272	110	674	123	0	5	0
Future Volume (vph)	1	272	110	674	123	0	5	0
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5
Total Split (s)	86.0	86.0	86.0	86.0	34.0	34.0	34.0	34.0
Total Split (%)	71.7%	71.7%	71.7%	71.7%	28.3%	28.3%	28.3%	28.3%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)		0.0	0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)		5.5	5.5	5.5	5.5	5.5		5.5
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

Splits and Phases: 11: Site Drwy 2/Elan Bldg Drwy (rear) & 14th St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	272	47	110	674	0	123	0	126	5	0	8
Future Volume (veh/h)	1	272	47	110	674	0	123	0	126	5	0	8
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1900	1863	1863	1900	1863	1863	1900	1900	1863	1900
Adj Flow Rate, veh/h	4	349	51	120	709	0	134	0	137	12	0	14
Adj No. of Lanes	0	1	0	1	1	0	1	1	0	0	1	0
Peak Hour Factor	0.25	0.78	0.92	0.92	0.95	0.92	0.92	0.92	0.92	0.42	0.92	0.58
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	33	859	124	592	1011	0	558	0	579	242	15	249
Arrive On Green	1.00	1.00	1.00	0.36	0.36	0.00	0.37	0.00	0.37	0.37	0.00	0.37
Sat Flow, veh/h	4	1582	229	981	1863	0	1394	0	1583	543	42	682
Grp Volume(v), veh/h	404	0	0	120	709	0	134	0	137	26	0	0
Grp Sat Flow(s),veh/h/ln	1816	0	0	981	1863	0	1394	0	1583	1267	0	0
Q Serve(g_s), s	0.0	0.0	0.0	10.2	39.0	0.0	1.9	0.0	7.2	0.1	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	10.2	39.0	0.0	9.2	0.0	7.2	7.3	0.0	0.0
Prop In Lane	0.01		0.13	1.00		0.00	1.00		1.00	0.46		0.54
Lane Grp Cap(c), veh/h	1016	0	0	592	1011	0	558	0	579	507	0	0
V/C Ratio(X)	0.40	0.00	0.00	0.20	0.70	0.00	0.24	0.00	0.24	0.05	0.00	0.00
Avail Cap(c_a), veh/h	1246	0	0	718	1250	0	558	0	579	507	0	0
HCM Platoon Ratio	2.00	2.00	2.00	0.67	0.67	0.67	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.48	0.00	0.00	0.25	0.25	0.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	20.7	29.9	0.0	27.2	0.0	26.5	24.6	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.0	0.3	0.0	1.0	0.0	1.0	0.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.1	0.0	0.0	4.1	23.9	0.0	6.0	0.0	6.0	1.0	0.0	0.0
LnGrp Delay(d),s/veh	0.1	0.0	0.0	20.7	30.2	0.0	28.2	0.0	27.4	24.8	0.0	0.0
LnGrp LOS	A			C	C		C		C	C		
Approach Vol, veh/h		404			829			271			26	
Approach Delay, s/veh		0.1			28.8			27.8			24.8	
Approach LOS		A			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		49.3		70.7		49.3		70.7
Change Period (Y+Rc), s		5.5		5.5		5.5		5.5
Max Green Setting (Gmax), s		28.5		80.5		28.5		80.5
Max Q Clear Time (g_c+I1), s		11.2		2.0		9.3		41.0
Green Ext Time (p_c), s		2.5		34.3		2.6		24.1

Intersection Summary	
HCM 2010 Ctrl Delay	21.0
HCM 2010 LOS	C

Future “Build” Improved Intersections Analysis

Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Configurations					
Traffic Volume (vph)	188	71	396	304	555
Future Volume (vph)	188	71	396	304	555
Turn Type	Prot	Perm	NA	pm+pt	NA
Protected Phases	8		2	1	6
Permitted Phases		8		6	
Detector Phase	8	8	2	1	6
Switch Phase					
Minimum Initial (s)	6.0	6.0	15.0	5.0	15.0
Minimum Split (s)	23.5	23.5	23.5	10.5	23.5
Total Split (s)	27.2	27.2	63.8	29.0	92.8
Total Split (%)	22.7%	22.7%	53.2%	24.2%	77.3%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5
Lead/Lag			Lag	Lead	
Lead-Lag Optimize?					
Recall Mode	None	None	C-Min	None	C-Min

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 91 (76%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated

Splits and Phases: 1: Howell Mill Rd & 17th St

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	188	71	396	284	304	555
Future Volume (veh/h)	188	71	396	284	304	555
Number	3	18	2	12	1	6
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1900	1863	1863
Adj Flow Rate, veh/h	244	79	421	290	353	597
Adj No. of Lanes	1	1	1	0	1	1
Peak Hour Factor	0.77	0.90	0.94	0.98	0.86	0.93
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	275	245	631	435	481	1404
Arrive On Green	0.15	0.15	0.61	0.61	0.09	0.75
Sat Flow, veh/h	1774	1583	1029	709	1774	1863
Grp Volume(v), veh/h	244	79	0	711	353	597
Grp Sat Flow(s),veh/h/ln	1774	1583	0	1738	1774	1863
Q Serve(g_s), s	16.2	5.3	0.0	32.1	8.2	14.0
Cycle Q Clear(g_c), s	16.2	5.3	0.0	32.1	8.2	14.0
Prop In Lane	1.00	1.00		0.41	1.00	
Lane Grp Cap(c), veh/h	275	245	0	1066	481	1404
V/C Ratio(X)	0.89	0.32	0.00	0.67	0.73	0.43
Avail Cap(c_a), veh/h	321	286	0	1066	662	1404
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.80	1.00	1.00
Uniform Delay (d), s/veh	49.7	45.1	0.0	15.2	15.0	5.4
Incr Delay (d2), s/veh	22.5	0.8	0.0	2.7	2.7	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	14.7	4.3	0.0	21.9	10.9	12.0
LnGrp Delay(d),s/veh	72.2	45.9	0.0	17.8	17.7	6.3
LnGrp LOS	E	D		B	B	A
Approach Vol, veh/h	323		711			950
Approach Delay, s/veh	65.7		17.8			10.5
Approach LOS	E		B			B

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	16.8	79.1				95.9		24.1
Change Period (Y+Rc), s	5.5	5.5				5.5		5.5
Max Green Setting (Gmax), s	23.5	58.3				87.3		21.7
Max Q Clear Time (g_c+I1), s	10.2	34.1				16.0		18.2
Green Ext Time (p_c), s	1.1	21.8				55.4		0.4

Intersection Summary	
HCM 2010 Ctrl Delay	22.1
HCM 2010 LOS	C

Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Configurations					
Traffic Volume (vph)	419	137	520	167	887
Future Volume (vph)	419	137	520	167	887
Turn Type	Prot	Perm	NA	pm+pt	NA
Protected Phases	8		2	1	6
Permitted Phases		8		6	
Detector Phase	8	8	2	1	6
Switch Phase					
Minimum Initial (s)	6.0	6.0	15.0	5.0	15.0
Minimum Split (s)	23.5	23.5	23.5	10.5	23.5
Total Split (s)	39.0	39.0	65.9	15.1	81.0
Total Split (%)	32.5%	32.5%	54.9%	12.6%	67.5%
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			Lag	Lead	
Lead-Lag Optimize?					
Recall Mode	None	None	C-Min	None	C-Min

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 56 (47%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated

Splits and Phases: 1: Howell Mill Rd & 17th St

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	419	137	520	230	167	887
Future Volume (veh/h)	419	137	520	230	167	887
Number	3	18	2	12	1	6
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1900	1863	1863
Adj Flow Rate, veh/h	446	171	553	256	180	964
Adj No. of Lanes	1	1	1	0	1	1
Peak Hour Factor	0.94	0.80	0.94	0.90	0.93	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	474	423	644	298	298	1194
Arrive On Green	0.27	0.27	0.71	0.71	0.06	0.64
Sat Flow, veh/h	1774	1583	1206	558	1774	1863
Grp Volume(v), veh/h	446	171	0	809	180	964
Grp Sat Flow(s),veh/h/ln	1774	1583	0	1764	1774	1863
Q Serve(g_s), s	29.5	10.6	0.0	40.9	5.3	46.2
Cycle Q Clear(g_c), s	29.5	10.6	0.0	40.9	5.3	46.2
Prop In Lane	1.00	1.00		0.32	1.00	
Lane Grp Cap(c), veh/h	474	423	0	942	298	1194
V/C Ratio(X)	0.94	0.40	0.00	0.86	0.60	0.81
Avail Cap(c_a), veh/h	495	442	0	942	331	1194
HCM Platoon Ratio	1.00	1.00	1.33	1.33	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.77	1.00	1.00
Uniform Delay (d), s/veh	43.0	36.1	0.0	14.1	20.6	16.0
Incr Delay (d2), s/veh	25.7	0.6	0.0	8.0	2.6	5.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	24.8	8.3	0.0	28.3	5.6	33.8
LnGrp Delay(d),s/veh	68.7	36.7	0.0	22.1	23.1	22.0
LnGrp LOS	E	D		C	C	C
Approach Vol, veh/h	617		809			1144
Approach Delay, s/veh	59.8		22.1			22.1
Approach LOS	E		C			C

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	12.9	69.5				82.4		37.6
Change Period (Y+Rc), s	5.5	5.5				5.5		5.5
Max Green Setting (Gmax), s	9.6	60.4				75.5		33.5
Max Q Clear Time (g_c+I1), s	7.3	42.9				48.2		31.5
Green Ext Time (p_c), s	0.1	17.2				26.7		0.6

Intersection Summary	
HCM 2010 Ctrl Delay	31.2
HCM 2010 LOS	C

Traffic Volume Worksheets

17-086 Tech-West at Howell Mill Rd, Atlanta (DRI)

Traffic Volumes
Future Conditions

A&R Engineering
November 2017

1. Howell Mill Rd @ 17th St

A.M. Peak Hour

Condition	Northbound				Southbound				Eastbound				Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2017 Volumes:	0	336	251	587	278	463	0	741	0	0	0	0	157	0	65	222
Growth Factor (%):	3	3	3		3	3	3		3	3	3		3	3	3	
Redirected Complete Street Project Traffic:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Base Condition:	0	367	274	641	304	506	0	810	0	0	0	0	172	0	71	243
Total New Trips:	0	29	10	39	0	49	0	49	0	0	0	0	16	0	0	16
Pass-by Trips:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Future 2020 Traffic Volumes:	0	396	284	680	304	555	0	859	0	0	0	0	188	0	71	259

P.M. Peak Hour

Condition	Northbound				Southbound				Eastbound				Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2017 Volumes:	0	426	194	620	153	776	0	929	0	0	0	0	372	0	125	497
Growth Factor (%):	3	3	3		3	3	3		3	3	3		3	3	3	
Redirected Complete Street Project Traffic:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Base Condition:	0	466	212	678	167	848	0	1015	0	0	0	0	406	0	137	543
Total New Trips:	0	54	18	72	0	39	0	39	0	0	0	0	13	0	0	13
Pass-by Trips:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Future 2020 Traffic Volumes:	0	520	230	750	167	887	0	1054	0	0	0	0	419	0	137	556

17-086 Tech-West at Howell Mill Rd, Atlanta (DRI)

Traffic Volumes
Future Conditions

A&R Engineering
November 2017

2. Howell Mill Rd @ Huff Rd

A.M. Peak Hour

	Northbound				Southbound				Eastbound				Westbound			
Condition	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2017 Volumes:	172	314	2	488	0	408	199	607	268	0	253	521	0	0	1	1
Growth Factor (%):	3	3	3		3	3	3		3	3	3		3	3	3	
Redirected Complete Street Project Traffic:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Base Condition:	188	343	2	533	0	446	217	663	293	0	276	569	0	0	1	1
Total New Trips:	10	39	0	49	0	66	0	66	0	0	16	16	0	0	0	0
Pass-by Trips:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Future 2020 Traffic Volumes:	198	382	2	582	0	512	217	729	293	0	292	585	0	0	1	1

P.M. Peak Hour

	Northbound				Southbound				Eastbound				Westbound			
Condition	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2017 Volumes:	231	469	2	702	4	857	223	1084	163	2	179	344	9	1	5	15
Growth Factor (%):	3	3	3		3	3	3		3	3	3		3	3	3	
Redirected Complete Street Project Traffic:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Base Condition:	252	512	2	766	4	936	244	1184	178	2	196	376	10	1	5	16
Total New Trips:	18	72	0	90	0	52	0	52	0	0	13	13	0	0	0	0
Pass-by Trips:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Future 2020 Traffic Volumes:	270	584	2	856	4	988	244	1236	178	2	209	389	10	1	5	16

17-086 Tech-West at Howell Mill Rd, Atlanta (DRI)

Traffic Volumes
Future Conditions

A&R Engineering
November 2017

3. Howell Mill Rd @ 14th St

A.M. Peak Hour

	Northbound				Southbound				Eastbound				Westbound			
Condition	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2017 Volumes:	7	332	101	440	180	363	42	585	18	11	7	36	106	33	155	294
Growth Factor (%):	3	3	3		3	3	3		3	3	3		3	3	3	
Redirected Complete Street Project Traffic:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Base Condition:	8	363	110	481	197	397	46	640	20	12	8	40	116	36	169	321
Total New Trips:	0	10	20	30	49	33	0	82	0	0	0	0	43	0	39	82
Pass-by Trips:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Future 2020 Traffic Volumes:	8	373	130	511	246	430	46	722	20	12	8	40	159	36	208	403

P.M. Peak Hour

	Northbound				Southbound				Eastbound				Westbound			
Condition	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2017 Volumes:	12	470	73	555	141	787	37	965	47	22	9	78	280	25	292	597
Growth Factor (%):	3	3	3		3	3	3		3	3	3		3	3	3	
Redirected Complete Street Project Traffic:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Base Condition:	13	514	80	607	154	860	40	1054	51	24	10	85	306	27	319	652
Total New Trips:	0	18	33	51	39	26	0	65	0	0	0	0	55	0	72	127
Pass-by Trips:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Future 2020 Traffic Volumes:	13	532	113	658	193	886	40	1119	51	24	10	85	361	27	391	779

17-086 Tech-West at Howell Mill Rd, Atlanta (DRI)

Traffic Volumes
Future Conditions

A&R Engineering
November 2017

4. Howell Mill Rd @ Brady Ave

A.M. Peak Hour

	Northbound				Southbound				Eastbound				Westbound			
Condition	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2017 Volumes:	39	305	1	345	2	346	147	495	107	0	27	134	3	0	3	6
Growth Factor (%):	3	3	3		3	3	3		3	3	3		3	3	3	
Redirected Complete Street Project Traffic:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Base Condition:	43	333	1	377	2	378	161	541	117	0	30	147	3	0	3	6
Total New Trips:	0	49	0	49	0	29	6	35	10	0	0	10	0	0	0	0
Pass-by Trips:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Future 2020 Traffic Volumes:	43	382	1	426	2	407	167	576	127	0	30	157	3	0	3	6

P.M. Peak Hour

	Northbound				Southbound				Eastbound				Westbound			
Condition	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2017 Volumes:	34	436	9	479	10	646	427	1083	97	0	34	131	7	2	8	17
Growth Factor (%):	3	3	3		3	3	3		3	3	3		3	3	3	
Redirected Complete Street Project Traffic:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Base Condition:	37	476	10	523	11	706	467	1184	106	0	37	143	8	2	9	19
Total New Trips:	0	39	0	39	0	54	11	65	8	0	0	8	0	0	0	0
Pass-by Trips:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Future 2020 Traffic Volumes:	37	515	10	562	11	760	478	1249	114	0	37	151	8	2	9	19

17-086 Tech-West at Howell Mill Rd, Atlanta (DRI)

Traffic Volumes
Future Conditions

A&R Engineering
November 2017

5. Howell Mill Rd @ 10th St

A.M. Peak Hour

	Northbound				Southbound				Eastbound				Westbound			
Condition	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2017 Volumes:	3	315	199	517	176	202	4	382	17	181	11	209	32	81	62	175
Growth Factor (%):	3	3	3		3	3	3		3	3	3		3	3	3	
Redirected Complete Street Project Traffic:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Base Condition:	3	344	217	564	192	221	4	417	19	198	12	229	35	89	68	192
Total New Trips:	0	23	0	23	16	14	0	30	0	0	0	0	0	0	26	26
Pass-by Trips:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Future 2020 Traffic Volumes:	3	367	217	587	208	235	4	447	19	198	12	229	35	89	94	218

P.M. Peak Hour

	Northbound				Southbound				Eastbound				Westbound			
Condition	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2017 Volumes:	12	297	74	383	189	568	44	801	29	107	15	151	82	168	118	368
Growth Factor (%):	3	3	3		3	3	3		3	3	3		3	3	3	
Redirected Complete Street Project Traffic:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Base Condition:	13	325	81	419	207	621	48	876	32	117	16	165	90	184	129	403
Total New Trips:	0	18	0	18	29	25	0	54	0	0	0	0	0	0	21	21
Pass-by Trips:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Future 2020 Traffic Volumes:	13	343	81	437	236	646	48	930	32	117	16	165	90	184	150	424

17-086 Tech-West at Howell Mill Rd, Atlanta (DRI)

Traffic Volumes
Future Conditions

A&R Engineering
November 2017

6. Northside Dr @ 10th St

A.M. Peak Hour

Condition	Northbound				Southbound				Eastbound				Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2017 Volumes:	23	1243	311	1577	107	1061	58	1226	150	433	31	614	47	152	36	235
Growth Factor (%):	3	3	3		3	3	3		3	3	3		3	3	3	
Redirected Complete Street Project Traffic:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Base Condition:	25	1358	340	1723	117	1159	63	1339	164	473	34	671	51	166	39	256
Total New Trips:	18	54	0	72	11	32	0	43	0	5	11	16	0	8	18	26
Pass-by Trips:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Future 2020 Traffic Volumes:	43	1412	340	1795	128	1191	63	1382	164	478	45	687	51	174	57	282

P.M. Peak Hour

Condition	Northbound				Southbound				Eastbound				Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2017 Volumes:	52	1393	117	1562	56	1528	93	1677	107	269	67	443	130	391	53	574
Growth Factor (%):	3	3	3		3	3	3		3	3	3		3	3	3	
Redirected Complete Street Project Traffic:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Base Condition:	57	1522	128	1707	61	1670	102	1833	117	294	73	484	142	427	58	627
Total New Trips:	14	43	0	57	20	59	0	79	0	9	20	29	0	6	14	20
Pass-by Trips:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Future 2020 Traffic Volumes:	71	1565	128	1764	81	1729	102	1912	117	303	93	513	142	433	72	647

17-086 Tech-West at Howell Mill Rd, Atlanta (DRI)

Traffic Volumes
Future Conditions

A&R Engineering
November 2017

7. Northside Dr @ Ethel St

A.M. Peak Hour

Condition	Northbound				Southbound				Eastbound				Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2017 Volumes:	47	1110	11	1168	7	959	17	983	17	0	35	52	5	2	11	18
Growth Factor (%):	3	3	3		3	3	3		3	3	3		3	3	3	
Redirected Complete Street Project Traffic:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Base Condition:	51	1213	12	1276	8	1048	19	1075	19	0	38	57	5	2	12	19
Total New Trips:	20	52	0	72	0	27	23	50	14	0	16	30	0	0	0	0
Pass-by Trips:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Future 2020 Traffic Volumes:	71	1265	12	1348	8	1075	42	1125	33	0	54	87	5	2	12	19

P.M. Peak Hour

Condition	Northbound				Southbound				Eastbound				Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2017 Volumes:	17	1494	3	1514	6	1644	6	1656	8	0	16	24	1	0	4	5
Growth Factor (%):	3	3	3		3	3	3		3	3	3		3	3	3	
Redirected Complete Street Project Traffic:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Base Condition:	19	1633	3	1655	7	1796	7	1810	9	0	17	26	1	0	4	5
Total New Trips:	16	41	0	57	0	50	18	68	25	0	30	55	0	0	0	0
Pass-by Trips:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Future 2020 Traffic Volumes:	35	1674	3	1712	7	1846	25	1878	34	0	47	81	1	0	4	5

17-086 Tech-West at Howell Mill Rd, Atlanta (DRI)

Traffic Volumes
Future Conditions

A&R Engineering
November 2017

8. Northside Dr @ 14th St

A.M. Peak Hour

Condition	Northbound				Southbound				Eastbound				Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2017 Volumes:	108	1347	95	1550	11	1022	19	1052	52	311	73	436	131	230	3	364
Growth Factor (%):	3	3	3		3	3	3		3	3	3		3	3	3	
Redirected Complete Street Project Traffic:	0	0	0	0	0	0	0	0	12	0	0	12	0	0	-3	-3
Base Condition:	118	1472	104	1694	12	1117	21	1150	70	340	80	490	143	251	0	394
Total New Trips:	52	6	8	66	0	10	39	49	23	31	27	81	13	52	0	65
Pass-by Trips:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Future 2020 Traffic Volumes:	170	1478	112	1760	12	1127	60	1199	93	371	107	571	156	303	0	459

P.M. Peak Hour

Condition	Northbound				Southbound				Eastbound				Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2017 Volumes:	170	1389	76	1635	6	1395	20	1421	40	176	84	300	297	447	3	747
Growth Factor (%):	3	3	3		3	3	3		3	3	3		3	3	3	
Redirected Complete Street Project Traffic:	0	0	0	0	0	3	3	6	2	0	0	2	0	0	-3	-3
Base Condition:	186	1518	83	1787	7	1527	25	1559	46	192	92	330	325	488	0	813
Total New Trips:	41	11	14	66	0	8	31	39	43	58	50	151	10	41	0	51
Pass-by Trips:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Future 2020 Traffic Volumes:	227	1529	97	1853	7	1535	56	1598	89	250	142	481	335	529	0	864

17-086 Tech-West at Howell Mill Rd, Atlanta (DRI)

Traffic Volumes
Future Conditions

A&R Engineering
November 2017

9. Hemphill Ave @ 14th St

A.M. Peak Hour

Condition	Northbound				Southbound				Eastbound				Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2017 Volumes:	36	57	42	135	92	121	0	213	12	360	46	418	31	355	29	415
Growth Factor (%):	3	3	3		3	3	3		3	3	3		3	3	3	
Redirected Complete Street Project Traffic:	0	0	0	0	0	0	0	0	-12	0	0	-12	0	0	3	3
Base Condition:	39	62	46	147	101	132	0	233	0	393	50	443	34	388	35	457
Total New Trips:	26	0	0	26	0	0	0	0	0	23	16	39	0	39	0	39
Pass-by Trips:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Future 2020 Traffic Volumes:	65	62	46	173	101	132	0	233	0	416	66	482	34	427	35	496

P.M. Peak Hour

Condition	Northbound				Southbound				Eastbound				Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2017 Volumes:	74	203	36	313	28	94	3	125	2	216	58	276	38	677	79	794
Growth Factor (%):	3	3	3		3	3	3		3	3	3		3	3	3	
Redirected Complete Street Project Traffic:	0	0	0	0	0	0	-3	-3	-2	0	0	-2	0	0	3	3
Base Condition:	81	222	39	342	31	103	0	134	0	236	63	299	42	740	89	871
Total New Trips:	21	0	0	21	0	0	0	0	0	43	29	72	0	31	0	31
Pass-by Trips:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Future 2020 Traffic Volumes:	102	222	39	363	31	103	0	134	0	279	92	371	42	771	89	902

17-086 Tech-West at Howell Mill Rd, Atlanta (DRI)

Traffic Volumes
Future Conditions

A&R Engineering
November 2017

10. Howell Mill @ Site Drwy 1

A.M. Peak Hour

	Northbound				Southbound				Eastbound				Westbound			
Condition	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2017 Volumes:	0	423	0	423	0	470	0	470	3	0	7	10	0	0	0	0
Growth Factor (%):	3	3	3		3	3	3		3	3	3		3	3	3	
Redirected Complete Street Project Traffic:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Base Condition:	0	462	0	462	0	514	0	514	3	0	8	11	0	0	0	0
Total New Trips:	0	5	54	59	55	20	0	75	0	0	0	0	15	0	25	40
Pass-by Trips:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Future 2020 Traffic Volumes:	0	467	54	521	55	534	0	589	3	0	8	11	15	0	25	40

P.M. Peak Hour

	Northbound				Southbound				Eastbound				Westbound			
Condition	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2017 Volumes:	0	543	0	543	0	1059	0	1059	8	0	14	22	0	0	0	0
Growth Factor (%):	3	3	3		3	3	3		3	3	3		3	3	3	
Redirected Complete Street Project Traffic:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Base Condition:	0	593	0	593	0	1157	0	1157	9	0	15	24	0	0	0	0
Total New Trips:	0	4	43	47	44	37	0	81	0	0	0	0	27	0	47	74
Pass-by Trips:	0	-12	12	0	24	-24	0	0	0	0	0	0	25	0	13	38
Future 2020 Traffic Volumes:	0	585	55	640	68	1170	0	1238	9	0	15	24	52	0	60	112

17-086 Tech-West at Howell Mill Rd, Atlanta (DRI)

Traffic Volumes
Future Conditions

A&R Engineering
November 2017

11. 14th St @ Site Drwy 2

A.M. Peak Hour

Condition	Northbound				Southbound				Eastbound				Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2017 Volumes:	0	0	0	0	30	0	11	41	2	295	0	297	0	288	0	288
Growth Factor (%):	3	3	3		3	3	3		3	3	3		3	3	3	
Redirected Complete Street Project Traffic:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Base Condition:	0	0	0	0	33	0	12	45	2	322	0	324	0	315	0	315
Total New Trips:	59	0	65	124	0	0	0	0	0	16	54	70	122	23	0	145
Pass-by Trips:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Future 2020 Traffic Volumes:	59	0	65	124	33	0	12	45	2	338	54	394	122	338	0	460

P.M. Peak Hour

Condition	Northbound				Southbound				Eastbound				Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2017 Volumes:	0	0	0	0	5	0	7	12	1	227	0	228	0	613	0	613
Growth Factor (%):	3	3	3		3	3	3		3	3	3		3	3	3	
Redirected Complete Street Project Traffic:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Base Condition:	0	0	0	0	5	0	8	13	1	248	0	249	0	670	0	670
Total New Trips:	109	0	121	230	0	0	0	0	0	29	42	71	96	18	0	114
Pass-by Trips:	14	0	5	19	0	0	0	0	0	-5	5	0	14	-14	0	0
Future 2020 Traffic Volumes:	123	0	126	249	5	0	8	13	1	272	47	320	110	674	0	784