DEVELOPMENT OF REGIONAL IMPACT
(DRI #2764)
TRAFFIC STUDY
FOR
EMERSON CENTER
MIXED-USE DEVELOPMENT

SMYRNA, GEORGIA

Prepared for:

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A & R Project # 17-136

EXECUTIVE SUMMARY

Traffic impacts were evaluated for the added traffic from the proposed Emerson Center mixed-use development located on Spring Road between Cumberland Boulevard and US 41/SR 3 (Cobb Parkway) in Smyrna, Georgia. The development will consist of:

- Office: 87,500 sf
- Retail: 11,000 sf
- Multifamily: 310 units
- Hotel: 200 rooms

The development proposes one full-access driveway via Spring Hill Parkway and two right-in/right-out driveways via existing curb-cuts on Spring Road. Existing and future operations after completion of the project were analyzed at the intersections of:

- US 41/SR 3 (Cobb Parkway) @ Spring Road/Circle 75 Parkway
- Spring Road @ Cumberland Boulevard
- Cumberland Boulevard @ Spring Hill Parkway
- Spring Hill Parkway @ Site Driveway 1 (Existing Full-Access Driveway)
- Spring Road @ Site Driveway 2 (Existing Western Right-in/Right-out Driveway)
- Spring Road @ Site Driveway 3 (Existing Eastern Right-in/Right-out Driveway)

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 and added traffic from other nearby planned developments. 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

- Replace the existing eastbound protected left turn phase with protected + permissive phasing at the intersection of Spring Road at Cumberland Boulevard.
- Create a channelized island on the southbound right turn lane at the intersection of Spring Road at Cumberland Boulevard.
- A possible improvement at the intersection of Cumberland Boulevard at Spring Hill Parkway is to create a channelized island for the westbound right turn movements.

Site Access Configuration

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

- Site Driveway #1: Existing full-access driveway on Spring Hill Parkway
    - This driveway will continue to consist of one entering lane and one exiting lane. The southbound (driveway) approach will continue to operate with a shared left/right turn lane for exiting traffic.
    - The intersection will continue to be unsignalized with a STOP sign on the southbound approach.
    - Entering left and right turn lanes are warranted at this driveway based on AASHTO, NCHRP, and GDOT standards; however, it should be decided in plan review with the City of Smyrna if auxiliary lanes are required to be installed.
- Site Driveway #2: Existing western right-in/right-out driveway on Spring Road
    - This driveway will continue to consist of one entering lane and one exiting right-turn lane.
    - The intersection will continue to be unsignalized with a STOP sign on the northbound approach.
    - An entering right turn lane is warranted at this driveway based on NCHRP and GDOT standards; however, it should be decided in plan review with the City of Smyrna if auxiliary lanes are required to be installed.
- Site Driveway #3: Existing eastern right-in/right-out driveway on Spring Road
    - This driveway will continue to consist of one entering lane and one exiting right-turn lane.
    - The intersection will continue to be unsignalized with a STOP sign on the northbound approach.
    - The site plan shows a deceleration lane for entering right-turn movements. It is recommended the deceleration lane be constructed per City of Smyrna standards.

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. Because operations would not be impacted beyond the projected “No-Build” conditions, mitigation improvements have not been identified outside of the recommended configuration for the site access points.

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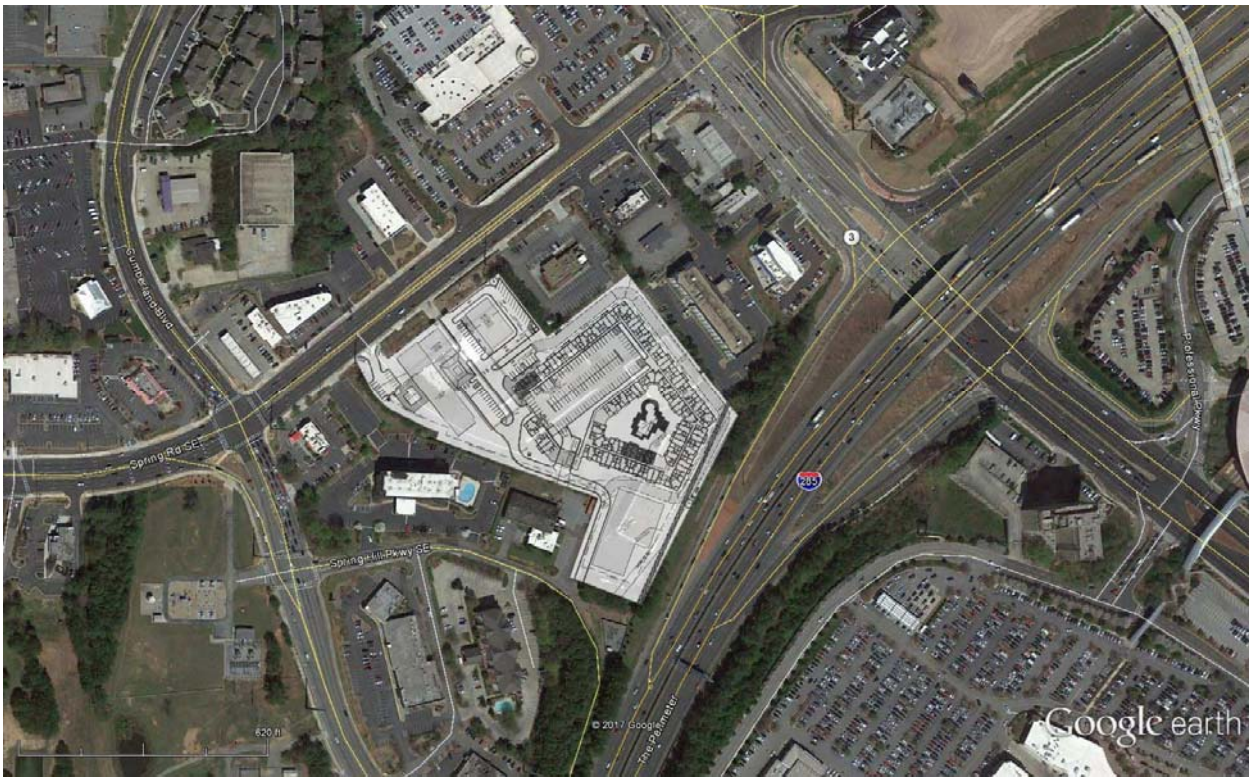
INTRODUCTION

The purpose of this study is to determine the traffic impact that will result from the proposed Emerson Center mixed-use development located on Spring Road between Cumberland Boulevard and US 41/SR 3 (Cobb Parkway) in Smyrna, Georgia. The traffic analysis evaluates the current operations compared to the future conditions with the traffic generated by the development. The development will consist of:

- Office: 87,500 sf
- Retail: 11,000 sf
- Multifamily: 310 units
- Hotel: 200 rooms



The development proposes access at the following locations:

- Site Driveway 1: Existing full-access driveway on Spring Hill Parkway
- Site Driveway 2: Existing western right-in/right-out driveway on Spring Road
- Site Driveway 3: Existing eastern right-in/right-out driveway on Spring Road

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:

- US 41/SR 3 (Cobb Parkway) @ Spring Road/Circle 75 Parkway
- Spring Road @ Cumberland Boulevard
- Cumberland Boulevard @ Spring Hill Parkway

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 project's office and residential 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, Cobb DOT, and the City of Smyrna:

1. US 41/SR 3 (Cobb Parkway) @ Spring Road/Circle 75 Parkway
2. Spring Road @ Cumberland Boulevard
3. Cumberland Boulevard @ Spring Hill Parkway
4. Spring Hill Parkway @ Site Driveway 1 (Existing Full-Access Driveway)
5. Spring Road @ Site Driveway 2 (Existing Western Right-in/Right-out Driveway)
6. Spring Road @ Site Driveway 3 (Existing Eastern Right-in/Right-out Driveway)

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:

Spring Road

Spring Road is an east-west, six-lane, median-divided roadway with a posted speed limit of 45 mph in the vicinity of the site. GDOT traffic counts (Station ID 0672806) indicate that the daily traffic volume on Spring Road is 33,300 vehicles per day west of Cumberland Gate. Cobb County classifies Spring Road as an Arterial roadway from Atlanta Road to US 41/SR 3 (Cobb Parkway).

US 41/SR 3 (Cobb Parkway)

US 41/SR 3 (Cobb Parkway) is a north-south, fourteen-lane, median-divided roadway at its intersection with Spring Road with five southbound through lanes and four northbound through lanes. It has a posted speed limit of 45 mph in the vicinity of the site. GDOT traffic counts (Station IDs 0672143 & 0672145) indicate that the daily traffic volume on US 41/SR 3 (Cobb Parkway) is 40,000 vehicles per day south of Plumtree Parkway and 22,400 vehicles per day north of Cumberland Boulevard. GDOT and Cobb County classify US 41/SR 3 (Cobb Parkway) as a Principal Arterial roadway.

Cumberland Boulevard

Cumberland Boulevard is a north-south, undivided roadway with a posted speed limit of 35 mph in the vicinity of the site. Cumberland Boulevard is a four-lane roadway with a two-way left-turn lane to the north of Spring Road and a five-lane roadway to the south of Spring Road. GDOT traffic counts (Station ID 0673015) indicate that the daily traffic volume on Cumberland Boulevard is 18,900 vehicles per day north of Spring Hill Parkway. Cobb County classifies Cumberland Boulevard as an Arterial roadway from US 41/SR 3 (Cobb Parkway) to Akers Mill Road.

Circle 75 Parkway

Circle 75 Parkway is an undivided roadway with five westbound lanes and three eastbound lanes and a posted speed limit of 30 mph in the eastbound direction and 35 mph in the westbound direction. Cobb County classifies Circle 75 Parkway as an Arterial roadway from US 41/SR 3 (Cobb Parkway) to Windy Hill Road.

Spring Hill Parkway

Spring Hill Parkway is a two-lane, undivided roadway with a speed limit of 30 mph in the vicinity of the site. Cobb County classifies Spring Hill Parkway as a Major roadway.

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 following trails are located in the study network:

Kennesaw Mountain to Chattahoochee River Trail (South Segment)

This 8.4 mile trail begins at the Cumberland River to approximately 450 feet south of the intersection of West Atlanta Street at Oak Ridge Drive. The trail consists of a paved path that follows along US 41/SR 3 (Cobb Parkway), Cumberland Boulevard, Spring Road, Atlanta Road, and West Atlanta Street.

Spring Road Trail

It is a proposed multi-use path that parallels Spring Road extending from Atlanta Road to US 41/SR 3 (Cobb Parkway).

Bicycle paths or sidewalks

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

- Spring Road: both sides of the road
- US 41/SR 3 (Cobb Parkway): both sides of the road, between Terrell Mill Road and Northgate Drive
- Cumberland Boulevard: both sides of the road
- Circle 75 Parkway: both sides of the road

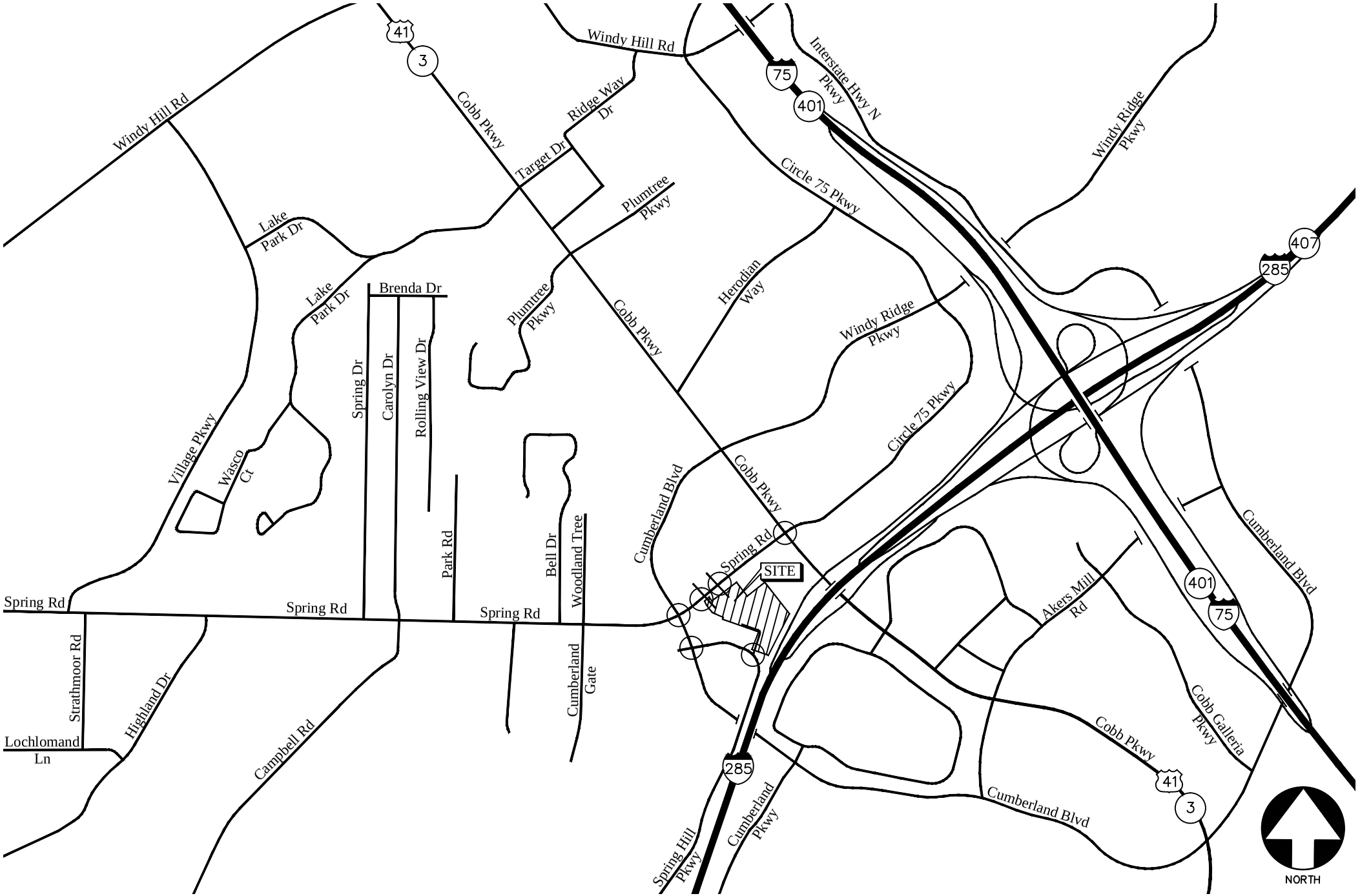
- Spring Hill Parkway: both sides of the road, between Cumberland Boulevard and Paces Ferry Road

No bike paths are present in the study network.

Existing Transit Facilities

CobbLinc and Marta operates bus routes in and around the study network. There are currently two bus stops in the vicinity of the proposed development, one on Spring Road east of Cumberland Boulevard and one on Cumberland Boulevard south of Spring Hill Parkway. The following CobbLinc and MARTA bus routes have operations along the study network.

- MARTA 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.
- CobbLinc Bus Route 10: Operates from Marietta to the Cumberland Boulevard Transfer Center via US 41/SR 3 (Cobb Parkway), then to the MARTA Arts Center Station. The stop on Cumberland Boulevard is serviced by this route.
- CobbLinc (Express) Bus Route 10A: Is a reverse peak-hour service of Route 100. Operates from Atlanta to Delk Road via the Cumberland Boulevard Transfer Center, US 41/SR 3 (Cobb Parkway), and Terrell Mill Road. The stops on Spring Road and Cumberland Boulevard are both serviced by this route.
- CobbLinc Bus Route 25: Operates from Cumberland Boulevard Transfer Center to MARTA H.E. Holmes Station via Hurt Road and Old Alabama Road.



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 in which 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 were obtained at the following study intersections:

1. US 41/SR 3 (Cobb Parkway) @ Spring Road/Circle 75 Parkway
2. Spring Road @ Cumberland Boulevard
3. Cumberland Boulevard @ Spring Hill Parkway
4. Spring Hill Parkway @ Site Driveway 1 (Existing Full-Access Driveway)
5. Spring Road @ Site Driveway 2 (Existing Western Right-in/Right-out Driveway)
6. Spring Road @ Site Driveway 3 (Existing Eastern Right-in/Right-out Driveway)

Turning movement counts were collected on Thursday, October 5, 2017 at intersections 1 and 2, and on Tuesday, November 7, 2017 at intersections 3-6. 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 analysis are shown in Table 3. The existing traffic control and lane geometry for the intersections are shown in Figure 3.

TABLE 3 – EXISTING INTERSECTION OPERATIONS

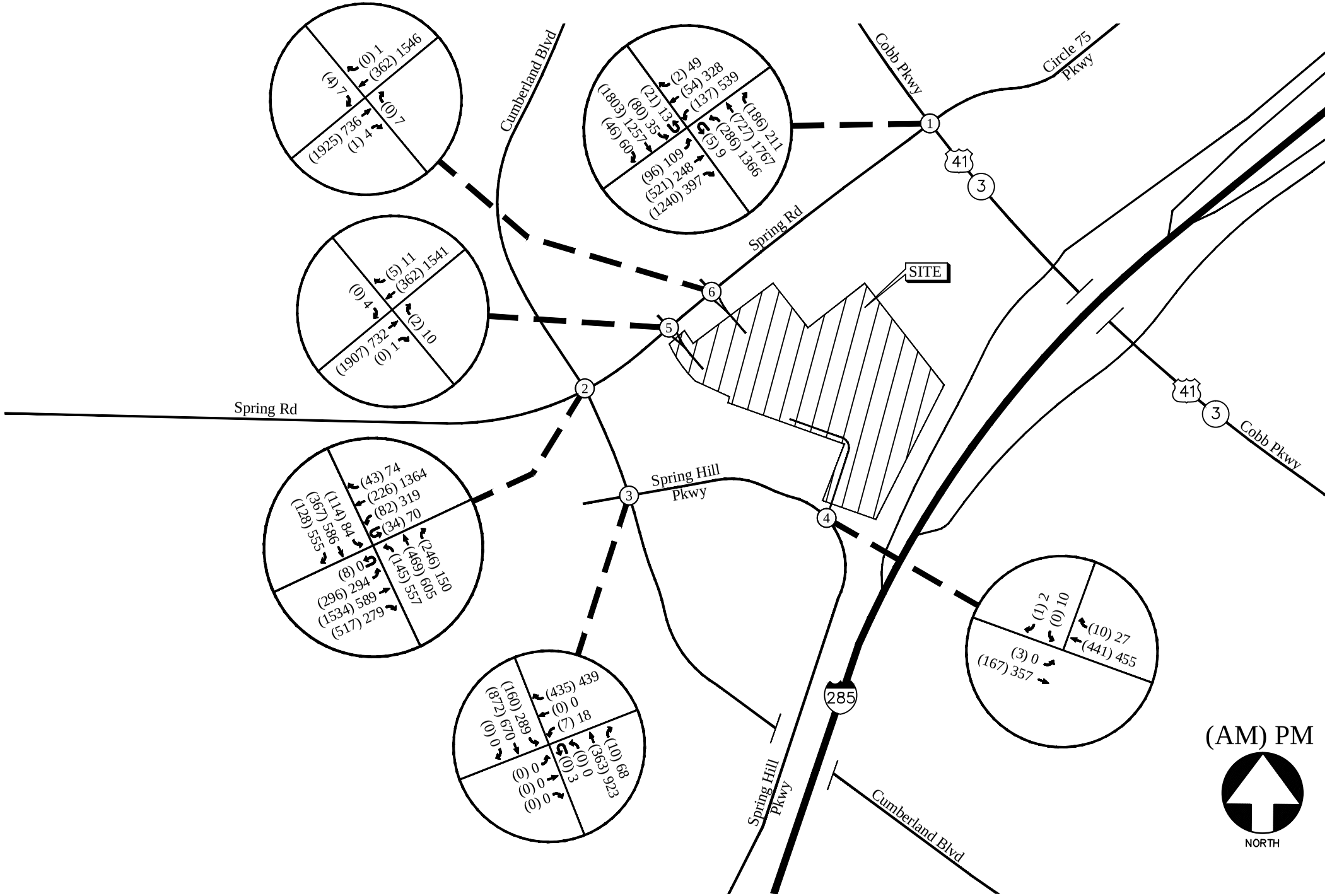
	Intersection	Traffic Control	AM Peak	PM Peak	LOS Standard
1	**Cobb Pkwy @ Spring Rd/Circle 75***	Signalized	**D (50.4)**	**E (57.4)**	**D / E**
	-Eastbound Approach		D (52.4)	D (46.0)	-
	-Westbound Approach		E (67.0)	E (68.3)	-
	-Northbound Approach		D (42.3)	E (57.3)	-
	-Southbound Approach		D (51.6)	E (56.6)	-
2	**Spring Rd @ Cumberland Blvd**	Signalized	**D (51.2)**	**F (103.1)**	**D / E**
	-Eastbound Approach		D (42.4)	F (192.4)	-
	-Westbound Approach		D (36.5)	E (58.9)	-
	-Northbound Approach		E (75.3)	E (70.9)	-
	-Southbound Approach		D (52.4)	F (136.6)	-
3	**Cumberland Blvd @ Spring Hill Pkwy**	Signalized	**C (28.4)**	**D (40.1)**	**D / D**
	-Eastbound Approach		A (0.0)	A (0.0)	-
	-Westbound Approach		F (85.4)	F (112.3)	-
	-Northbound Approach		B (19.1)	C (21.5)	-
	-Southbound Approach		A (7.3)	C (25.0)	-
4	**Spring Hill Pkwy @ Site Drwy 1**	Stop Controlled on SB Approach			
	-Eastbound Left		A (8.4)	A (0.0)	D / D
	-Southbound Approach		B (11.2)	C (16.1)	D / D

Table continued on next page…

	Intersection	Traffic Control	AM Peak	PM Peak	LOS Standard
5	**Spring Rd @ Site Drwy 2 (W)*** -Northbound Approach -Southbound Approach	Stop Controlled on NB and SB Approaches	 B (10.9) A (0.0)	 B (10.0) B (11.3)	 D / D D / D
6	**Spring Rd @ Site Drwy 3 (E)** -Northbound Approach -Southbound Approach	Stop Controlled on NB and SB Approaches	 A (0.0) B (10.2)	 B (12.2) C (18.4)	 D / D D / D

**Results reported via HCM 2000*

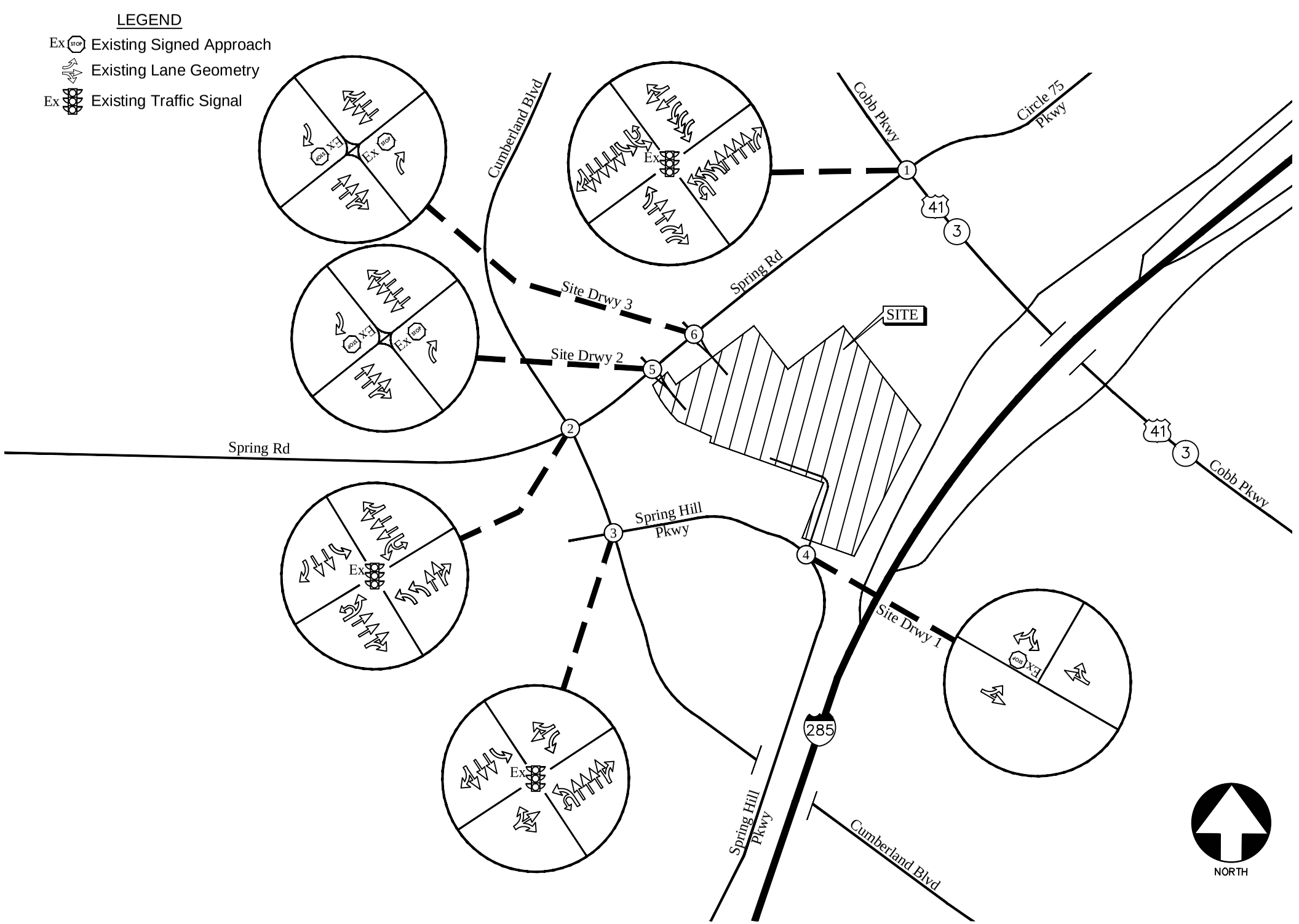
The results of existing traffic operations analysis indicate that the intersection of Spring Road at Cumberland Boulevard is operating below a level-of-service standard "D" during the PM peak hour. This area is addressed further in the "Future Traffic Analysis" section.



EXISTING WEEKDAY PEAK HOUR VOLUMES

FIGURE 2

A&R Engineering Inc.



EXISTING TRAFFIC CONTROL AND LANE GEOMETRY

FIGURE 3

A&R Engineering Inc.

PROJECT DESCRIPTION

The proposed Emerson Center mixed-use development will be located on Spring Road between Cumberland Boulevard and US 41/SR 3 (Cobb Parkway) in Smyrna, Georgia. The development will consist of:

- Office: 87,500 sf
- Retail: 11,000 sf
- Multifamily: 310 units
- Hotel: 200 rooms

The development proposes access at the following locations:

- Site Driveway 1: Existing full-access driveway on Spring Hill Parkway
- Site Driveway 2: Existing western right-in/right-out driveway on Spring Road
- Site Driveway 3: Existing eastern right-in/right-out driveway on Spring Road

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.
- The development plan includes several design elements that enhance the character and quality of the site by incorporating parking, bicycle, and pedestrian facilities.
- The convenience and flexibility of the site will benefit from public access to adjacent streets and internal connectivity between some of the parcels.

Planned Transit Facilities

Due to the various modes of transportation available in the vicinity of the development, an alternative mode reduction of 4% was deemed suitable in discussions with GRTA, Cobb County, the City of Smyrna, 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 property is located within the "Spring Road Corridor" Livable Centers Initiative (LCI) as defined by the City of Smyrna, and is in keeping the LCI's goals outlined below.

- To encourage mixed income live, work, play and shop activity centers.
- To create connected communities with multi-modal access for all users, including transit, roadways, walking and biking.

- To include public outreach involving all stakeholders.

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, 710 – General Office Building* and *820 – Shopping Center*. Due to the nature of the development and surrounding area, mixed-use reductions, pass-by reductions, and multimodal transportation reductions of 4% have been applied per ITE standards where applicable. The calculated total trip generation for the proposed development is shown in Table 4.

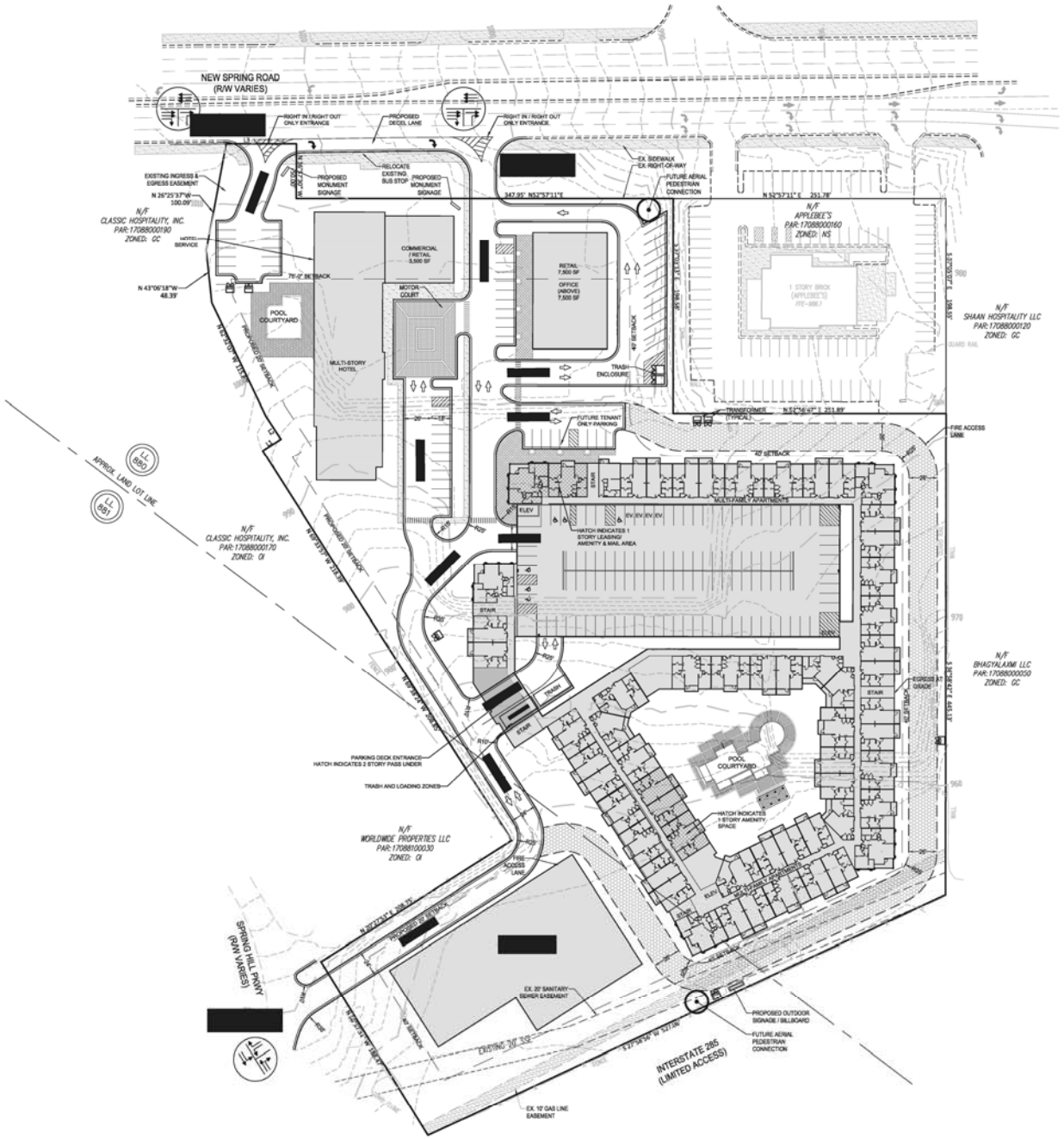
TABLE 4 – TRIP GENERATION

Land Use	Size	AM Peak Hour			PM Peak Hour			24-Hour
		Enter	Exit	Total	Enter	Exit	Total	Two-way
ITE 221 – Multifamily Housing (Mid-Rise)	310 Units	27	77	104	80	51	131	1,688
ITE 310 – Hotel	200 Rooms	56	39	95	63	61	124	1,831
ITE 710 – General Office Building	87,500 sf	94	15	109	16	84	100	932
ITE 820 – Shopping Center	11,000 sf	98	59	157	51	55	106	1,340
Total Site Trips (without reductions)		**275**	**190**	**465**	**210**	**251**	**461**	**5,791**
Internal Capture for Multifamily Housing		*-3*	*-4*	*-7*	*-4*	*-2*	*-6*	*-69*
Internal Capture for Hotel		*-4*	*-5*	*-9*	*-5*	*-3*	*-8*	*-74*
Internal Capture for Office		*-2*	*-2*	*-4*	*-2*	*-3*	*-5*	*-56*
Internal Capture for Shopping Center		*-11*	*-9*	*-20*	*-6*	*-9*	*-15*	*-181*
Total Internal (Mixed-Use) Trip Reductions		***-20***	***-20***	***-40***	***-17***	***-17***	***-34***	***-380***
Pass-by for Shopping Center (0%) 34%		*0*	*0*	*0*	*-15*	*-16*	*-31*	*-310*
Retail Alternative Mode Reduction (4%)		*-3*	*-2*	*-5*	*-1*	*-1*	*-2*	*-34*
Office and Residential Alternative Mode Reduction (4%)		*-7*	*-5*	*-12*	*-6*	*-7*	*-13*	*-170*
Total New External Trips (with reductions)		**245**	**163**	**408**	**171**	**210**	**381**	**4,897**

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

Trip Distribution

The trip distribution describes how traffic arrives and departs from the site. Separate trip distributions were developed for retail as well as office and residential components of the site. The distributions were estimated based on 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 these distributions. The outer-leg distribution and AM and PM peak hour new traffic generated by the site are shown in Figure 5 (retail trips) and in Figure 6 (office and residential trips).



DRI NUMBER: 2764

DEVELOPMENT STATISTICS SUMMARY CHART

TOTAL SITE ACREAGE:	8.71 ACRES (379,342 sf)
PARCEL ID:	17088000190 & 17088000030
CURRENT ZONING:	NS (SMYRNA) & O&I (COBB COUNTY)
CURRENT ADDRESS:	2800 SPRING RD & 2810 SPRING RD
OWNER:	ACCENT CUMBERLAND APARTMENTS LP

*Existing property is a developed office park with four office buildings and surface parking.

PROPOSED DEVELOPMENT

RESIDENTIAL APARTMENTS:	310 UNITS
HOTEL:	200 ROOMS
COMMERCIAL / RETAIL	11,000 SF
OFFICE ABOVE:	7,500 SF
OFFICE BUILDING:	80,000
PROPOSED ZONING:	MJ CONDITIONAL

PARKING REQUIRED

RESIDENTIAL APARTMENTS:	310 UNITS X 1.50/UNIT:	465 SPACES
HOTEL:	200 ROOMS X 1.00/UNIT:	200 SPACES
COMMERCIAL / RETAIL	11,000 SF X 5/1,000:	55 SPACES
OFFICE ABOVE:	7,500 SF X 5/1,000:	38 SPACES
OFFICE BUILDING:	80,000 SF X 5/1,000:	400 SPACES

RESIDENTIAL PARKING PROVIDED

RESIDENTIAL APARTMENTS:	465 SPACES
HOTEL:	200 SPACES
COMMERCIAL / RETAIL	55 SPACES
OFFICE ABOVE:	38 SPACES
OFFICE BUILDING:	400 SPACES
TOTAL:	1158 SPACES

APARTMENTS (FOOTPRINT):	109,748 SF	(29%)
HOTEL (FOOTPRINT):	16,170 SF	(4%)
COMMERCIAL / RETAIL (FOOTPRINT)	11,000 SF	(3%)
OFFICE (FOOTPRINT)	20,900 SF	(6%)
PERCENT OF BUILDING COVERAGE:	41.6%	

TOTAL OPEN SPACE COMMITMENT:	132,770 SF	(35%)
TOTAL GREEN SPACE COMMITMENT:	94,838 SF	(25%)
TOTAL IMPERVIOUS AREA:	237,904 SF	(62.7%)
OUTDOOR RECREATION PLACE:	7,600 SF	(2%)
FLOOD PLAIN AREA OF SITE:	0.0%	

BUILDING HEIGHTS

APARTMENTS:	5 STORIES
HOTEL:	10 STORIES
COMMERCIAL / RETAIL:	2 STORIES
OFFICE:	4 STORIES

NOTE: THE SUBJECT PROPERTY DOES NOT LIE WITHIN A FLOOD HAZARD AS ESTABLISHED PER F.I.R.M. COMMUNITY PANEL NO. 13067C0138G, DATED DECEMBER 16, 2008.

NOTE: THIS SITE DOES NOT LIE WITH 200 FEET OF AN INTERMITTENT STREAM (STATE WATERS).

PLAN PREPARED BY
SUMMIT ENGINEERING CONSULTANTS, INC.
6250 SHILOH ROAD, SUITE 100
ALPHARETTA, GA 30005

TRAFFIC CONSULTANT
A&R ENGINEERING, INC.
2160 KINGSTON CT SUITE O,
MARIETTA, GA 30067

LOCATION MAP

GRAPHIC SCALE

(IN FEET)
1 inch = 40 ft.

NORTH

GEORGIA811 Utilities Protection Center, Inc. Know what's below. Call before you dig.

CAUTION
THE UTILITIES SHOWN HEREON ARE FOR THE CONTRACTORS CONVENIENCE ONLY. THERE MAY BE OTHER UTILITIES NOT SHOWN ON THESE PLANS. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR THE LOCATIONS SHOWN AND IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY ALL UTILITIES WITHIN THE LIMITS OF THE WORK. ALL DAMAGE MADE TO EXISTING UTILITIES BY THE CONTRACTOR SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.

summit
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6250 Shiloh Road, Suite 100
Alpharetta, GA 30005
(p) 770-667-0054 (f) 770-667-0055

WESTPLAN INVESTORS
One Glenlake Parkway
Suite 1275
Atlanta, GA 30328

Revision Schedule

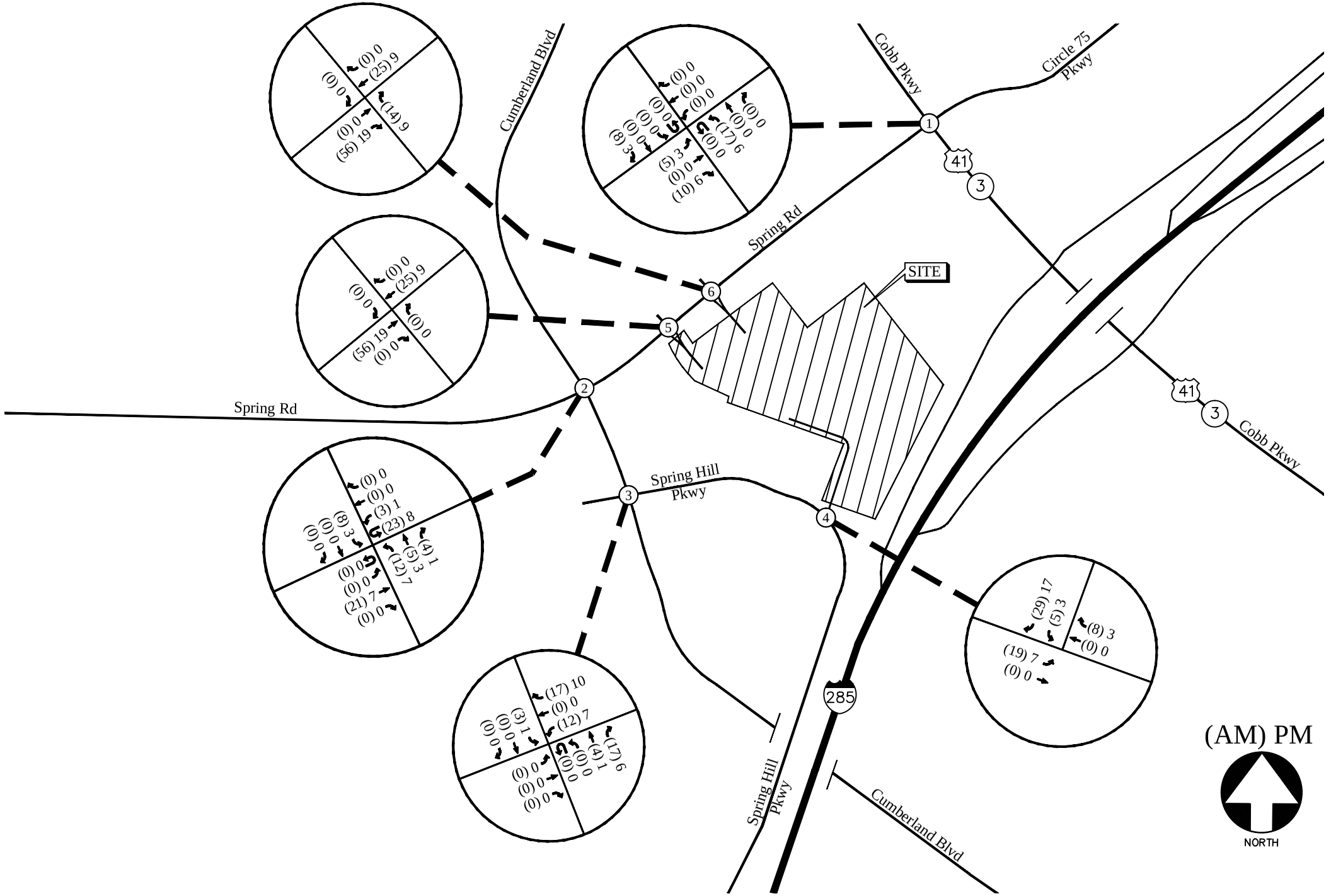
No	Date

Project No.:	S-15-012
Design By:	DW/CMR
Drawn By:	DW
Checked By:	DW
Date:	12/8/17
Scale:	1" = 40'

DRI SITE PLAN
EMERSON CENTER
LAND LOTS 880 & 881
17th DISTRICT, 2nd SECTION
COBB COUNTY GEIRGIA

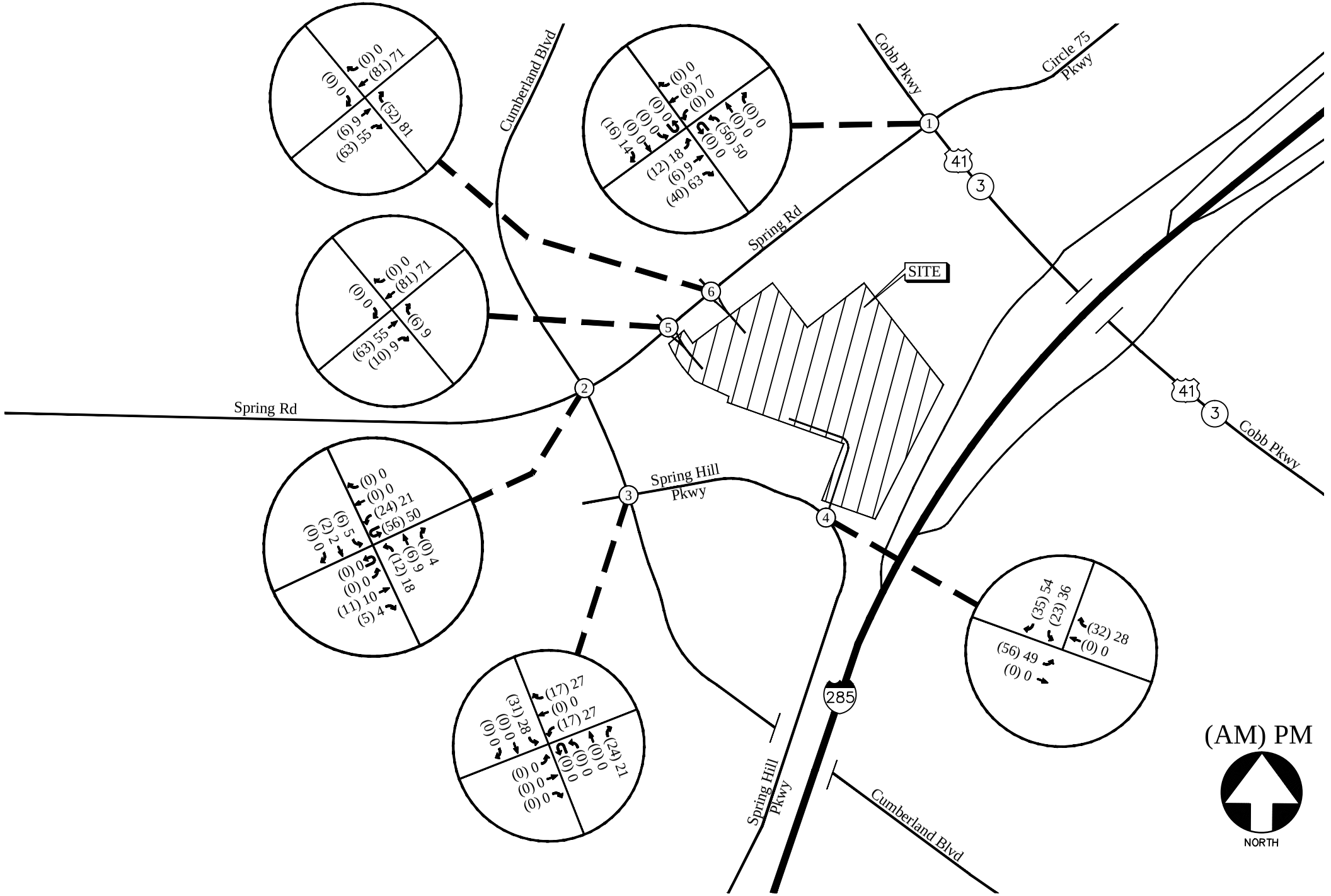
Drawing No.
1 of 1

S-15-012zon.dwg



OUTER LEG TRIP DISTRIBUTION AND SITE-GENERATED PEAK HOUR VOLUMES (RETAIL)

FIGURE 5



OUTER LEG TRIP DISTRIBUTION AND SITE-GENERATED PEAK HOUR VOLUMES
(OFFICE AND RESIDENTIAL)

FIGURE 6

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 and added traffic from other nearby planned developments.

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 several years revealed consistent growth of through traffic for the surrounding area. After discussions with the City of Smyrna, Cobb County DOT, GRTA and ARC, a background growth of 1.5% was determined to be used in the analysis. 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 network are shown in Figure 7.

Planned and Programmed Improvements in Study Area

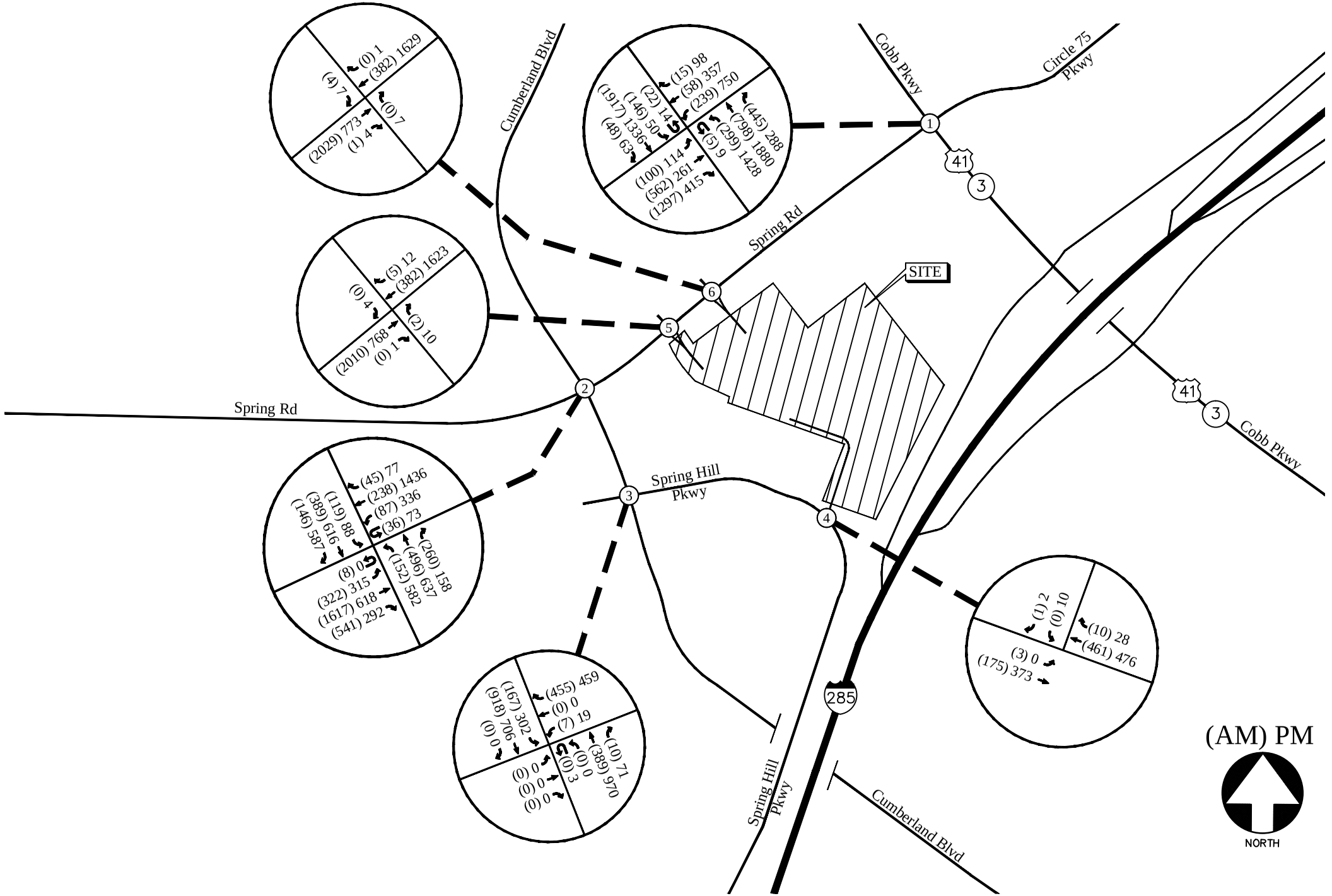
The following improvements have been identified in the Regional Transportation Plan (Plan 2040), GDOT TransPi, and/or the local comprehensive transportation plan. These improvements are within the vicinity of the proposed development.

TABLE 5 – PLANNED AND PROGRAMMED IMPROVEMENTS				
ARC#/GDOT#/ Local#	Project	Type of Improvement	Network Year	Source
AR-ML-200/ 0001758	Top-End Express – Managed Lanes & CD Lanes on I-285 from I-20 (West-End) to I-20 (East-End)	Roadway Corridor (Managed Lanes)	2022 LET	ARC/GDOT
0010008/ X2604	Cumberland Boulevard safety and operational improvements, turn lanes, sidewalks	Operational Improvement	2018	GDOT/ Cobb DOT/ Cumberland CID

None of the listed improvements will have an impact to the study area at full build-out of the proposed development.

Nearby Planned Development – Atlanta Braves Stadium/Battery Mixed-Use

In discussions with the City of Smyrna, Cobb County DOT, ARC and GRTA, it has been determined that 40% of the projected traffic from the adjacent Suntrust Park/Battery Atlanta mixed-use development (DRI #2381), which is currently under construction, will be distributed on the roadway network and included in the future "No-Build" and "Build" analyses.



FUTURE (NO-BUILD) PEAK HOUR VOLUMES

FIGURE 7

A&R Engineering Inc.

Future "No-Build" Traffic Operations

The future "No-Build" traffic operations were analyzed using the volumes in Figure 7 and the results are shown in Table 6 below. The results of the analysis, including the recommended system improvements, are discussed in detail in the next section.

TABLE 6 – FUTURE "NO-BUILD" INTERSECTION OPERATIONS

	Intersection	NO IMPROVEMENTS		WITH IMPROVEMENTS		LOS Standard
		AM Peak	PM Peak	AM Peak	PM Peak	
	Cobb Pkwy @ Spring Rd/Circle 75*	**D (54.7)**	**E (75.1)**	**D (54.7)**	**E (73.1)**	**D / E**
	-Eastbound Approach	D (41.8)	E (72.3)	D (41.9)	D (54.0)	-
1	-Westbound Approach	E (64.8)	E (63.8)	E (64.8)	E (63.8)	-
	-Northbound Approach	D (48.1)	F (85.5)	D (48.1)	F (85.5)	-
	-Southbound Approach	E (69.7)	E (60.4)	E (69.7)	E (60.4)	-
	Spring Rd @ Cumberland Blvd	**E (60.0)**	**F (110.6)**	**D (53.3)**	**E (70.9)**	**D / E**
	-Eastbound Approach	D (40.7)	F (214.5)	C (30.2)	E (56.4)	-
2	-Westbound Approach	D (37.8)	E (64.3)	C (29.4)	E (67.0)	-
	-Northbound Approach	F (110.0)	E (63.3)	F (107.1)	F (88.3)	-
	-Southbound Approach	E (60.6)	F (152.5)	E (62.9)	E (66.1)	-
	Cumberland Blvd @ Spring Hill Pkwy	**C (26.4)**	**D (35.2)**	**A (2.6)**	**A (6.4)**	**D / D**
	-Eastbound Approach	A (0.0)	A (0.0)	A (0.0)	A (0.0)	-
3	-Westbound Approach	F (88.1)	F (126.8)	E (61.3)	E (61.3)	-
	-Northbound Approach	C (20.1)	C (23.3)	A (6.7)	A (9.8)	-
	-Southbound Approach	A (2.4)	A (4.2)	A (0.8)	A (1.9)	-
	Spring Hill Pkwy @ Site Drwy 1					
4	-Eastbound Left	A (8.4)	A (0.0)	A (8.4)	A (0.0)	D / D
	-Southbound Approach	B (11.4)	C (16.7)	B (11.4)	C (16.7)	D / D
	Spring Rd @ Site Drwy 2 (W)*					
5	-Northbound Approach	B (11.1)	B (10.1)	B (11.1)	B (10.1)	D / D
	-Southbound Approach	A (0.0)	B (11.5)	A (0.0)	B (11.5)	D / D
	Spring Rd @ Site Drwy 3 (E)					
6	-Northbound Approach	A (0.0)	B (12.4)	A (0.0)	B (12.4)	D / D
	-Southbound Approach	B (10.2)	C (19.4)	B (10.2)	C (19.4)	D / D

**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

- Replace the existing eastbound protected left turn phase with protected + permissive phasing at the intersection of Spring Road at Cumberland Boulevard.
- Create a channelized island on the southbound right turn lane at the intersection of Spring Road at Cumberland Boulevard.
- A possible improvement at the intersection of Cumberland Boulevard at Spring Hill Parkway is to create a channelized island for the westbound right turn movements.

Spring Road @ Cumberland Boulevard

The intersection of Spring Road at Cumberland Boulevard is currently operating at a level-of-service "D" in the AM peak hour and "F" in the PM peak hour. After accounting for a growth in background traffic and complete build-out of the Atlanta Braves Stadium development, the intersection will begin to operate at a level-of-service "E" in the AM peak hour. To bring the level-of-service down to the acceptable standard for the intersection, it is recommended that the existing eastbound protected left turn phase on Spring Road be replaced with a protected + permissive phase. It is also recommended a channelized island be created for the southbound right turn lane on Cumberland Boulevard.

Cumberland Boulevard @ Spring Hill Parkway

The intersection of Cumberland Boulevard at Spring Hill Parkway is currently operating at an acceptable level-of-service during the AM and PM peak hours; however, the existing striping on the westbound approach is creating a lower level-of-service within the models (Synchro 9) than is happening in the field. This is because the heaviest movement (westbound right) is shared with the through movement, which is zero. To better represent current operations, the geometry at the intersection was changed to operate with a dedicated right turn and shared through/left. A possible improvement to improve the level-of-service further is to create a channelized island for the westbound right turn movement. In order for this to be feasible, it is recommended the geometry of the approach be changed to operate as a dedicated right turn and shared through/left turn lane.

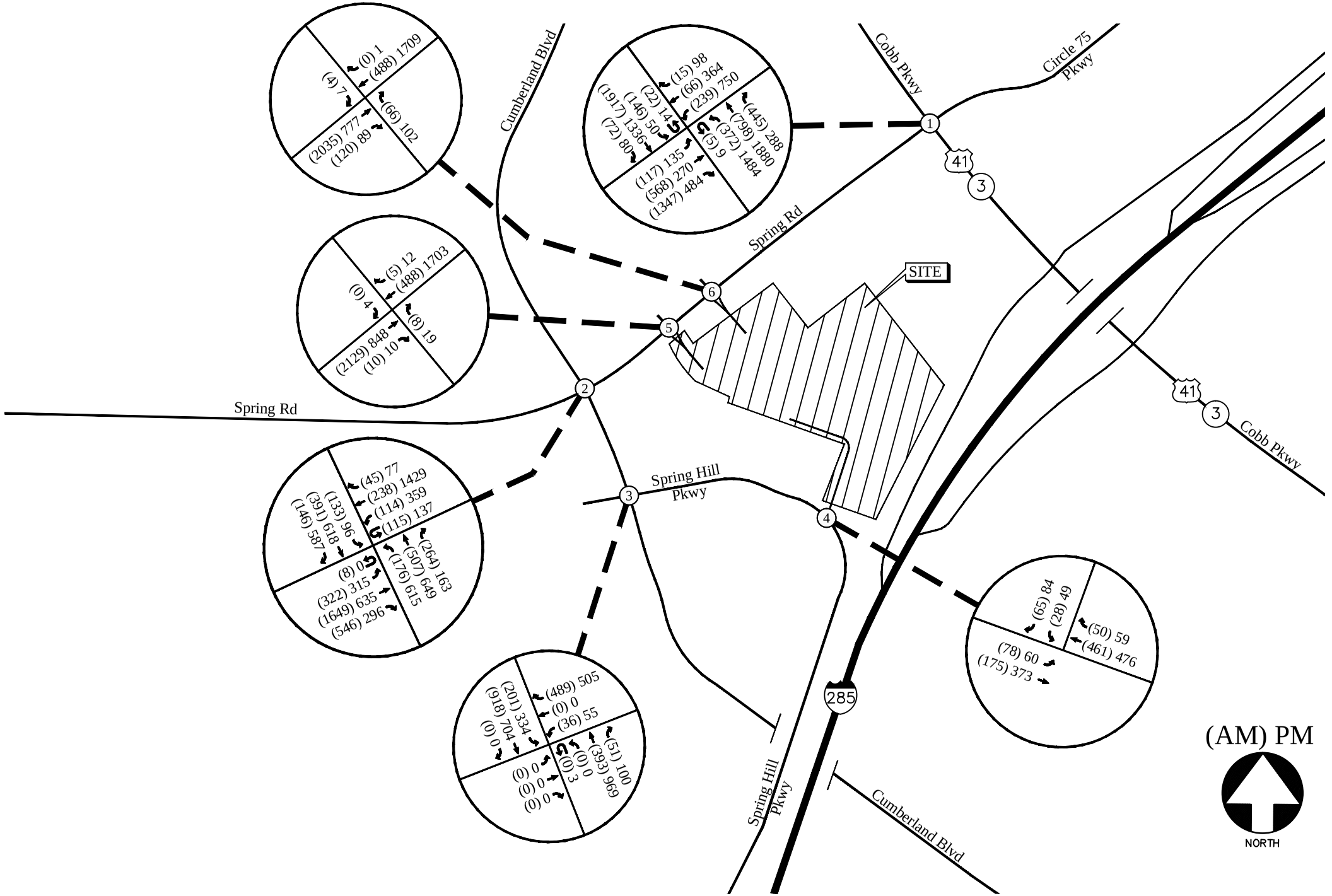
Future "Build" Conditions

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 Figure 6) and pass-by volumes were added to base traffic volumes (Figure 7) to calculate the future traffic volumes after the construction of the development. These total future traffic volumes (Figure 8) were used to evaluate the "Build" condition, which includes the projected site traffic. The results of the "Build" operations analysis with the assumed site access configuration are shown in Table 7.

Site Access Configuration

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

- Site Driveway #1: Existing full-access driveway on Spring Hill Parkway
    - This driveway will continue to consist of one entering lane and one exiting lane. The southbound (driveway) approach will continue to operate with a shared left/right turn lane for exiting traffic.
    - The intersection will continue to be unsignalized with a STOP sign on the southbound approach.
    - Entering left and right turn lanes are warranted at this driveway based on AASHTO, NCHRP, and GDOT standards; however, it should be decided in plan review with the City of Smyrna if auxiliary lanes are required to be installed.
- Site Driveway #2: Existing western right-in/right-out driveway on Spring Road
    - This driveway will continue to consist of one entering lane and one exiting right-turn lane.
    - The intersection will continue to be unsignalized with a STOP sign on the northbound approach.
    - An entering right turn lane is warranted at this driveway based on NCHRP and GDOT standards; however, it should be decided in plan review with the City of Smyrna if auxiliary lanes are required to be installed.
- Site Driveway #3: Existing eastern right-in/right-out driveway on Spring Road
    - This driveway will continue to consist of one entering lane and one exiting right-turn lane.
    - The intersection will continue to be unsignalized with a STOP sign on the northbound approach.
    - The site plan shows a deceleration lane for entering right-turn movements. It is recommended the deceleration lane be constructed per City of Smyrna standards.



FUTURE (BUILD) PEAK HOUR VOLUMES

FIGURE 8

A&R Engineering Inc.

Future "Build" Traffic Operations

The "Build" conditions are evaluated to determine effectiveness of the recommended system and site mitigation improvements. Recommendations on traffic control and lane geometry are shown graphically in Figure 9. The results of the analysis, including the recommended improvements, are discussed in detail in the next section.

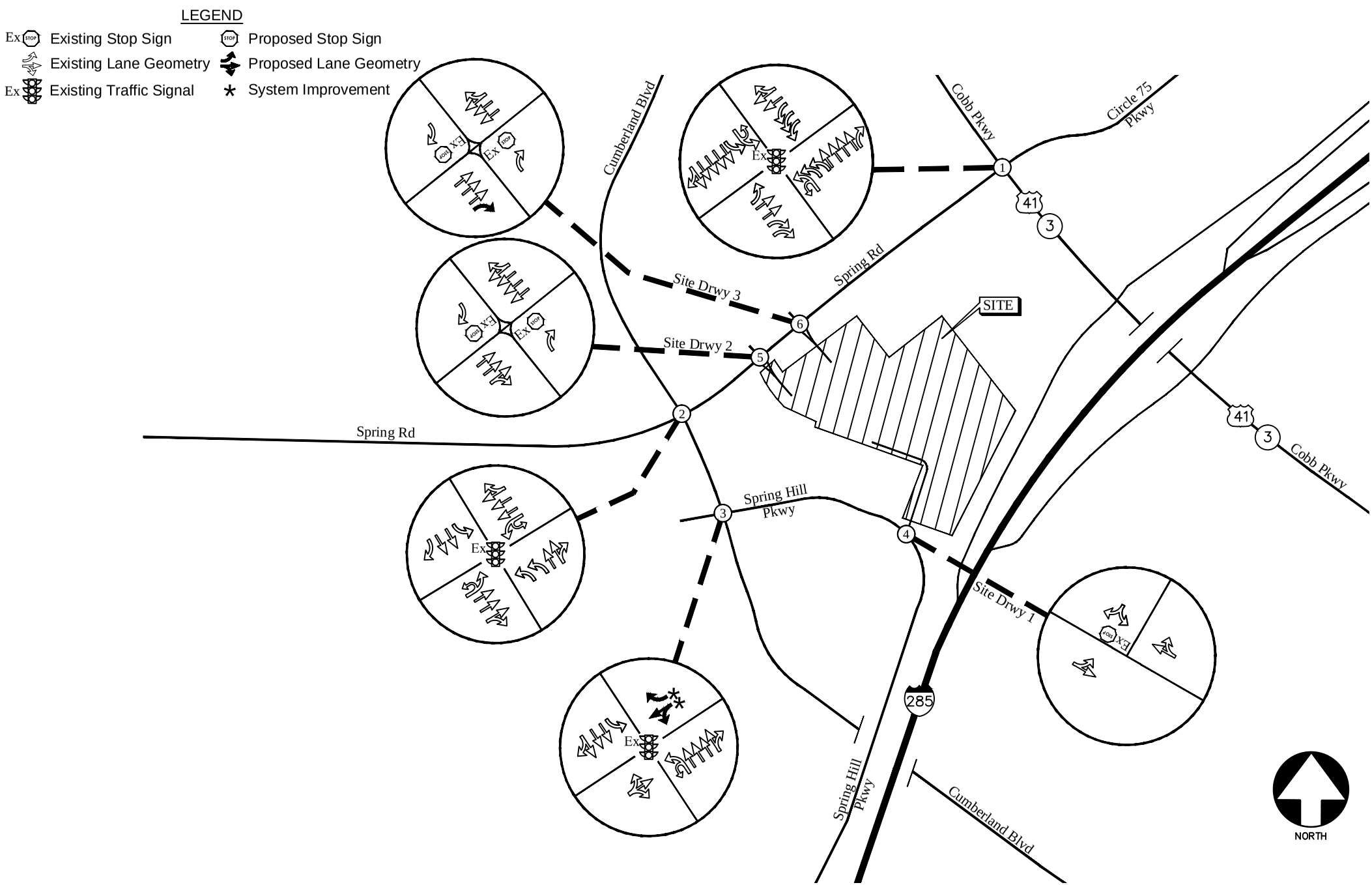
TABLE 7 – FUTURE "BUILD" INTERSECTION OPERATIONS

	Intersection	NO IMPROVEMENTS		WITH IMPROVEMENTS		LOS Standard
		AM Peak	PM Peak	AM Peak	PM Peak	
	Cobb Pkwy @ Spring Rd/Circle 75*	**D (54.8)**	**E (80.0)**	**D (54.5)**	**E (78.9)**	**E / E**
	-Eastbound Approach	D (36.9)	D (53.5)	D (36.4)	D (44.4)	-
1	-Westbound Approach	E (63.8)	F (195.6)	E (63.6)	F (195.6)	-
	-Northbound Approach	D (53.9)	D (54.0)	D (53.4)	D (54.0)	-
	-Southbound Approach	E (71.2)	E (65.7)	E (71.2)	E (65.7)	-
	Spring Rd @ Cumberland Blvd	**E (64.4)**	**F (115.2)**	**D (54.2)**	**E (73.5)**	**D / E**
	-Eastbound Approach	D (42.4)	F (80.6)	C (34.6)	E (60.4)	-
2	-Westbound Approach	D (38.1)	F (85.7)	C (32.7)	E (57.3)	-
	-Northbound Approach	F (118.1)	F (112.0)	F (101.6)	F (107.2)	-
	-Southbound Approach	E (69.1)	F (186.3)	E (59.1)	E (65.9)	-
	Cumberland Blvd @ Spring Hill Pkwy	**D (44.6)**	**D (45.2)**	**A (4.2)**	**A (8.3)**	**D / D**
	-Eastbound Approach	A (0.0)	A (0.0)	A (0.0)	A (0.0)	-
3	-Westbound Approach	F (157.1)	F (158.6)	E (61.9)	E (62.1)	-
	-Northbound Approach	B (17.9)	C (24.8)	A (7.7)	B (11.5)	-
	-Southbound Approach	A (2.3)	A (4.9)	A (1.0)	A (2.3)	-
	Spring Hill Pkwy @ Site Drwy 1					
4	-Eastbound Left	A (8.8)	A (8.9)	A (8.8)	A (8.9)	D / D
	-Southbound Approach	C (15.8)	C (22.0)	C (15.8)	C (22.0)	D / D
	Spring Rd @ Site Drwy 2 (W)*					
5	-Northbound Approach	B (10.8)	B (10.5)	B (10.6)	B (10.5)	D / D
	-Southbound Approach	A (0.0)	B (11.7)	A (0.0)	B (11.7)	D / D
	Spring Rd @ Site Drwy 3 (E)					
6	-Northbound Approach	D (33.8)	B (14.3)	D (33.8)	B (14.3)	D / D
	-Southbound Approach	B (10.7)	C (20.3)	B (10.7)	C (20.3)	D / D

**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. Because operations would not be impacted beyond the projected "No-Build" conditions, mitigation improvements have not been identified outside of the recommended configuration for the site access points.



FUTURE TRAFFIC CONTROL AND LANE GEOMETRY

FIGURE 9

A&R Engineering Inc.

CONCLUSIONS AND RECOMMENDATIONS

Traffic impacts were evaluated for the added traffic from the proposed Emerson Center mixed-use development located on Spring Road between Cumberland Boulevard and US 41/SR 3 (Cobb Parkway) in Smyrna, Georgia. The development will consist of:

- Office: 87,500 sf
- Retail: 11,000 sf
- Multifamily: 310 units
- Hotel: 200 rooms

The development proposes one full-access driveway via Spring Hill Parkway and two right-in/right-out driveways via existing curb-cuts on Spring Road. Existing and future operations after completion of the project were analyzed at the intersections of:

- US 41/SR 3 (Cobb Parkway) @ Spring Road/Circle 75 Parkway
- Spring Road @ Cumberland Boulevard
- Cumberland Boulevard @ Spring Hill Parkway
- Spring Hill Parkway @ Site Driveway 1 (Existing Full-Access Driveway)
- Spring Road @ Site Driveway 2 (Existing Western Right-in/Right-out Driveway)
- Spring Road @ Site Driveway 3 (Existing Eastern Right-in/Right-out Driveway)

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 and added traffic from other nearby planned developments. 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

- Replace the existing eastbound protected left turn phase with protected + permissive phasing at the intersection of Spring Road at Cumberland Boulevard.
- Create a channelized island on the southbound right turn lane at the intersection of Spring Road at Cumberland Boulevard.
- A possible improvement at the intersection of Cumberland Boulevard at Spring Hill Parkway is to create a channelized island for the westbound right turn movements.

Site Access Configuration

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

- Site Driveway #1: Existing full-access driveway on Spring Hill Parkway
    - This driveway will continue to consist of one entering lane and one exiting lane. The southbound (driveway) approach will continue to operate with a shared left/right turn lane for exiting traffic.
    - The intersection will continue to be unsignalized with a STOP sign on the southbound approach.
    - Entering left and right turn lanes are warranted at this driveway based on AASHTO, NCHRP, and GDOT standards; however, it should be decided in plan review with the City of Smyrna if auxiliary lanes are required to be installed.
- Site Driveway #2: Existing western right-in/right-out driveway on Spring Road
    - This driveway will continue to consist of one entering lane and one exiting right-turn lane.
    - The intersection will continue to be unsignalized with a STOP sign on the northbound approach.
    - An entering right turn lane is warranted at this driveway based on NCHRP and GDOT standards; however, it should be decided in plan review with the City of Smyrna if auxiliary lanes are required to be installed.
- Site Driveway #3: Existing eastern right-in/right-out driveway on Spring Road
    - This driveway will continue to consist of one entering lane and one exiting right-turn lane.
    - The intersection will continue to be unsignalized with a STOP sign on the northbound approach.
    - The site plan shows a deceleration lane for entering right-turn movements. It is recommended the deceleration lane be constructed per City of Smyrna standards.

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. Because operations would not be impacted beyond the projected “No-Build” conditions, mitigation improvements have not been identified outside of the recommended configuration for the site access points.

Appendix

Existing Intersection Traffic Counts

Reliable Traffic Data Services, LLC

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

TMC Data
Cobb Pkwy @ Spring Rd/ Circle 75 Pkwy

7-9am | 4-6pm

File Name : 41310001
Site Code : 41310001
Start Date : 10/5/2017

Groups Printed- Cars, Trucks, Buses

	Cobb Pkwy Northbound					Cobb Pkwy Southbound					Spring Rd Eastbound					Circle 75 Pkwy 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	59	132	79	0	270	16	430	4	0	450	11	109	313	0	433	24	6	9	0	39	1192
07:15 AM	75	141	57	0	273	12	438	5	0	455	16	102	323	0	441	38	4	3	0	45	1214
07:30 AM	65	164	57	0	286	25	474	12	0	511	14	113	308	0	435	21	7	2	0	30	1262
07:45 AM	66	136	87	0	289	26	395	18	0	439	20	129	311	0	460	38	16	6	0	60	1248
Total	265	573	280	0	1118	79	1737	39	0	1855	61	453	1255	0	1769	121	33	20	0	174	4916
08:00 AM	83	158	60	0	301	29	516	6	0	551	23	124	380	0	527	34	12	0	0	46	1425
08:15 AM	72	189	21	0	282	28	450	21	0	499	18	140	255	0	413	32	11	0	0	43	1237
08:30 AM	58	175	42	0	275	15	428	8	0	451	31	130	304	0	465	32	13	0	0	45	1236
08:45 AM	78	205	63	0	346	29	409	11	0	449	24	127	301	0	452	39	18	2	0	59	1306
Total	291	727	186	0	1204	101	1803	46	0	1950	96	521	1240	0	1857	137	54	2	0	193	5204
*** BREAK ***																					
04:00 PM	250	367	57	0	674	14	282	20	0	316	34	29	93	0	156	82	36	8	0	126	1272
04:15 PM	276	380	37	0	693	9	295	23	2	329	35	33	110	0	178	110	49	9	0	168	1368
04:30 PM	339	390	46	0	775	9	341	19	0	369	19	35	102	0	156	91	51	10	0	152	1452
04:45 PM	322	413	35	0	770	9	312	32	2	355	24	52	85	0	161	100	66	15	0	181	1467
Total	1187	1550	175	0	2912	41	1230	94	4	1369	112	149	390	0	651	383	202	42	0	627	5559
05:00 PM	347	404	31	0	782	8	312	13	0	333	26	51	92	0	169	140	96	16	0	252	1536
05:15 PM	346	474	42	0	862	9	316	12	0	337	28	45	125	0	198	126	75	9	0	210	1607
05:30 PM	343	358	66	0	767	22	293	22	0	337	27	70	91	0	188	144	77	12	0	233	1525
05:45 PM	339	531	72	0	942	9	336	13	0	358	28	82	89	0	199	129	80	12	0	221	1720
Total	1375	1767	211	0	3353	48	1257	60	0	1365	109	248	397	0	754	539	328	49	0	916	6388
Grand Total	3118	4617	852	0	8587	269	6027	239	4	6539	378	1371	3282	0	5031	1180	617	113	0	1910	22067
Apprch %	36.3	53.8	9.9	0		4.1	92.2	3.7	0.1		7.5	27.3	65.2	0		61.8	32.3	5.9	0		
Total %	14.1	20.9	3.9	0	38.9	1.2	27.3	1.1	0	29.6	1.7	6.2	14.9	0	22.8	5.3	2.8	0.5	0	8.7	

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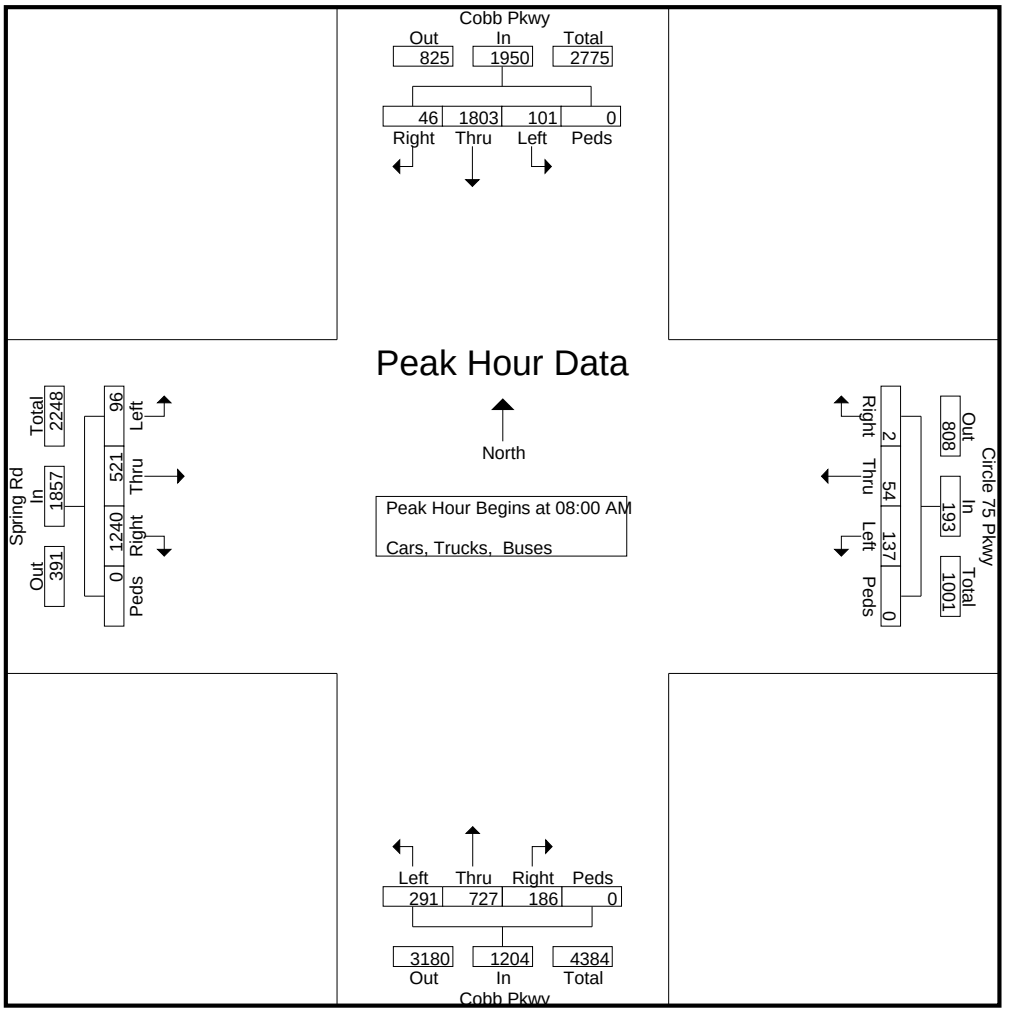
TMC Data
Cobb Pkwy @ Spring Rd/ Circle 75 Pkwy

7-9am | 4-6pm

File Name : 41310001
Site Code : 41310001
Start Date : 10/5/2017
Page No : 2

	Cobb Pkwy Northbound					Cobb Pkwy Southbound					Spring Rd Eastbound					Circle 75 Pkwy 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	**83**	158	60	0	301	**29**	**516**			**551**	23	124	**380**		**527**	34	12	0	0	46	**1425**
08:15 AM	72	189	21	0	282	28	450	**21**	0	499	18	**140**	255	0	413	32	11	0	0	43	1237
08:30 AM	58	175	42	0	275	15	428	8	0	451	**31**	130	304	0	465	32	13	0	0	45	1236
08:45 AM	78	**205**	**63**	0	**346**	29	409	11	0	449	24	127	301	0	452	**39**	**18**	**2**	0	**59**	1306
Total Volume	291	727	186	0	1204	101	1803	46	0	1950	96	521	1240	0	1857	137	54	2	0	193	5204
% App. Total	24.2	60.4	15.4	0		5.2	92.5	2.4	0		5.2	28.1	66.8	0		71	28	1	0		
PHF	.877	.887	.738	.000	.870	.871	.874	.548	.000	.885	.774	.930	.816	.000	.881	.878	.750	.250	.000	.818	.913



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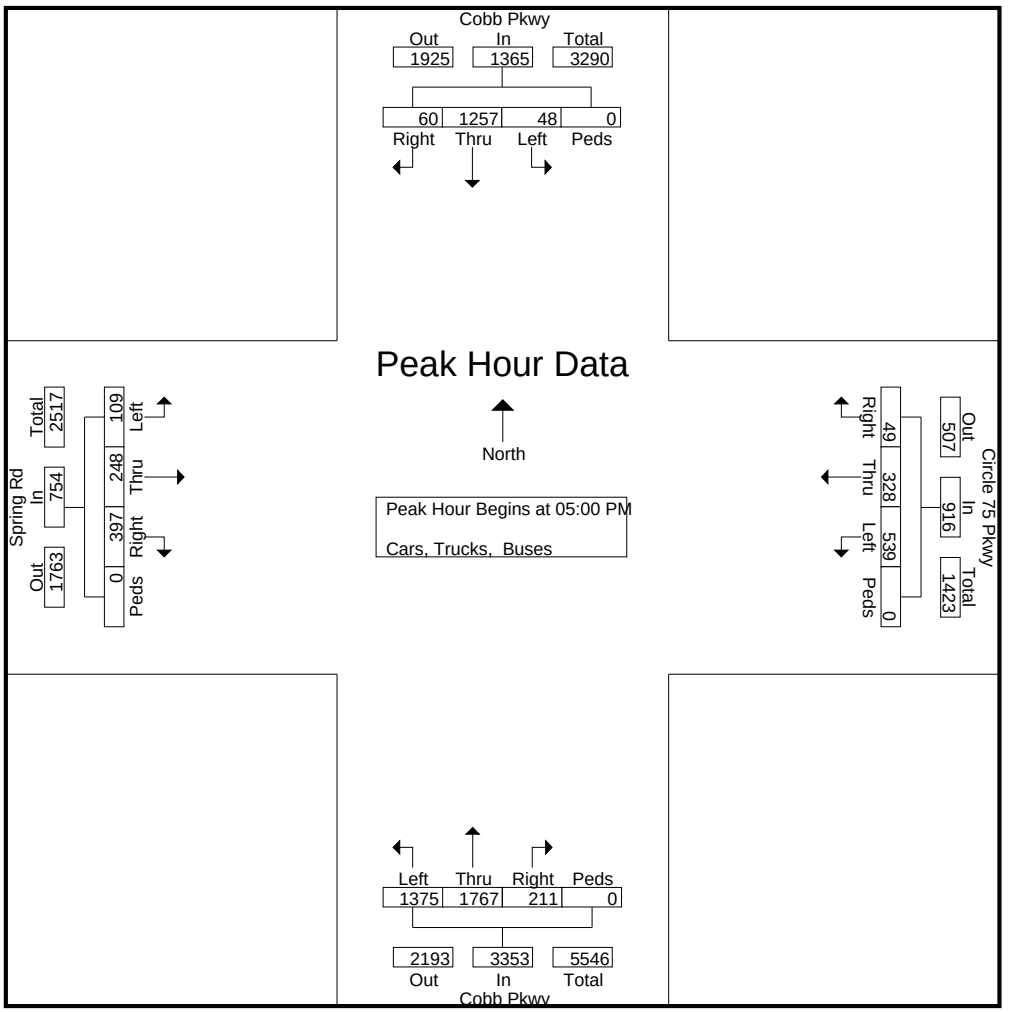
TMC Data
Cobb Pkwy @ Spring Rd/ Circle 75 Pkwy

7-9am | 4-6pm

File Name : 41310001
Site Code : 41310001
Start Date : 10/5/2017

	Cobb Pkwy Northbound					Cobb Pkwy Southbound					Spring Rd Eastbound					Circle 75 Pkwy 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	**347**	404	31	0	782	8	312	13	0	333	26	51	92	0	169	140	**96**	**16**	0	**252**	1536
05:15 PM	346	474	42	0	862	9	316	12	0	337	**28**	45	**125**			126	75	9	0	210	1607
05:30 PM	343	358	66	0	767	**22**	293	**22**	0	337	27	70	91	0	188	**144**					
05:45 PM	339	**531**	**72**	0	**942**	9	**336**	**13**	**0**	**358**	28	**82**	89	0	**199**	129	80	12	0	221	**1720**
Total Volume	1375	1767	211	0	3353	48	1257	60	0	1365	109	248	397	0	754	539	328	49	0	916	6388
% App. Total	41	52.7	6.3	0		3.5	92.1	4.4	0		14.5	32.9	52.7	0		58.8	35.8	5.3	0		
PHF	.991	.832	.733	.000	.890	.545	.935	.682	.000	.953	.973	.756	.794	.000	.947	.936	.854	.766	.000	.909	.928



Reliable Traffic Data Services, LLC

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info@reliabletraffic.org | www.reliabletraffic.org

TMC Data
Spring Rd @ Windy Ridge Pkwy

7-9am | 4-6pm

File Name : 41310002
Site Code : 41310002
Start Date : 10/5/2017
Page No : 1

Groups Printed- Cars, Trucks, Buses

	Windy Ridge Pkwy Northbound					Windy Ridge Pkwy Southbound					Spring Rd Eastbound					Spring Rd 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	35	37	31	1	104	15	42	32	0	89	49	370	84	0	503	12	42	8	1	63	759
07:15 AM	16	45	35	0	96	13	53	14	0	80	32	308	36	1	377	6	34	4	1	45	598
07:30 AM	30	45	37	0	112	11	50	19	0	80	50	325	61	0	436	18	56	10	1	85	713
07:45 AM	43	78	49	0	170	31	89	31	0	151	95	444	139	0	678	34	70	6	0	110	1109
Total	124	205	152	1	482	70	234	96	0	400	226	1447	320	1	1994	70	202	28	3	303	3179
08:00 AM	35	88	49	0	172	26	79	27	0	132	90	377	102	1	570	33	62	6	0	101	975
08:15 AM	34	103	68	0	205	40	99	29	0	168	70	398	144	0	612	32	56	10	0	98	1083
08:30 AM	31	142	65	0	238	22	80	24	0	126	75	364	119	0	558	23	53	12	1	89	1011
08:45 AM	45	136	64	0	245	26	109	48	2	185	69	395	152	0	616	28	55	15	0	98	1144
Total	145	469	246	0	860	114	367	128	2	611	304	1534	517	1	2356	116	226	43	1	386	4213
*** BREAK ***																					
04:00 PM	129	78	20	4	231	27	80	158	0	265	64	130	72	0	266	57	248	11	3	319	1081
04:15 PM	154	99	30	2	285	14	106	140	2	262	79	149	91	11	330	75	319	12	1	407	1284
04:30 PM	154	148	29	0	331	12	115	150	0	277	62	106	59	0	227	63	301	12	0	376	1211
04:45 PM	183	119	40	1	343	23	109	136	4	272	66	126	74	1	267	83	350	15	0	448	1330
Total	620	444	119	7	1190	76	410	584	6	1076	271	511	296	12	1090	278	1218	50	4	1550	4906
05:00 PM	125	131	53	1	310	24	141	151	1	317	77	154	67	4	302	97	358	16	2	473	1402
05:15 PM	146	142	36	1	325	22	144	143	6	315	79	152	66	3	300	90	353	19	1	463	1403
05:30 PM	122	163	31	0	316	20	171	133	0	324	62	132	66	1	261	94	339	21	0	454	1355
05:45 PM	164	169	30	0	363	18	130	128	2	278	76	151	80	1	308	108	314	18	1	441	1390
Total	557	605	150	2	1314	84	586	555	9	1234	294	589	279	9	1171	389	1364	74	4	1831	5550
Grand Total	1446	1723	667	10	3846	344	1597	1363	17	3321	1095	4081	1412	23	6611	853	3010	195	12	4070	17848
Apprch %	37.6	44.8	17.3	0.3		10.4	48.1	41	0.5		16.6	61.7	21.4	0.3		21	74	4.8	0.3		
Total %	8.1	9.7	3.7	0.1	21.5	1.9	8.9	7.6	0.1	18.6	6.1	22.9	7.9	0.1	37	4.8	16.9	1.1	0.1	22.8	

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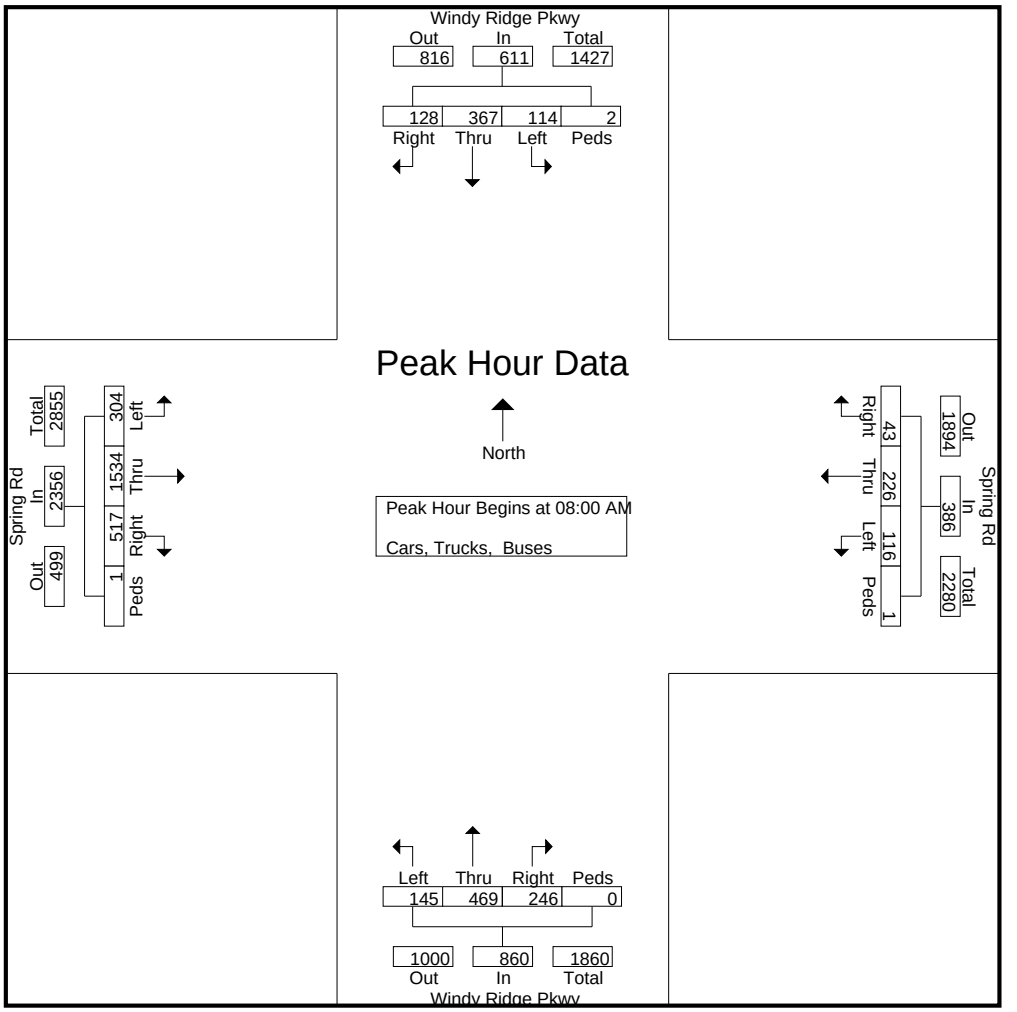
TMC Data
Spring Rd @ Windy Ridge Pkwy

7-9am | 4-6pm

File Name : 41310002
Site Code : 41310002
Start Date : 10/5/2017
Page No : 2

	Windy Ridge Pkwy Northbound					Windy Ridge Pkwy Southbound					Spring Rd Eastbound					Spring Rd 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	35	88	49	0	172	26	79	27	0	132	**90**	377	102	**1**	570	**33**	**62**	6	0	**101**	975
08:15 AM	34	103	**68**	0	205	**40**	99	29	0	168	70	**398**	144	0	612	32	56	10	0	98	1083
08:30 AM	31	**142**										364	119	0	558	23	53	12	**1**	89	1011
08:45 AM	**45**	136	64	0	**245**	26	**109**	**48**	**2**	**185**	69	395	**152**		**616**	28	55	**15**	0	98	**1144**
Total Volume	145	469	246	0	860	114	367	128	2	611	304	1534	517	1	2356	116	226	43	1	386	4213
% App. Total	16.9	54.5	28.6	0		18.7	60.1	20.9	0.3		12.9	65.1	21.9	0		30.1	58.5	11.1	0.3		
PHF	.806	.826	.904	.000	.878	.713	.842	.667	.250	.826	.844	.964	.850	.250	.956	.879	.911	.717	.250	.955	.921



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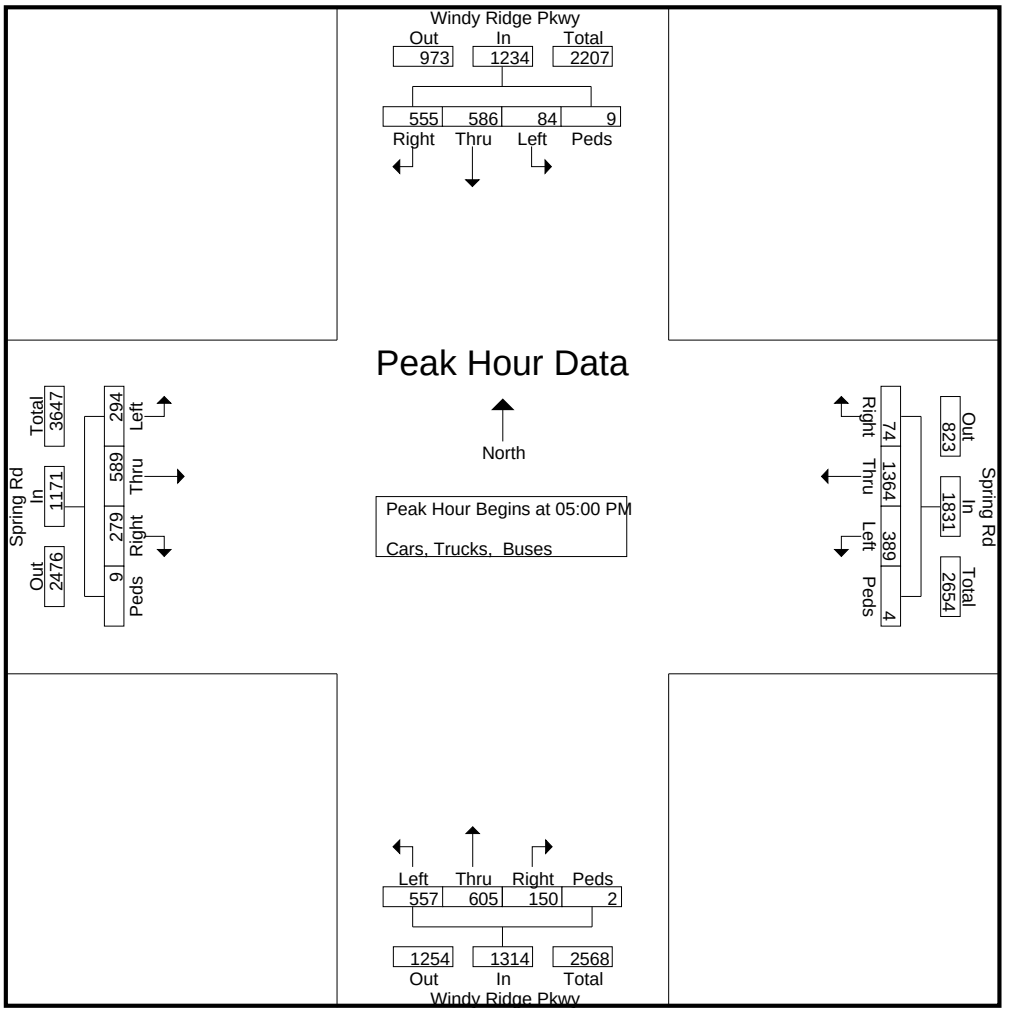
TMC Data
Spring Rd @ Windy Ridge Pkwy

7-9am | 4-6pm

File Name : 41310002
Site Code : 41310002
Start Date : 10/5/2017
Page No : 3

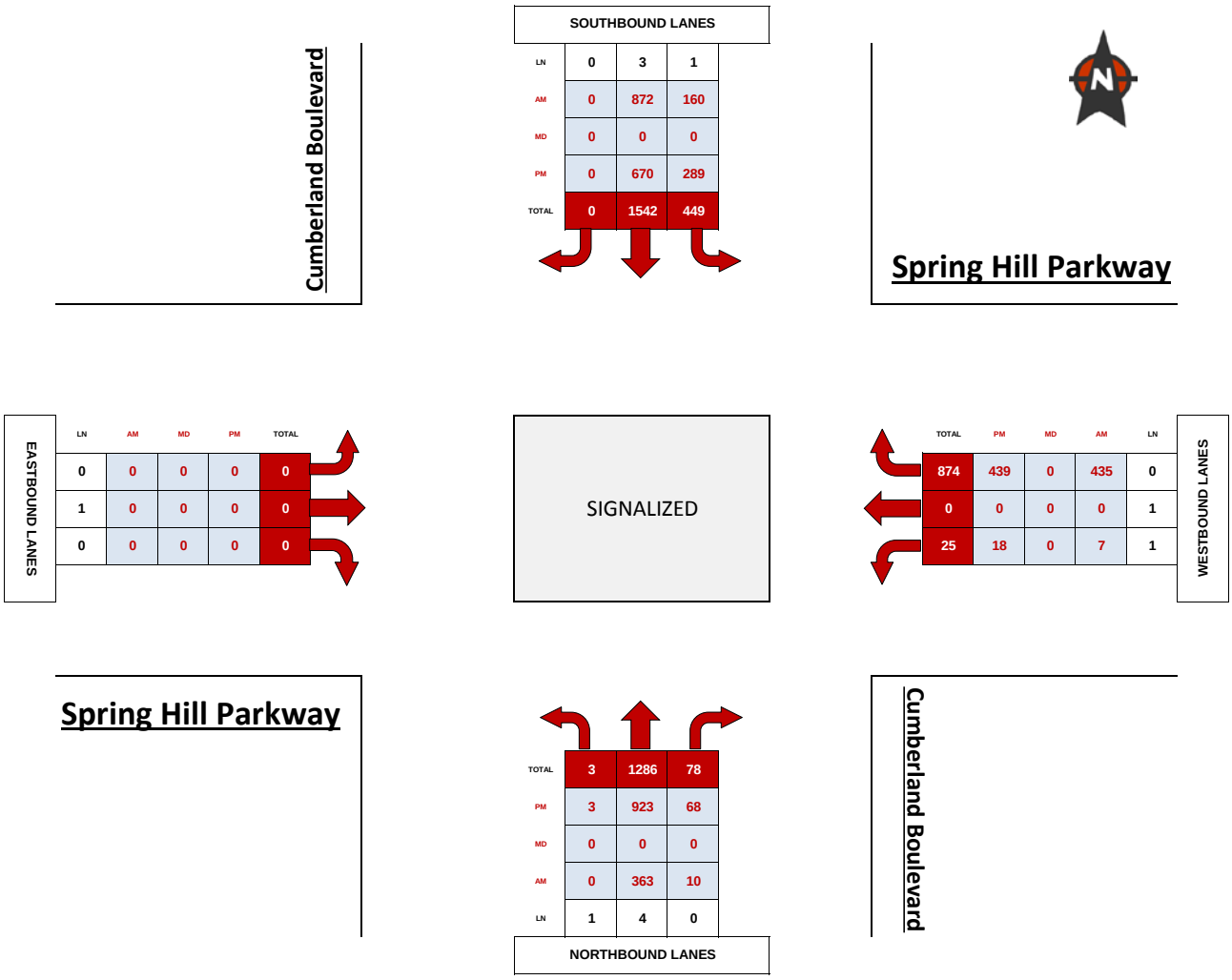
	Windy Ridge Pkwy Northbound					Windy Ridge Pkwy Southbound					Spring Rd Eastbound					Spring Rd Westbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	125	131	**53**	**1**	310	**24**	141	**151**				**154**		**4**	302	97	**358**		**2**	**473**	1402
05:15 PM	146	142	36	1	325	22	144	143	**6**	315	**79**	152	66	3	300	90	353	19	1	463	**1403**
05:30 PM	122	163	31	0	316	20	**171**	133	0	**324**	62	132	66	1	261	94	339	**21**	0	454	1355
05:45 PM	**164**	**169**			**363**	18	130	128	2	278	76	151	**80**	1	**308**	**108**	314	18	1	441	1390
Total Volume	557	605	150	2	1314	84	586	555	9	1234	294	589	279	9	1171	389	1364	74	4	1831	5550
% App. Total	42.4	46	11.4	0.2		6.8	47.5	45	0.7		25.1	50.3	23.8	0.8		21.2	74.5	4	0.2		
PHF	.849	.895	.708	.500	.905	.875	.857	.919	.375	.952	.930	.956	.872	.563	.950	.900	.953	.881	.500	.968	.989



PEAK HOUR ITM SUMMARY

#003 Cumberland Boulevard & Spring Hill Parkway

LOCATION#:	003	QTD PROJ#:	2017314	AM PEAK:	745 AM
NORTH / SOUTH:	Cumberland Boulevard	DATE:	Tuesday, November 07, 2017	MD PEAK:	
EAST / WEST:	Spring Hill Parkway	VICINITY:	GA	PM PEAK:	500 PM



QUALITY TRAFFIC DATA, LLC
Phone: 877-852-4355 Fax: 877-877-3698 Info@QualityTrafficData.com

AM COUNT	7:00 AM	TO	9:00 AM
MD COUNT	-	TO	-
PM COUNT	4:00 PM	TO	6:00 PM

VEHICLE TURNING MOVEMENT COUNT

#003 Cumberland Boulevard & Spring Hill Parkway - AM PEAK

LOCATION#:	003	QTD PROJ#:	2017314
NORTH / SOUTH:	Cumberland Boulevard	DATE:	Tuesday, November 07, 2017
EAST / WEST:	Spring Hill Parkway	VICINITY:	GA

DIRECTION:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTALS
LANES:	1	4	0	1	3	0	0	1	0	1	1	0	
7:00 AM	0	87	0	23	183	0	0	0	0	0	0	43	336
7:15 AM	0	81	2	30	164	0	0	0	0	1	0	80	358
7:30 AM	0	91	2	24	182	0	0	0	0	2	0	83	384
7:45 AM	0	80	2	29	211	0	0	0	0	1	0	134	457
8:00 AM	0	91	4	49	190	0	0	0	0	3	0	103	440
8:15 AM	0	96	1	38	229	0	0	0	0	2	0	98	464
8:30 AM	0	96	3	44	242	0	0	0	0	1	0	100	486
8:45 AM	0	75	2	40	239	0	0	0	0	2	0	88	446

VOLUME STATS:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
TOTAL:	0	697	16	277	1640	0	0	0	0	12	0	729	3371
P.H.V: [1]	0	363	10	160	872	0	0	0	0	7	0	435	1847
P.H.F: [2]		0.942			0.902			0.000			0.819		0.950

(1) Peak Hour Volume (Peak Hour Begins At 745 AM)
(2) Peak Hour Factor (directional aggregate)

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VEHICLE TURNING MOVEMENT COUNT

#003 Cumberland Boulevard & Spring Hill Parkway - PM PEAK

LOCATION#:	**003**	**QTD PROJ#:**	**2017314**
NORTH / SOUTH:	**Cumberland Boulevard**	**DATE:**	**Tuesday, November 07, 2017**
EAST / WEST:	**Spring Hill Parkway**	**VICINITY:**	**GA**

DIRECTION:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTALS
LANES:	1	4	0	1	3	0	0	1	0	1	1	0	
4:00 PM	0	198	9	31	138	0	0	0	0	2	0	54	432
4:15 PM	0	192	7	45	169	0	0	0	0	1	0	61	475
4:30 PM	0	229	14	42	156	0	0	0	0	2	0	68	511
4:45 PM	0	216	20	44	157	0	0	0	0	2	0	79	518
5:00 PM	1	228	11	81	167	0	0	0	0	5	0	107	600
5:15 PM	1	221	18	74	167	0	0	0	0	5	0	121	607
5:30 PM	0	238	18	70	178	0	0	0	0	6	0	79	589
5:45 PM	1	236	21	64	158	0	0	0	0	2	0	132	614

VOLUME STATS:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
TOTAL:	3	1758	118	451	1290	0	0	0	0	25	0	701	4346
P.H.V: [1]	3	923	68	289	670	0	0	0	0	18	0	439	2410
P.H.F: [2]		0.963			0.967			0.000			0.853		0.981

(1) Peak Hour Volume (Peak Hour Begins At 500 PM)
(2) Peak Hour Factor (directional aggregate)

QUALITY TRAFFIC DATA, LLC
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PEAK HOUR ITM SUMMARY

#004 Emerson Center Office Park Driveway & Spring Hill Parkway

LOCATION#:	004	QTD PROJ#:	2017314	AM PEAK:	745 AM
NORTH / SOUTH:	Emerson Center Office Park Driveway	DATE:	Tuesday, November 07, 2017	MD PEAK:	
EAST / WEST:	Spring Hill Parkway	VICINITY:	GA	PM PEAK:	500 PM

Emerson Center Office Park Driveway

SOUTHBOUND LANES

LN	0.5	0	0.5
AM	1	0	0
MD	0	0	0
PM	2	0	10
TOTAL	3	0	10

Spring Hill Parkway

EASTBOUND LANES

LN	AM	MD	PM	TOTAL
0	3	0	0	3
1	167	0	357	524
0	0	0	0	0

NO CONTROLS

WESTBOUND LANES

TOTAL	PM	MD	AM	LN
37	27	0	10	0
896	455	0	441	1
0	0	0	0	0

Spring Hill Parkway

TOTAL	0	0	0
PM	0	0	0
MD	0	0	0
AM	0	0	0
LN	0	0	0

NORTHBOUND LANES

Emerson Center Office Park Driveway

QUALITY TRAFFIC DATA, LLC
Phone: 877-852-4355 Fax: 877-877-3698 Info@QualityTrafficData.com

AM COUNT	7:00 AM	TO	9:00 AM
MD COUNT	-	TO	-
PM COUNT	4:00 PM	TO	6:00 PM

VEHICLE TURNING MOVEMENT COUNT

#004 Emerson Center Office Park Driveway & Spring Hill Parkway - AM PEAK

LOCATION#:	004	QTD PROJ#:	2017314
NORTH / SOUTH:	Emerson Center Office Park Driveway	DATE:	Tuesday, November 07, 2017
EAST / WEST:	Spring Hill Parkway	VICINITY:	GA

DIRECTION:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTALS
LANES:	0	0	0	0.5	0	0.5	0	1	0	0	1	0	
7:00 AM	0	0	0	0	0	0	0	23	0	0	43	1	67
7:15 AM	0	0	0	0	0	0	1	31	0	0	82	2	116
7:30 AM	0	0	0	0	0	0	0	27	0	0	85	1	113
7:45 AM	0	0	0	0	0	0	0	31	0	0	135	2	168
8:00 AM	0	0	0	0	0	0	0	53	0	0	106	2	161
8:15 AM	0	0	0	0	0	0	2	37	0	0	100	1	140
8:30 AM	0	0	0	0	0	1	1	46	0	0	100	5	153
8:45 AM	0	0	0	0	0	1	1	40	0	0	89	3	134

VOLUME STATS:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
TOTAL:	0	0	0	0	0	2	5	288	0	0	740	17	1052
P.H.V: [1]	0	0	0	0	0	1	3	167	0	0	441	10	622
P.H.F: [2]		0.000			0.250			0.802			0.823		0.926

(1) Peak Hour Volume (Peak Hour Begins At 745 AM)
(2) Peak Hour Factor (directional aggregate)

QUALITY TRAFFIC DATA, LLC
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VEHICLE TURNING MOVEMENT COUNT

#004 Emerson Center Office Park Driveway & Spring Hill Parkway - PM PEAK

LOCATION#:	**004**	**QTD PROJ#:**	**2017314**
NORTH / SOUTH:	**Emerson Center Office Park Driveway**	**DATE:**	**Tuesday, November 07, 2017**
EAST / WEST:	**Spring Hill Parkway**	**VICINITY:**	**GA**

DIRECTION:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTALS
LANES:	0	0	0	0.5	0	0.5	0	1	0	0	1	0	
4:00 PM	0	0	0	2	0	1	0	40	0	0	55	2	100
4:15 PM	0	0	0	1	0	4	0	51	0	0	57	4	117
4:30 PM	0	0	0	0	0	2	0	56	0	0	68	3	129
4:45 PM	0	0	0	0	0	0	1	63	0	0	81	8	153
5:00 PM	0	0	0	3	0	1	0	92	0	0	111	7	214
5:15 PM	0	0	0	3	0	1	0	92	0	0	125	9	230
5:30 PM	0	0	0	3	0	0	0	88	0	0	85	4	180
5:45 PM	0	0	0	1	0	0	0	85	0	0	134	7	227

VOLUME STATS:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
TOTAL:	0	0	0	13	0	9	1	567	0	0	716	44	1350
P.H.V: [1]	0	0	0	10	0	2	0	357	0	0	455	27	851
P.H.F: [2]		0.000			0.750			0.970			0.855		0.925

(1) Peak Hour Volume (Peak Hour Begins At 500 PM)
(2) Peak Hour Factor (directional aggregate)

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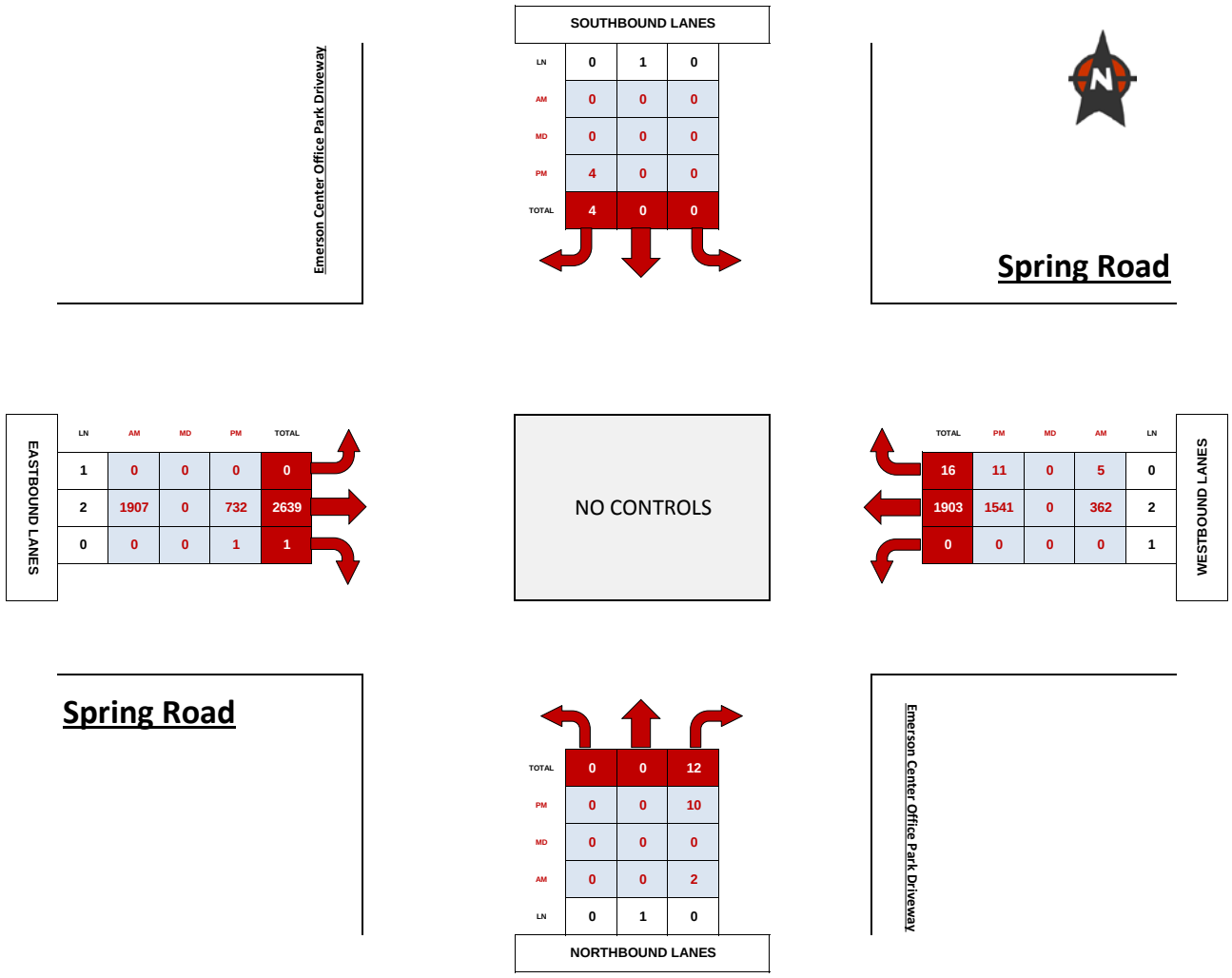
PEAK HOUR ITM SUMMARY

#001 Emerson Center Office Park Driveway & Spring Road

LOCATION#:	001	QTD PROJ#:	2017314	AM PEAK:	715 AM
NORTH / SOUTH:	Emerson Center Office Park Driveway	DATE:	Tuesday, November 07, 2017	MD PEAK:	
EAST / WEST:	Spring Road	VICINITY:	GA	PM PEAK:	445 PM



QUALITY TRAFFIC DATA, LLC
Phone: 877-852-4355 Fax: 877-877-3698 Info@QualityTrafficData.com

AM COUNT	7:00 AM	TO	9:00 AM
MD COUNT	-	TO	-
PM COUNT	4:00 PM	TO	6:00 PM

VEHICLE TURNING MOVEMENT COUNT

#001 Emerson Center Office Park Driveway & Spring Road - AM PEAK

LOCATION#:	001	QTD PROJ#:	2017314
NORTH / SOUTH:	Emerson Center Office Park Driveway	DATE:	Tuesday, November 07, 2017
EAST / WEST:	Spring Road	VICINITY:	GA

DIRECTION:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTALS
LANES:	0	1	0	0	1	0	1	2	0	1	2	0	
7:00 AM	0	0	1	0	0	1	0	426	0	0	80	0	508
7:15 AM	0	0	1	0	0	0	0	490	0	0	94	1	586
7:30 AM	0	0	1	0	0	0	0	472	0	0	70	1	544
7:45 AM	0	0	0	0	0	0	0	465	0	0	105	2	572
8:00 AM	0	0	0	0	0	0	0	480	0	0	93	1	574
8:15 AM	0	0	2	0	0	0	0	438	0	0	71	1	512
8:30 AM	0	0	1	0	0	0	0	460	0	0	103	0	564
8:45 AM	0	0	1	0	0	2	0	379	0	0	109	4	495

VOLUME STATS:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
TOTAL:	0	0	7	0	0	3	0	3610	0	0	725	10	4355
P.H.V: [1]	0	0	2	0	0	0	0	1907	0	0	362	5	2276
P.H.F: [2]		0.500			0.000			0.973			0.857		0.971

(1) Peak Hour Volume (Peak Hour Begins At 715 AM)
(2) Peak Hour Factor (directional aggregate)

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VEHICLE TURNING MOVEMENT COUNT

#001 Emerson Center Office Park Driveway & Spring Road - PM PEAK

LOCATION#:	**001**	**QTD PROJ#:**	**2017314**
NORTH / SOUTH:	**Emerson Center Office Park Driveway**	**DATE:**	**Tuesday, November 07, 2017**
EAST / WEST:	**Spring Road**	**VICINITY:**	**GA**

DIRECTION:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTALS
LANES:	0	1	0	0	1	0	1	2	0	1	2	0	
4:00 PM	0	0	2	0	0	2	0	162	2	0	316	2	486
4:15 PM	0	0	2	0	0	0	0	168	2	0	371	1	544
4:30 PM	0	0	1	0	0	1	0	175	0	0	342	2	521
4:45 PM	0	0	4	0	0	2	0	193	0	0	408	0	607
5:00 PM	0	0	4	0	0	1	0	185	1	0	360	5	556
5:15 PM	0	0	1	0	0	1	0	179	0	0	417	3	601
5:30 PM	0	0	1	0	0	0	0	175	0	0	356	3	535
5:45 PM	0	0	4	0	0	1	0	174	1	0	354	0	534

VOLUME STATS:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
TOTAL:	0	0	19	0	0	8	0	1411	6	0	2924	16	4384
P.H.V: [1]	0	0	10	0	0	4	0	732	1	0	1541	11	2299
P.H.F: [2]		0.625			0.500			0.949			0.924		0.947

(1) Peak Hour Volume (Peak Hour Begins At 445 PM)
(2) Peak Hour Factor (directional aggregate)

QUALITY TRAFFIC DATA, LLC
Phone: 877-852-4355 Fax: 877-877-3698 Info@QualityTrafficData.com

PEAK HOUR ITM SUMMARY

#002 2800 Spring Road Driveway & Spring Road

LOCATION#:	002	QTD PROJ#:	2017314	AM PEAK:	715 AM
NORTH / SOUTH:	2800 Spring Road Driveway	DATE:	Tuesday, November 07, 2017	MD PEAK:	
EAST / WEST:	Spring Road	VICINITY:	GA	PM PEAK:	445 PM

2800 Spring Road Driveway

SOUTHBOUND LANES

LN			
AM	4	0	0
MD	0	0	0
PM	7	0	0
TOTAL	11	0	0

Spring Road

EASTBOUND LANES

LN	AM	MD	PM	TOTAL
1	0	0	0	0
2	1925	0	736	2661
0	1	0	4	5

1-WAY STOP (SB)

WESTBOUND LANES

TOTAL	PM	MD	AM	LN
1	1	0	0	0
1908	1546	0	362	2
0	0	0	0	1

Spring Road

NORTHBOUND LANES

TOTAL			
PM	0	0	7
MD	0	0	0
AM	0	0	0
LN	0	1	0

2800 Spring Road Driveway

QUALITY TRAFFIC DATA, LLC
Phone: 877-852-4355 Fax: 877-877-3698 Info@QualityTrafficData.com

AM COUNT	7:00 AM	TO	9:00 AM
MD COUNT	-	TO	-
PM COUNT	4:00 PM	TO	6:00 PM

VEHICLE TURNING MOVEMENT COUNT

#002 2800 Spring Road Driveway & Spring Road - AM PEAK

LOCATION#:	**002**	**QTD PROJ#:**	**2017314**
NORTH / SOUTH:	**2800 Spring Road Driveway**	**DATE:**	**Tuesday, November 07, 2017**
EAST / WEST:	**Spring Road**	**VICINITY:**	**GA**

DIRECTION:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTALS
LANES:	0	1	0	0	1	0	1	2	0	1	2	0	
7:00 AM	0	0	1	0	0	0	0	428	0	0	80	0	509
7:15 AM	0	0	0	0	0	1	0	490	0	0	93	0	584
7:30 AM	0	0	0	0	0	0	0	480	0	0	71	0	551
7:45 AM	0	0	0	0	0	0	0	465	1	0	107	0	573
8:00 AM	0	0	0	0	0	3	0	490	0	0	91	0	584
8:15 AM	0	0	0	0	0	0	0	440	0	0	72	1	513
8:30 AM	0	0	0	0	0	0	0	454	0	0	103	0	557
8:45 AM	0	0	0	0	0	0	0	379	0	0	113	0	492

VOLUME STATS:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
TOTAL:	0	0	1	0	0	4	0	3626	1	0	730	1	4363
P.H.V: [1]	0	0	0	0	0	4	0	1925	1	0	362	0	2292
P.H.F: [2]		0.000			0.333			0.983			0.846		0.981

(1) Peak Hour Volume (Peak Hour Begins At 715 AM)
(2) Peak Hour Factor (directional aggregate)

QUALITY TRAFFIC DATA, LLC
Phone: 877-852-4355 Fax: 877-877-3698 Info@QualityTrafficData.com

VEHICLE TURNING MOVEMENT COUNT

#002 2800 Spring Road Driveway & Spring Road - PM PEAK

LOCATION#:	**002**	**QTD PROJ#:**	**2017314**
NORTH / SOUTH:	**2800 Spring Road Driveway**	**DATE:**	**Tuesday, November 07, 2017**
EAST / WEST:	**Spring Road**	**VICINITY:**	**GA**

DIRECTION:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTALS
LANES:	0	1	0	0	1	0	1	2	0	1	2	0	
4:00 PM	0	0	2	0	0	2	0	162	2	0	316	0	484
4:15 PM	0	0	4	0	0	1	0	169	1	0	371	2	548
4:30 PM	0	0	0	0	0	2	0	176	0	0	342	2	522
4:45 PM	0	0	3	0	0	3	0	194	2	0	405	1	608
5:00 PM	0	0	2	0	0	1	0	188	1	0	365	0	557
5:15 PM	0	0	0	0	0	1	0	178	1	0	419	0	599
5:30 PM	0	0	2	0	0	2	0	176	0	0	357	0	537
5:45 PM	0	0	0	0	0	4	0	177	1	0	351	0	533

VOLUME STATS:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
TOTAL:	0	0	13	0	0	16	0	1420	8	0	2926	5	4388
P.H.V: [1]	0	0	7	0	0	7	0	736	4	0	1546	1	2301
P.H.F: [2]		0.583			0.583			0.944			0.923		0.946

(1) Peak Hour Volume (Peak Hour Begins At 445 PM)
(2) Peak Hour Factor (directional aggregate)

QUALITY TRAFFIC DATA, LLC
Phone: 877-852-4355 Fax: 877-877-3698 Info@QualityTrafficData.com

GRTA Letter of Understanding

REVISED LETTER OF UNDERSTANDING

November 7, 2017

Brad Johnson
Westplan Investors
One Glenlake Parkway
Suite 1275
Atlanta, Georgia 30328

RE: Emerson Center (DRI #:TBD)

Dear Mr. Johnson:

The purpose of this letter is to inform you of the GRTA staff recommendation regarding your request for expedited review of the **DRI Emerson Center (DRI #: TBD),** Development of Regional Impact (DRI). Based on the information presented during the Pre-Review/Methodology meeting on October 30, 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 Smyrna and unincorporated Cobb County. The development is southeast of the intersection of Spring Road and Cumberland Boulevard with US /41/SR3 directly to the east.
- The DRI trigger for this development is a rezoning and an annexation.
- The proposed mixed-use redevelopment consists of approximately 87,500 SF of office, 11,000 square feet of retail, 310 apartments unites and a 200-room hotel.
- The development currently proposes access via one full-access driveway on Spring Hill Parkway and two right-in/right-out driveways on Spring Road.
- Trip generation is estimated at 5,791 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 Spring Road 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 1.5% 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. The remaining 40% of the projected traffic from an adjacent DRI, DRI #2381 Atlanta Braves Stadium, should be distributed on the roadway network and included in the "No Build" and "Build" conditions for this study.

- 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 4% is allowed due to the project site's proximity to a bus stop for CobbLinc's Route 10.

- 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. US 41/ SR 3 (Cobb Parkway) at Spring Road/Circle 75 Parkway
2. Spring Road at Cumberland Boulevard
3. Cumberland Boulevard at Spring Hill Parkway
4. Spring Road at existing western right-in/right-out driveway
5. Spring Road at existing right-in/right-out driveway
6. Spring Hill Parkway at existing full access driveway

ADDITIONAL INFORMATION

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

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

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

DRI REVIEW PACKAGE CHECKLIST

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

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

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

DRI REVIEW PACKAGE SUBMITTAL

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

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

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

SRTA/GRTA	ATLANTA REGIONAL COMMISSION	CITY OF SMYRNA	GDOT DISTRICT 7	COBB COUNTY DOT
Emily Estes 245 Peachtree Center Ave. Suite 2200 Atlanta, GA 30303	Andrew Smith International Tower 229 Peachtree St. NE Suite 100 Atlanta, GA 30303	Ken Suddreth Offices in Brawner Hall 3180 Atlanta Road Smyrna, GA 30080	Paul DeNard 5025 New Peachtree Road NE Chambless, GA 30341	Amy Diaz 1890 County Services Parkway Marietta, GA 30008

Expedited Review Recommendation

Once the DRI Review Package has been submitted and determined complete, and ARC with City of Smyrna 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 Smyrna 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,

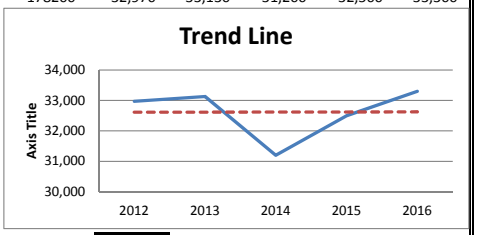
Emily Estes
Planner

cc: Jon West, DCA
Annie Gillespie, SRTA/GRTA
Andrew Smith, ARC
Marquitrice Mangham, ARC
Paul DeNard, GDOT District 7
Tim Mathews, GDOT District 7
Karyn Matthew, Cobb County DOT
Amy Diaz, Cobb County DOT
Kevin Moore, City of Smyrna
Russell Martin, City of Smyrna
Ken Suddreth, City of Smyrna
Eric Randall, City of Smyrna
Garvis Sams, Sams, Larkin, Huff and Balli LLP
Abdul Amer, A & R Engineering, Inc.
Abby Rettig, A & R Engineering, Inc.
Chris Harrell, Summit Engineering

Linear Regression of Daily Traffic

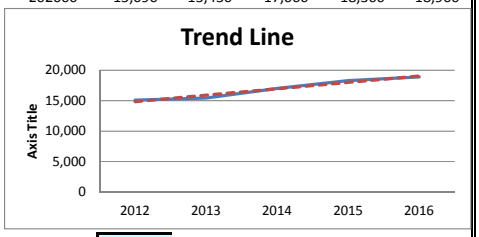
Location	Growth Rate	R Squared	Station ID	Route	2012	2013	2014	2015	2016
Spring Rd (West of Cumberland	0.0%	0.00	0672806	178200	32,970	33,130	31,200	32,500	33,300
Cumberland Blvd (North of Sprir	6.4%	0.97	0673015	202600	15,090	15,430	17,000	18,300	18,900
Cobb Pkwy (South of Plumtree P	-1.7%	0.40	0672143	000300	42,070	42,200	38,200	39,500	40,000
Cobb Pkwy (North of Cumberlan	1.8%	0.85	0672145	000300	20,840	20,980	21,000	21,700	22,400
Cumberland Blvd (East of Akers	4.7%	0.74	0677134	514100	10,780	12,760	12,800	13,300	13,400
Weighted Average	**1.1%**	0.47	Sum of Count Stations =		121,750	124,500	120,200	125,300	128,000

Location	Traffic Counter	RCLINK	2012	2013	2014	2015	2016
Spring Rd (West of Cumberland Gate)	0672806	178200	32,970	33,130	31,200	32,500	33,300



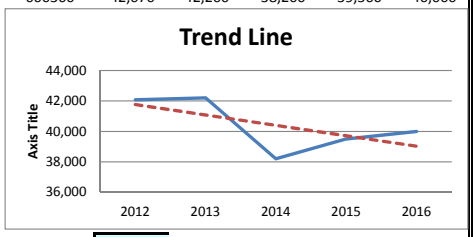
Growth Rate	0.0%	Intercept	26,578	Slope	3.00
Trend Line	32,614	32,617	32,620	32,623	32,626

Location	Traffic Counter	RCLINK	2012	2013	2014	2015	2016
Cumberland Blvd (North of Spring Hill Pkwy)	0673015	202600	15,090	15,430	17,000	18,300	18,900



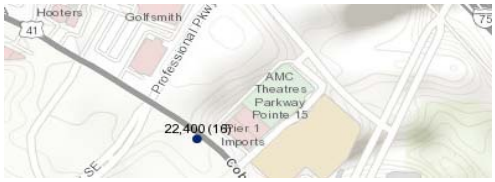
Growth Rate	6.4%	Intercept	-2,095,742	Slope	1,049.00
Trend Line	14,846	15,895	16,944	17,993	19,042

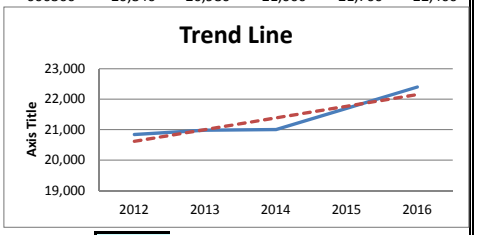
Location	Traffic Counter	RCLINK	2012	2013	2014	2015	2016
Cobb Pkwy (South of Plumtree Pkwy)	0672143	000300	42,070	42,200	38,200	39,500	40,000



Growth Rate	-1.7%	Intercept	1,417,970	Slope	-684.00
Trend Line	41,762	41,078	40,394	39,710	39,026

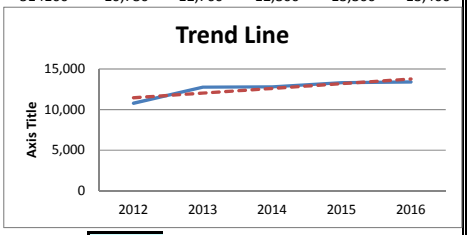
Location	Traffic Counter	RCLINK	2012	2013	2014	2015	2016
Cobb Pkwy (North of Cumberland Blvd)	0672145	000300	20,840	20,980	21,000	21,700	22,400





Growth Rate	1.8%	Intercept	-751,992	Slope	384.00
Trend Line	20,616	21,000	21,384	21,768	22,152

Location	Traffic Counter	RCLINK	2012	2013	2014	2015	2016
Cumberland Blvd (East of Akers Mill)	0677134	514100	10,780	12,760	12,800	13,300	13,400



Growth Rate	4.7%	Intercept	-1,151,484	Slope	578.00
Trend Line	11,452	12,030	12,608	13,186	13,764

Fact Sheets for Planned and Programmed Improvements

PRECONSTRUCTION STATUS REPORT

PROJ ID	COUNTY	DESCRIPTION
0001758	DeKalb	**I-285 FM I-75/COBB THRU FULTON TO I-85/DEKALB-EXPRESS LANES**

Mgmt Let Date:

Revive 285 is the name given to the improvement project on I-285 North from I-75 to I-85. Revive 285 will serve as an umbrella for a number of isolated but critical near-term fixes in the project corridor, guiding these efforts in a way that provides the most benefit for the corridor and anticipates the transportation needs of future generations.

This project will identify, evaluate, and possibly enhance the most appropriate projects and programs that provide safe and efficient travel along the I-285 corridor from the I-75/I-285 interchange in Cobb County to the I-285/I-85 interchange in DeKalb County.

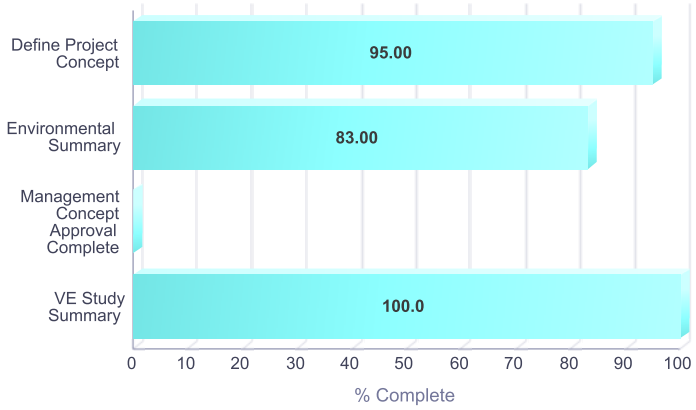
It will also develop and advance concepts through the environmental phase of Georgia DOT's PDP, including completion of an environmental document and receipt of a Record of Decision. The resulting concept will be accompanied with a Program Management Plan identifying funding, phasing, and implementation strategies.

PROJ NO:	NHS00-0001-00(758)	**SPONSOR:**	GDOT
MPO TIP#:	AR-ML-200	**PROJ MGR:**	Mote, Wayne
MPO:	Atlanta TMA	**DOT DIST:**	7
PROJ LENGTH (MI):	13.15	**CONG DIST:**	006, 011
TYPE WORK:	Managed Lanes	**HOUSE DIST:**	043, 052, 080, 083, 084, 089
LET RESPONSIBILITY:	GDOT Let	**SENATE DIST:**	006, 010, 032, 044
BIKE PROVISIONS INCLUDED?	N		

Phase	FY Approved	Approved FY Estimate*	Fund	Phase Status
Engineering	2022	$1,600,000.00	Z001	PRECST
Engineering	2007	$1,250,000.00	L010	AUTHORIZED
Construction	2037	$260,000,000.00	Z001	PRECST
Construction	2035	$250,000,000.00	Z001	PRECST
Construction	2048	$305,000,000.00	Z001	PRECST
Construction	2050	$315,000,000.00	Z001	PRECST
Construction	2054	$330,000,000.00	Z001	PRECST
Construction	2025	$66,900,000.00	Z001	PRECST
Construction	2029	$230,000,000.00	Z001	PRECST
Engineering	2007	$2,701,631.61	04M	AUTHORIZED
Construction	2049	$310,000,000.00	Z001	PRECST
Construction	2062	$375,000,000.00	Z001	PRECST
Construction	2047	$300,000,000.00	Z001	PRECST
Construction	2027	$57,000,000.00	Z001	PRECST
Right of Way	2022	$203,300,000.00	42229	PRECST
Construction	2046	$295,000,000.00	Z001	PRECST
Construction	2039	$265,000,000.00	Z001	PRECST
Construction	2053	$325,000,000.00	Z001	PRECST
Right of Way	2018	$60,000,000.00	42234	AUTHORIZED
Construction	2061	$370,000,000.00	Z001	PRECST
Construction	2059	$360,000,000.00	Z001	PRECST
Construction	2043	$280,000,000.00	Z001	PRECST
Engineering	2003	$1,000,000.00	Q05	AUTHORIZED
Construction	2028	$225,000,000.00	Z001	PRECST
Construction	2052	$325,000,000.00	Z001	PRECST
Construction	2033	$245,000,000.00	Z001	PRECST
Right of Way	2020	$201,600,000.00	42229	PRECST
Construction	2034	$245,000,000.00	Z001	PRECST
Construction	2042	$280,000,000.00	Z001	PRECST
Engineering	2018	$2,678,210.00	Z001	PRECST
Construction	2044	$285,000,000.00	Z001	PRECST
Construction	2051	$320,000,000.00	Z001	PRECST
Engineering	2017	$9,000,000.00	HB170	AUTHORIZED
Construction	2026	$61,200,000.00	Z001	PRECST
Engineering	2006	$21,192,897.36	Q05	AUTHORIZED
Construction	2031	$235,000,000.00	Z001	PRECST
Construction	2057	$345,000,000.00	Z001	PRECST
Construction	2024	$64,900,000.00	Z001	PRECST
Construction	2041	$275,000,000.00	Z001	PRECST
Right of Way	2018	$15,000,000.00	42235	AUTHORIZED
Engineering	2021	$4,700,000.00	HB170	PRECST
Construction	2032	$240,000,000.00	Z001	PRECST
Engineering	2019	$4,400,000.00	HB170	PRECST
Engineering	2020	$4,500,000.00	HB170	PRECST
Construction	2030	$230,000,000.00	Z001	PRECST
Construction	2038	$260,000,000.00	Z001	PRECST
Construction	2060	$365,000,000.00	Z001	PRECST
Engineering	2018	$2,021,790.00	RPS9	PRECST
Construction	2055	$335,000,000.00	Z001	PRECST
Right of Way	2021	$196,300,000.00	42229	PRECST
Construction	2023	$66,600,000.00	Z001	PRECST

PRECONSTRUCTION STATUS REPORT

Construction	2036	$255,000,000.00	Z001	PRECST
Construction	2056	$340,000,000.00	Z001	PRECST
Construction	2058	$355,000,000.00	Z001	PRECST
Engineering	2007	$217,189.58	41559	AUTHORIZED
Construction	2045	$290,000,000.00	Z001	PRECST
Construction	2040	$270,000,000.00	Z001	PRECST



Activity	Actual Start Date	Actual Finish Date
Management Concept Approval Complete		
Define Project Concept	2006-03-01	
VE Study Summary	2011-01-25	2012-04-17
Environmental Summary	2007-03-01	

Right of Way Acquisition Information:
Preliminary Parcel Count: **Total Parcel Count:** 1 **Acquired by :** DOT

AR-ML-200

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

Short Title	REVIVE 285 - I-285 NORTH MANAGED LANES AND COLLECTOR/DISTRIBUTOR LANE IMPROVEMENTS FROM I-75 NORTH TO I-85 NORTH
GDOT Project No.	0001758
Federal ID No.	
Status	Programmed
Service Type	Roadway / Managed Lanes
Sponsor	GDOT
Jurisdiction	Regional - Perimeter
Analysis Level	In the Region's Air Quality Conformity Analysis

Existing Thru Lane	0	**LCI**		**Network Year**	2030
Planned Thru Lane	4	**Flex**		**Corridor Length**	13.1 miles

Detailed Description and Justification

Revive 285 is the name given to the improvement project on I-285 North from I-75 to I-85. Revive 285 will serve as an umbrella for a number of isolated but critical near-term fixes in the project corridor, guiding these efforts in a way that provides the most benefit for the corridor and anticipates the transportation needs of future generations. This project will identify, evaluate, and possibly enhance the most appropriate projects and programs that provide safe and efficient travel along the I-285 corridor from the I-75/I-285 interchange in Cobb County to the I-285/I-85 interchange in DeKalb County. It will also develop and advance concepts through the environmental phase of Georgia DOT's PDP, including completion of an environmental document and receipt of a Record of Decision.

Phase Status & Funding Information		Status	FISCAL YEAR	TOTAL PHASE COST	BREAKDOWN OF TOTAL PHASE COST BY FUNDING SOURCE			
					FEDERAL	STATE	BONDS	LOCAL/PRIVATE
PE	National Highway System	AUTH	2003	**$1,000,000**	~~$800,000~~	~~$200,000~~	~~$0,000~~	~~$0,000~~
PE	National Highway System	AUTH	2006	**$19,933,151**	~~$15,946,521~~	~~$3,986,630~~	~~$0,000~~	~~$0,000~~
PE	Interstate Maintenance	AUTH	2007	**$1,250,000**	~~$1,125,000~~	~~$125,000~~	~~$0,000~~	~~$0,000~~
PE	Interstate Maintenance	AUTH	2007	**$2,701,631**	~~$2,161,305~~	~~$540,326~~	~~$0,000~~	~~$0,000~~
PE	Transportation Funding Act (HB 170)	AUTH	2017	**$9,000,000**	~~$0,000~~	~~$9,000,000~~	~~$0,000~~	~~$0,000~~
PE	National Highway Performance Program (NHPP)		2018	**$12,711,274**	$10,169,019	$2,542,255	$0,000	$0,000
PE	Repurposed Earmark		2018	**$1,980,206**	$1,584,165	$396,041	$0,000	$0,000
PE	Transportation Funding Act (HB 170)		2019	**$17,363,093**	$0,000	$17,363,093	$0,000	$0,000
PE	Transportation Funding Act (HB 170)		2020	**$23,770,772**	$0,000	$23,770,772	$0,000	$0,000
PE	Transportation Funding Act (HB 170)		2021	**$34,692,722**	$0,000	$34,692,722	$0,000	$0,000
ROW	Grant Anticipation Revenue Bond		2017	**$15,000,000**	$0,000	$0,000	$15,000,000	$0,000
ROW	Grant Anticipation Revenue Bond		2018	**$29,382,958**	$0,000	$0,000	$29,382,958	$0,000

ROW	Grant Anticipation Revenue Bond		2019	**$28,778,607**	$0,000	$0,000	$28,778,607	$0,000
ROW	Grant Anticipation Revenue Bond		2020	**$189,790,357**	$0,000	$0,000	$189,790,357	$0,000
ROW	Grant Anticipation Revenue Bond		2021	**$180,365,348**	$0,000	$0,000	$180,365,348	$0,000
ROW	Grant Anticipation Revenue Bond		2022	**$183,235,099**	$0,000	$0,000	$183,235,099	$0,000
CST	National Highway Performance Program (NHPP)		2023	**$83,862,760**	$67,090,208	$16,772,552	$0,000	$0,000
CST	General Federal Aid 2024-2040		LR 2024-2030	**$863,412,288**	$690,729,830	$172,682,458	$0,000	$0,000
CST	General Federal Aid 2024-2040		LR 2031-2040	**$1,870,598,109**	$1,496,478,487	$374,119,622	$0,000	$0,000
CST	General Federal Aid 2041+		LR 2041+	**$3,747,570,127**	$2,998,056,102	$749,514,025	$0,000	$0,000
				$7,316,398,502	**$5,284,140,637**	**$1,405,705,496**	**$626,552,369**	**$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

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

INTERDEPARTMENT CORRESPONDENCE

FILE P.I. # 0010008, Cobb County
Cumberland Blvd – Intersection Improvement
& Streetscape – Phase III

OFFICE Program Delivery

DATE April 13, 2012

FROM Bobby Hilliard, State Program Delivery Engineer

TO Brent Story, State Design Policy Engineer
Attn: Dave Peters, State Conceptual Design Group Manager

SUBJECT **Request for Location and Design Approval**

Description and Project Proposal: The project is located within Cobb County and partially within the Smyrna city limits; and consists of the widening of Cumberland Boulevard between Spring Road and Akers Mill Road. Cumberland Blvd is proposed to be widened from two lanes to three lanes in the westbound direction between Akers Mill Road and Cumberland Parkway. Additional left turn lane improvements will be made where Cumberland Boulevard intersects with Cumberland Parkway, the Cumberland Mall entrance, and Akers Mill Road. West of the I-285 bridge, Cumberland Boulevard will be restriped and resigned to better delineate which lanes become the left turn lanes for Spring Road and which lanes continue through the Spring Road intersection on Cumberland Boulevard. Minimal widening will be required to accommodate the through lane transition tapers.

All roadway widening is proposed on the north side of Cumberland Boulevard. New sidewalk will be constructed along the northern side of the road within the project limits. The project will include installing streetscape features such as street trees and landscaping, street and pedestrian lighting, street furniture, pedestrian plazas, corner treatments, and stamped asphalt crosswalks along both sides of Cumberland Boulevard from Akers Mill Road to Spring Road.
The project length is 0.85 miles.

Concept Approval Date: January 18, 2012

Concept Update: No changes have been made since concept approval.

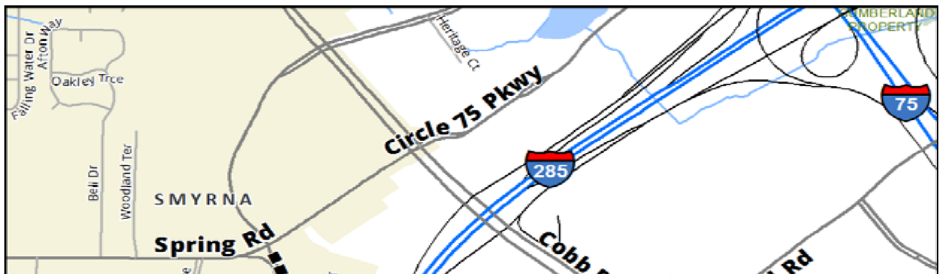
Environmental Document Type, Approval Date & any Reevaluations:
Programmatical Categorical Exclusion approved February 12, 2012

Public Involvement: No public involvement to date.

Back to Projects **Cobb County 2016 SPLOST** **Transportation Fact Sheet**

SPLOST 2016 Investing today for a better tomorrow

Project No.	X2604
Project Name	CUMBERLAND BLVD -



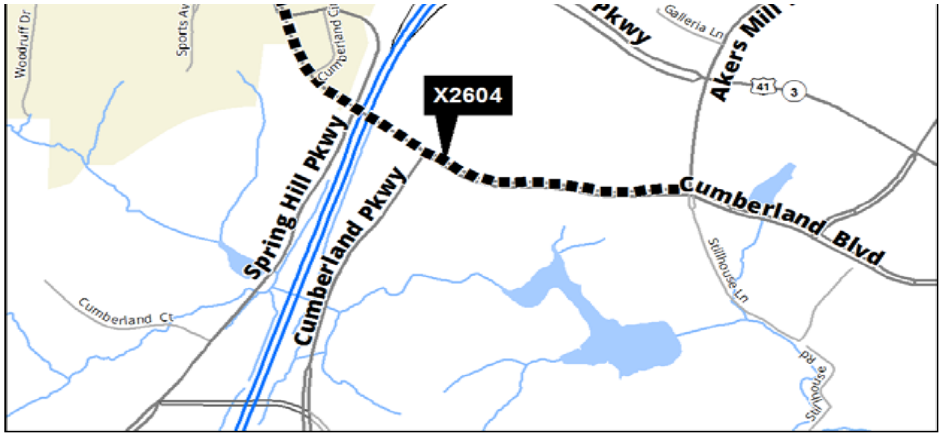
Current Status Construction in Progress

Contact Info

KARYN MATTHEWS

770-528-3685

karyn.matthews@cobbcounty.org



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Description, Purpose and Benefits

Safety and operational improvements, turn lanes, sidewalks.

Public Notices

Current Budget

Phase	Amount
Engineering	$0.00
Right-of-way	1500000.0000
Construction	$8,639,648.29
Utilities	$0.00
Other	$4,975.19
Total	$10,144,623.48

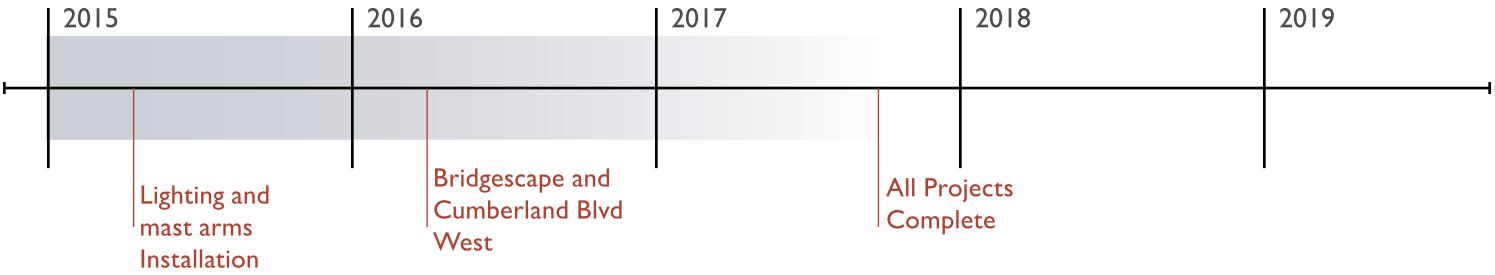
Schedule

Phase	Date
Engineering Start	1/1/2015
Right-of-way Start	10/6/2015
Construction Start	10/13/2016
Construction Complete	9/30/2018

Cumberland Boulevard Enhancements

Project Fact Sheet

CONSTRUCTION TIMELINE



PROJECT OVERVIEW

Cumberland Boulevard, a loop road connecting the four quadrants of Cumberland was completed in 2003. It creates connectivity throughout the community as a whole, increasing mobility throughout the district. It was constructed in four separate sections and took 10 years to complete. Cumberland Boulevard West, located between Akers Mill Road and Spring Road, will be widened with an additional left turn lane, allowing safer traffic flow and greater capacity.

KEY FACTS

- There will be 243 new lights added, all containing light emitting diodes (LEDs) as opposed to traditional incandescent bulbs - the first project of its kind from Georgia Power. The switch will result in greater energy efficiency and lower energy costs.
- The project also includes a new bridgescape and upgraded mast arms.
- Currently, approximately 50,000 vehicles travel along Cumberland Boulevard per day, which is expected to increase as the Atlanta Braves complete their move into SunTrust Park in 2017.

FINANCIALS

Total Project Cost - $8.5 million

Funding Sources
CID - $2.2 million
Cobb County - $5.5 million
State - $800K

CUMBERLAND
COMMUNITY IMPROVEMENT DISTRICT

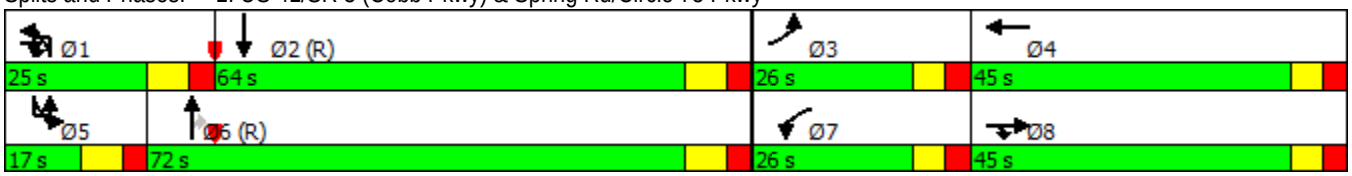
Existing Intersection Analysis

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	96	521	1240	137	54	286	727	186	80	1803
Future Volume (vph)	96	521	1240	137	54	286	727	186	80	1803
Turn Type	Prot	NA	pt+ov	Prot	NA	Prot	NA	Perm	Prot	NA
Protected Phases	3	8	8 1!	7	4	1	6		5	2
Permitted Phases								6		
Detector Phase	3	8	8 1	7	4	1	6	6	5	2
Switch Phase										
Minimum Initial (s)	6.0	6.0		6.0	6.0	6.0	14.0	14.0	6.0	14.0
Minimum Split (s)	14.0	44.0		14.0	57.0	14.0	44.0	44.0	14.0	44.0
Total Split (s)	26.0	45.0		26.0	45.0	25.0	72.0	72.0	17.0	64.0
Total Split (%)	16.3%	28.1%		16.3%	28.1%	15.6%	45.0%	45.0%	10.6%	40.0%
Yellow Time (s)	4.0	4.0		4.0	4.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0		7.0	7.0	8.0	8.0	8.0	8.0	8.0
Lead/Lag	Lead	Lag		Lead	Lag	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?										
Recall Mode	None	None		None	None	None	C-Min	C-Min	None	C-Min

Intersection Summary

Cycle Length: 160
Actuated Cycle Length: 160
Offset: 44 (28%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 130
Control Type: Actuated-Coordinated
! Phase conflict between lane groups.

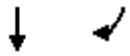
Splits and Phases: 1: US 41/SR 3 (Cobb Pkwy) & Spring Rd/Circle 75 Pkwy



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	96	521	1240	137	54	2	5	286	727	186	21	80
Future Volume (vph)	96	521	1240	137	54	2	5	286	727	186	21	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0			8.0	8.0	8.0		8.0
Lane Util. Factor	1.00	0.95	0.88	0.94	0.95			0.94	0.86	1.00		0.97
Frt	1.00	1.00	0.85	1.00	1.00			1.00	1.00	0.85		1.00
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.95	1.00	1.00		0.95
Satd. Flow (prot)	1770	3539	2787	4990	3522			4990	6408	1583		3433
Flt Permitted	0.95	1.00	1.00	0.95	1.00			0.95	1.00	1.00		0.95
Satd. Flow (perm)	1770	3539	2787	4990	3522			4990	6408	1583		3433
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	105	573	1363	151	59	2	5	314	799	204	23	88
RTOR Reduction (vph)	0	0	51	0	2	0	0	0	0	124	0	0
Lane Group Flow (vph)	105	573	1312	151	59	0	0	319	799	80	0	111
Turn Type	Prot	NA	pt+ov	Prot	NA		Prot	Prot	NA	Perm	Prot	Prot
Protected Phases	3	8	8 1!	7	4		1!	1	6		5	5
Permitted Phases										6		
Actuated Green, G (s)	25.5	48.1	72.1	10.3	32.9			17.0	62.9	62.9		8.7
Effective Green, g (s)	25.5	48.1	72.1	10.3	32.9			17.0	62.9	62.9		8.7
Actuated g/C Ratio	0.16	0.30	0.45	0.06	0.21			0.11	0.39	0.39		0.05
Clearance Time (s)	7.0	7.0		7.0	7.0			8.0	8.0	8.0		8.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	5.0	5.0		3.0
Lane Grp Cap (vph)	282	1063	1255	321	724			530	2519	622		186
v/s Ratio Prot	c0.06	0.16	c0.47	0.03	0.02			0.06	0.12			0.03
v/s Ratio Perm										0.05		
v/c Ratio	0.37	0.54	1.05	0.47	0.08			0.60	0.32	0.13		0.60
Uniform Delay, d1	60.1	46.7	44.0	72.2	51.3			68.3	33.7	31.0		73.9
Progression Factor	1.17	0.58	0.73	1.00	1.00			1.00	1.00	1.00		1.00
Incremental Delay, d2	0.3	0.2	29.8	1.1	0.0			1.9	0.3	0.4		5.1
Delay (s)	70.7	27.4	61.7	73.3	51.4			70.2	34.0	31.5		79.0
Level of Service	E	C	E	E	D			E	C	C		E
Approach Delay (s)		52.5			67.0				42.3			
Approach LOS		D			E				D			

Intersection Summary			
HCM 2000 Control Delay	50.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	30.0
Intersection Capacity Utilization	100.4%	ICU Level of Service	G
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group



Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	1803	46
Future Volume (vph)	1803	46
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	8.0	
Lane Util. Factor	0.81	
Frt	1.00	
Flt Protected	1.00	
Satd. Flow (prot)	7516	
Flt Permitted	1.00	
Satd. Flow (perm)	7516	
Peak-hour factor, PHF	0.91	0.91
Adj. Flow (vph)	1981	51
RTOR Reduction (vph)	3	0
Lane Group Flow (vph)	2029	0
Turn Type	NA	
Protected Phases	2	
Permitted Phases		
Actuated Green, G (s)	54.6	
Effective Green, g (s)	54.6	
Actuated g/C Ratio	0.34	
Clearance Time (s)	8.0	
Vehicle Extension (s)	5.0	
Lane Grp Cap (vph)	2564	
v/s Ratio Prot	c0.27	
v/s Ratio Perm		
v/c Ratio	0.79	
Uniform Delay, d1	47.6	
Progression Factor	1.00	
Incremental Delay, d2	2.6	
Delay (s)	50.2	
Level of Service	D	
Approach Delay (s)	51.6	
Approach LOS	D	

Intersection Summary

Lane Group	EBL	EBT	WBU	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	296	1534	34	82	226	145	469	114	367	128
Future Volume (vph)	296	1534	34	82	226	145	469	114	367	128
Turn Type	Prot	NA	pm+pt	pm+pt	NA	Prot	NA	pm+pt	NA	Perm
Protected Phases	1	6	5	5	2	7	4	3	8	
Permitted Phases			2	2				8		8
Detector Phase	1	6	5	5	2	7	4	3	8	8
Switch Phase										
Minimum Initial (s)	4.0	12.0	4.0	4.0	12.0	4.0	6.0	4.0	6.0	6.0
Minimum Split (s)	15.0	44.0	15.0	15.0	41.0	15.0	45.0	15.0	44.0	44.0
Total Split (s)	40.0	78.0	17.0	17.0	55.0	20.0	45.0	20.0	45.0	45.0
Total Split (%)	25.0%	48.8%	10.6%	10.6%	34.4%	12.5%	28.1%	12.5%	28.1%	28.1%
Yellow Time (s)	3.0	4.5	3.0	3.0	4.5	3.0	3.8	3.0	3.8	3.8
All-Red Time (s)	3.8	2.0	3.9	3.9	2.0	3.4	2.5	3.4	2.5	2.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.8	6.5		6.9	6.5	6.4	6.3	6.4	6.3	6.3
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?										
Recall Mode	None	C-Max	None	None	C-Max	None	None	None	None	None

Intersection Summary

Cycle Length: 160
Actuated Cycle Length: 160
Offset: 154 (96%), Referenced to phase 2:WBTL and 6:EBT, Start of Yellow
Natural Cycle: 140
Control Type: Actuated-Coordinated

Splits and Phases: 2: Cumberland Blvd & Spring Rd

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (veh/h)	8	296	1534	517	34	82	226	43	145	469	246	114
Future Volume (veh/h)	8	296	1534	517	34	82	226	43	145	469	246	114
Number		1	6	16		5	2	12	7	4	14	3
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00		1.00	1.00		1.00	1.00
Parking Bus, Adj		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	1900	1863	1863	1900	1863
Adj Flow Rate, veh/h		322	1667	0		89	246	47	158	510	267	124
Adj No. of Lanes		1	3	0		1	3	0	2	2	0	1
Peak Hour Factor		0.92	0.92	0.92		0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %		2	2	2		2	2	2	2	2	2	2
Cap, veh/h		343	2494	0		195	1478	272	201	533	278	172
Arrive On Green		0.19	0.49	0.00		0.04	0.34	0.34	0.12	0.47	0.47	0.07
Sat Flow, veh/h		1774	5253	0		1774	4318	794	3442	2249	1173	1774
Grp Volume(v), veh/h		322	1667	0		89	191	102	158	401	376	124
Grp Sat Flow(s),veh/h/ln		1774	1695	0		1774	1695	1722	1721	1770	1652	1774
Q Serve(g_s), s		28.6	39.8	0.0		5.2	6.3	6.6	7.1	34.9	35.2	8.4
Cycle Q Clear(g_c), s		28.6	39.8	0.0		5.2	6.3	6.6	7.1	34.9	35.2	8.4
Prop In Lane		1.00		0.00		1.00		0.46	1.00		0.71	1.00
Lane Grp Cap(c), veh/h		343	2494	0		195	1160	589	201	419	391	172
V/C Ratio(X)		0.94	0.67	0.00		0.46	0.16	0.17	0.79	0.96	0.96	0.72
Avail Cap(c_a), veh/h		368	2494	0		229	1160	589	293	428	400	207
HCM Platoon Ratio		1.00	1.00	1.00		1.00	1.00	1.00	2.00	2.00	2.00	1.00
Upstream Filter(I)		1.00	1.00	0.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh		63.6	30.9	0.0		32.8	36.7	36.8	69.7	41.3	41.4	46.3
Incr Delay (d2), s/veh		30.7	1.4	0.0		1.7	0.3	0.6	8.5	32.2	34.6	9.2
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln		23.7	26.0	0.0		4.7	5.4	5.8	6.5	28.1	26.9	8.0
LnGrp Delay(d),s/veh		94.3	32.3	0.0		34.5	37.0	37.4	78.2	73.5	76.0	55.4
LnGrp LOS		F	C			C	D	D	E	E	E	E
Approach Vol, veh/h			1989				382			935		
Approach Delay, s/veh			42.4				36.5			75.3		
Approach LOS			D				D			E		

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	37.7	61.2	16.8	44.2	14.0	85.0	15.7	45.3
Change Period (Y+Rc), s	* 6.8	6.5	6.4	* 6.3	6.9	6.5	6.4	* 6.3
Max Green Setting (Gmax), s	* 33	48.5	13.6	* 39	10.1	71.5	13.6	* 39
Max Q Clear Time (g_c+I1), s	30.6	8.6	10.4	37.2	7.2	41.8	9.1	17.4
Green Ext Time (p_c), s	0.3	38.9	0.1	0.7	0.0	29.1	0.2	5.5

Intersection Summary	
HCM 2010 Ctrl Delay	51.2
HCM 2010 LOS	D

Notes

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (veh/h)	367	128
Future Volume (veh/h)	367	128
Number	8	18
Initial Q (Qb), veh	0	0
Ped-Bike Adj(A_pbT)		1.00
Parking Bus, Adj	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863
Adj Flow Rate, veh/h	399	139
Adj No. of Lanes	2	1
Peak Hour Factor	0.92	0.92
Percent Heavy Veh, %	2	2
Cap, veh/h	863	384
Arrive On Green	0.24	0.24
Sat Flow, veh/h	3539	1577
Grp Volume(v), veh/h	399	139
Grp Sat Flow(s),veh/h/ln	1770	1577
Q Serve(g_s), s	15.4	11.7
Cycle Q Clear(g_c), s	15.4	11.7
Prop In Lane		1.00
Lane Grp Cap(c), veh/h	863	384
V/C Ratio(X)	0.46	0.36
Avail Cap(c_a), veh/h	863	384
HCM Platoon Ratio	1.00	1.00
Upstream Filter(I)	1.00	1.00
Uniform Delay (d), s/veh	51.6	50.2
Incr Delay (d2), s/veh	0.4	0.6
Initial Q Delay(d3),s/veh	0.0	0.0
%ile BackOfQ(95%),veh/ln	12.1	8.9
LnGrp Delay(d),s/veh	52.0	50.7
LnGrp LOS	D	D
Approach Vol, veh/h	662	
Approach Delay, s/veh	52.4	
Approach LOS	D	
Timer		

Lane Group	WBL	WBT	NBT	SBL	SBT	Ø4	Ø5
Lane Configurations							
Traffic Volume (vph)	7	0	363	160	872		
Future Volume (vph)	7	0	363	160	872		
Turn Type	Perm	NA	NA	pm+pt	NA		
Protected Phases		8	2	1	6	4	5
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	6.0	5.0
Minimum Split (s)	42.0	42.0	41.0	11.0	41.0	42.0	11.0
Total Split (s)	56.0	56.0	80.0	24.0	92.0	56.0	12.0
Total Split (%)	35.0%	35.0%	50.0%	15.0%	57.5%	35%	8%
Yellow Time (s)	3.0	3.0	3.5	3.0	3.5	3.0	3.0
All-Red Time (s)	3.0	3.0	2.0	3.0	2.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		
Total Lost Time (s)	6.0	6.0	5.5	6.0	5.5		
Lead/Lag			Lag	Lead	Lag		Lead
Lead-Lag Optimize?							
Recall Mode	None	None	C-Max	None	C-Max	None	None

Intersection Summary

Cycle Length: 160
Actuated Cycle Length: 160
Offset: 38 (24%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 95
Control Type: Actuated-Coordinated

Splits and Phases: 3: Cumberland Blvd & Spring Hill Pkwy

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	7	0	435	0	363	10	160	872	0
Future Volume (veh/h)	0	0	0	7	0	435	0	363	10	160	872	0
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	0.98		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	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	1863	1863	1900
Adj Flow Rate, veh/h	0	0	0	7	0	458	0	382	11	168	918	0
Adj No. of Lanes	0	1	0	1	1	0	1	4	0	1	3	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	570	0	579	0	476	366	3401	97	637	3163	0
Arrive On Green	0.00	0.00	0.00	0.31	0.00	0.31	0.00	0.53	0.53	0.08	0.83	0.00
Sat Flow, veh/h	0	1863	0	1744	0	1555	1774	6452	184	1774	5253	0
Grp Volume(v), veh/h	0	0	0	7	0	458	0	284	109	168	918	0
Grp Sat Flow(s),veh/h/ln	0	1863	0	1744	0	1555	1774	1602	1830	1774	1695	0
Q Serve(g_s), s	0.0	0.0	0.0	0.4	0.0	46.3	0.0	4.7	4.8	6.8	6.6	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.4	0.0	46.3	0.0	4.7	4.8	6.8	6.6	0.0
Prop In Lane	0.00		0.00	1.00		1.00	1.00		0.10	1.00		0.00
Lane Grp Cap(c), veh/h	0	570	0	579	0	476	366	2534	965	637	3163	0
V/C Ratio(X)	0.00	0.00	0.00	0.01	0.00	0.96	0.00	0.11	0.11	0.26	0.29	0.00
Avail Cap(c_a), veh/h	0	582	0	590	0	486	431	2534	965	735	3163	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33
Upstream Filter(I)	0.00	0.00	0.00	1.00	0.00	1.00	0.00	1.00	1.00	0.81	0.81	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	38.7	0.0	54.6	0.0	19.0	19.0	14.3	5.8	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.0	0.0	31.5	0.0	0.1	0.2	0.2	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	0.0	0.4	0.0	32.2	0.0	3.8	4.5	6.0	5.4	0.0
LnGrp Delay(d),s/veh	0.0	0.0	0.0	38.7	0.0	86.1	0.0	19.1	19.3	14.4	6.0	0.0
LnGrp LOS				D		F		B	B	B	A	
Approach Vol, veh/h		0			465			393			1086	
Approach Delay, s/veh		0.0			85.4			19.1			7.3	
Approach LOS					F			B			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	15.2	89.9		55.0	0.0	105.0		55.0
Change Period (Y+Rc), s	6.0	5.5		6.0	6.0	5.5		6.0
Max Green Setting (Gmax), s	18.0	74.5		50.0	6.0	86.5		50.0
Max Q Clear Time (g_c+I1), s	8.8	6.8		0.0	0.0	8.6		48.3
Green Ext Time (p_c), s	0.3	35.2		0.0	0.0	37.6		0.6

Intersection Summary	
HCM 2010 Ctrl Delay	28.4
HCM 2010 LOS	C

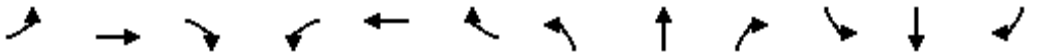
Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	3	167	441	10	0	1
Future Vol, veh/h	3	167	441	10	0	1
Conflicting Peds, #/hr	0	0	0	1	1	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	180	474	11	0	1

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	486	0	-	0	668	481
Stage 1	-	-	-	-	481	-
Stage 2	-	-	-	-	187	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1077	-	-	-	423	585
Stage 1	-	-	-	-	622	-
Stage 2	-	-	-	-	845	-
Platoon blocked, %			-	-	-	
Mov Cap-1 Maneuver	1077	-	-	-	421	584
Mov Cap-2 Maneuver	-	-	-	-	421	-
Stage 1	-	-	-	-	621	-
Stage 2	-	-	-	-	842	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	11.2
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1077	-	-	-	584
HCM Lane V/C Ratio	0.003	-	-	-	0.002
HCM Control Delay (s)	8.4	0	-	-	11.2
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1907	0	0	362	5	0	0	2	0	0	0
Future Volume (Veh/h)	0	1907	0	0	362	5	0	0	2	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	0	1966	0	0	373	5	0	0	2	0	0	0
Pedestrians					9						9	
Lane Width (ft)					12.0						12.0	
Walking Speed (ft/s)					3.5						3.5	
Percent Blockage					1						1	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		368			1129							
pX, platoon unblocked				0.57			0.57	0.57	0.57	0.57	0.57	
vC, conflicting volume	382			1966			2059	2348	664	1049	2350	105
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	382			40			204	712	0	0	717	105
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	100	100	100	100
cM capacity (veh/h)	1163			891			415	201	611	566	199	922

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1
Volume Total	786	786	393	107	107	107	58	2	0
Volume Left	0	0	0	0	0	0	0	0	0
Volume Right	0	0	0	0	0	0	5	2	0
cSH	1700	1700	1700	1700	1700	1700	1700	611	1700
Volume to Capacity	0.46	0.46	0.23	0.06	0.06	0.06	0.03	0.00	0.00
Queue Length 95th (ft)	0	0	0	0	0	0	0	0	0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.9	0.0
Lane LOS								B	A
Approach Delay (s)	0.0			0.0				10.9	0.0
Approach LOS								B	A

Intersection Summary				
Average Delay	0.0			
Intersection Capacity Utilization	49.4%	ICU Level of Service		A
Analysis Period (min)	15			

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	1925	1	0	362	0	0	0	0	0	0	4
Future Vol, veh/h	0	1925	1	0	362	0	0	0	0	0	0	4
Conflicting Peds, #/hr	0	0	0	0	0	10	0	0	10	10	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Free	-	-	Free	-	-	Yield	-	-	Yield
Storage Length	-	-	-	-	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	98	98	98	98	98	98	98	98	98	98	98	98
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	1964	1	0	369	0	0	0	0	0	0	4

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	-	-	-	0	-	-	992	-	-	185
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	-	-	-	7.14	-	-	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	-	-	-	3.92	-	-	3.92
Pot Cap-1 Maneuver	0	-	0	0	-	0	0	0	210	0	0	703
Stage 1	0	-	0	0	-	0	0	0	-	0	0	-
Stage 2	0	-	0	0	-	0	0	0	-	0	0	-
Platoon blocked, %		-			-							
Mov Cap-1 Maneuver	-	-	-	-	-	-	-	-	208	-	-	703
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	0	10.2
HCM LOS			A	B

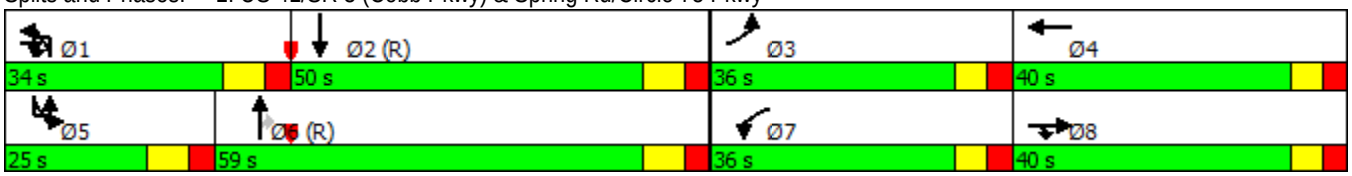
Minor Lane/Major Mvmt	NBLn1	EBT	WBT	SBLn1
Capacity (veh/h)	-	-	-	703
HCM Lane V/C Ratio	-	-	-	0.006
HCM Control Delay (s)	0	-	-	10.2
HCM Lane LOS	A	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	109	248	397	539	328	1366	1767	211	35	1257
Future Volume (vph)	109	248	397	539	328	1366	1767	211	35	1257
Turn Type	Prot	NA	pt+ov	Prot	NA	Prot	NA	Perm	Prot	NA
Protected Phases	3	8	8 1!	7	4	1	6		5	2
Permitted Phases								6		
Detector Phase	3	8	8 1	7	4	1	6	6	5	2
Switch Phase										
Minimum Initial (s)	6.0	6.0		6.0	6.0	6.0	14.0	14.0	6.0	14.0
Minimum Split (s)	19.0	19.0		19.0	57.0	20.0	36.0	36.0	36.0	44.0
Total Split (s)	36.0	40.0		36.0	40.0	34.0	59.0	59.0	25.0	50.0
Total Split (%)	22.5%	25.0%		22.5%	25.0%	21.3%	36.9%	36.9%	15.6%	31.3%
Yellow Time (s)	4.0	4.0		4.0	4.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0		7.0	7.0	8.0	8.0	8.0	8.0	8.0
Lead/Lag	Lead	Lag		Lead	Lag	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?										
Recall Mode	None	None		None	None	None	C-Min	C-Min	None	C-Min

Intersection Summary

Cycle Length: 160
Actuated Cycle Length: 160
Offset: 15 (9%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 150
Control Type: Actuated-Coordinated
! Phase conflict between lane groups.

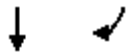
Splits and Phases: 1: US 41/SR 3 (Cobb Pkwy) & Spring Rd/Circle 75 Pkwy



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	109	248	397	539	328	49	9	1366	1767	211	13	35
Future Volume (vph)	109	248	397	539	328	49	9	1366	1767	211	13	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0			8.0	8.0	8.0		8.0
Lane Util. Factor	1.00	0.95	0.88	0.94	0.95			0.94	0.86	1.00		0.97
Frt	1.00	1.00	0.85	1.00	0.98			1.00	1.00	0.85		1.00
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.95	1.00	1.00		0.95
Satd. Flow (prot)	1770	3539	2787	4990	3470			4990	6408	1583		3433
Flt Permitted	0.95	1.00	1.00	0.95	1.00			0.95	1.00	1.00		0.95
Satd. Flow (perm)	1770	3539	2787	4990	3470			4990	6408	1583		3433
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	117	267	427	580	353	53	10	1469	1900	227	14	38
RTOR Reduction (vph)	0	0	46	0	7	0	0	0	0	85	0	0
Lane Group Flow (vph)	117	267	381	580	399	0	0	1479	1900	142	0	52
Turn Type	Prot	NA	pt+ov	Prot	NA		Prot	Prot	NA	Perm	Prot	Prot
Protected Phases	3	8	8 1!	7	4		1!	1	6		5	5
Permitted Phases										6		
Actuated Green, G (s)	15.9	19.2	71.0	24.0	27.3			44.8	80.1	80.1		6.7
Effective Green, g (s)	15.9	19.2	71.0	24.0	27.3			44.8	80.1	80.1		6.7
Actuated g/C Ratio	0.10	0.12	0.44	0.15	0.17			0.28	0.50	0.50		0.04
Clearance Time (s)	7.0	7.0		7.0	7.0			8.0	8.0	8.0		8.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	5.0	5.0		3.0
Lane Grp Cap (vph)	175	424	1236	748	592			1397	3208	792		143
v/s Ratio Prot	0.07	0.08	0.14	c0.12	c0.11			c0.30	0.30			0.02
v/s Ratio Perm										0.09		
v/c Ratio	0.67	0.63	0.31	0.78	0.67			1.06	0.59	0.18		0.36
Uniform Delay, d1	69.5	67.0	28.7	65.4	62.2			57.6	28.4	21.9		74.6
Progression Factor	0.70	0.86	1.20	1.00	1.00			1.00	1.00	1.00		1.00
Incremental Delay, d2	7.8	2.4	0.1	5.0	3.0			41.3	0.8	0.5		1.6
Delay (s)	56.6	60.0	34.4	70.5	65.2			98.9	29.2	22.4		76.1
Level of Service	E	E	C	E	E			F	C	C		E
Approach Delay (s)		46.0			68.3				57.3			
Approach LOS		D			E				E			

Intersection Summary			
HCM 2000 Control Delay	57.4	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	30.0
Intersection Capacity Utilization	90.7%	ICU Level of Service	E
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group



Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	1257	60
Future Volume (vph)	1257	60
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	8.0	
Lane Util. Factor	0.81	
Frt	0.99	
Flt Protected	1.00	
Satd. Flow (prot)	7492	
Flt Permitted	1.00	
Satd. Flow (perm)	7492	
Peak-hour factor, PHF	0.93	0.93
Adj. Flow (vph)	1352	65
RTOR Reduction (vph)	5	0
Lane Group Flow (vph)	1412	0
Turn Type	NA	
Protected Phases	2	
Permitted Phases		
Actuated Green, G (s)	42.0	
Effective Green, g (s)	42.0	
Actuated g/C Ratio	0.26	
Clearance Time (s)	8.0	
Vehicle Extension (s)	5.0	
Lane Grp Cap (vph)	1966	
v/s Ratio Prot	c0.19	
v/s Ratio Perm		
v/c Ratio	0.72	
Uniform Delay, d1	53.6	
Progression Factor	1.00	
Incremental Delay, d2	2.3	
Delay (s)	55.9	
Level of Service	E	
Approach Delay (s)	56.6	
Approach LOS	E	

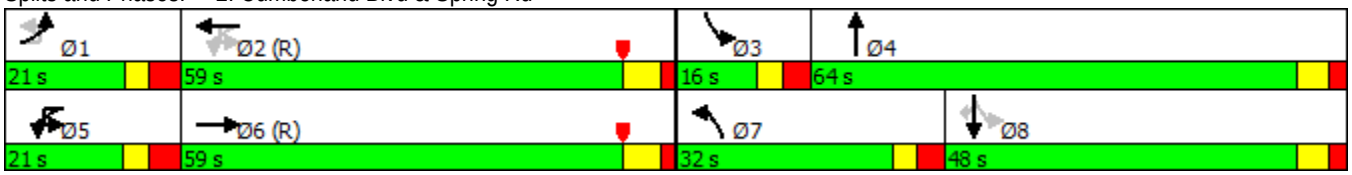
Intersection Summary

Lane Group	EBL	EBT	WBU	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	294	589	70	319	1364	557	605	84	586	555
Future Volume (vph)	294	589	70	319	1364	557	605	84	586	555
Turn Type	Prot	NA	pm+pt	pm+pt	NA	Prot	NA	pm+pt	NA	Perm
Protected Phases	1	6	5	5	2	7	4	3	8	
Permitted Phases			2	2				8		8
Detector Phase	1	6	5	5	2	7	4	3	8	8
Switch Phase										
Minimum Initial (s)	4.0	12.0	4.0	4.0	12.0	4.0	6.0	4.0	6.0	6.0
Minimum Split (s)	15.0	44.0	15.0	15.0	41.0	15.0	45.0	15.0	44.0	44.0
Total Split (s)	21.0	59.0	21.0	21.0	59.0	32.0	64.0	16.0	48.0	48.0
Total Split (%)	13.1%	36.9%	13.1%	13.1%	36.9%	20.0%	40.0%	10.0%	30.0%	30.0%
Yellow Time (s)	3.0	4.5	3.0	3.0	4.5	3.0	3.8	3.0	3.8	3.8
All-Red Time (s)	3.8	2.0	3.9	3.9	2.0	3.4	2.5	3.4	2.5	2.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.8	6.5		6.9	6.5	6.4	6.3	6.4	6.3	6.3
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?										
Recall Mode	None	C-Max	None	None	C-Max	None	None	None	None	None

Intersection Summary

Cycle Length: 160
Actuated Cycle Length: 160
Offset: 77 (48%), Referenced to phase 2:WBTL and 6:EBT, Start of Yellow
Natural Cycle: 150
Control Type: Actuated-Coordinated

Splits and Phases: 2: Cumberland Blvd & Spring Rd



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (veh/h)	294	589	279	70	319	1364	74	557	605	150	84	586
Future Volume (veh/h)	294	589	279	70	319	1364	74	557	605	150	84	586
Number	1	6	16		5	2	12	7	4	14	3	8
Initial Q (Qb), veh	0	0	0		0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00		1.00		1.00	1.00		1.00	1.00	
Parking Bus, Adj	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	1900	1863	1863	1900	1863	1863
Adj Flow Rate, veh/h	297	595	0		322	1378	75	563	611	152	85	592
Adj No. of Lanes	1	3	0		1	3	0	2	2	0	1	2
Peak Hour Factor	0.99	0.99	0.99		0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	2	2	2		2	2	2	2	2	2	2	2
Cap, veh/h	157	1669	0		397	1620	88	551	1051	261	267	922
Arrive On Green	0.09	0.33	0.00		0.09	0.33	0.33	0.16	0.37	0.37	0.05	0.26
Sat Flow, veh/h	1774	5253	0		1774	4937	269	3442	2810	698	1774	3539
Grp Volume(v), veh/h	297	595	0		322	946	507	563	384	379	85	592
Grp Sat Flow(s),veh/h/ln	1774	1695	0		1774	1695	1815	1721	1770	1738	1774	1770
Q Serve(g_s), s	14.2	14.2	0.0		14.1	41.6	41.6	25.6	27.8	27.9	5.6	23.8
Cycle Q Clear(g_c), s	14.2	14.2	0.0		14.1	41.6	41.6	25.6	27.8	27.9	5.6	23.8
Prop In Lane	1.00		0.00		1.00		0.15	1.00		0.40	1.00	
Lane Grp Cap(c), veh/h	157	1669	0		397	1112	596	551	662	650	267	922
V/C Ratio(X)	1.89	0.36	0.00		0.81	0.85	0.85	1.02	0.58	0.58	0.32	0.64
Avail Cap(c_a), veh/h	157	1669	0		397	1112	596	551	662	650	291	922
HCM Platoon Ratio	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00		1.00	1.00	1.00	0.98	0.98	0.98	1.00	1.00
Uniform Delay (d), s/veh	72.9	40.9	0.0		39.9	50.1	50.1	67.2	40.0	40.1	40.7	52.5
Incr Delay (d2), s/veh	421.9	0.6	0.0		12.0	8.2	14.2	43.7	1.3	1.3	0.7	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	45.7	11.0	0.0		12.3	28.2	31.1	27.9	19.8	19.6	5.0	17.4
LnGrp Delay(d),s/veh	494.8	41.5	0.0		51.9	58.3	64.3	110.9	41.3	41.4	41.4	54.0
LnGrp LOS	F	D			D	E	E	F	D	D	D	D
Approach Vol, veh/h		892				1775			1326			1238
Approach Delay, s/veh		192.4				58.9			70.9			136.6
Approach LOS		F				E			E			F

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	21.0	59.0	13.8	66.2	21.0	59.0	32.0	48.0
Change Period (Y+Rc), s	* 6.8	6.5	6.4	* 6.3	6.9	6.5	6.4	* 6.3
Max Green Setting (Gmax), s	* 14	52.5	9.6	* 58	14.1	52.5	25.6	* 42
Max Q Clear Time (g_c+I1), s	16.2	43.6	7.6	29.9	16.1	16.2	27.6	43.7
Green Ext Time (p_c), s	0.0	8.8	0.0	9.8	0.0	35.5	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	103.1
HCM 2010 LOS	F

Notes

Movement	SBR
Lane Configurations	
Traffic Volume (veh/h)	555
Future Volume (veh/h)	555
Number	18
Initial Q (Qb), veh	0
Ped-Bike Adj(A_pbT)	1.00
Parking Bus, Adj	1.00
Adj Sat Flow, veh/h/ln	1863
Adj Flow Rate, veh/h	561
Adj No. of Lanes	1
Peak Hour Factor	0.99
Percent Heavy Veh, %	2
Cap, veh/h	411
Arrive On Green	0.26
Sat Flow, veh/h	1578
Grp Volume(v), veh/h	561
Grp Sat Flow(s),veh/h/ln	1578
Q Serve(g_s), s	41.7
Cycle Q Clear(g_c), s	41.7
Prop In Lane	1.00
Lane Grp Cap(c), veh/h	411
V/C Ratio(X)	1.36
Avail Cap(c_a), veh/h	411
HCM Platoon Ratio	1.00
Upstream Filter(I)	1.00
Uniform Delay (d), s/veh	59.1
Incr Delay (d2), s/veh	178.9
Initial Q Delay(d3),s/veh	0.0
%ile BackOfQ(95%),veh/ln	69.5
LnGrp Delay(d),s/veh	238.1
LnGrp LOS	F
Approach Vol, veh/h	
Approach Delay, s/veh	
Approach LOS	
Timer	

Lane Group	WBL	WBT	NBU	NBL	NBT	SBL	SBT	Ø4
Lane Configurations								
Traffic Volume (vph)	18	0	3	0	923	289	670	
Future Volume (vph)	18	0	3	0	923	289	670	
Turn Type	Perm	NA	pm+pt	pm+pt	NA	pm+pt	NA	
Protected Phases		8	5	5	2	1	6	4
Permitted Phases	8		2	2		6		
Detector Phase	8	8	5	5	2	1	6	
Switch Phase								
Minimum Initial (s)	6.0	6.0	5.0	5.0	15.0	5.0	15.0	6.0
Minimum Split (s)	25.0	25.0	11.0	11.0	41.0	11.0	41.0	42.0
Total Split (s)	50.0	50.0	15.0	15.0	76.0	34.0	95.0	50.0
Total Split (%)	31.3%	31.3%	9.4%	9.4%	47.5%	21.3%	59.4%	31%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.5	3.0	3.5	3.0
All-Red Time (s)	3.0	3.0	3.0	3.0	2.0	3.0	2.0	3.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	5.5	6.0	5.5	
Lead/Lag			Lead	Lead	Lag	Lead	Lag	
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	C-Max	None	C-Max	None

Intersection Summary

Cycle Length: 160
Actuated Cycle Length: 160
Offset: 74 (46%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
Natural Cycle: 95
Control Type: Actuated-Coordinated

Splits and Phases: 3: Cumberland Blvd & Spring Hill Pkwy

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	18	0	439	3	0	923	68	289	670
Future Volume (veh/h)	0	0	0	18	0	439	3	0	923	68	289	670
Number	7	4	14	3	8	18		5	2	12	1	6
Initial Q (Qb), veh	0	0	0	0	0	0		0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	0.98		0.98		1.00		1.00	1.00	
Parking Bus, Adj	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	1863	1863
Adj Flow Rate, veh/h	0	0	0	18	0	448		0	942	69	295	684
Adj No. of Lanes	0	1	0	1	1	0		1	4	0	1	3
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98		0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2		2	2	2	2	2
Cap, veh/h	0	512	0	524	0	427		444	3243	236	446	3321
Arrive On Green	0.00	0.00	0.00	0.28	0.00	0.28		0.00	0.53	0.53	0.03	0.22
Sat Flow, veh/h	0	1863	0	1741	0	1552		1774	6143	446	1774	5253
Grp Volume(v), veh/h	0	0	0	18	0	448		0	735	276	295	684
Grp Sat Flow(s),veh/h/ln	0	1863	0	1741	0	1552		1774	1602	1783	1774	1695
Q Serve(g_s), s	0.0	0.0	0.0	1.2	0.0	44.0		0.0	13.6	13.8	11.1	17.7
Cycle Q Clear(g_c), s	0.0	0.0	0.0	1.2	0.0	44.0		0.0	13.6	13.8	11.1	17.7
Prop In Lane	0.00		0.00	1.00		1.00		1.00		0.25	1.00	
Lane Grp Cap(c), veh/h	0	512	0	524	0	427		444	2537	942	446	3321
V/C Ratio(X)	0.00	0.00	0.00	0.03	0.00	1.05		0.00	0.29	0.29	0.66	0.21
Avail Cap(c_a), veh/h	0	512	0	524	0	427		543	2537	942	601	3321
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	0.33	0.33
Upstream Filter(I)	0.00	0.00	0.00	1.00	0.00	1.00		0.00	1.00	1.00	0.23	0.23
Uniform Delay (d), s/veh	0.0	0.0	0.0	42.5	0.0	58.0		0.0	21.0	21.1	15.9	28.7
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.1	0.0	57.1		0.0	0.3	0.8	0.4	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
%ile BackOfQ(95%),veh/ln	0.0	0.0	0.0	1.1	0.0	46.1		0.0	10.2	11.4	7.3	10.6
LnGrp Delay(d),s/veh	0.0	0.0	0.0	42.5	0.0	115.1		0.0	21.3	21.9	16.3	28.7
LnGrp LOS				D		F			C	C	B	C
Approach Vol, veh/h		0			466				1011			979
Approach Delay, s/veh		0.0			112.3				21.5			25.0
Approach LOS					F				C			C

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	20.0	90.0		50.0	0.0	110.0		50.0
Change Period (Y+Rc), s	6.0	5.5		6.0	6.0	5.5		6.0
Max Green Setting (Gmax), s	28.0	70.5		44.0	9.0	89.5		44.0
Max Q Clear Time (g_c+I1), s	13.1	15.8		0.0	0.0	19.7		46.0
Green Ext Time (p_c), s	0.9	40.6		0.0	0.0	48.3		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	40.1
HCM 2010 LOS	D

Notes

Movement	SBR
Lane Configurations	
Traffic Volume (veh/h)	0
Future Volume (veh/h)	0
Number	16
Initial Q (Qb), veh	0
Ped-Bike Adj(A_pbT)	1.00
Parking Bus, Adj	1.00
Adj Sat Flow, veh/h/ln	1900
Adj Flow Rate, veh/h	0
Adj No. of Lanes	0
Peak Hour Factor	0.98
Percent Heavy Veh, %	2
Cap, veh/h	0
Arrive On Green	0.00
Sat Flow, veh/h	0
Grp Volume(v), veh/h	0
Grp Sat Flow(s),veh/h/ln	0
Q Serve(g_s), s	0.0
Cycle Q Clear(g_c), s	0.0
Prop In Lane	0.00
Lane Grp Cap(c), veh/h	0
V/C Ratio(X)	0.00
Avail Cap(c_a), veh/h	0
HCM Platoon Ratio	0.33
Upstream Filter(I)	0.00
Uniform Delay (d), s/veh	0.0
Incr Delay (d2), s/veh	0.0
Initial Q Delay(d3),s/veh	0.0
%ile BackOfQ(95%),veh/ln	0.0
LnGrp Delay(d),s/veh	0.0
LnGrp LOS	
Approach Vol, veh/h	
Approach Delay, s/veh	
Approach LOS	
Timer	

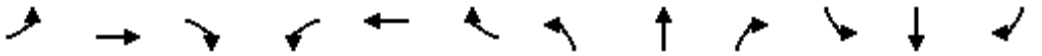
Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	357	455	27	10	2
Future Vol, veh/h	0	357	455	27	10	2
Conflicting Peds, #/hr	0	0	0	1	1	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	384	489	29	11	2

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	519	0	-	0	890	505
Stage 1	-	-	-	-	505	-
Stage 2	-	-	-	-	385	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1047	-	-	-	313	567
Stage 1	-	-	-	-	606	-
Stage 2	-	-	-	-	688	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1047	-	-	-	312	566
Mov Cap-2 Maneuver	-	-	-	-	312	-
Stage 1	-	-	-	-	605	-
Stage 2	-	-	-	-	687	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	16.1
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1047	-	-	-	337
HCM Lane V/C Ratio	-	-	-	-	0.038
HCM Control Delay (s)	0	-	-	-	16.1
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0.1



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	732	1	0	1541	11	0	0	10	0	0	4
Future Volume (Veh/h)	0	732	1	0	1541	11	0	0	10	0	0	4
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	771	1	0	1622	12	0	0	11	0	0	4
Pedestrians					9						9	
Lane Width (ft)					12.0						12.0	
Walking Speed (ft/s)					3.5						3.5	
Percent Blockage					1						1	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		368			1129							
pX, platoon unblocked												
vC, conflicting volume	1631			771			1177	2402	266	1903	2408	420
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1631			771			1177	2402	266	1903	2408	420
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	98	100	100	99
cM capacity (veh/h)	391			840			144	33	725	40	32	577

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1
Volume Total	308	308	155	463	463	463	244	11	4
Volume Left	0	0	0	0	0	0	0	0	0
Volume Right	0	0	1	0	0	0	12	11	4
cSH	1700	1700	1700	1700	1700	1700	1700	725	577
Volume to Capacity	0.18	0.18	0.09	0.27	0.27	0.27	0.14	0.02	0.01
Queue Length 95th (ft)	0	0	0	0	0	0	0	1	1
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.0	11.3
Lane LOS								B	B
Approach Delay (s)	0.0			0.0				10.0	11.3
Approach LOS								B	B

Intersection Summary				
Average Delay	0.1			
Intersection Capacity Utilization	32.5%	ICU Level of Service		A
Analysis Period (min)	15			

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	736	4	0	1546	1	0	0	7	0	0	7
Future Vol, veh/h	0	736	4	0	1546	1	0	0	7	0	0	7
Conflicting Peds, #/hr	0	0	0	0	0	10	0	0	10	10	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Free	-	-	Free	-	-	Yield	-	-	Yield
Storage Length	-	-	-	-	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	775	4	0	1627	1	0	0	7	0	0	7

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	-	-	-	0	-	-	397	-	-	814
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	-	-	-	7.14	-	-	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	-	-	-	3.92	-	-	3.92
Pot Cap-1 Maneuver	0	-	0	0	-	0	0	0	515	0	0	276
Stage 1	0	-	0	0	-	0	0	0	-	0	0	-
Stage 2	0	-	0	0	-	0	0	0	-	0	0	-
Platoon blocked, %		-			-							
Mov Cap-1 Maneuver	-	-	-	-	-	-	-	-	510	-	-	276
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	12.2	18.4
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	EBT	WBT	SBLn1
Capacity (veh/h)	510	-	-	276
HCM Lane V/C Ratio	0.014	-	-	0.027
HCM Control Delay (s)	12.2	-	-	18.4
HCM Lane LOS	B	-	-	C
HCM 95th %tile Q(veh)	0	-	-	0.1

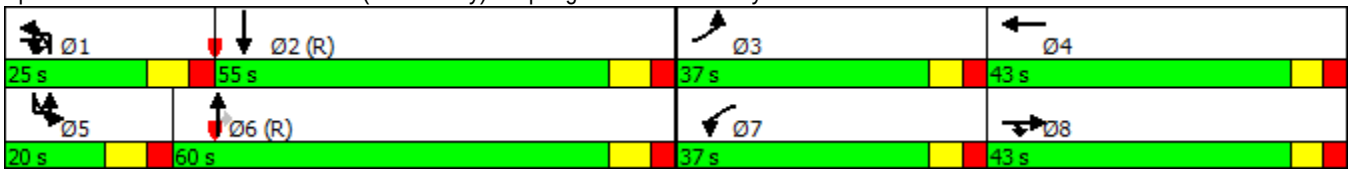
Future “No-Build” Intersection Analysis

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	100	562	1297	239	58	299	798	445	146	1917
Future Volume (vph)	100	562	1297	239	58	299	798	445	146	1917
Turn Type	Prot	NA	pt+ov	Prot	NA	Prot	NA	Perm	Prot	NA
Protected Phases	3	8	8 1!	7	4	1	6		5	2
Permitted Phases								6		
Detector Phase	3	8	8 1	7	4	1	6	6	5	2
Switch Phase										
Minimum Initial (s)	6.0	6.0		6.0	6.0	6.0	14.0	14.0	6.0	14.0
Minimum Split (s)	14.0	44.0		14.0	57.0	14.0	44.0	44.0	14.0	44.0
Total Split (s)	37.0	43.0		37.0	43.0	25.0	60.0	60.0	20.0	55.0
Total Split (%)	23.1%	26.9%		23.1%	26.9%	15.6%	37.5%	37.5%	12.5%	34.4%
Yellow Time (s)	4.0	4.0		4.0	4.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0		7.0	7.0	8.0	8.0	8.0	8.0	8.0
Lead/Lag	Lead	Lag		Lead	Lag	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?										
Recall Mode	None	None		None	None	None	C-Min	C-Min	None	C-Min

Intersection Summary

Cycle Length: 160
Actuated Cycle Length: 160
Offset: 39 (24%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 130
Control Type: Actuated-Coordinated
! Phase conflict between lane groups.

Splits and Phases: 1: US 41/SR 3 (Cobb Pkwy) & Spring Rd/Circle 75 Pkwy



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	100	562	1297	239	58	15	5	299	798	445	22	146
Future Volume (vph)	100	562	1297	239	58	15	5	299	798	445	22	146
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0			8.0	8.0	8.0		8.0
Lane Util. Factor	1.00	0.95	0.88	0.94	0.95			0.94	0.86	1.00		0.97
Frt	1.00	1.00	0.85	1.00	0.97			1.00	1.00	0.85		1.00
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.95	1.00	1.00		0.95
Satd. Flow (prot)	1770	3539	2787	4990	3432			4990	6408	1583		3433
Flt Permitted	0.95	1.00	1.00	0.95	1.00			0.95	1.00	1.00		0.95
Satd. Flow (perm)	1770	3539	2787	4990	3432			4990	6408	1583		3433
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	109	611	1410	260	63	16	5	325	867	484	24	159
RTOR Reduction (vph)	0	0	63	0	11	0	0	0	0	297	0	0
Lane Group Flow (vph)	109	611	1347	260	68	0	0	330	867	187	0	183
Turn Type	Prot	NA	pt+ov	Prot	NA		Prot	Prot	NA	Perm	Prot	Prot
Protected Phases	3	8	8 1!	7	4		1!	1	6		5	5
Permitted Phases										6		
Actuated Green, G (s)	15.2	52.2	76.2	13.8	50.8			17.0	52.4	52.4		11.6
Effective Green, g (s)	15.2	52.2	76.2	13.8	50.8			17.0	52.4	52.4		11.6
Actuated g/C Ratio	0.09	0.33	0.48	0.09	0.32			0.11	0.33	0.33		0.07
Clearance Time (s)	7.0	7.0		7.0	7.0			8.0	8.0	8.0		8.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	5.0	5.0		3.0
Lane Grp Cap (vph)	168	1154	1327	430	1089			530	2098	518		248
v/s Ratio Prot	c0.06	0.17	c0.48	0.05	0.02			0.07	c0.14			0.05
v/s Ratio Perm										0.12		
v/c Ratio	0.65	0.53	1.01	0.60	0.06			0.62	0.41	0.36		0.74
Uniform Delay, d1	69.8	43.9	41.9	70.5	38.0			68.4	41.8	41.0		72.7
Progression Factor	1.28	0.63	0.61	1.00	1.00			1.00	1.00	1.00		1.00
Incremental Delay, d2	3.1	0.2	18.5	2.4	0.0			2.3	0.6	1.9		10.9
Delay (s)	92.7	27.7	44.0	72.9	38.0			70.7	42.4	43.0		83.6
Level of Service	F	C	D	E	D			E	D	D		F
Approach Delay (s)		41.8			64.8				48.1			
Approach LOS		D			E				D			

Intersection Summary			
HCM 2000 Control Delay	54.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.03		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	30.0
Intersection Capacity Utilization	104.0%	ICU Level of Service	G
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	1917	48
Future Volume (vph)	1917	48
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	8.0	
Lane Util. Factor	0.81	
Frt	1.00	
Flt Protected	1.00	
Satd. Flow (prot)	7517	
Flt Permitted	1.00	
Satd. Flow (perm)	7517	
Peak-hour factor, PHF	0.92	0.92
Adj. Flow (vph)	2084	52
RTOR Reduction (vph)	2	0
Lane Group Flow (vph)	2134	0
Turn Type	NA	
Protected Phases	2	
Permitted Phases		
Actuated Green, G (s)	47.0	
Effective Green, g (s)	47.0	
Actuated g/C Ratio	0.29	
Clearance Time (s)	8.0	
Vehicle Extension (s)	5.0	
Lane Grp Cap (vph)	2208	
v/s Ratio Prot	c0.28	
v/s Ratio Perm		
v/c Ratio	0.97	
Uniform Delay, d1	55.7	
Progression Factor	1.00	
Incremental Delay, d2	12.7	
Delay (s)	68.5	
Level of Service	E	
Approach Delay (s)	69.7	
Approach LOS	E	

Intersection Summary

Lane Group	EBL	EBT	WBU	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	322	1617	36	87	238	152	496	119	389	146
Future Volume (vph)	322	1617	36	87	238	152	496	119	389	146
Turn Type	Prot	NA	pm+pt	pm+pt	NA	Prot	NA	pm+pt	NA	Perm
Protected Phases	1	6	5	5	2	7	4	3	8	
Permitted Phases			2	2				8		8
Detector Phase	1	6	5	5	2	7	4	3	8	8
Switch Phase										
Minimum Initial (s)	4.0	12.0	4.0	4.0	12.0	4.0	6.0	4.0	6.0	6.0
Minimum Split (s)	15.0	44.0	15.0	15.0	41.0	15.0	45.0	15.0	44.0	44.0
Total Split (s)	53.0	84.0	16.0	16.0	47.0	16.0	45.0	15.0	44.0	44.0
Total Split (%)	33.1%	52.5%	10.0%	10.0%	29.4%	10.0%	28.1%	9.4%	27.5%	27.5%
Yellow Time (s)	3.0	4.5	3.0	3.0	4.5	3.0	3.8	3.0	3.8	3.8
All-Red Time (s)	3.8	2.0	3.9	3.9	2.0	3.4	2.5	3.4	2.5	2.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.8	6.5		6.9	6.5	6.4	6.3	6.4	6.3	6.3
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?										
Recall Mode	None	C-Max	None	None	C-Max	None	None	None	None	None

Intersection Summary

Cycle Length: 160
Actuated Cycle Length: 160
Offset: 155 (97%), Referenced to phase 2:WBTL and 6:EBT, Start of Yellow
Natural Cycle: 150
Control Type: Actuated-Coordinated

Splits and Phases: 2: Cumberland Blvd & Spring Rd

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (veh/h)	8	322	1617	541	36	87	238	45	152	496	260	119
Future Volume (veh/h)	8	322	1617	541	36	87	238	45	152	496	260	119
Number		1	6	16		5	2	12	7	4	14	3
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00		1.00	1.00		1.00	1.00
Parking Bus, Adj		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	1900	1863	1863	1900	1863
Adj Flow Rate, veh/h		346	1739	0		94	256	48	163	533	280	128
Adj No. of Lanes		1	3	0		1	3	0	2	2	0	1
Peak Hour Factor		0.93	0.93	0.93		0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %		2	2	2		2	2	2	2	2	2	2
Cap, veh/h		373	2515	0		192	1437	260	205	543	285	143
Arrive On Green		0.21	0.49	0.00		0.05	0.33	0.33	0.02	0.08	0.08	0.05
Sat Flow, veh/h		1774	5253	0		1774	4332	782	3442	2245	1176	1774
Grp Volume(v), veh/h		346	1739	0		94	198	106	163	420	393	128
Grp Sat Flow(s),veh/h/ln		1774	1695	0		1774	1695	1724	1721	1770	1652	1774
Q Serve(g_s), s		30.6	42.0	0.0		5.6	6.6	7.0	7.5	37.9	38.0	8.6
Cycle Q Clear(g_c), s		30.6	42.0	0.0		5.6	6.6	7.0	7.5	37.9	38.0	8.6
Prop In Lane		1.00		0.00		1.00		0.45	1.00		0.71	1.00
Lane Grp Cap(c), veh/h		373	2515	0		192	1125	572	205	428	400	143
V/C Ratio(X)		0.93	0.69	0.00		0.49	0.18	0.18	0.79	0.98	0.98	0.89
Avail Cap(c_a), veh/h		512	2515	0		210	1125	572	206	428	400	143
HCM Platoon Ratio		1.00	1.00	1.00		1.00	1.00	1.00	0.33	0.33	0.33	1.00
Upstream Filter(I)		1.00	1.00	0.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh		62.0	31.1	0.0		33.8	37.9	38.1	77.4	73.2	73.3	48.7
Incr Delay (d2), s/veh		19.2	1.6	0.0		1.9	0.3	0.7	18.8	38.3	40.6	45.4
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
%ile BackOfQ(95%),veh/ln		23.7	27.4	0.0		5.1	5.7	6.2	7.5	31.1	29.6	10.2
LnGrp Delay(d),s/veh		81.3	32.6	0.0		35.8	38.3	38.8	96.2	111.6	113.9	94.0
LnGrp LOS		F	C			D	D	D	F	F	F	F
Approach Vol, veh/h			2085				398			976		
Approach Delay, s/veh			40.7				37.8			110.0		
Approach LOS			D				D			F		

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	40.4	59.6	15.0	45.0	14.4	85.6	15.9	44.1
Change Period (Y+Rc), s	* 6.8	6.5	6.4	* 6.3	6.9	6.5	6.4	* 6.3
Max Green Setting (Gmax), s	* 46	40.5	8.6	* 39	9.1	77.5	9.6	* 38
Max Q Clear Time (g_c+I1), s	32.6	9.0	10.6	40.0	7.6	44.0	9.5	18.4
Green Ext Time (p_c), s	1.0	31.0	0.0	0.0	0.0	32.9	0.0	5.7

Intersection Summary	
HCM 2010 Ctrl Delay	60.0
HCM 2010 LOS	E

Notes

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (veh/h)	389	146
Future Volume (veh/h)	389	146
Number	8	18
Initial Q (Qb), veh	0	0
Ped-Bike Adj(A_pbT)		1.00
Parking Bus, Adj	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863
Adj Flow Rate, veh/h	418	157
Adj No. of Lanes	2	1
Peak Hour Factor	0.93	0.93
Percent Heavy Veh, %	2	2
Cap, veh/h	835	372
Arrive On Green	0.24	0.24
Sat Flow, veh/h	3539	1577
Grp Volume(v), veh/h	418	157
Grp Sat Flow(s),veh/h/ln	1770	1577
Q Serve(g_s), s	16.4	13.5
Cycle Q Clear(g_c), s	16.4	13.5
Prop In Lane		1.00
Lane Grp Cap(c), veh/h	835	372
V/C Ratio(X)	0.50	0.42
Avail Cap(c_a), veh/h	835	372
HCM Platoon Ratio	1.00	1.00
Upstream Filter(I)	1.00	1.00
Uniform Delay (d), s/veh	53.0	51.9
Incr Delay (d2), s/veh	0.5	0.8
Initial Q Delay(d3),s/veh	0.0	0.0
%ile BackOfQ(95%),veh/ln	12.7	10.0
LnGrp Delay(d),s/veh	53.4	52.6
LnGrp LOS	D	D
Approach Vol, veh/h	703	
Approach Delay, s/veh	60.6	
Approach LOS	E	
Timer		

Lane Group	WBL	WBT	NBT	SBL	SBT	Ø4	Ø5
Lane Configurations							
Traffic Volume (vph)	7	0	389	167	918		
Future Volume (vph)	7	0	389	167	918		
Turn Type	Perm	NA	NA	pm+pt	NA		
Protected Phases		8	2	1	6	4	5
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	6.0	5.0
Minimum Split (s)	42.0	42.0	41.0	11.0	41.0	42.0	11.0
Total Split (s)	56.0	56.0	80.0	24.0	92.0	56.0	12.0
Total Split (%)	35.0%	35.0%	50.0%	15.0%	57.5%	35%	8%
Yellow Time (s)	3.0	3.0	3.5	3.0	3.5	3.0	3.0
All-Red Time (s)	3.0	3.0	2.0	3.0	2.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		
Total Lost Time (s)	6.0	6.0	5.5	6.0	5.5		
Lead/Lag			Lag	Lead	Lag		Lead
Lead-Lag Optimize?							
Recall Mode	None	None	C-Max	None	C-Max	None	None

Intersection Summary

Cycle Length: 160
Actuated Cycle Length: 160
Offset: 139 (87%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 95
Control Type: Actuated-Coordinated

Splits and Phases: 3: Cumberland Blvd & Spring Hill Pkwy

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	7	0	455	0	389	10	167	918	0
Future Volume (veh/h)	0	0	0	7	0	455	0	389	10	167	918	0
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	0.98		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	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	1863	1863	1900
Adj Flow Rate, veh/h	0	0	0	7	0	474	0	405	10	174	956	0
Adj No. of Lanes	0	1	0	1	1	0	1	4	0	1	3	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	582	0	590	0	486	348	3350	82	622	3131	0
Arrive On Green	0.00	0.00	0.00	0.31	0.00	0.31	0.00	0.52	0.52	0.12	1.00	0.00
Sat Flow, veh/h	0	1863	0	1745	0	1556	1774	6481	159	1774	5253	0
Grp Volume(v), veh/h	0	0	0	7	0	474	0	300	115	174	956	0
Grp Sat Flow(s),veh/h/ln	0	1863	0	1745	0	1556	1774	1602	1835	1774	1695	0
Q Serve(g_s), s	0.0	0.0	0.0	0.4	0.0	48.2	0.0	5.1	5.2	7.5	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.4	0.0	48.2	0.0	5.1	5.2	7.5	0.0	0.0
Prop In Lane	0.00		0.00	1.00		1.00	1.00		0.09	1.00		0.00
Lane Grp Cap(c), veh/h	0	582	0	590	0	486	348	2484	948	622	3131	0
V/C Ratio(X)	0.00	0.00	0.00	0.01	0.00	0.97	0.00	0.12	0.12	0.28	0.31	0.00
Avail Cap(c_a), veh/h	0	582	0	590	0	486	414	2484	948	713	3131	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	0.00	0.00	0.00	1.00	0.00	1.00	0.00	1.00	1.00	0.77	0.77	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	38.0	0.0	54.4	0.0	19.9	19.9	14.1	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.0	0.0	34.5	0.0	0.1	0.3	0.2	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	0.0	0.4	0.0	33.6	0.0	4.1	4.9	6.4	0.1	0.0
LnGrp Delay(d),s/veh	0.0	0.0	0.0	38.0	0.0	88.9	0.0	20.0	20.2	14.3	0.2	0.0
LnGrp LOS				D		F		C	C	B	A	
Approach Vol, veh/h		0			481			415			1130	
Approach Delay, s/veh		0.0			88.1			20.1			2.4	
Approach LOS					F			C			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	15.8	88.2		56.0	0.0	104.0		56.0
Change Period (Y+Rc), s	6.0	5.5		6.0	6.0	5.5		6.0
Max Green Setting (Gmax), s	18.0	74.5		50.0	6.0	86.5		50.0
Max Q Clear Time (g_c+I1), s	9.5	7.2		0.0	0.0	2.0		50.2
Green Ext Time (p_c), s	0.3	37.2		0.0	0.0	41.6		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	26.4
HCM 2010 LOS	C

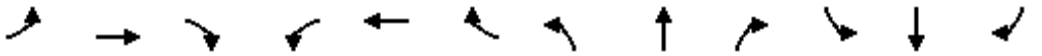
Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	3	175	461	10	0	1
Future Vol, veh/h	3	175	461	10	0	1
Conflicting Peds, #/hr	0	0	0	1	1	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	188	496	11	0	1

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	507	0	-	0	698	502
Stage 1	-	-	-	-	502	-
Stage 2	-	-	-	-	196	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1058	-	-	-	407	569
Stage 1	-	-	-	-	608	-
Stage 2	-	-	-	-	837	-
Platoon blocked, %			-	-	-	
Mov Cap-1 Maneuver	1058	-	-	-	405	568
Mov Cap-2 Maneuver	-	-	-	-	405	-
Stage 1	-	-	-	-	607	-
Stage 2	-	-	-	-	834	-

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

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1058	-	-	-	568
HCM Lane V/C Ratio	0.003	-	-	-	0.002
HCM Control Delay (s)	8.4	0	-	-	11.4
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	2010	0	0	382	5	0	0	2	0	0	0
Future Volume (Veh/h)	0	2010	0	0	382	5	0	0	2	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	0	2072	0	0	394	5	0	0	2	0	0	0
Pedestrians					9						9	
Lane Width (ft)					12.0						12.0	
Walking Speed (ft/s)					3.5						3.5	
Percent Blockage					1						1	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		368			1129							
pX, platoon unblocked				0.55			0.55	0.55	0.55	0.55	0.55	
vC, conflicting volume	403			2072			2170	2475	700	1105	2478	110
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	403			102			280	832	0	0	836	110
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	100	100	100	100
cM capacity (veh/h)	1142			822			357	166	593	549	165	914

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1
Volume Total	829	829	414	113	113	113	61	2	0
Volume Left	0	0	0	0	0	0	0	0	0
Volume Right	0	0	0	0	0	0	5	2	0
cSH	1700	1700	1700	1700	1700	1700	1700	593	1700
Volume to Capacity	0.49	0.49	0.24	0.07	0.07	0.07	0.04	0.00	0.00
Queue Length 95th (ft)	0	0	0	0	0	0	0	0	0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.1	0.0
Lane LOS								B	A
Approach Delay (s)	0.0			0.0				11.1	0.0
Approach LOS								B	A

Intersection Summary				
Average Delay	0.0			
Intersection Capacity Utilization	51.4%	ICU Level of Service		A
Analysis Period (min)	15			

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	2029	1	0	382	0	0	0	0	0	0	4
Future Vol, veh/h	0	2029	1	0	382	0	0	0	0	0	0	4
Conflicting Peds, #/hr	0	0	0	0	0	10	0	0	10	10	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Free	-	-	Free	-	-	Yield	-	-	Yield
Storage Length	-	-	-	-	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	98	98	98	98	98	98	98	98	98	98	98	98
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	2070	1	0	390	0	0	0	0	0	0	4

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	-	-	-	0	-	-	1045	-	-	195
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	-	-	-	7.14	-	-	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	-	-	-	3.92	-	-	3.92
Pot Cap-1 Maneuver	0	-	0	0	-	0	0	0	194	0	0	692
Stage 1	0	-	0	0	-	0	0	0	-	0	0	-
Stage 2	0	-	0	0	-	0	0	0	-	0	0	-
Platoon blocked, %		-			-							
Mov Cap-1 Maneuver	-	-	-	-	-	-	-	-	192	-	-	692
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	0	10.2
HCM LOS			A	B

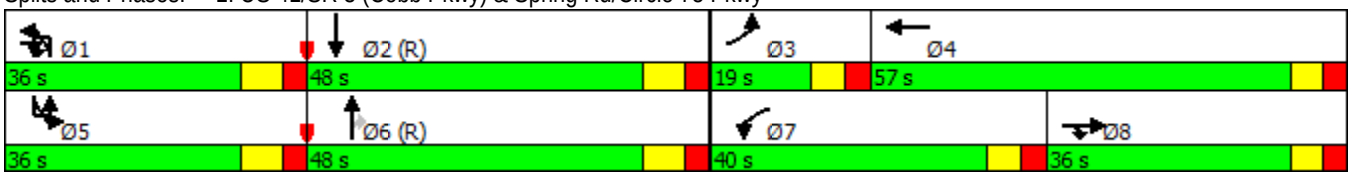
Minor Lane/Major Mvmt	NBLn1	EBT	WBT	SBLn1
Capacity (veh/h)	-	-	-	692
HCM Lane V/C Ratio	-	-	-	0.006
HCM Control Delay (s)	0	-	-	10.2
HCM Lane LOS	A	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	114	261	415	750	357	1428	1880	288	50	1336
Future Volume (vph)	114	261	415	750	357	1428	1880	288	50	1336
Turn Type	Prot	NA	pt+ov	Prot	NA	Prot	NA	Perm	Prot	NA
Protected Phases	3	8	8 1!	7	4	1	6		5	2
Permitted Phases								6		
Detector Phase	3	8	8 1	7	4	1	6	6	5	2
Switch Phase										
Minimum Initial (s)	6.0	6.0		6.0	6.0	6.0	14.0	14.0	6.0	14.0
Minimum Split (s)	19.0	19.0		19.0	57.0	20.0	36.0	36.0	36.0	44.0
Total Split (s)	19.0	36.0		40.0	57.0	36.0	48.0	48.0	36.0	48.0
Total Split (%)	11.9%	22.5%		25.0%	35.6%	22.5%	30.0%	30.0%	22.5%	30.0%
Yellow Time (s)	4.0	4.0		4.0	4.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0		7.0	7.0	8.0	8.0	8.0	8.0	8.0
Lead/Lag	Lead	Lag		Lead	Lag	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?										
Recall Mode	None	None		None	None	None	C-Min	C-Min	None	C-Min

Intersection Summary

Cycle Length: 160
Actuated Cycle Length: 160
Offset: 26 (16%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 150
Control Type: Actuated-Coordinated
! Phase conflict between lane groups.

Splits and Phases: 1: US 41/SR 3 (Cobb Pkwy) & Spring Rd/Circle 75 Pkwy



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	114	261	415	750	357	98	9	1428	1880	288	14	50
Future Volume (vph)	114	261	415	750	357	98	9	1428	1880	288	14	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0			8.0	8.0	8.0		8.0
Lane Util. Factor	1.00	0.95	0.88	0.94	0.95			0.94	0.86	1.00		0.97
Frt	1.00	1.00	0.85	1.00	0.97			1.00	1.00	0.85		1.00
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.95	1.00	1.00		0.95
Satd. Flow (prot)	1770	3539	2787	4990	3425			4990	6408	1583		3433
Flt Permitted	0.95	1.00	1.00	0.95	1.00			0.95	1.00	1.00		0.95
Satd. Flow (perm)	1770	3539	2787	4990	3425			4990	6408	1583		3433
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	121	278	441	798	380	104	10	1519	2000	306	15	53
RTOR Reduction (vph)	0	0	76	0	18	0	0	0	0	110	0	0
Lane Group Flow (vph)	121	278	365	798	466	0	0	1529	2000	196	0	68
Turn Type	Prot	NA	pt+ov	Prot	NA		Prot	Prot	NA	Perm	Prot	Prot
Protected Phases	3	8	8 1!	7	4		1!	1	6		5	5
Permitted Phases										6		
Actuated Green, G (s)	12.0	19.0	66.6	30.5	37.5			40.6	71.9	71.9		8.6
Effective Green, g (s)	12.0	19.0	66.6	30.5	37.5			40.6	71.9	71.9		8.6
Actuated g/C Ratio	0.08	0.12	0.42	0.19	0.23			0.25	0.45	0.45		0.05
Clearance Time (s)	7.0	7.0		7.0	7.0			8.0	8.0	8.0		8.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	5.0	5.0		3.0
Lane Grp Cap (vph)	132	420	1160	951	802			1266	2879	711		184
v/s Ratio Prot	0.07	c0.08	0.13	c0.16	0.14			c0.31	0.31			0.02
v/s Ratio Perm										0.12		
v/c Ratio	0.92	0.66	0.31	0.84	0.58			1.21	0.69	0.28		0.37
Uniform Delay, d1	73.5	67.4	31.4	62.4	54.3			59.7	35.3	27.7		73.1
Progression Factor	0.90	1.09	1.86	1.00	1.00			1.00	1.00	1.00		1.00
Incremental Delay, d2	46.1	3.1	0.1	6.6	1.1			101.1	1.4	1.0		1.3
Delay (s)	112.3	76.7	58.6	69.0	55.4			160.8	36.7	28.7		74.3
Level of Service	F	E	E	E	E			F	D	C		E
Approach Delay (s)		72.3			63.8				85.5			
Approach LOS		E			E				F			

Intersection Summary			
HCM 2000 Control Delay	75.1	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	30.0
Intersection Capacity Utilization	97.4%	ICU Level of Service	F
Analysis Period (min)	15		

! Phase conflict between lane groups.

c Critical Lane Group

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	1336	63
Future Volume (vph)	1336	63
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	8.0	
Lane Util. Factor	0.81	
Frt	0.99	
Flt Protected	1.00	
Satd. Flow (prot)	7493	
Flt Permitted	1.00	
Satd. Flow (perm)	7493	
Peak-hour factor, PHF	0.94	0.94
Adj. Flow (vph)	1421	67
RTOR Reduction (vph)	5	0
Lane Group Flow (vph)	1483	0
Turn Type	NA	
Protected Phases	2	
Permitted Phases		
Actuated Green, G (s)	39.9	
Effective Green, g (s)	39.9	
Actuated g/C Ratio	0.25	
Clearance Time (s)	8.0	
Vehicle Extension (s)	5.0	
Lane Grp Cap (vph)	1868	
v/s Ratio Prot	c0.20	
v/s Ratio Perm		
v/c Ratio	0.79	
Uniform Delay, d1	56.2	
Progression Factor	1.00	
Incremental Delay, d2	3.6	
Delay (s)	59.8	
Level of Service	E	
Approach Delay (s)	60.4	
Approach LOS	E	

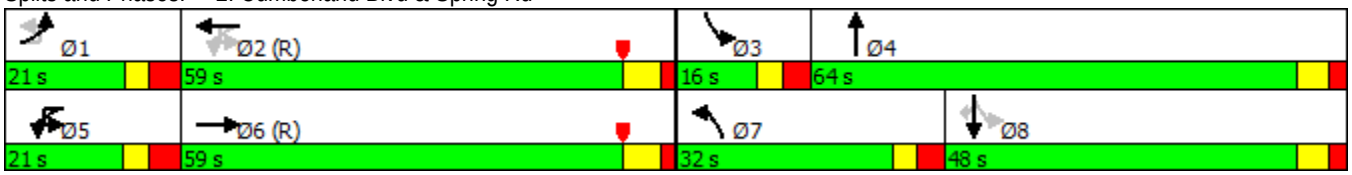
Intersection Summary

Lane Group	EBL	EBT	WBU	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	315	618	73	336	1436	582	637	88	616	587
Future Volume (vph)	315	618	73	336	1436	582	637	88	616	587
Turn Type	Prot	NA	pm+pt	pm+pt	NA	Prot	NA	pm+pt	NA	Perm
Protected Phases	1	6	5	5	2	7	4	3	8	
Permitted Phases			2	2				8		8
Detector Phase	1	6	5	5	2	7	4	3	8	8
Switch Phase										
Minimum Initial (s)	4.0	12.0	4.0	4.0	12.0	4.0	6.0	4.0	6.0	6.0
Minimum Split (s)	15.0	44.0	15.0	15.0	41.0	15.0	45.0	15.0	44.0	44.0
Total Split (s)	21.0	59.0	21.0	21.0	59.0	32.0	64.0	16.0	48.0	48.0
Total Split (%)	13.1%	36.9%	13.1%	13.1%	36.9%	20.0%	40.0%	10.0%	30.0%	30.0%
Yellow Time (s)	3.0	4.5	3.0	3.0	4.5	3.0	3.8	3.0	3.8	3.8
All-Red Time (s)	3.8	2.0	3.9	3.9	2.0	3.4	2.5	3.4	2.5	2.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.8	6.5		6.9	6.5	6.4	6.3	6.4	6.3	6.3
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?										
Recall Mode	None	C-Max	None	None	C-Max	None	None	None	None	None

Intersection Summary

Cycle Length: 160
Actuated Cycle Length: 160
Offset: 43 (27%), Referenced to phase 2:WBTL and 6:EBT, Start of Yellow
Natural Cycle: 150
Control Type: Actuated-Coordinated

Splits and Phases: 2: Cumberland Blvd & Spring Rd



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (veh/h)	315	618	292	73	336	1436	77	582	637	158	88	616
Future Volume (veh/h)	315	618	292	73	336	1436	77	582	637	158	88	616
Number	1	6	16		5	2	12	7	4	14	3	8
Initial Q (Qb), veh	0	0	0		0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00		1.00		1.00	1.00		1.00	1.00	
Parking Bus, Adj	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	1900	1863	1863	1900	1863	1863
Adj Flow Rate, veh/h	318	624	0		339	1451	78	588	643	160	89	622
Adj No. of Lanes	1	3	0		1	3	0	2	2	0	1	2
Peak Hour Factor	0.99	0.99	0.99		0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	2	2	2		2	2	2	2	2	2	2	2
Cap, veh/h	157	1669	0		388	1621	87	551	1046	260	287	922
Arrive On Green	0.09	0.33	0.00		0.09	0.33	0.33	0.27	0.62	0.62	0.05	0.26
Sat Flow, veh/h	1774	5253	0		1774	4940	266	3442	2810	698	1774	3539
Grp Volume(v), veh/h	318	624	0		339	996	533	588	405	398	89	622
Grp Sat Flow(s),veh/h/ln	1774	1695	0		1774	1695	1816	1721	1770	1738	1774	1770
Q Serve(g_s), s	14.2	15.0	0.0		14.1	44.7	44.7	25.6	22.4	22.5	5.8	25.2
Cycle Q Clear(g_c), s	14.2	15.0	0.0		14.1	44.7	44.7	25.6	22.4	22.5	5.8	25.2
Prop In Lane	1.00		0.00		1.00		0.15	1.00		0.40	1.00	
Lane Grp Cap(c), veh/h	157	1669	0		388	1112	596	551	659	647	287	922
V/C Ratio(X)	2.02	0.37	0.00		0.87	0.90	0.90	1.07	0.61	0.62	0.31	0.67
Avail Cap(c_a), veh/h	157	1669	0		388	1112	596	551	659	647	308	922
HCM Platoon Ratio	1.00	1.00	1.00		1.00	1.00	1.00	1.67	1.67	1.67	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00		1.00	1.00	1.00	0.97	0.97	0.97	1.00	1.00
Uniform Delay (d), s/veh	72.9	41.2	0.0		42.2	51.1	51.1	58.6	23.2	23.2	40.3	53.1
Incr Delay (d2), s/veh	480.5	0.6	0.0		19.3	11.2	18.5	57.2	1.7	1.7	0.6	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
%ile BackOfQ(95%),veh/ln	50.3	11.5	0.0		15.1	30.4	33.7	29.7	16.5	16.3	5.2	18.4
LnGrp Delay(d),s/veh	553.4	41.8	0.0		61.5	62.3	69.7	115.8	24.9	24.9	40.9	55.0
LnGrp LOS	F	D			E	E	E	F	C	C	D	E
Approach Vol, veh/h		942				1868			1391			1304
Approach Delay, s/veh		214.5				64.3			63.3			152.5
Approach LOS		F				E			E			F

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	21.0	59.0	14.1	65.9	21.0	59.0	32.0	48.0
Change Period (Y+Rc), s	* 6.8	6.5	6.4	* 6.3	6.9	6.5	6.4	* 6.3
Max Green Setting (Gmax), s	* 14	52.5	9.6	* 58	14.1	52.5	25.6	* 42
Max Q Clear Time (g_c+I1), s	16.2	46.7	7.8	24.5	16.1	17.0	27.6	43.7
Green Ext Time (p_c), s	0.0	5.8	0.0	11.1	0.0	34.9	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	110.6
HCM 2010 LOS	F

Notes

Movement	SBR
Lane Configurations	
Traffic Volume (veh/h)	587
Future Volume (veh/h)	587
Number	18
Initial Q (Qb), veh	0
Ped-Bike Adj(A_pbT)	1.00
Parking Bus, Adj	1.00
Adj Sat Flow, veh/h/ln	1863
Adj Flow Rate, veh/h	593
Adj No. of Lanes	1
Peak Hour Factor	0.99
Percent Heavy Veh, %	2
Cap, veh/h	411
Arrive On Green	0.26
Sat Flow, veh/h	1578
Grp Volume(v), veh/h	593
Grp Sat Flow(s),veh/h/ln	1578
Q Serve(g_s), s	41.7
Cycle Q Clear(g_c), s	41.7
Prop In Lane	1.00
Lane Grp Cap(c), veh/h	411
V/C Ratio(X)	1.44
Avail Cap(c_a), veh/h	411
HCM Platoon Ratio	1.00
Upstream Filter(I)	1.00
Uniform Delay (d), s/veh	59.2
Incr Delay (d2), s/veh	212.3
Initial Q Delay(d3),s/veh	0.0
%ile BackOfQ(95%),veh/ln	76.3
LnGrp Delay(d),s/veh	271.4
LnGrp LOS	F
Approach Vol, veh/h	
Approach Delay, s/veh	
Approach LOS	
Timer	

Lane Group	WBL	WBT	NBU	NBL	NBT	SBL	SBT	Ø4
Lane Configurations								
Traffic Volume (vph)	19	0	3	0	970	302	706	
Future Volume (vph)	19	0	3	0	970	302	706	
Turn Type	Perm	NA	pm+pt	pm+pt	NA	pm+pt	NA	
Protected Phases		8	5	5	2	1	6	4
Permitted Phases	8		2	2		6		
Detector Phase	8	8	5	5	2	1	6	
Switch Phase								
Minimum Initial (s)	6.0	6.0	5.0	5.0	15.0	5.0	15.0	6.0
Minimum Split (s)	25.0	25.0	11.0	11.0	41.0	11.0	41.0	42.0
Total Split (s)	50.0	50.0	15.0	15.0	76.0	34.0	95.0	50.0
Total Split (%)	31.3%	31.3%	9.4%	9.4%	47.5%	21.3%	59.4%	31%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.5	3.0	3.5	3.0
All-Red Time (s)	3.0	3.0	3.0	3.0	2.0	3.0	2.0	3.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	5.5	6.0	5.5	
Lead/Lag			Lead	Lead	Lag	Lead	Lag	
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	C-Max	None	C-Max	None

Intersection Summary

Cycle Length: 160
Actuated Cycle Length: 160
Offset: 150 (94%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
Natural Cycle: 95
Control Type: Actuated-Coordinated

Splits and Phases: 3: Cumberland Blvd & Spring Hill Pkwy

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	19	0	459	3	0	970	71	302	706
Future Volume (veh/h)	0	0	0	19	0	459	3	0	970	71	302	706
Number	7	4	14	3	8	18		5	2	12	1	6
Initial Q (Qb), veh	0	0	0	0	0	0		0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	0.98		0.98		1.00		1.00	1.00	
Parking Bus, Adj	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	1863	1863
Adj Flow Rate, veh/h	0	0	0	19	0	468		0	990	72	308	720
Adj No. of Lanes	0	1	0	1	1	0		1	4	0	1	3
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98		0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2		2	2	2	2	2
Cap, veh/h	0	512	0	524	0	427		418	3137	227	451	3321
Arrive On Green	0.00	0.00	0.00	0.28	0.00	0.28		0.00	0.51	0.51	0.21	1.00
Sat Flow, veh/h	0	1863	0	1741	0	1552		1774	6146	444	1774	5253
Grp Volume(v), veh/h	0	0	0	19	0	468		0	773	289	308	720
Grp Sat Flow(s),veh/h/ln	0	1863	0	1741	0	1552		1774	1602	1784	1774	1695
Q Serve(g_s), s	0.0	0.0	0.0	1.3	0.0	44.0		0.0	15.0	15.2	14.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	1.3	0.0	44.0		0.0	15.0	15.2	14.0	0.0
Prop In Lane	0.00		0.00	1.00		1.00		1.00		0.25	1.00	
Lane Grp Cap(c), veh/h	0	512	0	524	0	427		418	2453	911	451	3321
V/C Ratio(X)	0.00	0.00	0.00	0.04	0.00	1.10		0.00	0.31	0.32	0.68	0.22
Avail Cap(c_a), veh/h	0	512	0	524	0	427		517	2453	911	575	3321
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	2.00	2.00
Upstream Filter(I)	0.00	0.00	0.00	1.00	0.00	1.00		0.00	1.00	1.00	0.09	0.09
Uniform Delay (d), s/veh	0.0	0.0	0.0	42.5	0.0	58.0		0.0	22.8	22.9	13.7	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.1	0.0	72.2		0.0	0.3	0.9	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
%ile BackOfQ(95%),veh/ln	0.0	0.0	0.0	1.1	0.0	49.3		0.0	11.0	12.3	8.0	0.0
LnGrp Delay(d),s/veh	0.0	0.0	0.0	42.6	0.0	130.2		0.0	23.2	23.8	13.9	0.0
LnGrp LOS				D		F			C	C	B	A
Approach Vol, veh/h		0			487				1062			1028
Approach Delay, s/veh		0.0			126.8				23.3			4.2
Approach LOS					F				C			A

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	22.8	87.2		50.0	0.0	110.0		50.0
Change Period (Y+Rc), s	6.0	5.5		6.0	6.0	5.5		6.0
Max Green Setting (Gmax), s	28.0	70.5		44.0	9.0	89.5		44.0
Max Q Clear Time (g_c+I1), s	16.0	17.2		0.0	0.0	2.0		46.0
Green Ext Time (p_c), s	0.9	41.5		0.0	0.0	59.6		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	35.2
HCM 2010 LOS	D

Notes

Movement	SBR
Lane Configurations	
Traffic Volume (veh/h)	0
Future Volume (veh/h)	0
Number	16
Initial Q (Qb), veh	0
Ped-Bike Adj(A_pbT)	1.00
Parking Bus, Adj	1.00
Adj Sat Flow, veh/h/ln	1900
Adj Flow Rate, veh/h	0
Adj No. of Lanes	0
Peak Hour Factor	0.98
Percent Heavy Veh, %	2
Cap, veh/h	0
Arrive On Green	0.00
Sat Flow, veh/h	0
Grp Volume(v), veh/h	0
Grp Sat Flow(s),veh/h/ln	0
Q Serve(g_s), s	0.0
Cycle Q Clear(g_c), s	0.0
Prop In Lane	0.00
Lane Grp Cap(c), veh/h	0
V/C Ratio(X)	0.00
Avail Cap(c_a), veh/h	0
HCM Platoon Ratio	2.00
Upstream Filter(I)	0.00
Uniform Delay (d), s/veh	0.0
Incr Delay (d2), s/veh	0.0
Initial Q Delay(d3),s/veh	0.0
%ile BackOfQ(95%),veh/ln	0.0
LnGrp Delay(d),s/veh	0.0
LnGrp LOS	
Approach Vol, veh/h	
Approach Delay, s/veh	
Approach LOS	
Timer	

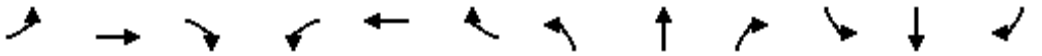
Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	373	476	28	10	2
Future Vol, veh/h	0	373	476	28	10	2
Conflicting Peds, #/hr	0	0	0	1	1	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	401	512	30	11	2

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	543	0	-	0	930	528
Stage 1	-	-	-	-	528	-
Stage 2	-	-	-	-	402	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1026	-	-	-	297	550
Stage 1	-	-	-	-	592	-
Stage 2	-	-	-	-	676	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1026	-	-	-	296	549
Mov Cap-2 Maneuver	-	-	-	-	296	-
Stage 1	-	-	-	-	591	-
Stage 2	-	-	-	-	675	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	16.7
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1026	-	-	-	321
HCM Lane V/C Ratio	-	-	-	-	0.04
HCM Control Delay (s)	0	-	-	-	16.7
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0.1



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	768	1	0	1623	12	0	0	10	0	0	4
Future Volume (Veh/h)	0	768	1	0	1623	12	0	0	10	0	0	4
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	808	1	0	1708	13	0	0	11	0	0	4
Pedestrians					9						9	
Lane Width (ft)					12.0						12.0	
Walking Speed (ft/s)					3.5						3.5	
Percent Blockage					1						1	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		368			1129							
pX, platoon unblocked												
vC, conflicting volume	1717			808			1236	2526	279	2002	2532	442
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1717			808			1236	2526	279	2002	2532	442
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	98	100	100	99
cM capacity (veh/h)	362			813			131	27	712	34	27	558

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1
Volume Total	323	323	163	488	488	488	257	11	4
Volume Left	0	0	0	0	0	0	0	0	0
Volume Right	0	0	1	0	0	0	13	11	4
cSH	1700	1700	1700	1700	1700	1700	1700	712	558
Volume to Capacity	0.19	0.19	0.10	0.29	0.29	0.29	0.15	0.02	0.01
Queue Length 95th (ft)	0	0	0	0	0	0	0	1	1
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.1	11.5
Lane LOS								B	B
Approach Delay (s)	0.0			0.0				10.1	11.5
Approach LOS								B	B

Intersection Summary				
Average Delay	0.1			
Intersection Capacity Utilization	33.7%	ICU Level of Service		A
Analysis Period (min)	15			

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	773	4	0	1629	1	0	0	7	0	0	7
Future Vol, veh/h	0	773	4	0	1629	1	0	0	7	0	0	7
Conflicting Peds, #/hr	0	0	0	0	0	10	0	0	10	10	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Free	-	-	Free	-	-	Yield	-	-	Yield
Storage Length	-	-	-	-	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	814	4	0	1715	1	0	0	7	0	0	7

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	-	-	-	0	-	-	417	-	-	857
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	-	-	-	7.14	-	-	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	-	-	-	3.92	-	-	3.92
Pot Cap-1 Maneuver	0	-	0	0	-	0	0	0	500	0	0	258
Stage 1	0	-	0	0	-	0	0	0	-	0	0	-
Stage 2	0	-	0	0	-	0	0	0	-	0	0	-
Platoon blocked, %		-			-							
Mov Cap-1 Maneuver	-	-	-	-	-	-	-	-	495	-	-	258
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	12.4	19.4
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	EBT	WBT	SBLn1
Capacity (veh/h)	495	-	-	258
HCM Lane V/C Ratio	0.015	-	-	0.029
HCM Control Delay (s)	12.4	-	-	19.4
HCM Lane LOS	B	-	-	C
HCM 95th %tile Q(veh)	0	-	-	0.1

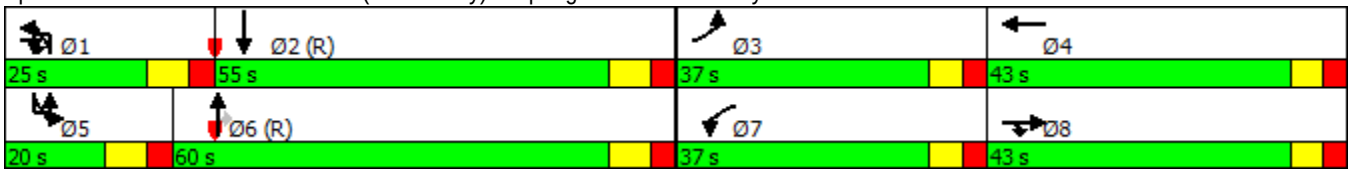
Future “No-Build” Improved Intersection Analysis

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	100	562	1297	239	58	299	798	445	146	1917
Future Volume (vph)	100	562	1297	239	58	299	798	445	146	1917
Turn Type	Prot	NA	pt+ov	Prot	NA	Prot	NA	Perm	Prot	NA
Protected Phases	3	8	8 1!	7	4	1	6		5	2
Permitted Phases								6		
Detector Phase	3	8	8 1	7	4	1	6	6	5	2
Switch Phase										
Minimum Initial (s)	6.0	6.0		6.0	6.0	6.0	14.0	14.0	6.0	14.0
Minimum Split (s)	14.0	44.0		14.0	57.0	14.0	44.0	44.0	14.0	44.0
Total Split (s)	37.0	43.0		37.0	43.0	25.0	60.0	60.0	20.0	55.0
Total Split (%)	23.1%	26.9%		23.1%	26.9%	15.6%	37.5%	37.5%	12.5%	34.4%
Yellow Time (s)	4.0	4.0		4.0	4.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0		7.0	7.0	8.0	8.0	8.0	8.0	8.0
Lead/Lag	Lead	Lag		Lead	Lag	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?										
Recall Mode	None	None		None	None	None	C-Min	C-Min	None	C-Min

Intersection Summary

Cycle Length: 160
Actuated Cycle Length: 160
Offset: 39 (24%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 130
Control Type: Actuated-Coordinated
! Phase conflict between lane groups.

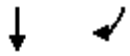
Splits and Phases: 1: US 41/SR 3 (Cobb Pkwy) & Spring Rd/Circle 75 Pkwy



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	100	562	1297	239	58	15	5	299	798	445	22	146
Future Volume (vph)	100	562	1297	239	58	15	5	299	798	445	22	146
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0			8.0	8.0	8.0		8.0
Lane Util. Factor	1.00	0.95	0.88	0.94	0.95			0.94	0.86	1.00		0.97
Frt	1.00	1.00	0.85	1.00	0.97			1.00	1.00	0.85		1.00
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.95	1.00	1.00		0.95
Satd. Flow (prot)	1770	3539	2787	4990	3432			4990	6408	1583		3433
Flt Permitted	0.95	1.00	1.00	0.95	1.00			0.95	1.00	1.00		0.95
Satd. Flow (perm)	1770	3539	2787	4990	3432			4990	6408	1583		3433
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	109	611	1410	260	63	16	5	325	867	484	24	159
RTOR Reduction (vph)	0	0	63	0	11	0	0	0	0	297	0	0
Lane Group Flow (vph)	109	611	1347	260	68	0	0	330	867	187	0	183
Turn Type	Prot	NA	pt+ov	Prot	NA		Prot	Prot	NA	Perm	Prot	Prot
Protected Phases	3	8	8 1!	7	4		1!	1	6		5	5
Permitted Phases										6		
Actuated Green, G (s)	15.2	52.2	76.2	13.8	50.8			17.0	52.4	52.4		11.6
Effective Green, g (s)	15.2	52.2	76.2	13.8	50.8			17.0	52.4	52.4		11.6
Actuated g/C Ratio	0.09	0.33	0.48	0.09	0.32			0.11	0.33	0.33		0.07
Clearance Time (s)	7.0	7.0		7.0	7.0			8.0	8.0	8.0		8.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	5.0	5.0		3.0
Lane Grp Cap (vph)	168	1154	1327	430	1089			530	2098	518		248
v/s Ratio Prot	c0.06	0.17	c0.48	0.05	0.02			0.07	c0.14			0.05
v/s Ratio Perm										0.12		
v/c Ratio	0.65	0.53	1.01	0.60	0.06			0.62	0.41	0.36		0.74
Uniform Delay, d1	69.8	43.9	41.9	70.5	38.0			68.4	41.8	41.0		72.7
Progression Factor	1.28	0.63	0.61	1.00	1.00			1.00	1.00	1.00		1.00
Incremental Delay, d2	3.1	0.2	18.5	2.4	0.0			2.3	0.6	1.9		10.9
Delay (s)	92.7	27.7	44.1	72.9	38.0			70.7	42.4	43.0		83.6
Level of Service	F	C	D	E	D			E	D	D		F
Approach Delay (s)		41.9			64.8				48.1			
Approach LOS		D			E				D			

Intersection Summary			
HCM 2000 Control Delay	54.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.03		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	30.0
Intersection Capacity Utilization	104.0%	ICU Level of Service	G
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group



Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	1917	48
Future Volume (vph)	1917	48
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	8.0	
Lane Util. Factor	0.81	
Frt	1.00	
Flt Protected	1.00	
Satd. Flow (prot)	7517	
Flt Permitted	1.00	
Satd. Flow (perm)	7517	
Peak-hour factor, PHF	0.92	0.92
Adj. Flow (vph)	2084	52
RTOR Reduction (vph)	2	0
Lane Group Flow (vph)	2134	0
Turn Type	NA	
Protected Phases	2	
Permitted Phases		
Actuated Green, G (s)	47.0	
Effective Green, g (s)	47.0	
Actuated g/C Ratio	0.29	
Clearance Time (s)	8.0	
Vehicle Extension (s)	5.0	
Lane Grp Cap (vph)	2208	
v/s Ratio Prot	c0.28	
v/s Ratio Perm		
v/c Ratio	0.97	
Uniform Delay, d1	55.7	
Progression Factor	1.00	
Incremental Delay, d2	12.7	
Delay (s)	68.5	
Level of Service	E	
Approach Delay (s)	69.7	
Approach LOS	E	

Intersection Summary

Lane Group	EBU	EBL	EBT	WBU	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	8	322	1617	36	87	238	152	496	119	389	146
Future Volume (vph)	8	322	1617	36	87	238	152	496	119	389	146
Turn Type	pm+pt	pm+pt	NA	pm+pt	pm+pt	NA	Prot	NA	pm+pt	NA	Perm
Protected Phases	1	1	6	5	5	2	7	4	3	8	
Permitted Phases	6	6		2	2				8		8
Detector Phase	1	1	6	5	5	2	7	4	3	8	8
Switch Phase											
Minimum Initial (s)	4.0	4.0	12.0	4.0	4.0	12.0	4.0	6.0	4.0	6.0	6.0
Minimum Split (s)	15.0	15.0	44.0	15.0	15.0	41.0	15.0	45.0	15.0	44.0	44.0
Total Split (s)	30.0	30.0	84.0	16.0	16.0	70.0	16.0	45.0	15.0	44.0	44.0
Total Split (%)	18.8%	18.8%	52.5%	10.0%	10.0%	43.8%	10.0%	28.1%	9.4%	27.5%	27.5%
Yellow Time (s)	3.0	3.0	4.5	3.0	3.0	4.5	3.0	3.8	3.0	3.8	3.8
All-Red Time (s)	3.8	3.8	2.0	3.9	3.9	2.0	3.4	2.5	3.4	2.5	2.5
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		6.8	6.5		6.9	6.5	6.4	6.3	6.4	6.3	6.3
Lead/Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?											
Recall Mode	None	None	C-Max	None	None	C-Max	None	None	None	None	None

Intersection Summary

Cycle Length: 160
Actuated Cycle Length: 160
Offset: 155 (97%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow
Natural Cycle: 140
Control Type: Actuated-Coordinated

Splits and Phases: 2: Cumberland Blvd & Spring Rd

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (veh/h)	8	322	1617	541	36	87	238	45	152	496	260	119
Future Volume (veh/h)	8	322	1617	541	36	87	238	45	152	496	260	119
Number		1	6	16		5	2	12	7	4	14	3
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00		1.00	1.00		1.00	1.00
Parking Bus, Adj		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	1900	1863	1863	1900	1863
Adj Flow Rate, veh/h		346	1739	0		94	256	48	163	533	280	128
Adj No. of Lanes		1	3	0		1	3	0	2	2	0	1
Peak Hour Factor		0.93	0.93	0.93		0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %		2	2	2		2	2	2	2	2	2	2
Cap, veh/h		671	2537	0		186	1813	327	205	543	285	143
Arrive On Green		0.12	0.50	0.00		0.04	0.42	0.42	0.02	0.08	0.08	0.05
Sat Flow, veh/h		1774	5253	0		1774	4332	783	3442	2245	1176	1774
Grp Volume(v), veh/h		346	1739	0		94	198	106	163	420	393	128
Grp Sat Flow(s),veh/h/ln		1774	1695	0		1774	1695	1724	1721	1770	1652	1774
Q Serve(g_s), s		17.3	41.7	0.0		4.8	5.8	6.1	7.5	37.9	38.0	8.6
Cycle Q Clear(g_c), s		17.3	41.7	0.0		4.8	5.8	6.1	7.5	37.9	38.0	8.6
Prop In Lane		1.00		0.00		1.00		0.45	1.00		0.71	1.00
Lane Grp Cap(c), veh/h		671	2537	0		186	1419	722	205	428	400	143
V/C Ratio(X)		0.52	0.69	0.00		0.51	0.14	0.15	0.79	0.98	0.98	0.89
Avail Cap(c_a), veh/h		710	2537	0		212	1419	722	206	428	400	143
HCM Platoon Ratio		1.00	1.00	1.00		1.00	1.00	1.00	0.33	0.33	0.33	1.00
Upstream Filter(I)		1.00	1.00	0.00		1.00	1.00	1.00	0.86	0.86	0.86	1.00
Uniform Delay (d), s/veh		20.0	30.5	0.0		28.5	28.7	28.8	77.4	73.2	73.3	48.7
Incr Delay (d2), s/veh		0.6	1.5	0.0		2.1	0.2	0.4	16.6	35.4	37.5	45.4
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
%ile BackOfQ(95%),veh/ln		13.3	27.1	0.0		4.4	4.9	5.4	7.2	30.1	28.7	10.2
LnGrp Delay(d),s/veh		20.7	32.0	0.0		30.6	28.9	29.2	94.0	108.6	110.8	94.0
LnGrp LOS		C	C			C	C	C	F	F	F	F
Approach Vol, veh/h			2085				398			976		
Approach Delay, s/veh			30.2				29.4			107.1		
Approach LOS			C				C			F		

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	26.5	73.5	15.0	45.0	13.7	86.3	15.9	44.1
Change Period (Y+Rc), s	* 6.8	6.5	6.4	* 6.3	6.9	6.5	6.4	* 6.3
Max Green Setting (Gmax), s	* 23	63.5	8.6	* 39	9.1	77.5	9.6	* 38
Max Q Clear Time (g_c+I1), s	19.3	8.1	10.6	40.0	6.8	43.7	9.5	18.4
Green Ext Time (p_c), s	0.5	53.9	0.0	0.0	0.0	33.3	0.0	4.9

Intersection Summary	
HCM 2010 Ctrl Delay	53.3
HCM 2010 LOS	D

Notes

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (veh/h)	389	146
Future Volume (veh/h)	389	146
Number	8	18
Initial Q (Qb), veh	0	0
Ped-Bike Adj(A_pbT)		1.00
Parking Bus, Adj	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863
Adj Flow Rate, veh/h	418	0
Adj No. of Lanes	2	1
Peak Hour Factor	0.93	0.93
Percent Heavy Veh, %	2	2
Cap, veh/h	835	374
Arrive On Green	0.24	0.00
Sat Flow, veh/h	3539	1583
Grp Volume(v), veh/h	418	0
Grp Sat Flow(s),veh/h/ln	1770	1583
Q Serve(g_s), s	16.4	0.0
Cycle Q Clear(g_c), s	16.4	0.0
Prop In Lane		1.00
Lane Grp Cap(c), veh/h	835	374
V/C Ratio(X)	0.50	0.00
Avail Cap(c_a), veh/h	835	374
HCM Platoon Ratio	1.00	1.00
Upstream Filter(I)	1.00	0.00
Uniform Delay (d), s/veh	53.0	0.0
Incr Delay (d2), s/veh	0.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0
%ile BackOfQ(95%),veh/ln	12.7	0.0
LnGrp Delay(d),s/veh	53.4	0.0
LnGrp LOS	D	
Approach Vol, veh/h	546	
Approach Delay, s/veh	62.9	
Approach LOS	E	
Timer		

Lane Group	WBL	WBT	WBR	NBT	SBL	SBT	Ø4	Ø5
Lane Configurations								
Traffic Volume (vph)	7	0	455	389	167	918		
Future Volume (vph)	7	0	455	389	167	918		
Turn Type	Perm	NA	Perm	NA	pm+pt	NA		
Protected Phases		8		2	1	6	4	5
Permitted Phases	8		8		6			
Detector Phase	8	8	8	2	1	6		
Switch Phase								
Minimum Initial (s)	6.0	6.0	6.0	15.0	5.0	15.0	6.0	5.0
Minimum Split (s)	42.0	42.0	42.0	41.0	11.0	41.0	42.0	11.0
Total Split (s)	56.0	56.0	56.0	80.0	24.0	92.0	56.0	12.0
Total Split (%)	35.0%	35.0%	35.0%	50.0%	15.0%	57.5%	35%	8%
Yellow Time (s)	3.0	3.0	3.0	3.5	3.0	3.5	3.0	3.0
All-Red Time (s)	3.0	3.0	3.0	2.0	3.0	2.0	3.0	3.0
Lost Time Adjust (s)		0.0	0.0	0.0	0.0	0.0		
Total Lost Time (s)		6.0	6.0	5.5	6.0	5.5		
Lead/Lag				Lag	Lead	Lag		Lead
Lead-Lag Optimize?								
Recall Mode	None	None	None	C-Max	None	C-Max	None	None

Intersection Summary

Cycle Length: 160
Actuated Cycle Length: 160
Offset: 142 (89%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 95
Control Type: Actuated-Coordinated

Splits and Phases: 3: Cumberland Blvd & Spring Hill Pkwy

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	7	0	455	0	389	10	167	918	0
Future Volume (veh/h)	0	0	0	7	0	455	0	389	10	167	918	0
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	0.96		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	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	0	0	0	7	0	0	0	405	10	174	956	0
Adj No. of Lanes	0	1	0	0	1	1	1	4	0	1	3	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	238	0	218	0	202	468	4677	115	798	4070	0
Arrive On Green	0.00	0.00	0.00	0.13	0.00	0.00	0.00	0.72	0.72	0.08	1.00	0.00
Sat Flow, veh/h	0	1863	0	1355	0	1583	1774	6482	159	1774	5253	0
Grp Volume(v), veh/h	0	0	0	7	0	0	0	300	115	174	956	0
Grp Sat Flow(s),veh/h/ln	0	1863	0	1355	0	1583	1774	1602	1835	1774	1695	0
Q Serve(g_s), s	0.0	0.0	0.0	0.7	0.0	0.0	0.0	3.0	3.0	4.2	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.7	0.0	0.0	0.0	3.0	3.0	4.2	0.0	0.0
Prop In Lane	0.00		0.00	1.00		1.00	1.00		0.09	1.00		0.00
Lane Grp Cap(c), veh/h	0	238	0	218	0	202	468	3468	1324	798	4070	0
V/C Ratio(X)	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.09	0.09	0.22	0.23	0.00
Avail Cap(c_a), veh/h	0	582	0	469	0	495	534	3468	1324	924	4070	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	0.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00	1.00	0.77	0.77	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	61.2	0.0	0.0	0.0	6.6	6.6	4.4	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.1	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	0.0	0.5	0.0	0.0	0.0	2.4	2.8	3.6	0.1	0.0
LnGrp Delay(d),s/veh	0.0	0.0	0.0	61.3	0.0	0.0	0.0	6.7	6.7	4.5	0.1	0.0
LnGrp LOS				E				A	A	A	A	
Approach Vol, veh/h		0			7			415			1130	
Approach Delay, s/veh		0.0			61.3			6.7			0.8	
Approach LOS					E			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	12.6	121.0		26.4	0.0	133.6		26.4
Change Period (Y+Rc), s	6.0	5.5		6.0	6.0	5.5		6.0
Max Green Setting (Gmax), s	18.0	74.5		50.0	6.0	86.5		50.0
Max Q Clear Time (g_c+I1), s	6.2	5.0		0.0	0.0	2.0		2.7
Green Ext Time (p_c), s	0.4	37.9		0.0	0.0	41.6		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	2.6
HCM 2010 LOS	A

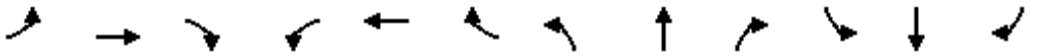
Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	3	175	461	10	0	1
Future Vol, veh/h	3	175	461	10	0	1
Conflicting Peds, #/hr	0	0	0	1	1	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	188	496	11	0	1

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	507	0	-	0	698	502
Stage 1	-	-	-	-	502	-
Stage 2	-	-	-	-	196	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1058	-	-	-	407	569
Stage 1	-	-	-	-	608	-
Stage 2	-	-	-	-	837	-
Platoon blocked, %			-	-		
Mov Cap-1 Maneuver	1058	-	-	-	405	568
Mov Cap-2 Maneuver	-	-	-	-	405	-
Stage 1	-	-	-	-	607	-
Stage 2	-	-	-	-	834	-

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

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1058	-	-	-	568
HCM Lane V/C Ratio	0.003	-	-	-	0.002
HCM Control Delay (s)	8.4	0	-	-	11.4
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	2010	0	0	382	5	0	0	2	0	0	0
Future Volume (Veh/h)	0	2010	0	0	382	5	0	0	2	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	0	2072	0	0	394	5	0	0	2	0	0	0
Pedestrians					9						9	
Lane Width (ft)					12.0						12.0	
Walking Speed (ft/s)					3.5						3.5	
Percent Blockage					1						1	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		368			1129							
pX, platoon unblocked				0.55			0.55	0.55	0.55	0.55	0.55	
vC, conflicting volume	403			2072			2170	2475	700	1105	2478	110
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	403			102			280	832	0	0	836	110
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	100	100	100	100
cM capacity (veh/h)	1142			822			357	166	593	549	165	914

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1
Volume Total	829	829	414	113	113	113	61	2	0
Volume Left	0	0	0	0	0	0	0	0	0
Volume Right	0	0	0	0	0	0	5	2	0
cSH	1700	1700	1700	1700	1700	1700	1700	593	1700
Volume to Capacity	0.49	0.49	0.24	0.07	0.07	0.07	0.04	0.00	0.00
Queue Length 95th (ft)	0	0	0	0	0	0	0	0	0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.1	0.0
Lane LOS								B	A
Approach Delay (s)	0.0			0.0				11.1	0.0
Approach LOS								B	A

Intersection Summary				
Average Delay	0.0			
Intersection Capacity Utilization	51.4%	ICU Level of Service		A
Analysis Period (min)	15			

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	2029	1	0	382	0	0	0	0	0	0	4
Future Vol, veh/h	0	2029	1	0	382	0	0	0	0	0	0	4
Conflicting Peds, #/hr	0	0	0	0	0	10	0	0	10	10	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Free	-	-	Free	-	-	Yield	-	-	Yield
Storage Length	-	-	-	-	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	98	98	98	98	98	98	98	98	98	98	98	98
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	2070	1	0	390	0	0	0	0	0	0	4

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	-	-	-	0	-	-	1045	-	-	195
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	-	-	-	7.14	-	-	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	-	-	-	3.92	-	-	3.92
Pot Cap-1 Maneuver	0	-	0	0	-	0	0	0	194	0	0	692
Stage 1	0	-	0	0	-	0	0	0	-	0	0	-
Stage 2	0	-	0	0	-	0	0	0	-	0	0	-
Platoon blocked, %		-			-							
Mov Cap-1 Maneuver	-	-	-	-	-	-	-	-	192	-	-	692
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	0	10.2
HCM LOS			A	B

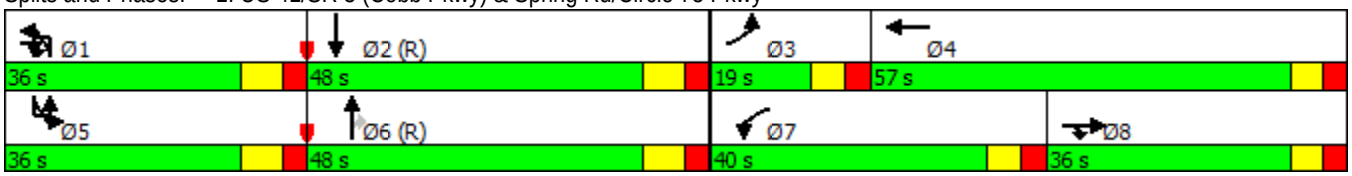
Minor Lane/Major Mvmt	NBLn1	EBT	WBT	SBLn1
Capacity (veh/h)	-	-	-	692
HCM Lane V/C Ratio	-	-	-	0.006
HCM Control Delay (s)	0	-	-	10.2
HCM Lane LOS	A	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	114	261	415	750	357	1428	1880	288	50	1336
Future Volume (vph)	114	261	415	750	357	1428	1880	288	50	1336
Turn Type	Prot	NA	pt+ov	Prot	NA	Prot	NA	Perm	Prot	NA
Protected Phases	3	8	8 1!	7	4	1	6		5	2
Permitted Phases								6		
Detector Phase	3	8	8 1	7	4	1	6	6	5	2
Switch Phase										
Minimum Initial (s)	6.0	6.0		6.0	6.0	6.0	14.0	14.0	6.0	14.0
Minimum Split (s)	19.0	19.0		19.0	57.0	20.0	36.0	36.0	36.0	44.0
Total Split (s)	19.0	36.0		40.0	57.0	36.0	48.0	48.0	36.0	48.0
Total Split (%)	11.9%	22.5%		25.0%	35.6%	22.5%	30.0%	30.0%	22.5%	30.0%
Yellow Time (s)	4.0	4.0		4.0	4.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0		7.0	7.0	8.0	8.0	8.0	8.0	8.0
Lead/Lag	Lead	Lag		Lead	Lag	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?										
Recall Mode	None	None		None	None	None	C-Min	C-Min	None	C-Min

Intersection Summary

Cycle Length: 160
Actuated Cycle Length: 160
Offset: 26 (16%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 150
Control Type: Actuated-Coordinated
! Phase conflict between lane groups.

Splits and Phases: 1: US 41/SR 3 (Cobb Pkwy) & Spring Rd/Circle 75 Pkwy

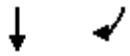


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	114	261	415	750	357	98	9	1428	1880	288	14	50
Future Volume (vph)	114	261	415	750	357	98	9	1428	1880	288	14	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0			8.0	8.0	8.0		8.0
Lane Util. Factor	1.00	0.95	0.88	0.94	0.95			0.94	0.86	1.00		0.97
Frt	1.00	1.00	0.85	1.00	0.97			1.00	1.00	0.85		1.00
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.95	1.00	1.00		0.95
Satd. Flow (prot)	1770	3539	2787	4990	3425			4990	6408	1583		3433
Flt Permitted	0.95	1.00	1.00	0.95	1.00			0.95	1.00	1.00		0.95
Satd. Flow (perm)	1770	3539	2787	4990	3425			4990	6408	1583		3433
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	121	278	441	798	380	104	10	1519	2000	306	15	53
RTOR Reduction (vph)	0	0	76	0	18	0	0	0	0	110	0	0
Lane Group Flow (vph)	121	278	365	798	466	0	0	1529	2000	196	0	68
Turn Type	Prot	NA	pt+ov	Prot	NA		Prot	Prot	NA	Perm	Prot	Prot
Protected Phases	3	8	8 1!	7	4		1!	1	6		5	5
Permitted Phases										6		
Actuated Green, G (s)	12.0	19.0	66.6	30.5	37.5			40.6	71.9	71.9		8.6
Effective Green, g (s)	12.0	19.0	66.6	30.5	37.5			40.6	71.9	71.9		8.6
Actuated g/C Ratio	0.08	0.12	0.42	0.19	0.23			0.25	0.45	0.45		0.05
Clearance Time (s)	7.0	7.0		7.0	7.0			8.0	8.0	8.0		8.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	5.0	5.0		3.0
Lane Grp Cap (vph)	132	420	1160	951	802			1266	2879	711		184
v/s Ratio Prot	0.07	c0.08	0.13	c0.16	0.14			c0.31	0.31			0.02
v/s Ratio Perm										0.12		
v/c Ratio	0.92	0.66	0.31	0.84	0.58			1.21	0.69	0.28		0.37
Uniform Delay, d1	73.5	67.4	31.4	62.4	54.3			59.7	35.3	27.7		73.1
Progression Factor	0.72	0.86	1.22	1.00	1.00			1.00	1.00	1.00		1.00
Incremental Delay, d2	42.9	2.8	0.1	6.6	1.1			101.1	1.4	1.0		1.3
Delay (s)	95.7	60.6	38.5	69.0	55.4			160.8	36.7	28.7		74.3
Level of Service	F	E	D	E	E			F	D	C		E
Approach Delay (s)		54.0			63.8				85.5			
Approach LOS		D			E				F			

Intersection Summary			
HCM 2000 Control Delay	73.1	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	30.0
Intersection Capacity Utilization	97.4%	ICU Level of Service	F
Analysis Period (min)	15		

! Phase conflict between lane groups.

c Critical Lane Group



Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	1336	63
Future Volume (vph)	1336	63
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	8.0	
Lane Util. Factor	0.81	
Frt	0.99	
Flt Protected	1.00	
Satd. Flow (prot)	7493	
Flt Permitted	1.00	
Satd. Flow (perm)	7493	
Peak-hour factor, PHF	0.94	0.94
Adj. Flow (vph)	1421	67
RTOR Reduction (vph)	5	0
Lane Group Flow (vph)	1483	0
Turn Type	NA	
Protected Phases	2	
Permitted Phases		
Actuated Green, G (s)	39.9	
Effective Green, g (s)	39.9	
Actuated g/C Ratio	0.25	
Clearance Time (s)	8.0	
Vehicle Extension (s)	5.0	
Lane Grp Cap (vph)	1868	
v/s Ratio Prot	c0.20	
v/s Ratio Perm		
v/c Ratio	0.79	
Uniform Delay, d1	56.2	
Progression Factor	1.00	
Incremental Delay, d2	3.6	
Delay (s)	59.8	
Level of Service	E	
Approach Delay (s)	60.4	
Approach LOS	E	

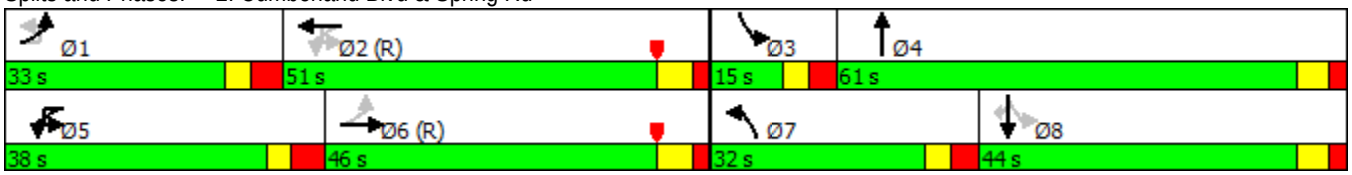
Intersection Summary

Lane Group	EBL	EBT	WBU	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	315	618	73	336	1436	582	637	88	616	587
Future Volume (vph)	315	618	73	336	1436	582	637	88	616	587
Turn Type	pm+pt	NA	pm+pt	pm+pt	NA	Prot	NA	pm+pt	NA	Perm
Protected Phases	1	6	5	5	2	7	4	3	8	
Permitted Phases	6		2	2				8		8
Detector Phase	1	6	5	5	2	7	4	3	8	8
Switch Phase										
Minimum Initial (s)	4.0	12.0	4.0	4.0	12.0	4.0	6.0	4.0	6.0	6.0
Minimum Split (s)	15.0	44.0	15.0	15.0	41.0	15.0	45.0	15.0	44.0	44.0
Total Split (s)	33.0	46.0	38.0	38.0	51.0	32.0	61.0	15.0	44.0	44.0
Total Split (%)	20.6%	28.8%	23.8%	23.8%	31.9%	20.0%	38.1%	9.4%	27.5%	27.5%
Yellow Time (s)	3.0	4.5	3.0	3.0	4.5	3.0	3.8	3.0	3.8	3.8
All-Red Time (s)	3.8	2.0	3.9	3.9	2.0	3.4	2.5	3.4	2.5	2.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.8	6.5		6.9	6.5	6.4	6.3	6.4	6.3	6.3
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?										
Recall Mode	None	C-Max	None	None	C-Max	None	None	None	None	None

Intersection Summary

Cycle Length: 160
Actuated Cycle Length: 160
Offset: 77 (48%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow
Natural Cycle: 150
Control Type: Actuated-Coordinated

Splits and Phases: 2: Cumberland Blvd & Spring Rd



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (veh/h)	315	618	292	73	336	1436	77	582	637	158	88	616
Future Volume (veh/h)	315	618	292	73	336	1436	77	582	637	158	88	616
Number	1	6	16		5	2	12	7	4	14	3	8
Initial Q (Qb), veh	0	0	0		0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00		1.00		1.00	1.00		1.00	1.00	
Parking Bus, Adj	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	1900	1863	1863	1900	1863	1863
Adj Flow Rate, veh/h	318	624	0		339	1451	78	588	643	160	89	622
Adj No. of Lanes	1	3	0		1	3	0	2	2	0	1	2
Peak Hour Factor	0.99	0.99	0.99		0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	2	2	2		2	2	2	2	2	2	2	2
Cap, veh/h	337	1649	0		487	1534	82	551	888	221	204	732
Arrive On Green	0.16	0.32	0.00		0.15	0.31	0.31	0.11	0.21	0.21	0.05	0.21
Sat Flow, veh/h	1774	5253	0		1774	4940	266	3442	2809	698	1774	3539
Grp Volume(v), veh/h	318	624	0		339	996	533	588	405	398	89	622
Grp Sat Flow(s),veh/h/ln	1774	1695	0		1774	1695	1816	1721	1770	1738	1774	1770
Q Serve(g_s), s	23.5	15.1	0.0		20.6	45.9	45.9	25.6	34.1	34.1	6.3	27.1
Cycle Q Clear(g_c), s	23.5	15.1	0.0		20.6	45.9	45.9	25.6	34.1	34.1	6.3	27.1
Prop In Lane	1.00		0.00		1.00		0.15	1.00		0.40	1.00	
Lane Grp Cap(c), veh/h	337	1649	0		487	1053	564	551	560	550	204	732
V/C Ratio(X)	0.94	0.38	0.00		0.70	0.95	0.95	1.07	0.72	0.72	0.44	0.85
Avail Cap(c_a), veh/h	344	1649	0		573	1053	564	551	605	594	210	834
HCM Platoon Ratio	1.00	1.00	1.00		1.00	1.00	1.00	0.67	0.67	0.67	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00		1.00	1.00	1.00	0.88	0.88	0.88	1.00	1.00
Uniform Delay (d), s/veh	50.2	41.6	0.0		30.1	53.8	53.8	71.4	56.5	56.6	47.4	61.0
Incr Delay (d2), s/veh	33.9	0.7	0.0		3.0	17.4	26.7	55.5	3.5	3.6	1.5	7.5
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
%ile BackOfQ(95%),veh/ln	23.8	11.6	0.0		15.7	32.0	35.7	29.6	23.6	23.3	5.7	20.1
LnGrp Delay(d),s/veh	84.0	42.3	0.0		33.1	71.3	80.5	126.9	60.0	60.1	48.9	68.5
LnGrp LOS	F	D			C	E	F	F	E	E	D	E
Approach Vol, veh/h		942				1868			1391			711
Approach Delay, s/veh		56.4				67.0			88.3			66.1
Approach LOS		E				E			F			E

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	32.4	56.2	14.5	56.9	30.2	58.4	32.0	39.4
Change Period (Y+Rc), s	* 6.8	6.5	6.4	* 6.3	6.9	6.5	6.4	* 6.3
Max Green Setting (Gmax), s	* 26	44.5	8.6	* 55	31.1	39.5	25.6	* 38
Max Q Clear Time (g_c+I1), s	25.5	47.9	8.3	36.1	22.6	17.1	27.6	29.1
Green Ext Time (p_c), s	0.1	0.0	0.0	5.8	0.8	22.1	0.0	4.0

Intersection Summary	
HCM 2010 Ctrl Delay	70.9
HCM 2010 LOS	E

Notes

Movement	SBR
Lane Configurations	
Traffic Volume (veh/h)	587
Future Volume (veh/h)	587
Number	18
Initial Q (Qb), veh	0
Ped-Bike Adj(A_pbT)	1.00
Parking Bus, Adj	1.00
Adj Sat Flow, veh/h/ln	1863
Adj Flow Rate, veh/h	0
Adj No. of Lanes	1
Peak Hour Factor	0.99
Percent Heavy Veh, %	2
Cap, veh/h	328
Arrive On Green	0.00
Sat Flow, veh/h	1583
Grp Volume(v), veh/h	0
Grp Sat Flow(s),veh/h/ln	1583
Q Serve(g_s), s	0.0
Cycle Q Clear(g_c), s	0.0
Prop In Lane	1.00
Lane Grp Cap(c), veh/h	328
V/C Ratio(X)	0.00
Avail Cap(c_a), veh/h	373
HCM Platoon Ratio	1.00
Upstream Filter(I)	0.00
Uniform Delay (d), s/veh	0.0
Incr Delay (d2), s/veh	0.0
Initial Q Delay(d3),s/veh	0.0
%ile BackOfQ(95%),veh/ln	0.0
LnGrp Delay(d),s/veh	0.0
LnGrp LOS	
Approach Vol, veh/h	
Approach Delay, s/veh	
Approach LOS	
Timer	

Lane Group	WBL	WBT	WBR	NBU	NBL	NBT	SBL	SBT	Ø4
Lane Configurations									
Traffic Volume (vph)	19	0	459	3	0	970	302	706	
Future Volume (vph)	19	0	459	3	0	970	302	706	
Turn Type	Perm	NA	Perm	pm+pt	pm+pt	NA	pm+pt	NA	
Protected Phases		8		5	5	2	1	6	4
Permitted Phases	8		8	2	2		6		
Detector Phase	8	8	8	5	5	2	1	6	
Switch Phase									
Minimum Initial (s)	6.0	6.0	6.0	5.0	5.0	15.0	5.0	15.0	6.0
Minimum Split (s)	25.0	25.0	25.0	11.0	11.0	41.0	11.0	41.0	42.0
Total Split (s)	50.0	50.0	50.0	15.0	15.0	76.0	34.0	95.0	50.0
Total Split (%)	31.3%	31.3%	31.3%	9.4%	9.4%	47.5%	21.3%	59.4%	31%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.5	3.0	3.5	3.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	2.0	3.0	2.0	3.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0	
Total Lost Time (s)		6.0	6.0		6.0	5.5	6.0	5.5	
Lead/Lag				Lead	Lead	Lag	Lead	Lag	
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	None	C-Max	None	C-Max	None

Intersection Summary

Cycle Length: 160
Actuated Cycle Length: 160
Offset: 150 (94%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
Natural Cycle: 95
Control Type: Actuated-Coordinated

Splits and Phases: 3: Cumberland Blvd & Spring Hill Pkwy

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	19	0	459	3	0	970	71	302	706
Future Volume (veh/h)	0	0	0	19	0	459	3	0	970	71	302	706
Number	7	4	14	3	8	18		5	2	12	1	6
Initial Q (Qb), veh	0	0	0	0	0	0		0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	0.96		1.00		1.00		1.00	1.00	
Parking Bus, Adj	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
Adj Flow Rate, veh/h	0	0	0	19	0	0		0	990	72	308	720
Adj No. of Lanes	0	1	0	0	1	1		1	4	0	1	3
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98		0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2		2	2	2	2	2
Cap, veh/h	0	248	0	225	0	210		544	4197	303	507	4044
Arrive On Green	0.00	0.00	0.00	0.13	0.00	0.00		0.00	0.68	0.68	0.15	1.00
Sat Flow, veh/h	0	1863	0	1358	0	1583		1774	6146	444	1774	5253
Grp Volume(v), veh/h	0	0	0	19	0	0		0	773	289	308	720
Grp Sat Flow(s),veh/h/ln	0	1863	0	1358	0	1583		1774	1602	1784	1774	1695
Q Serve(g_s), s	0.0	0.0	0.0	2.0	0.0	0.0		0.0	9.7	9.8	9.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	2.0	0.0	0.0		0.0	9.7	9.8	9.0	0.0
Prop In Lane	0.00		0.00	1.00		1.00		1.00		0.25	1.00	
Lane Grp Cap(c), veh/h	0	248	0	225	0	210		544	3282	1218	507	4044
V/C Ratio(X)	0.00	0.00	0.00	0.08	0.00	0.00		0.00	0.24	0.24	0.61	0.18
Avail Cap(c_a), veh/h	0	512	0	418	0	435		643	3282	1218	684	4044
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	2.00	2.00
Upstream Filter(I)	0.00	0.00	0.00	1.00	0.00	0.00		0.00	1.00	1.00	0.39	0.39
Uniform Delay (d), s/veh	0.0	0.0	0.0	61.0	0.0	0.0		0.0	9.6	9.6	5.7	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.3	0.0	0.0		0.0	0.2	0.5	0.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	0.0	0.0	1.4	0.0	0.0		0.0	7.8	8.6	6.4	0.0
LnGrp Delay(d),s/veh	0.0	0.0	0.0	61.3	0.0	0.0		0.0	9.8	10.1	6.2	0.0
LnGrp LOS				E					A	B	A	A
Approach Vol, veh/h		0			19				1062			1028
Approach Delay, s/veh		0.0			61.3				9.8			1.9
Approach LOS					E				A			A

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	18.0	114.8		27.3	0.0	132.7		27.3
Change Period (Y+Rc), s	6.0	5.5		6.0	6.0	5.5		6.0
Max Green Setting (Gmax), s	28.0	70.5		44.0	9.0	89.5		44.0
Max Q Clear Time (g_c+I1), s	11.0	11.8		0.0	0.0	2.0		4.0
Green Ext Time (p_c), s	1.0	44.7		0.0	0.0	59.6		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	6.4
HCM 2010 LOS	A

Notes

Movement	SBR
Lane Configurations	
Traffic Volume (veh/h)	0
Future Volume (veh/h)	0
Number	16
Initial Q (Qb), veh	0
Ped-Bike Adj(A_pbT)	1.00
Parking Bus, Adj	1.00
Adj Sat Flow, veh/h/ln	1900
Adj Flow Rate, veh/h	0
Adj No. of Lanes	0
Peak Hour Factor	0.98
Percent Heavy Veh, %	2
Cap, veh/h	0
Arrive On Green	0.00
Sat Flow, veh/h	0
Grp Volume(v), veh/h	0
Grp Sat Flow(s),veh/h/ln	0
Q Serve(g_s), s	0.0
Cycle Q Clear(g_c), s	0.0
Prop In Lane	0.00
Lane Grp Cap(c), veh/h	0
V/C Ratio(X)	0.00
Avail Cap(c_a), veh/h	0
HCM Platoon Ratio	2.00
Upstream Filter(I)	0.00
Uniform Delay (d), s/veh	0.0
Incr Delay (d2), s/veh	0.0
Initial Q Delay(d3),s/veh	0.0
%ile BackOfQ(95%),veh/ln	0.0
LnGrp Delay(d),s/veh	0.0
LnGrp LOS	
Approach Vol, veh/h	
Approach Delay, s/veh	
Approach LOS	
Timer	

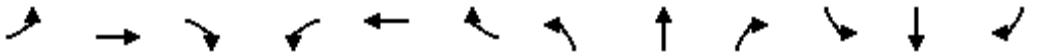
Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	373	476	28	10	2
Future Vol, veh/h	0	373	476	28	10	2
Conflicting Peds, #/hr	0	0	0	1	1	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	401	512	30	11	2

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	543	0	-	0	930	528
Stage 1	-	-	-	-	528	-
Stage 2	-	-	-	-	402	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1026	-	-	-	297	550
Stage 1	-	-	-	-	592	-
Stage 2	-	-	-	-	676	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1026	-	-	-	296	549
Mov Cap-2 Maneuver	-	-	-	-	296	-
Stage 1	-	-	-	-	591	-
Stage 2	-	-	-	-	675	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	16.7
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1026	-	-	-	321
HCM Lane V/C Ratio	-	-	-	-	0.04
HCM Control Delay (s)	0	-	-	-	16.7
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0.1



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	768	1	0	1623	12	0	0	10	0	0	4
Future Volume (Veh/h)	0	768	1	0	1623	12	0	0	10	0	0	4
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	808	1	0	1708	13	0	0	11	0	0	4
Pedestrians					9						9	
Lane Width (ft)					12.0						12.0	
Walking Speed (ft/s)					3.5						3.5	
Percent Blockage					1						1	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		368			1129							
pX, platoon unblocked												
vC, conflicting volume	1717			808			1236	2526	279	2002	2532	442
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1717			808			1236	2526	279	2002	2532	442
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	98	100	100	99
cM capacity (veh/h)	362			813			131	27	712	34	27	558

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1
Volume Total	323	323	163	488	488	488	257	11	4
Volume Left	0	0	0	0	0	0	0	0	0
Volume Right	0	0	1	0	0	0	13	11	4
cSH	1700	1700	1700	1700	1700	1700	1700	712	558
Volume to Capacity	0.19	0.19	0.10	0.29	0.29	0.29	0.15	0.02	0.01
Queue Length 95th (ft)	0	0	0	0	0	0	0	1	1
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.1	11.5
Lane LOS								B	B
Approach Delay (s)	0.0			0.0				10.1	11.5
Approach LOS								B	B

Intersection Summary				
Average Delay	0.1			
Intersection Capacity Utilization	33.7%	ICU Level of Service		A
Analysis Period (min)	15			

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	773	4	0	1629	1	0	0	7	0	0	7
Future Vol, veh/h	0	773	4	0	1629	1	0	0	7	0	0	7
Conflicting Peds, #/hr	0	0	0	0	0	10	0	0	10	10	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Free	-	-	Free	-	-	Yield	-	-	Yield
Storage Length	-	-	-	-	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	814	4	0	1715	1	0	0	7	0	0	7

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	-	-	-	0	-	-	417	-	-	857
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	-	-	-	7.14	-	-	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	-	-	-	3.92	-	-	3.92
Pot Cap-1 Maneuver	0	-	0	0	-	0	0	0	500	0	0	258
Stage 1	0	-	0	0	-	0	0	0	-	0	0	-
Stage 2	0	-	0	0	-	0	0	0	-	0	0	-
Platoon blocked, %		-			-							
Mov Cap-1 Maneuver	-	-	-	-	-	-	-	-	495	-	-	258
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	12.4	19.4
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	EBT	WBT	SBLn1
Capacity (veh/h)	495	-	-	258
HCM Lane V/C Ratio	0.015	-	-	0.029
HCM Control Delay (s)	12.4	-	-	19.4
HCM Lane LOS	B	-	-	C
HCM 95th %tile Q(veh)	0	-	-	0.1

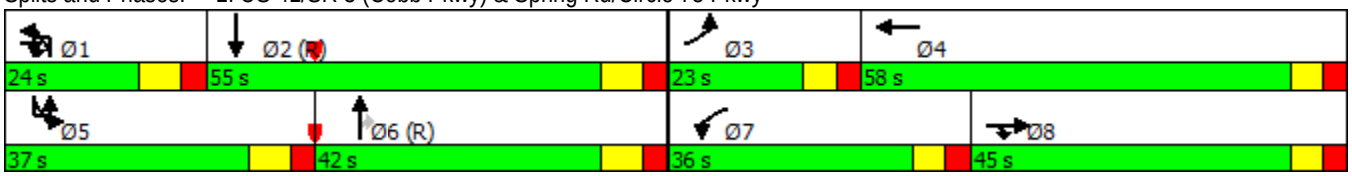
Future “Build” Intersections Analysis

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	117	568	1347	239	66	372	798	445	146	1917
Future Volume (vph)	117	568	1347	239	66	372	798	445	146	1917
Turn Type	Prot	NA	pt+ov	Prot	NA	Prot	NA	Perm	Prot	NA
Protected Phases	3	8	8 1!	7	4	1	6		5	2
Permitted Phases								6		
Detector Phase	3	8	8 1	7	4	1	6	6	5	2
Switch Phase										
Minimum Initial (s)	6.0	6.0		6.0	6.0	6.0	14.0	14.0	6.0	14.0
Minimum Split (s)	19.0	19.0		19.0	57.0	20.0	36.0	36.0	36.0	44.0
Total Split (s)	23.0	45.0		36.0	58.0	24.0	42.0	42.0	37.0	55.0
Total Split (%)	14.4%	28.1%		22.5%	36.3%	15.0%	26.3%	26.3%	23.1%	34.4%
Yellow Time (s)	4.0	4.0		4.0	4.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0		7.0	7.0	8.0	8.0	8.0	8.0	8.0
Lead/Lag	Lead	Lag		Lead	Lag	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?										
Recall Mode	None	None		None	None	None	C-Min	C-Min	None	C-Min

Intersection Summary

Cycle Length: 160
Actuated Cycle Length: 160
Offset: 120 (75%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 150
Control Type: Actuated-Coordinated
! Phase conflict between lane groups.

Splits and Phases: 1: US 41/SR 3 (Cobb Pkwy) & Spring Rd/Circle 75 Pkwy



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	117	568	1347	239	66	15	5	372	798	445	22	146
Future Volume (vph)	117	568	1347	239	66	15	5	372	798	445	22	146
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0			8.0	8.0	8.0		8.0
Lane Util. Factor	1.00	0.95	0.88	0.94	0.95			0.94	0.86	1.00		0.97
Frt	1.00	1.00	0.85	1.00	0.97			1.00	1.00	0.85		1.00
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.95	1.00	1.00		0.95
Satd. Flow (prot)	1770	3539	2787	4990	3443			4990	6408	1583		3433
Flt Permitted	0.95	1.00	1.00	0.95	1.00			0.95	1.00	1.00		0.95
Satd. Flow (perm)	1770	3539	2787	4990	3443			4990	6408	1583		3433
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	127	617	1464	260	72	16	5	404	867	484	24	159
RTOR Reduction (vph)	0	0	96	0	11	0	0	0	0	279	0	0
Lane Group Flow (vph)	127	617	1368	260	77	0	0	409	867	205	0	183
Turn Type	Prot	NA	pt+ov	Prot	NA		Prot	Prot	NA	Perm	Prot	Prot
Protected Phases	3	8	8 1!	7	4		1!	1	6		5	5
Permitted Phases										6		
Actuated Green, G (s)	14.7	53.2	76.2	13.8	52.3			16.0	49.1	49.1		13.9
Effective Green, g (s)	14.7	53.2	76.2	13.8	52.3			16.0	49.1	49.1		13.9
Actuated g/C Ratio	0.09	0.33	0.48	0.09	0.33			0.10	0.31	0.31		0.09
Clearance Time (s)	7.0	7.0		7.0	7.0			8.0	8.0	8.0		8.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	5.0	5.0		3.0
Lane Grp Cap (vph)	162	1176	1327	430	1125			499	1966	485		298
v/s Ratio Prot	c0.07	0.17	c0.49	0.05	0.02			0.08	0.14			0.05
v/s Ratio Perm										0.13		
v/c Ratio	0.78	0.52	1.03	0.60	0.07			0.82	0.44	0.42		0.61
Uniform Delay, d1	71.1	43.2	41.9	70.5	37.1			70.6	44.4	44.2		70.5
Progression Factor	1.23	0.89	0.35	1.00	1.00			1.00	1.00	1.00		1.00
Incremental Delay, d2	2.3	0.0	17.1	2.4	0.0			10.1	0.7	2.7		3.7
Delay (s)	89.7	38.6	31.6	72.9	37.1			80.7	45.2	46.9		74.2
Level of Service	F	D	C	E	D			F	D	D		E
Approach Delay (s)		36.9			63.8				53.9			
Approach LOS		D			E				D			

Intersection Summary			
HCM 2000 Control Delay	54.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.05		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	30.0
Intersection Capacity Utilization	107.5%	ICU Level of Service	G
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	1917	72
Future Volume (vph)	1917	72
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	8.0	
Lane Util. Factor	0.81	
Frt	0.99	
Flt Protected	1.00	
Satd. Flow (prot)	7503	
Flt Permitted	1.00	
Satd. Flow (perm)	7503	
Peak-hour factor, PHF	0.92	0.92
Adj. Flow (vph)	2084	78
RTOR Reduction (vph)	4	0
Lane Group Flow (vph)	2158	0
Turn Type	NA	
Protected Phases	2	
Permitted Phases		
Actuated Green, G (s)	47.0	
Effective Green, g (s)	47.0	
Actuated g/C Ratio	0.29	
Clearance Time (s)	8.0	
Vehicle Extension (s)	5.0	
Lane Grp Cap (vph)	2204	
v/s Ratio Prot	c0.29	
v/s Ratio Perm		
v/c Ratio	0.98	
Uniform Delay, d1	56.0	
Progression Factor	1.00	
Incremental Delay, d2	14.9	
Delay (s)	70.9	
Level of Service	E	
Approach Delay (s)	71.2	
Approach LOS	E	

Intersection Summary

Lane Group	EBL	EBT	WBU	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	322	1649	115	114	238	176	507	133	391	146
Future Volume (vph)	322	1649	115	114	238	176	507	133	391	146
Turn Type	Prot	NA	pm+pt	pm+pt	NA	Prot	NA	pm+pt	NA	Perm
Protected Phases	1	6	5	5	2	7	4	3	8	
Permitted Phases			2	2				8		8
Detector Phase	1	6	5	5	2	7	4	3	8	8
Switch Phase										
Minimum Initial (s)	4.0	12.0	4.0	4.0	12.0	4.0	6.0	4.0	6.0	6.0
Minimum Split (s)	15.0	44.0	15.0	15.0	41.0	15.0	45.0	15.0	44.0	44.0
Total Split (s)	53.0	76.0	24.0	24.0	47.0	16.0	45.0	15.0	44.0	44.0
Total Split (%)	33.1%	47.5%	15.0%	15.0%	29.4%	10.0%	28.1%	9.4%	27.5%	27.5%
Yellow Time (s)	3.0	4.5	3.0	3.0	4.5	3.0	3.8	3.0	3.8	3.8
All-Red Time (s)	3.8	2.0	3.9	3.9	2.0	3.4	2.5	3.4	2.5	2.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.8	6.5		6.9	6.5	6.4	6.3	6.4	6.3	6.3
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?										
Recall Mode	None	C-Max	None	None	C-Max	None	None	None	None	None

Intersection Summary

Cycle Length: 160
Actuated Cycle Length: 160
Offset: 77 (48%), Referenced to phase 2:WBTL and 6:EBT, Start of Yellow
Natural Cycle: 150
Control Type: Actuated-Coordinated

Splits and Phases: 2: Cumberland Blvd & Spring Rd

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (veh/h)	8	322	1649	546	115	114	238	45	176	507	264	133
Future Volume (veh/h)	8	322	1649	546	115	114	238	45	176	507	264	133
Number		1	6	16		5	2	12	7	4	14	3
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00		1.00	1.00		1.00	1.00
Parking Bus, Adj		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	1900	1863	1863	1900	1863
Adj Flow Rate, veh/h		346	1773	0		123	256	48	189	545	284	143
Adj No. of Lanes		1	3	0		1	3	0	2	2	0	1
Peak Hour Factor		0.93	0.93	0.93		0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %		2	2	2		2	2	2	2	2	2	2
Cap, veh/h		373	2453	0		204	1437	260	206	545	283	140
Arrive On Green		0.21	0.48	0.00		0.06	0.33	0.33	0.02	0.08	0.08	0.05
Sat Flow, veh/h		1774	5253	0		1774	4332	782	3442	2251	1171	1774
Grp Volume(v), veh/h		346	1773	0		123	198	106	189	428	401	143
Grp Sat Flow(s),veh/h/ln		1774	1695	0		1774	1695	1724	1721	1770	1653	1774
Q Serve(g_s), s		30.6	44.3	0.0		7.3	6.6	7.0	8.8	38.7	38.7	8.6
Cycle Q Clear(g_c), s		30.6	44.3	0.0		7.3	6.6	7.0	8.8	38.7	38.7	8.6
Prop In Lane		1.00		0.00		1.00		0.45	1.00		0.71	1.00
Lane Grp Cap(c), veh/h		373	2453	0		204	1125	572	206	428	400	140
V/C Ratio(X)		0.93	0.72	0.00		0.60	0.18	0.18	0.92	1.00	1.00	1.02
Avail Cap(c_a), veh/h		512	2453	0		290	1125	572	206	428	400	140
HCM Platoon Ratio		1.00	1.00	1.00		1.00	1.00	1.00	0.33	0.33	0.33	1.00
Upstream Filter(I)		1.00	1.00	0.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh		62.0	32.9	0.0		34.3	37.9	38.1	78.0	73.6	73.6	51.5
Incr Delay (d2), s/veh		19.2	1.9	0.0		2.8	0.3	0.7	39.8	43.5	45.7	81.0
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.2
%ile BackOfQ(95%),veh/ln		23.7	28.6	0.0		6.6	5.7	6.2	9.1	43.5	41.0	14.2
LnGrp Delay(d),s/veh		81.3	34.8	0.0		37.1	38.3	38.8	117.9	117.1	119.3	132.7
LnGrp LOS		F	C			D	D	D	F	F	F	F
Approach Vol, veh/h			2119				427			1018		
Approach Delay, s/veh			42.4				38.1			118.1		
Approach LOS			D				D			F		

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	40.4	59.6	15.0	45.0	16.3	83.7	16.0	44.0
Change Period (Y+Rc), s	* 6.8	6.5	6.4	* 6.3	6.9	6.5	6.4	* 6.3
Max Green Setting (Gmax), s	* 46	40.5	8.6	* 39	17.1	69.5	9.6	* 38
Max Q Clear Time (g_c+I1), s	32.6	9.0	10.6	40.7	9.3	46.3	10.8	18.5
Green Ext Time (p_c), s	1.0	31.1	0.0	0.0	0.2	22.9	0.0	5.7

Intersection Summary	
HCM 2010 Ctrl Delay	64.4
HCM 2010 LOS	E

Notes

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (veh/h)	391	146
Future Volume (veh/h)	391	146
Number	8	18
Initial Q (Qb), veh	0	0
Ped-Bike Adj(A_pbT)		1.00
Parking Bus, Adj	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863
Adj Flow Rate, veh/h	420	157
Adj No. of Lanes	2	1
Peak Hour Factor	0.93	0.93
Percent Heavy Veh, %	2	2
Cap, veh/h	834	372
Arrive On Green	0.24	0.24
Sat Flow, veh/h	3539	1577
Grp Volume(v), veh/h	420	157
Grp Sat Flow(s),veh/h/ln	1770	1577
Q Serve(g_s), s	16.5	13.5
Cycle Q Clear(g_c), s	16.5	13.5
Prop In Lane		1.00
Lane Grp Cap(c), veh/h	834	372
V/C Ratio(X)	0.50	0.42
Avail Cap(c_a), veh/h	834	372
HCM Platoon Ratio	1.00	1.00
Upstream Filter(I)	1.00	1.00
Uniform Delay (d), s/veh	53.0	51.9
Incr Delay (d2), s/veh	0.5	0.8
Initial Q Delay(d3),s/veh	0.0	0.0
%ile BackOfQ(95%),veh/ln	12.8	10.0
LnGrp Delay(d),s/veh	53.5	52.7
LnGrp LOS	D	D
Approach Vol, veh/h	720	
Approach Delay, s/veh	69.1	
Approach LOS	E	
Timer		

Lane Group	WBL	WBT	NBT	SBL	SBT	Ø4	Ø5
Lane Configurations							
Traffic Volume (vph)	36	0	393	201	918		
Future Volume (vph)	36	0	393	201	918		
Turn Type	Perm	NA	NA	pm+pt	NA		
Protected Phases		8	2	1	6	4	5
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	6.0	5.0
Minimum Split (s)	25.0	25.0	41.0	11.0	41.0	42.0	11.0
Total Split (s)	50.0	50.0	76.0	34.0	95.0	50.0	15.0
Total Split (%)	31.3%	31.3%	47.5%	21.3%	59.4%	31%	9%
Yellow Time (s)	3.0	3.0	3.5	3.0	3.5	3.0	3.0
All-Red Time (s)	3.0	3.0	2.0	3.0	2.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		
Total Lost Time (s)	6.0	6.0	5.5	6.0	5.5		
Lead/Lag			Lag	Lead	Lag		Lead
Lead-Lag Optimize?							
Recall Mode	None	None	C-Max	None	C-Max	None	None

Intersection Summary
Cycle Length: 160
Actuated Cycle Length: 160
Offset: 137 (86%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
Natural Cycle: 95
Control Type: Actuated-Coordinated

Splits and Phases: 3: Cumberland Blvd & Spring Hill Pkwy

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	36	0	489	0	393	51	201	918	0
Future Volume (veh/h)	0	0	0	36	0	489	0	393	51	201	918	0
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	0.98		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	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	1863	1863	1900
Adj Flow Rate, veh/h	0	0	0	38	0	509	0	409	53	209	956	0
Adj No. of Lanes	0	1	0	1	1	0	1	4	0	1	3	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	512	0	524	0	427	366	3174	398	641	3321	0
Arrive On Green	0.00	0.00	0.00	0.28	0.00	0.28	0.00	0.55	0.55	0.14	1.00	0.00
Sat Flow, veh/h	0	1863	0	1741	0	1552	1774	5811	728	1774	5253	0
Grp Volume(v), veh/h	0	0	0	38	0	509	0	336	126	209	956	0
Grp Sat Flow(s),veh/h/ln	0	1863	0	1741	0	1552	1774	1602	1733	1774	1695	0
Q Serve(g_s), s	0.0	0.0	0.0	2.6	0.0	44.0	0.0	5.5	5.7	8.5	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	2.6	0.0	44.0	0.0	5.5	5.7	8.5	0.0	0.0
Prop In Lane	0.00		0.00	1.00		1.00	1.00		0.42	1.00		0.00
Lane Grp Cap(c), veh/h	0	512	0	524	0	427	366	2625	947	641	3321	0
V/C Ratio(X)	0.00	0.00	0.00	0.07	0.00	1.19	0.00	0.13	0.13	0.33	0.29	0.00
Avail Cap(c_a), veh/h	0	512	0	524	0	427	464	2625	947	828	3321	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	0.00	0.00	0.00	1.00	0.00	1.00	0.00	1.00	1.00	0.64	0.64	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	43.0	0.0	58.0	0.0	17.7	17.8	11.9	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.1	0.0	107.6	0.0	0.1	0.3	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	0.0	2.3	0.0	56.9	0.0	4.4	5.1	6.8	0.1	0.0
LnGrp Delay(d),s/veh	0.0	0.0	0.0	43.1	0.0	165.6	0.0	17.8	18.1	12.1	0.1	0.0
LnGrp LOS				D		F		B	B	B	A	
Approach Vol, veh/h		0			547			462			1165	
Approach Delay, s/veh		0.0			157.1			17.9			2.3	
Approach LOS					F			B			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	17.1	92.9		50.0	0.0	110.0		50.0
Change Period (Y+Rc), s	6.0	5.5		6.0	6.0	5.5		6.0
Max Green Setting (Gmax), s	28.0	70.5		44.0	9.0	89.5		44.0
Max Q Clear Time (g_c+I1), s	10.5	7.7		0.0	0.0	2.0		46.0
Green Ext Time (p_c), s	0.6	37.4		0.0	0.0	44.4		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	44.6
HCM 2010 LOS	D

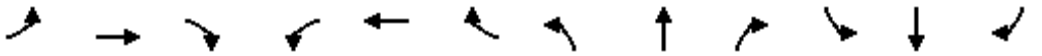
Intersection	
Int Delay, s/veh	2.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	78	175	461	50	28	65
Future Vol, veh/h	78	175	461	50	28	65
Conflicting Peds, #/hr	0	0	0	1	1	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	84	188	496	54	30	70

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	550	0	-	0	881	524
Stage 1	-	-	-	-	524	-
Stage 2	-	-	-	-	357	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1020	-	-	-	317	553
Stage 1	-	-	-	-	594	-
Stage 2	-	-	-	-	708	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1020	-	-	-	287	552
Mov Cap-2 Maneuver	-	-	-	-	287	-
Stage 1	-	-	-	-	593	-
Stage 2	-	-	-	-	642	-

Approach	EB	WB	SB
HCM Control Delay, s	2.7	0	15.8
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1020	-	-	-	432
HCM Lane V/C Ratio	0.082	-	-	-	0.231
HCM Control Delay (s)	8.8	0	-	-	15.8
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0.3	-	-	-	0.9



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	2129	10	0	488	5	0	0	8	0	0	0
Future Volume (Veh/h)	0	2129	10	0	488	5	0	0	8	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	0	2195	10	0	503	5	0	0	8	0	0	0
Pedestrians					9						9	
Lane Width (ft)					12.0						12.0	
Walking Speed (ft/s)					3.5						3.5	
Percent Blockage					1						1	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		368			1129							
pX, platoon unblocked				0.58			0.58	0.58	0.58	0.58	0.58	
vC, conflicting volume	512			2195			2326	2712	746	1255	2710	137
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	512			528			754	1419	0	0	1415	137
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	99	100	100	100
cM capacity (veh/h)	1041			601			172	78	624	572	78	878

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1
Volume Total	878	878	449	144	144	144	77	8	0
Volume Left	0	0	0	0	0	0	0	0	0
Volume Right	0	0	10	0	0	0	5	8	0
cSH	1700	1700	1700	1700	1700	1700	1700	624	1700
Volume to Capacity	0.52	0.52	0.26	0.08	0.08	0.08	0.05	0.01	0.00
Queue Length 95th (ft)	0	0	0	0	0	0	0	1	0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.8	0.0
Lane LOS								B	A
Approach Delay (s)	0.0			0.0				10.8	0.0
Approach LOS								B	A

Intersection Summary				
Average Delay	0.0			
Intersection Capacity Utilization	53.9%	ICU Level of Service		A
Analysis Period (min)	15			

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	2035	120	0	488	0	0	0	66	0	0	4
Future Vol, veh/h	0	2035	120	0	488	0	0	0	66	0	0	4
Conflicting Peds, #/hr	0	0	0	0	0	10	0	0	10	10	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Free	-	-	Free	-	-	Yield	-	-	Yield
Storage Length	-	-	0	-	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	98	98	98	98	98	98	98	98	98	98	98	98
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	2077	122	0	498	0	0	0	67	0	0	4

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	-	-	-	0	-	-	1048	-	-	249
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	-	-	-	7.14	-	-	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	-	-	-	3.92	-	-	3.92
Pot Cap-1 Maneuver	0	-	0	0	-	0	0	0	193	0	0	640
Stage 1	0	-	0	0	-	0	0	0	-	0	0	-
Stage 2	0	-	0	0	-	0	0	0	-	0	0	-
Platoon blocked, %		-			-							
Mov Cap-1 Maneuver	-	-	-	-	-	-	-	-	191	-	-	640
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	33.8	10.7
HCM LOS			D	B

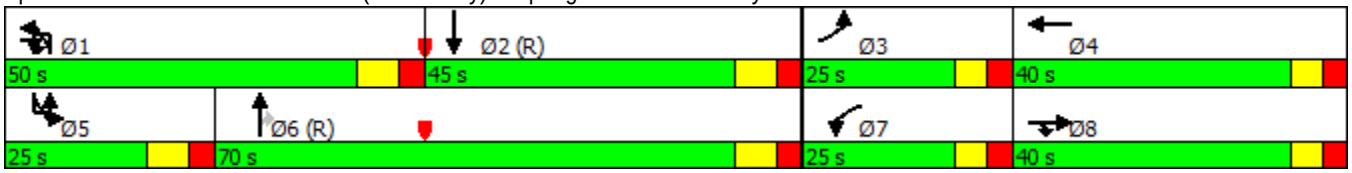
Minor Lane/Major Mvmt	NBLn1	EBT	WBT	SBLn1
Capacity (veh/h)	191	-	-	640
HCM Lane V/C Ratio	0.353	-	-	0.006
HCM Control Delay (s)	33.8	-	-	10.7
HCM Lane LOS	D	-	-	B
HCM 95th %tile Q(veh)	1.5	-	-	0

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	135	270	484	750	364	1484	1880	288	50	1336
Future Volume (vph)	135	270	484	750	364	1484	1880	288	50	1336
Turn Type	Prot	NA	pt+ov	Prot	NA	Prot	NA	Perm	Prot	NA
Protected Phases	3	8	8 1!	7	4	1	6		5	2
Permitted Phases								6		
Detector Phase	3	8	8 1	7	4	1	6	6	5	2
Switch Phase										
Minimum Initial (s)	6.0	6.0		6.0	6.0	6.0	14.0	14.0	6.0	14.0
Minimum Split (s)	19.0	19.0		19.0	57.0	20.0	36.0	36.0	36.0	44.0
Total Split (s)	25.0	40.0		25.0	40.0	50.0	70.0	70.0	25.0	45.0
Total Split (%)	15.6%	25.0%		15.6%	25.0%	31.3%	43.8%	43.8%	15.6%	28.1%
Yellow Time (s)	4.0	4.0		4.0	4.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0		7.0	7.0	8.0	8.0	8.0	8.0	8.0
Lead/Lag	Lead	Lag		Lead	Lag	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?										
Recall Mode	None	None		None	None	None	C-Min	C-Min	None	C-Min

Intersection Summary

Cycle Length: 160
Actuated Cycle Length: 160
Offset: 100 (63%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 150
Control Type: Actuated-Coordinated
! Phase conflict between lane groups.

Splits and Phases: 1: US 41/SR 3 (Cobb Pkwy) & Spring Rd/Circle 75 Pkwy



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	135	270	484	750	364	98	9	1484	1880	288	14	50
Future Volume (vph)	135	270	484	750	364	98	9	1484	1880	288	14	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0			8.0	8.0	8.0		8.0
Lane Util. Factor	1.00	0.95	0.88	0.94	0.95			0.94	0.86	1.00		0.97
Frt	1.00	1.00	0.85	1.00	0.97			1.00	1.00	0.85		1.00
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.95	1.00	1.00		0.95
Satd. Flow (prot)	1770	3539	2787	4990	3427			4990	6408	1583		3433
Flt Permitted	0.95	1.00	1.00	0.95	1.00			0.95	1.00	1.00		0.95
Satd. Flow (perm)	1770	3539	2787	4990	3427			4990	6408	1583		3433
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	144	287	515	798	387	104	10	1579	2000	306	15	53
RTOR Reduction (vph)	0	0	40	0	16	0	0	0	0	126	0	0
Lane Group Flow (vph)	144	287	475	798	475	0	0	1589	2000	180	0	68
Turn Type	Prot	NA	pt+ov	Prot	NA		Prot	Prot	NA	Perm	Prot	Prot
Protected Phases	3	8	8 1!	7	4		1!	1	6		5	5
Permitted Phases										6		
Actuated Green, G (s)	16.4	25.7	82.0	18.0	27.3			49.3	77.7	77.7		8.6
Effective Green, g (s)	16.4	25.7	82.0	18.0	27.3			49.3	77.7	77.7		8.6
Actuated g/C Ratio	0.10	0.16	0.51	0.11	0.17			0.31	0.49	0.49		0.05
Clearance Time (s)	7.0	7.0		7.0	7.0			8.0	8.0	8.0		8.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	5.0	5.0		3.0
Lane Grp Cap (vph)	181	568	1428	561	584			1537	3111	768		184
v/s Ratio Prot	0.08	0.08	0.17	c0.16	c0.14			c0.32	0.31			0.02
v/s Ratio Perm										0.11		
v/c Ratio	0.80	0.51	0.33	1.42	0.81			1.03	0.64	0.24		0.37
Uniform Delay, d1	70.2	61.3	22.9	71.0	63.9			55.4	30.8	23.9		73.1
Progression Factor	0.85	0.94	1.94	1.00	1.00			1.00	1.00	1.00		1.00
Incremental Delay, d2	16.2	0.5	0.1	200.4	8.5			32.2	1.0	0.7		1.3
Delay (s)	76.0	58.2	44.5	271.4	72.4			87.5	31.8	24.6		74.3
Level of Service	E	E	D	F	E			F	C	C		E
Approach Delay (s)		53.5			195.6				54.0			
Approach LOS		D			F				D			

Intersection Summary			
HCM 2000 Control Delay	80.0	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.01		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	30.0
Intersection Capacity Utilization	101.1%	ICU Level of Service	G
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	1336	80
Future Volume (vph)	1336	80
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	8.0	
Lane Util. Factor	0.81	
Frt	0.99	
Flt Protected	1.00	
Satd. Flow (prot)	7480	
Flt Permitted	1.00	
Satd. Flow (perm)	7480	
Peak-hour factor, PHF	0.94	0.94
Adj. Flow (vph)	1421	85
RTOR Reduction (vph)	7	0
Lane Group Flow (vph)	1499	0
Turn Type	NA	
Protected Phases	2	
Permitted Phases		
Actuated Green, G (s)	37.0	
Effective Green, g (s)	37.0	
Actuated g/C Ratio	0.23	
Clearance Time (s)	8.0	
Vehicle Extension (s)	5.0	
Lane Grp Cap (vph)	1729	
v/s Ratio Prot	c0.20	
v/s Ratio Perm		
v/c Ratio	0.87	
Uniform Delay, d1	59.1	
Progression Factor	1.00	
Incremental Delay, d2	6.2	
Delay (s)	65.3	
Level of Service	E	
Approach Delay (s)	65.7	
Approach LOS	E	

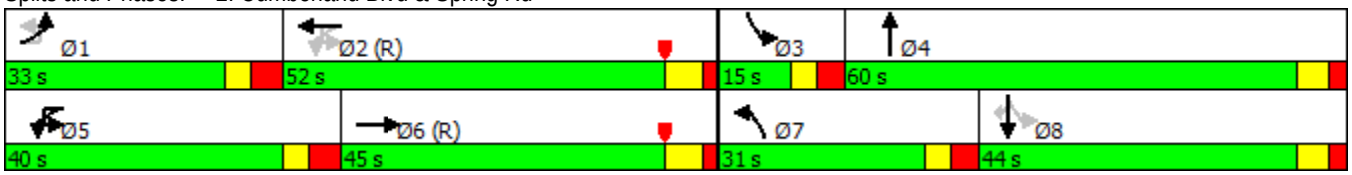
Intersection Summary

Lane Group	EBL	EBT	WBU	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	315	635	137	359	1429	615	649	96	618	587
Future Volume (vph)	315	635	137	359	1429	615	649	96	618	587
Turn Type	Prot	NA	pm+pt	pm+pt	NA	Prot	NA	pm+pt	NA	Perm
Protected Phases	1	6	5	5	2	7	4	3	8	
Permitted Phases			2	2				8		8
Detector Phase	1	6	5	5	2	7	4	3	8	8
Switch Phase										
Minimum Initial (s)	4.0	12.0	4.0	4.0	12.0	4.0	6.0	4.0	6.0	6.0
Minimum Split (s)	15.0	44.0	15.0	15.0	41.0	15.0	45.0	15.0	44.0	44.0
Total Split (s)	33.0	45.0	40.0	40.0	52.0	31.0	60.0	15.0	44.0	44.0
Total Split (%)	20.6%	28.1%	25.0%	25.0%	32.5%	19.4%	37.5%	9.4%	27.5%	27.5%
Yellow Time (s)	3.0	4.5	3.0	3.0	4.5	3.0	3.8	3.0	3.8	3.8
All-Red Time (s)	3.8	2.0	3.9	3.9	2.0	3.4	2.5	3.4	2.5	2.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.8	6.5		6.9	6.5	6.4	6.3	6.4	6.3	6.3
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?										
Recall Mode	None	C-Max	None	None	C-Max	None	None	None	None	None

Intersection Summary

Cycle Length: 160
Actuated Cycle Length: 160
Offset: 115 (72%), Referenced to phase 2:WBTL and 6:EBT, Start of Yellow
Natural Cycle: 150
Control Type: Actuated-Coordinated

Splits and Phases: 2: Cumberland Blvd & Spring Rd



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (veh/h)	315	635	296	137	359	1429	77	615	649	163	96	618
Future Volume (veh/h)	315	635	296	137	359	1429	77	615	649	163	96	618
Number	1	6	16		5	2	12	7	4	14	3	8
Initial Q (Qb), veh	0	0	0		0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00		1.00		1.00	1.00		1.00	1.00	
Parking Bus, Adj	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	1900	1863	1863	1900	1863	1863
Adj Flow Rate, veh/h	318	641	0		363	1443	78	621	656	165	97	624
Adj No. of Lanes	1	3	0		1	3	0	2	2	0	1	2
Peak Hour Factor	0.99	0.99	0.99		0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	2	2	2		2	2	2	2	2	2	2	2
Cap, veh/h	290	1460	0		474	1404	76	529	943	237	212	834
Arrive On Green	0.16	0.29	0.00		0.16	0.28	0.28	0.05	0.11	0.11	0.05	0.24
Sat Flow, veh/h	1774	5253	0		1774	4939	267	3442	2802	704	1774	3539
Grp Volume(v), veh/h	318	641	0		363	991	530	621	414	407	97	624
Grp Sat Flow(s),veh/h/ln	1774	1695	0		1774	1695	1815	1721	1770	1737	1774	1770
Q Serve(g_s), s	26.2	16.5	0.0		22.9	45.5	45.5	24.6	36.1	36.1	6.6	26.2
Cycle Q Clear(g_c), s	26.2	16.5	0.0		22.9	45.5	45.5	24.6	36.1	36.1	6.6	26.2
Prop In Lane	1.00		0.00		1.00		0.15	1.00		0.41	1.00	
Lane Grp Cap(c), veh/h	290	1460	0		474	964	516	529	595	584	212	834
V/C Ratio(X)	1.09	0.44	0.00		0.77	1.03	1.03	1.17	0.70	0.70	0.46	0.75
Avail Cap(c_a), veh/h	290	1460	0		556	964	516	529	595	584	214	834
HCM Platoon Ratio	1.00	1.00	1.00		1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00		1.00	1.00	1.00	0.96	0.96	0.96	1.00	1.00
Uniform Delay (d), s/veh	66.9	46.5	0.0		32.5	57.3	57.3	75.9	63.2	63.2	44.3	56.7
Incr Delay (d2), s/veh	80.5	1.0	0.0		5.4	36.2	46.8	96.1	3.4	3.5	1.5	3.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	34.8	12.4	0.0		17.4	47.0	53.1	33.8	25.1	24.8	6.0	19.2
LnGrp Delay(d),s/veh	147.4	47.5	0.0		37.9	93.5	104.1	172.0	66.6	66.7	45.8	60.5
LnGrp LOS	F	D			D	F	F	F	E	E	D	E
Approach Vol, veh/h		959				1884			1442			1314
Approach Delay, s/veh		80.6				85.7			112.0			186.3
Approach LOS		F				F			F			F

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	33.0	52.0	14.9	60.1	32.6	52.4	31.0	44.0
Change Period (Y+Rc), s	* 6.8	6.5	6.4	* 6.3	6.9	6.5	6.4	* 6.3
Max Green Setting (Gmax), s	* 26	45.5	8.6	* 54	33.1	38.5	24.6	* 38
Max Q Clear Time (g_c+I1), s	28.2	47.5	8.6	38.1	24.9	18.5	26.6	39.7
Green Ext Time (p_c), s	0.0	0.0	0.0	8.2	0.8	19.9	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	115.2
HCM 2010 LOS	F

Notes

Movement	SBR
Lane Configurations	
Traffic Volume (veh/h)	587
Future Volume (veh/h)	587
Number	18
Initial Q (Qb), veh	0
Ped-Bike Adj(A_pbT)	1.00
Parking Bus, Adj	1.00
Adj Sat Flow, veh/h/ln	1863
Adj Flow Rate, veh/h	593
Adj No. of Lanes	1
Peak Hour Factor	0.99
Percent Heavy Veh, %	2
Cap, veh/h	372
Arrive On Green	0.24
Sat Flow, veh/h	1577
Grp Volume(v), veh/h	593
Grp Sat Flow(s),veh/h/ln	1577
Q Serve(g_s), s	37.7
Cycle Q Clear(g_c), s	37.7
Prop In Lane	1.00
Lane Grp Cap(c), veh/h	372
V/C Ratio(X)	1.60
Avail Cap(c_a), veh/h	372
HCM Platoon Ratio	1.00
Upstream Filter(I)	1.00
Uniform Delay (d), s/veh	61.2
Incr Delay (d2), s/veh	280.4
Initial Q Delay(d3),s/veh	0.0
%ile BackOfQ(95%),veh/ln	81.7
LnGrp Delay(d),s/veh	341.6
LnGrp LOS	F
Approach Vol, veh/h	
Approach Delay, s/veh	
Approach LOS	
Timer	

Lane Group	WBL	WBT	NBU	NBL	NBT	SBL	SBT	Ø4
Lane Configurations								
Traffic Volume (vph)	55	0	3	0	969	334	704	
Future Volume (vph)	55	0	3	0	969	334	704	
Turn Type	Perm	NA	pm+pt	pm+pt	NA	pm+pt	NA	
Protected Phases		8	5	5	2	1	6	4
Permitted Phases	8		2	2		6		
Detector Phase	8	8	5	5	2	1	6	
Switch Phase								
Minimum Initial (s)	6.0	6.0	5.0	5.0	15.0	5.0	15.0	6.0
Minimum Split (s)	25.0	25.0	11.0	11.0	41.0	11.0	41.0	42.0
Total Split (s)	50.0	50.0	15.0	15.0	76.0	34.0	95.0	50.0
Total Split (%)	31.3%	31.3%	9.4%	9.4%	47.5%	21.3%	59.4%	31%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.5	3.0	3.5	3.0
All-Red Time (s)	3.0	3.0	3.0	3.0	2.0	3.0	2.0	3.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	5.5	6.0	5.5	
Lead/Lag			Lead	Lead	Lag	Lead	Lag	
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	C-Max	None	C-Max	None

Intersection Summary

Cycle Length: 160
Actuated Cycle Length: 160
Offset: 27 (17%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
Natural Cycle: 95
Control Type: Actuated-Coordinated

Splits and Phases: 3: Cumberland Blvd & Spring Hill Pkwy

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	55	0	505	3	0	969	100	334	704
Future Volume (veh/h)	0	0	0	55	0	505	3	0	969	100	334	704
Number	7	4	14	3	8	18		5	2	12	1	6
Initial Q (Qb), veh	0	0	0	0	0	0		0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	0.98		0.98		1.00		1.00	1.00	
Parking Bus, Adj	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	1863	1863
Adj Flow Rate, veh/h	0	0	0	56	0	515		0	989	102	341	718
Adj No. of Lanes	0	1	0	1	1	0		1	4	0	1	3
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98		0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2		2	2	2	2	2
Cap, veh/h	0	512	0	524	0	427		409	2959	302	459	3321
Arrive On Green	0.00	0.00	0.00	0.28	0.00	0.28		0.00	0.50	0.50	0.24	1.00
Sat Flow, veh/h	0	1863	0	1741	0	1552		1774	5952	608	1774	5253
Grp Volume(v), veh/h	0	0	0	56	0	515		0	797	294	341	718
Grp Sat Flow(s),veh/h/ln	0	1863	0	1741	0	1552		1774	1602	1755	1774	1695
Q Serve(g_s), s	0.0	0.0	0.0	3.9	0.0	44.0		0.0	16.0	16.2	16.1	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	3.9	0.0	44.0		0.0	16.0	16.2	16.1	0.0
Prop In Lane	0.00		0.00	1.00		1.00		1.00		0.35	1.00	
Lane Grp Cap(c), veh/h	0	512	0	524	0	427		409	2389	872	459	3321
V/C Ratio(X)	0.00	0.00	0.00	0.11	0.00	1.21		0.00	0.33	0.34	0.74	0.22
Avail Cap(c_a), veh/h	0	512	0	524	0	427		508	2389	872	559	3321
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	2.00	2.00
Upstream Filter(I)	0.00	0.00	0.00	1.00	0.00	1.00		0.00	1.00	1.00	0.23	0.23
Uniform Delay (d), s/veh	0.0	0.0	0.0	43.4	0.0	58.0		0.0	24.3	24.3	14.3	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.2	0.0	113.1		0.0	0.4	1.0	1.0	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
%ile BackOfQ(95%),veh/ln	0.0	0.0	0.0	3.4	0.0	58.1		0.0	11.6	12.8	10.0	0.0
LnGrp Delay(d),s/veh	0.0	0.0	0.0	43.6	0.0	171.1		0.0	24.6	25.4	15.2	0.0
LnGrp LOS				D		F			C	C	B	A
Approach Vol, veh/h		0			571				1091			1059
Approach Delay, s/veh		0.0			158.6				24.8			4.9
Approach LOS					F				C			A

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	25.0	85.0		50.0	0.0	110.0		50.0
Change Period (Y+Rc), s	6.0	5.5		6.0	6.0	5.5		6.0
Max Green Setting (Gmax), s	28.0	70.5		44.0	9.0	89.5		44.0
Max Q Clear Time (g_c+I1), s	18.1	18.2		0.0	0.0	2.0		46.0
Green Ext Time (p_c), s	0.9	41.4		0.0	0.0	60.7		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	45.2
HCM 2010 LOS	D

Notes

Movement	SBR
Lane Configurations	
Traffic Volume (veh/h)	0
Future Volume (veh/h)	0
Number	16
Initial Q (Qb), veh	0
Ped-Bike Adj(A_pbT)	1.00
Parking Bus, Adj	1.00
Adj Sat Flow, veh/h/ln	1900
Adj Flow Rate, veh/h	0
Adj No. of Lanes	0
Peak Hour Factor	0.98
Percent Heavy Veh, %	2
Cap, veh/h	0
Arrive On Green	0.00
Sat Flow, veh/h	0
Grp Volume(v), veh/h	0
Grp Sat Flow(s),veh/h/ln	0
Q Serve(g_s), s	0.0
Cycle Q Clear(g_c), s	0.0
Prop In Lane	0.00
Lane Grp Cap(c), veh/h	0
V/C Ratio(X)	0.00
Avail Cap(c_a), veh/h	0
HCM Platoon Ratio	2.00
Upstream Filter(I)	0.00
Uniform Delay (d), s/veh	0.0
Incr Delay (d2), s/veh	0.0
Initial Q Delay(d3),s/veh	0.0
%ile BackOfQ(95%),veh/ln	0.0
LnGrp Delay(d),s/veh	0.0
LnGrp LOS	
Approach Vol, veh/h	
Approach Delay, s/veh	
Approach LOS	
Timer	

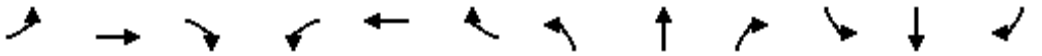
Intersection	
Int Delay, s/veh	3.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	60	373	476	59	49	84
Future Vol, veh/h	60	373	476	59	49	84
Conflicting Peds, #/hr	0	0	0	1	1	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	65	401	512	63	53	90

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	576	0	-	0	1076	545
Stage 1	-	-	-	-	545	-
Stage 2	-	-	-	-	531	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	997	-	-	-	243	538
Stage 1	-	-	-	-	581	-
Stage 2	-	-	-	-	590	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	997	-	-	-	222	537
Mov Cap-2 Maneuver	-	-	-	-	222	-
Stage 1	-	-	-	-	580	-
Stage 2	-	-	-	-	540	-

Approach	EB	WB	SB
HCM Control Delay, s	1.2	0	22
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	997	-	-	-	353
HCM Lane V/C Ratio	0.065	-	-	-	0.405
HCM Control Delay (s)	8.9	0	-	-	22
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0.2	-	-	-	1.9



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	848	10	0	1703	12	0	0	19	0	0	4
Future Volume (Veh/h)	0	848	10	0	1703	12	0	0	19	0	0	4
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	893	11	0	1793	13	0	0	20	0	0	4
Pedestrians					9						9	
Lane Width (ft)					12.0						12.0	
Walking Speed (ft/s)					3.5						3.5	
Percent Blockage					1						1	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		368			1129							
pX, platoon unblocked												
vC, conflicting volume	1802			893			1347	2700	312	2115	2702	464
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1802			893			1347	2700	312	2115	2702	464
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	97	100	100	99
cM capacity (veh/h)	335			755			108	21	678	27	21	540

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1
Volume Total	357	357	190	512	512	512	269	20	4
Volume Left	0	0	0	0	0	0	0	0	0
Volume Right	0	0	11	0	0	0	13	20	4
cSH	1700	1700	1700	1700	1700	1700	1700	678	540
Volume to Capacity	0.21	0.21	0.11	0.30	0.30	0.30	0.16	0.03	0.01
Queue Length 95th (ft)	0	0	0	0	0	0	0	2	1
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.5	11.7
Lane LOS								B	B
Approach Delay (s)	0.0			0.0				10.5	11.7
Approach LOS								B	B

Intersection Summary				
Average Delay	0.1			
Intersection Capacity Utilization	34.9%	ICU Level of Service		A
Analysis Period (min)	15			

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	777	89	0	1709	1	0	0	102	0	0	7
Future Vol, veh/h	0	777	89	0	1709	1	0	0	102	0	0	7
Conflicting Peds, #/hr	0	0	0	0	0	10	0	0	10	10	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Free	-	-	Free	-	-	Yield	-	-	Yield
Storage Length	-	-	0	-	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	818	94	0	1799	1	0	0	107	0	0	7

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	-	-	-	0	-	-	419	-	-	899
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	-	-	-	7.14	-	-	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	-	-	-	3.92	-	-	3.92
Pot Cap-1 Maneuver	0	-	0	0	-	0	0	0	498	0	0	242
Stage 1	0	-	0	0	-	0	0	0	-	0	0	-
Stage 2	0	-	0	0	-	0	0	0	-	0	0	-
Platoon blocked, %		-			-							
Mov Cap-1 Maneuver	-	-	-	-	-	-	-	-	493	-	-	242
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	14.3	20.3
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	EBT	WBT	SBLn1
Capacity (veh/h)	493	-	-	242
HCM Lane V/C Ratio	0.218	-	-	0.03
HCM Control Delay (s)	14.3	-	-	20.3
HCM Lane LOS	B	-	-	C
HCM 95th %tile Q(veh)	0.8	-	-	0.1

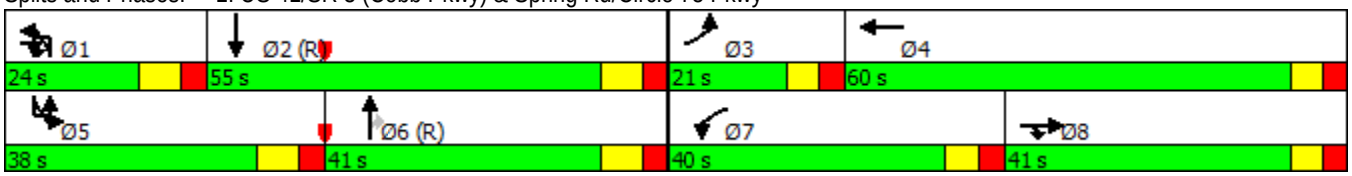
Future “Build” Improved Intersections Analysis

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	117	568	1347	239	66	372	798	445	146	1917
Future Volume (vph)	117	568	1347	239	66	372	798	445	146	1917
Turn Type	Prot	NA	pt+ov	Prot	NA	Prot	NA	Perm	Prot	NA
Protected Phases	3	8	8 1!	7	4	1	6		5	2
Permitted Phases								6		
Detector Phase	3	8	8 1	7	4	1	6	6	5	2
Switch Phase										
Minimum Initial (s)	6.0	6.0		6.0	6.0	6.0	14.0	14.0	6.0	14.0
Minimum Split (s)	14.0	44.0		14.0	57.0	14.0	44.0	44.0	14.0	44.0
Total Split (s)	21.0	41.0		40.0	60.0	24.0	41.0	41.0	38.0	55.0
Total Split (%)	13.1%	25.6%		25.0%	37.5%	15.0%	25.6%	25.6%	23.8%	34.4%
Yellow Time (s)	4.0	4.0		4.0	4.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0		7.0	7.0	8.0	8.0	8.0	8.0	8.0
Lead/Lag	Lead	Lag		Lead	Lag	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?										
Recall Mode	None	None		None	None	None	C-Min	C-Min	None	C-Min

Intersection Summary

Cycle Length: 160
Actuated Cycle Length: 160
Offset: 22 (14%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 140
Control Type: Actuated-Coordinated
! Phase conflict between lane groups.

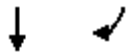
Splits and Phases: 1: US 41/SR 3 (Cobb Pkwy) & Spring Rd/Circle 75 Pkwy



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	117	568	1347	239	66	15	5	372	798	445	22	146
Future Volume (vph)	117	568	1347	239	66	15	5	372	798	445	22	146
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0			8.0	8.0	8.0		8.0
Lane Util. Factor	1.00	0.95	0.88	0.94	0.95			0.94	0.86	1.00		0.97
Frt	1.00	1.00	0.85	1.00	0.97			1.00	1.00	0.85		1.00
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.95	1.00	1.00		0.95
Satd. Flow (prot)	1770	3539	2787	4990	3443			4990	6408	1583		3433
Flt Permitted	0.95	1.00	1.00	0.95	1.00			0.95	1.00	1.00		0.95
Satd. Flow (perm)	1770	3539	2787	4990	3443			4990	6408	1583		3433
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	127	617	1464	260	72	16	5	404	867	484	24	159
RTOR Reduction (vph)	0	0	96	0	11	0	0	0	0	313	0	0
Lane Group Flow (vph)	127	617	1368	260	77	0	0	409	867	171	0	183
Turn Type	Prot	NA	pt+ov	Prot	NA		Prot	Prot	NA	Perm	Prot	Prot
Protected Phases	3	8	8 1!	7	4		1!	1	6		5	5
Permitted Phases										6		
Actuated Green, G (s)	13.6	53.2	76.2	13.8	53.4			16.0	49.1	49.1		13.9
Effective Green, g (s)	13.6	53.2	76.2	13.8	53.4			16.0	49.1	49.1		13.9
Actuated g/C Ratio	0.08	0.33	0.48	0.09	0.33			0.10	0.31	0.31		0.09
Clearance Time (s)	7.0	7.0		7.0	7.0			8.0	8.0	8.0		8.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	5.0	5.0		3.0
Lane Grp Cap (vph)	150	1176	1327	430	1149			499	1966	485		298
v/s Ratio Prot	c0.07	0.17	c0.49	0.05	0.02			0.08	0.14			0.05
v/s Ratio Perm										0.11		
v/c Ratio	0.85	0.52	1.03	0.60	0.07			0.82	0.44	0.35		0.61
Uniform Delay, d1	72.2	43.2	41.9	70.5	36.3			70.6	44.4	43.1		70.5
Progression Factor	1.20	0.93	0.31	1.00	1.00			1.00	1.00	1.00		1.00
Incremental Delay, d2	4.2	0.0	17.1	2.4	0.0			10.1	0.7	2.0		3.7
Delay (s)	90.5	40.4	30.0	72.9	36.4			80.7	45.2	45.1		74.2
Level of Service	F	D	C	E	D			F	D	D		E
Approach Delay (s)		36.4			63.6				53.4			
Approach LOS		D			E				D			

Intersection Summary			
HCM 2000 Control Delay	54.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.05		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	30.0
Intersection Capacity Utilization	107.5%	ICU Level of Service	G
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group



Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	1917	72
Future Volume (vph)	1917	72
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	8.0	
Lane Util. Factor	0.81	
Frt	0.99	
Flt Protected	1.00	
Satd. Flow (prot)	7503	
Flt Permitted	1.00	
Satd. Flow (perm)	7503	
Peak-hour factor, PHF	0.92	0.92
Adj. Flow (vph)	2084	78
RTOR Reduction (vph)	4	0
Lane Group Flow (vph)	2158	0
Turn Type	NA	
Protected Phases	2	
Permitted Phases		
Actuated Green, G (s)	47.0	
Effective Green, g (s)	47.0	
Actuated g/C Ratio	0.29	
Clearance Time (s)	8.0	
Vehicle Extension (s)	5.0	
Lane Grp Cap (vph)	2204	
v/s Ratio Prot	c0.29	
v/s Ratio Perm		
v/c Ratio	0.98	
Uniform Delay, d1	56.0	
Progression Factor	1.00	
Incremental Delay, d2	14.9	
Delay (s)	70.9	
Level of Service	E	
Approach Delay (s)	71.2	
Approach LOS	E	

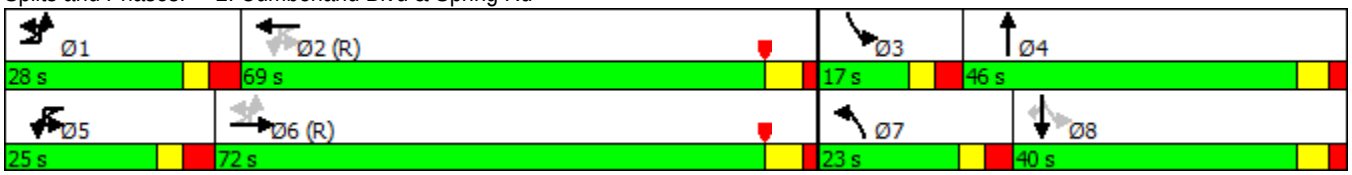
Intersection Summary

Lane Group	EBU	EBL	EBT	WBU	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	8	322	1649	115	114	238	176	507	133	391	146
Future Volume (vph)	8	322	1649	115	114	238	176	507	133	391	146
Turn Type	pm+pt	pm+pt	NA	pm+pt	pm+pt	NA	Prot	NA	pm+pt	NA	Perm
Protected Phases	1	1	6	5	5	2	7	4	3	8	
Permitted Phases	6	6		2	2				8		8
Detector Phase	1	1	6	5	5	2	7	4	3	8	8
Switch Phase											
Minimum Initial (s)	4.0	4.0	12.0	4.0	4.0	12.0	4.0	6.0	4.0	6.0	6.0
Minimum Split (s)	15.0	15.0	44.0	15.0	15.0	41.0	15.0	45.0	15.0	44.0	44.0
Total Split (s)	28.0	28.0	72.0	25.0	25.0	69.0	23.0	46.0	17.0	40.0	40.0
Total Split (%)	17.5%	17.5%	45.0%	15.6%	15.6%	43.1%	14.4%	28.8%	10.6%	25.0%	25.0%
Yellow Time (s)	3.0	3.0	4.5	3.0	3.0	4.5	3.0	3.8	3.0	3.8	3.8
All-Red Time (s)	3.8	3.8	2.0	3.9	3.9	2.0	3.4	2.5	3.4	2.5	2.5
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		6.8	6.5		6.9	6.5	6.4	6.3	6.4	6.3	6.3
Lead/Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?											
Recall Mode	None	None	C-Max	None	None	C-Max	None	None	None	None	None

Intersection Summary

Cycle Length: 160
Actuated Cycle Length: 160
Offset: 139 (87%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow
Natural Cycle: 150
Control Type: Actuated-Coordinated

Splits and Phases: 2: Cumberland Blvd & Spring Rd



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (veh/h)	8	322	1649	546	115	114	238	45	176	507	264	133
Future Volume (veh/h)	8	322	1649	546	115	114	238	45	176	507	264	133
Number		1	6	16		5	2	12	7	4	14	3
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00		1.00	1.00		1.00	1.00
Parking Bus, Adj		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	1900	1863	1863	1900	1863
Adj Flow Rate, veh/h		346	1773	0		123	256	48	189	545	284	143
Adj No. of Lanes		1	3	0		1	3	0	2	2	0	1
Peak Hour Factor		0.93	0.93	0.93		0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %		2	2	2		2	2	2	2	2	2	2
Cap, veh/h		652	2380	0		191	1720	311	238	559	291	167
Arrive On Green		0.13	0.47	0.00		0.05	0.40	0.40	0.02	0.08	0.08	0.07
Sat Flow, veh/h		1774	5253	0		1774	4332	783	3442	2251	1171	1774
Grp Volume(v), veh/h		346	1773	0		123	198	106	189	428	401	143
Grp Sat Flow(s),veh/h/ln		1774	1695	0		1774	1695	1724	1721	1770	1653	1774
Q Serve(g_s), s		18.0	45.6	0.0		6.5	6.0	6.3	8.7	38.6	38.7	9.7
Cycle Q Clear(g_c), s		18.0	45.6	0.0		6.5	6.0	6.3	8.7	38.6	38.7	9.7
Prop In Lane		1.00		0.00		1.00		0.45	1.00		0.71	1.00
Lane Grp Cap(c), veh/h		652	2380	0		191	1346	685	238	439	410	167
V/C Ratio(X)		0.53	0.74	0.00		0.65	0.15	0.15	0.79	0.98	0.98	0.86
Avail Cap(c_a), veh/h		663	2380	0		295	1346	685	357	439	410	167
HCM Platoon Ratio		1.00	1.00	1.00		1.00	1.00	1.00	0.33	0.33	0.33	1.00
Upstream Filter(I)		1.00	1.00	0.00		1.00	1.00	1.00	0.80	0.80	0.80	1.00
Uniform Delay (d), s/veh		21.7	34.8	0.0		32.6	30.9	31.0	77.0	73.0	73.0	46.0
Incr Delay (d2), s/veh		0.8	2.2	0.0		3.6	0.2	0.5	5.7	32.0	33.8	33.5
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
%ile BackOfQ(95%),veh/ln		13.8	29.5	0.0		6.1	5.1	5.6	7.4	29.9	28.4	10.3
LnGrp Delay(d),s/veh		22.5	36.9	0.0		36.3	31.1	31.5	82.8	104.9	106.8	79.5
LnGrp LOS		C	D			D	C	C	F	F	F	E
Approach Vol, veh/h			2119				427			1018		
Approach Delay, s/veh			34.6				32.7			101.6		
Approach LOS			C				C			F		

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	27.0	70.0	17.0	46.0	15.6	81.4	17.5	45.5
Change Period (Y+Rc), s	* 6.8	6.5	6.4	* 6.3	6.9	6.5	6.4	* 6.3
Max Green Setting (Gmax), s	* 21	62.5	10.6	* 40	18.1	65.5	16.6	* 34
Max Q Clear Time (g_c+I1), s	20.0	8.3	11.7	40.7	8.5	47.6	10.7	18.3
Green Ext Time (p_c), s	0.2	52.9	0.0	0.0	0.2	17.8	0.3	4.7

Intersection Summary	
HCM 2010 Ctrl Delay	54.2
HCM 2010 LOS	D

Notes

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (veh/h)	391	146
Future Volume (veh/h)	391	146
Number	8	18
Initial Q (Qb), veh	0	0
Ped-Bike Adj(A_pbT)		1.00
Parking Bus, Adj	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863
Adj Flow Rate, veh/h	420	0
Adj No. of Lanes	2	1
Peak Hour Factor	0.93	0.93
Percent Heavy Veh, %	2	2
Cap, veh/h	868	388
Arrive On Green	0.25	0.00
Sat Flow, veh/h	3539	1583
Grp Volume(v), veh/h	420	0
Grp Sat Flow(s),veh/h/ln	1770	1583
Q Serve(g_s), s	16.3	0.0
Cycle Q Clear(g_c), s	16.3	0.0
Prop In Lane		1.00
Lane Grp Cap(c), veh/h	868	388
V/C Ratio(X)	0.48	0.00
Avail Cap(c_a), veh/h	868	388
HCM Platoon Ratio	1.00	1.00
Upstream Filter(I)	1.00	0.00
Uniform Delay (d), s/veh	51.7	0.0
Incr Delay (d2), s/veh	0.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0
%ile BackOfQ(95%),veh/ln	12.6	0.0
LnGrp Delay(d),s/veh	52.1	0.0
LnGrp LOS	D	
Approach Vol, veh/h	563	
Approach Delay, s/veh	59.1	
Approach LOS	E	
Timer		

Lane Group	WBL	WBT	WBR	NBT	SBL	SBT	Ø4	Ø5
Lane Configurations								
Traffic Volume (vph)	36	0	489	393	201	918		
Future Volume (vph)	36	0	489	393	201	918		
Turn Type	Perm	NA	NA	NA	pm+pt	NA		
Protected Phases		8		2	1	6	4	5
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	6.0	5.0
Minimum Split (s)	42.0	42.0		41.0	11.0	41.0	42.0	11.0
Total Split (s)	56.0	56.0		80.0	24.0	92.0	56.0	12.0
Total Split (%)	35.0%	35.0%		50.0%	15.0%	57.5%	35%	8%
Yellow Time (s)	3.0	3.0		3.5	3.0	3.5	3.0	3.0
All-Red Time (s)	3.0	3.0		2.0	3.0	2.0	3.0	3.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0		
Total Lost Time (s)		6.0		5.5	6.0	5.5		
Lead/Lag				Lag	Lead	Lag		Lead
Lead-Lag Optimize?								
Recall Mode	None	None		C-Max	None	C-Max	None	None

Intersection Summary

Cycle Length: 160
Actuated Cycle Length: 160
Offset: 145 (91%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 95
Control Type: Actuated-Coordinated

Splits and Phases: 3: Cumberland Blvd & Spring Hill Pkwy

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	36	0	489	0	393	51	201	918	0
Future Volume (veh/h)	0	0	0	36	0	489	0	393	51	201	918	0
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	0.96		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	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	0	0	0	38	0	0	0	409	53	209	956	0
Adj No. of Lanes	0	1	0	0	1	1	1	4	0	1	3	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	256	0	232	0	218	457	4088	512	763	4020	0
Arrive On Green	0.00	0.00	0.00	0.14	0.00	0.00	0.00	0.70	0.70	0.10	1.00	0.00
Sat Flow, veh/h	0	1863	0	1359	0	1583	1774	5812	728	1774	5253	0
Grp Volume(v), veh/h	0	0	0	38	0	0	0	336	126	209	956	0
Grp Sat Flow(s),veh/h/ln	0	1863	0	1359	0	1583	1774	1602	1734	1774	1695	0
Q Serve(g_s), s	0.0	0.0	0.0	4.0	0.0	0.0	0.0	3.6	3.7	5.5	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	4.0	0.0	0.0	0.0	3.6	3.7	5.5	0.0	0.0
Prop In Lane	0.00		0.00	1.00		1.00	1.00		0.42	1.00		0.00
Lane Grp Cap(c), veh/h	0	256	0	232	0	218	457	3380	1219	763	4020	0
V/C Ratio(X)	0.00	0.00	0.00	0.16	0.00	0.00	0.00	0.10	0.10	0.27	0.24	0.00
Avail Cap(c_a), veh/h	0	582	0	470	0	495	523	3380	1219	874	4020	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	0.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00	1.00	0.65	0.65	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	61.2	0.0	0.0	0.0	7.6	7.6	4.9	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.7	0.0	0.0	0.0	0.1	0.2	0.1	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	0.0	2.8	0.0	0.0	0.0	2.8	3.3	4.7	0.1	0.0
LnGrp Delay(d),s/veh	0.0	0.0	0.0	61.9	0.0	0.0	0.0	7.6	7.8	5.0	0.1	0.0
LnGrp LOS				E				A	A	A	A	
Approach Vol, veh/h		0			38			462			1165	
Approach Delay, s/veh		0.0			61.9			7.7			1.0	
Approach LOS					E			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	14.0	118.0		28.0	0.0	132.0		28.0
Change Period (Y+Rc), s	6.0	5.5		6.0	6.0	5.5		6.0
Max Green Setting (Gmax), s	18.0	74.5		50.0	6.0	86.5		50.0
Max Q Clear Time (g_c+I1), s	7.5	5.7		0.0	0.0	2.0		6.0
Green Ext Time (p_c), s	0.5	39.3		0.0	0.0	43.7		0.2

Intersection Summary	
HCM 2010 Ctrl Delay	4.2
HCM 2010 LOS	A

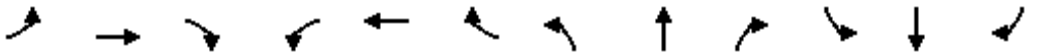
Intersection	
Int Delay, s/veh	2.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	78	175	461	50	28	65
Future Vol, veh/h	78	175	461	50	28	65
Conflicting Peds, #/hr	0	0	0	1	1	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	84	188	496	54	30	70

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	550	0	-	0	881	524
Stage 1	-	-	-	-	524	-
Stage 2	-	-	-	-	357	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1020	-	-	-	317	553
Stage 1	-	-	-	-	594	-
Stage 2	-	-	-	-	708	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1020	-	-	-	287	552
Mov Cap-2 Maneuver	-	-	-	-	287	-
Stage 1	-	-	-	-	593	-
Stage 2	-	-	-	-	642	-

Approach	EB	WB	SB
HCM Control Delay, s	2.7	0	15.8
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1020	-	-	-	432
HCM Lane V/C Ratio	0.082	-	-	-	0.231
HCM Control Delay (s)	8.8	0	-	-	15.8
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0.3	-	-	-	0.9



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	2129	10	0	488	5	0	0	8	0	0	0
Future Volume (Veh/h)	0	2129	10	0	488	5	0	0	8	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	0	2195	10	0	503	5	0	0	8	0	0	0
Pedestrians					9						9	
Lane Width (ft)					12.0						12.0	
Walking Speed (ft/s)					3.5						3.5	
Percent Blockage					1						1	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		368			1129							
pX, platoon unblocked				0.60			0.60	0.60	0.60	0.60	0.60	
vC, conflicting volume	512			2195			2326	2712	746	1255	2710	137
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	512			674			891	1532	0	0	1528	137
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	99	100	100	100
cM capacity (veh/h)	1041			550			142	69	648	594	69	878

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1
Volume Total	878	878	449	144	144	144	77	8	0
Volume Left	0	0	0	0	0	0	0	0	0
Volume Right	0	0	10	0	0	0	5	8	0
cSH	1700	1700	1700	1700	1700	1700	1700	648	1700
Volume to Capacity	0.52	0.52	0.26	0.08	0.08	0.08	0.05	0.01	0.00
Queue Length 95th (ft)	0	0	0	0	0	0	0	1	0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.6	0.0
Lane LOS								B	A
Approach Delay (s)	0.0			0.0				10.6	0.0
Approach LOS								B	A

Intersection Summary				
Average Delay	0.0			
Intersection Capacity Utilization	53.9%	ICU Level of Service		A
Analysis Period (min)	15			

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	2035	120	0	488	0	0	0	66	0	0	4
Future Vol, veh/h	0	2035	120	0	488	0	0	0	66	0	0	4
Conflicting Peds, #/hr	0	0	0	0	0	10	0	0	10	10	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Free	-	-	Free	-	-	Yield	-	-	Yield
Storage Length	-	-	-	-	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	98	98	98	98	98	98	98	98	98	98	98	98
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	2077	122	0	498	0	0	0	67	0	0	4

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	-	-	-	0	-	-	1048	-	-	249
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	-	-	-	7.14	-	-	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	-	-	-	3.92	-	-	3.92
Pot Cap-1 Maneuver	0	-	0	0	-	0	0	0	193	0	0	640
Stage 1	0	-	0	0	-	0	0	0	-	0	0	-
Stage 2	0	-	0	0	-	0	0	0	-	0	0	-
Platoon blocked, %		-			-							
Mov Cap-1 Maneuver	-	-	-	-	-	-	-	-	191	-	-	640
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	33.8	10.7
HCM LOS			D	B

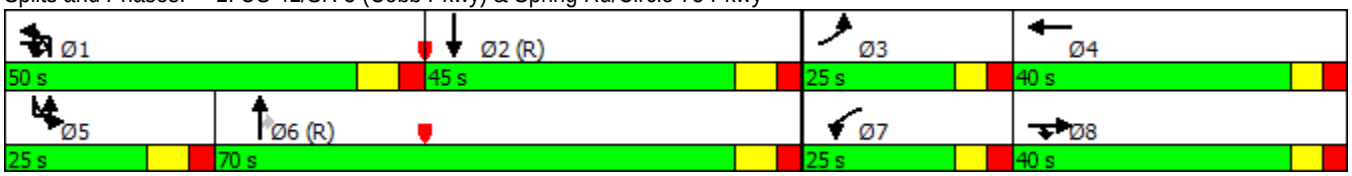
Minor Lane/Major Mvmt	NBLn1	EBT	WBT	SBLn1
Capacity (veh/h)	191	-	-	640
HCM Lane V/C Ratio	0.353	-	-	0.006
HCM Control Delay (s)	33.8	-	-	10.7
HCM Lane LOS	D	-	-	B
HCM 95th %tile Q(veh)	1.5	-	-	0

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	135	270	484	750	364	1484	1880	288	50	1336
Future Volume (vph)	135	270	484	750	364	1484	1880	288	50	1336
Turn Type	Prot	NA	pt+ov	Prot	NA	Prot	NA	Perm	Prot	NA
Protected Phases	3	8	8 1!	7	4	1	6		5	2
Permitted Phases								6		
Detector Phase	3	8	8 1	7	4	1	6	6	5	2
Switch Phase										
Minimum Initial (s)	6.0	6.0		6.0	6.0	6.0	14.0	14.0	6.0	14.0
Minimum Split (s)	19.0	19.0		19.0	57.0	20.0	36.0	36.0	36.0	44.0
Total Split (s)	25.0	40.0		25.0	40.0	50.0	70.0	70.0	25.0	45.0
Total Split (%)	15.6%	25.0%		15.6%	25.0%	31.3%	43.8%	43.8%	15.6%	28.1%
Yellow Time (s)	4.0	4.0		4.0	4.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0		7.0	7.0	8.0	8.0	8.0	8.0	8.0
Lead/Lag	Lead	Lag		Lead	Lag	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?										
Recall Mode	None	None		None	None	None	C-Min	C-Min	None	C-Min

Intersection Summary

Cycle Length: 160
Actuated Cycle Length: 160
Offset: 100 (63%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 150
Control Type: Actuated-Coordinated
! Phase conflict between lane groups.

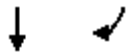
Splits and Phases: 1: US 41/SR 3 (Cobb Pkwy) & Spring Rd/Circle 75 Pkwy



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	135	270	484	750	364	98	9	1484	1880	288	14	50
Future Volume (vph)	135	270	484	750	364	98	9	1484	1880	288	14	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0			8.0	8.0	8.0		8.0
Lane Util. Factor	1.00	0.95	0.88	0.94	0.95			0.94	0.86	1.00		0.97
Frt	1.00	1.00	0.85	1.00	0.97			1.00	1.00	0.85		1.00
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.95	1.00	1.00		0.95
Satd. Flow (prot)	1770	3539	2787	4990	3427			4990	6408	1583		3433
Flt Permitted	0.95	1.00	1.00	0.95	1.00			0.95	1.00	1.00		0.95
Satd. Flow (perm)	1770	3539	2787	4990	3427			4990	6408	1583		3433
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	144	287	515	798	387	104	10	1579	2000	306	15	53
RTOR Reduction (vph)	0	0	40	0	16	0	0	0	0	126	0	0
Lane Group Flow (vph)	144	287	475	798	475	0	0	1589	2000	180	0	68
Turn Type	Prot	NA	pt+ov	Prot	NA		Prot	Prot	NA	Perm	Prot	Prot
Protected Phases	3	8	8 1!	7	4		1!	1	6		5	5
Permitted Phases										6		
Actuated Green, G (s)	16.4	25.7	82.0	18.0	27.3			49.3	77.7	77.7		8.6
Effective Green, g (s)	16.4	25.7	82.0	18.0	27.3			49.3	77.7	77.7		8.6
Actuated g/C Ratio	0.10	0.16	0.51	0.11	0.17			0.31	0.49	0.49		0.05
Clearance Time (s)	7.0	7.0		7.0	7.0			8.0	8.0	8.0		8.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	5.0	5.0		3.0
Lane Grp Cap (vph)	181	568	1428	561	584			1537	3111	768		184
v/s Ratio Prot	0.08	0.08	0.17	c0.16	c0.14			c0.32	0.31			0.02
v/s Ratio Perm										0.11		
v/c Ratio	0.80	0.51	0.33	1.42	0.81			1.03	0.64	0.24		0.37
Uniform Delay, d1	70.2	61.3	22.9	71.0	63.9			55.4	30.8	23.9		73.1
Progression Factor	0.98	1.27	0.61	1.00	1.00			1.00	1.00	1.00		1.00
Incremental Delay, d2	16.1	0.5	0.1	200.4	8.5			32.2	1.0	0.7		1.3
Delay (s)	85.0	78.6	14.0	271.4	72.4			87.5	31.8	24.6		74.3
Level of Service	F	E	B	F	E			F	C	C		E
Approach Delay (s)		44.4			195.6				54.0			
Approach LOS		D			F				D			

Intersection Summary			
HCM 2000 Control Delay	78.9	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.01		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	30.0
Intersection Capacity Utilization	101.1%	ICU Level of Service	G
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group



Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	1336	80
Future Volume (vph)	1336	80
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	8.0	
Lane Util. Factor	0.81	
Frt	0.99	
Flt Protected	1.00	
Satd. Flow (prot)	7480	
Flt Permitted	1.00	
Satd. Flow (perm)	7480	
Peak-hour factor, PHF	0.94	0.94
Adj. Flow (vph)	1421	85
RTOR Reduction (vph)	7	0
Lane Group Flow (vph)	1499	0
Turn Type	NA	
Protected Phases	2	
Permitted Phases		
Actuated Green, G (s)	37.0	
Effective Green, g (s)	37.0	
Actuated g/C Ratio	0.23	
Clearance Time (s)	8.0	
Vehicle Extension (s)	5.0	
Lane Grp Cap (vph)	1729	
v/s Ratio Prot	c0.20	
v/s Ratio Perm		
v/c Ratio	0.87	
Uniform Delay, d1	59.1	
Progression Factor	1.00	
Incremental Delay, d2	6.2	
Delay (s)	65.3	
Level of Service	E	
Approach Delay (s)	65.7	
Approach LOS	E	

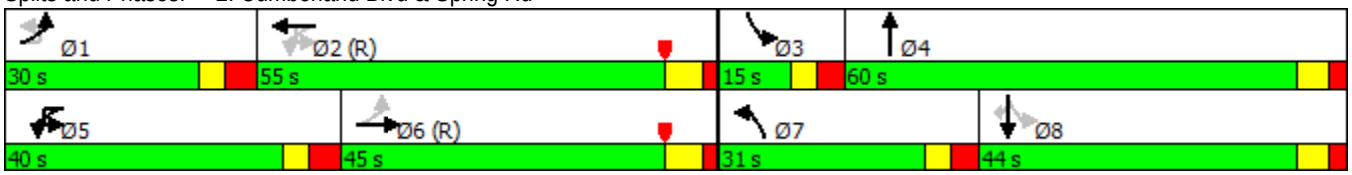
Intersection Summary

Lane Group	EBL	EBT	WBU	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	315	635	137	359	1429	615	649	96	618	587
Future Volume (vph)	315	635	137	359	1429	615	649	96	618	587
Turn Type	pm+pt	NA	pm+pt	pm+pt	NA	Prot	NA	pm+pt	NA	Perm
Protected Phases	1	6	5	5	2	7	4	3	8	
Permitted Phases	6		2	2				8		8
Detector Phase	1	6	5	5	2	7	4	3	8	8
Switch Phase										
Minimum Initial (s)	4.0	12.0	4.0	4.0	12.0	4.0	6.0	4.0	6.0	6.0
Minimum Split (s)	15.0	44.0	15.0	15.0	41.0	15.0	45.0	15.0	44.0	44.0
Total Split (s)	30.0	45.0	40.0	40.0	55.0	31.0	60.0	15.0	44.0	44.0
Total Split (%)	18.8%	28.1%	25.0%	25.0%	34.4%	19.4%	37.5%	9.4%	27.5%	27.5%
Yellow Time (s)	3.0	4.5	3.0	3.0	4.5	3.0	3.8	3.0	3.8	3.8
All-Red Time (s)	3.8	2.0	3.9	3.9	2.0	3.4	2.5	3.4	2.5	2.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.8	6.5		6.9	6.5	6.4	6.3	6.4	6.3	6.3
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?										
Recall Mode	None	C-Max	None	None	C-Max	None	None	None	None	None

Intersection Summary

Cycle Length: 160
Actuated Cycle Length: 160
Offset: 77 (48%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow
Natural Cycle: 150
Control Type: Actuated-Coordinated

Splits and Phases: 2: Cumberland Blvd & Spring Rd



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (veh/h)	315	635	296	137	359	1429	77	615	649	163	96	618
Future Volume (veh/h)	315	635	296	137	359	1429	77	615	649	163	96	618
Number	1	6	16		5	2	12	7	4	14	3	8
Initial Q (Qb), veh	0	0	0		0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00		1.00		1.00	1.00		1.00	1.00	
Parking Bus, Adj	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	1900	1863	1863	1900	1863	1863
Adj Flow Rate, veh/h	318	641	0		363	1443	78	621	656	165	97	624
Adj No. of Lanes	1	3	0		1	3	0	2	2	0	1	2
Peak Hour Factor	0.99	0.99	0.99		0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	2	2	2		2	2	2	2	2	2	2	2
Cap, veh/h	321	1640	0		493	1635	88	529	862	217	198	735
Arrive On Green	0.14	0.32	0.00		0.15	0.33	0.33	0.10	0.21	0.21	0.05	0.21
Sat Flow, veh/h	1774	5253	0		1774	4939	267	3442	2802	704	1774	3539
Grp Volume(v), veh/h	318	641	0		363	991	530	621	414	407	97	624
Grp Sat Flow(s),veh/h/ln	1774	1695	0		1774	1695	1815	1721	1770	1737	1774	1770
Q Serve(g_s), s	22.9	15.6	0.0		21.6	44.2	44.2	24.6	35.2	35.3	6.8	27.1
Cycle Q Clear(g_c), s	22.9	15.6	0.0		21.6	44.2	44.2	24.6	35.2	35.3	6.8	27.1
Prop In Lane	1.00		0.00		1.00		0.15	1.00		0.41	1.00	
Lane Grp Cap(c), veh/h	321	1640	0		493	1123	601	529	544	534	198	735
V/C Ratio(X)	0.99	0.39	0.00		0.74	0.88	0.88	1.17	0.76	0.76	0.49	0.85
Avail Cap(c_a), veh/h	321	1640	0		588	1123	601	529	594	583	198	834
HCM Platoon Ratio	1.00	1.00	1.00		1.00	1.00	1.00	0.67	0.67	0.67	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00		1.00	1.00	1.00	0.85	0.85	0.85	1.00	1.00
Uniform Delay (d), s/veh	48.6	42.0	0.0		29.1	50.6	50.6	71.8	58.0	58.0	47.5	61.0
Incr Delay (d2), s/veh	47.5	0.7	0.0		3.9	10.1	17.0	94.4	4.5	4.6	1.9	7.5
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
%ile BackOfQ(95%),veh/ln	25.3	11.9	0.0		16.5	29.9	33.1	33.6	24.3	24.0	6.2	20.2
LnGrp Delay(d),s/veh	96.1	42.7	0.0		33.0	60.7	67.6	166.1	62.5	62.6	49.4	68.5
LnGrp LOS	F	D			C	E	E	F	E	E	D	E
Approach Vol, veh/h		959				1884			1442			721
Approach Delay, s/veh		60.4				57.3			107.2			65.9
Approach LOS		E				E			F			E

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	30.0	59.5	15.0	55.5	31.4	58.1	31.0	39.5
Change Period (Y+Rc), s	* 6.8	6.5	6.4	* 6.3	6.9	6.5	6.4	* 6.3
Max Green Setting (Gmax), s	* 23	48.5	8.6	* 54	33.1	38.5	24.6	* 38
Max Q Clear Time (g_c+I1), s	24.9	46.2	8.8	37.3	23.6	17.6	26.6	29.1
Green Ext Time (p_c), s	0.0	2.3	0.0	5.6	0.9	20.7	0.0	4.0

Intersection Summary	
HCM 2010 Ctrl Delay	73.5
HCM 2010 LOS	E

Notes

Movement	SBR
Lane Configurations	
Traffic Volume (veh/h)	587
Future Volume (veh/h)	587
Number	18
Initial Q (Qb), veh	0
Ped-Bike Adj(A_pbT)	1.00
Parking Bus, Adj	1.00
Adj Sat Flow, veh/h/ln	1863
Adj Flow Rate, veh/h	0
Adj No. of Lanes	1
Peak Hour Factor	0.99
Percent Heavy Veh, %	2
Cap, veh/h	329
Arrive On Green	0.00
Sat Flow, veh/h	1583
Grp Volume(v), veh/h	0
Grp Sat Flow(s),veh/h/ln	1583
Q Serve(g_s), s	0.0
Cycle Q Clear(g_c), s	0.0
Prop In Lane	1.00
Lane Grp Cap(c), veh/h	329
V/C Ratio(X)	0.00
Avail Cap(c_a), veh/h	373
HCM Platoon Ratio	1.00
Upstream Filter(I)	0.00
Uniform Delay (d), s/veh	0.0
Incr Delay (d2), s/veh	0.0
Initial Q Delay(d3),s/veh	0.0
%ile BackOfQ(95%),veh/ln	0.0
LnGrp Delay(d),s/veh	0.0
LnGrp LOS	
Approach Vol, veh/h	
Approach Delay, s/veh	
Approach LOS	
Timer	

Lane Group	WBL	WBT	WBR	NBU	NBL	NBT	SBL	SBT	Ø4
Lane Configurations									
Traffic Volume (vph)	55	0	505	3	0	969	334	704	
Future Volume (vph)	55	0	505	3	0	969	334	704	
Turn Type	Perm	NA	Perm	pm+pt	pm+pt	NA	pm+pt	NA	
Protected Phases		8		5	5	2	1	6	4
Permitted Phases	8		8	2	2		6		
Detector Phase	8	8	8	5	5	2	1	6	
Switch Phase									
Minimum Initial (s)	6.0	6.0	6.0	5.0	5.0	15.0	5.0	15.0	6.0
Minimum Split (s)	25.0	25.0	25.0	11.0	11.0	41.0	11.0	41.0	42.0
Total Split (s)	50.0	50.0	50.0	15.0	15.0	76.0	34.0	95.0	50.0
Total Split (%)	31.3%	31.3%	31.3%	9.4%	9.4%	47.5%	21.3%	59.4%	31%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.5	3.0	3.5	3.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	2.0	3.0	2.0	3.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0	
Total Lost Time (s)		6.0	6.0		6.0	5.5	6.0	5.5	
Lead/Lag				Lead	Lead	Lag	Lead	Lag	
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	None	C-Max	None	C-Max	None

Intersection Summary

Cycle Length: 160
Actuated Cycle Length: 160
Offset: 150 (94%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
Natural Cycle: 95
Control Type: Actuated-Coordinated

Splits and Phases: 3: Cumberland Blvd & Spring Hill Pkwy

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	55	0	505	3	0	969	100	334	704
Future Volume (veh/h)	0	0	0	55	0	505	3	0	969	100	334	704
Number	7	4	14	3	8	18		5	2	12	1	6
Initial Q (Qb), veh	0	0	0	0	0	0		0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	0.96		1.00		1.00		1.00	1.00	
Parking Bus, Adj	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
Adj Flow Rate, veh/h	0	0	0	56	0	0		0	989	102	341	718
Adj No. of Lanes	0	1	0	0	1	1		1	4	0	1	3
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98		0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2		2	2	2	2	2
Cap, veh/h	0	269	0	242	0	229		527	3921	401	504	3985
Arrive On Green	0.00	0.00	0.00	0.14	0.00	0.00		0.00	0.66	0.66	0.17	1.00
Sat Flow, veh/h	0	1863	0	1362	0	1583		1774	5952	608	1774	5253
Grp Volume(v), veh/h	0	0	0	56	0	0		0	797	294	341	718
Grp Sat Flow(s),veh/h/ln	0	1863	0	1362	0	1583		1774	1602	1755	1774	1695
Q Serve(g_s), s	0.0	0.0	0.0	5.9	0.0	0.0		0.0	10.9	11.0	10.9	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	5.9	0.0	0.0		0.0	10.9	11.0	10.9	0.0
Prop In Lane	0.00		0.00	1.00		1.00		1.00		0.35	1.00	
Lane Grp Cap(c), veh/h	0	269	0	242	0	229		527	3166	1156	504	3985
V/C Ratio(X)	0.00	0.00	0.00	0.23	0.00	0.00		0.00	0.25	0.25	0.68	0.18
Avail Cap(c_a), veh/h	0	512	0	420	0	435		626	3166	1156	659	3985
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	2.00	2.00
Upstream Filter(I)	0.00	0.00	0.00	1.00	0.00	0.00		0.00	1.00	1.00	0.22	0.22
Uniform Delay (d), s/veh	0.0	0.0	0.0	61.1	0.0	0.0		0.0	11.2	11.2	6.6	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	1.0	0.0	0.0		0.0	0.2	0.5	0.4	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
%ile BackOfQ(95%),veh/ln	0.0	0.0	0.0	4.1	0.0	0.0		0.0	8.5	9.3	6.9	0.0
LnGrp Delay(d),s/veh	0.0	0.0	0.0	62.1	0.0	0.0		0.0	11.4	11.7	7.0	0.0
LnGrp LOS				E					B	B	A	A
Approach Vol, veh/h		0			56				1091			1059
Approach Delay, s/veh		0.0			62.1				11.5			2.3
Approach LOS					E				B			A

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	20.0	110.9		29.1	0.0	130.9		29.1
Change Period (Y+Rc), s	6.0	5.5		6.0	6.0	5.5		6.0
Max Green Setting (Gmax), s	28.0	70.5		44.0	9.0	89.5		44.0
Max Q Clear Time (g_c+I1), s	12.9	13.0		0.0	0.0	2.0		7.9
Green Ext Time (p_c), s	1.1	44.6		0.0	0.0	60.7		0.4

Intersection Summary	
HCM 2010 Ctrl Delay	8.3
HCM 2010 LOS	A

Notes

Movement	SBR
Lane Configurations	
Traffic Volume (veh/h)	0
Future Volume (veh/h)	0
Number	16
Initial Q (Qb), veh	0
Ped-Bike Adj(A_pbT)	1.00
Parking Bus, Adj	1.00
Adj Sat Flow, veh/h/ln	1900
Adj Flow Rate, veh/h	0
Adj No. of Lanes	0
Peak Hour Factor	0.98
Percent Heavy Veh, %	2
Cap, veh/h	0
Arrive On Green	0.00
Sat Flow, veh/h	0
Grp Volume(v), veh/h	0
Grp Sat Flow(s),veh/h/ln	0
Q Serve(g_s), s	0.0
Cycle Q Clear(g_c), s	0.0
Prop In Lane	0.00
Lane Grp Cap(c), veh/h	0
V/C Ratio(X)	0.00
Avail Cap(c_a), veh/h	0
HCM Platoon Ratio	2.00
Upstream Filter(I)	0.00
Uniform Delay (d), s/veh	0.0
Incr Delay (d2), s/veh	0.0
Initial Q Delay(d3),s/veh	0.0
%ile BackOfQ(95%),veh/ln	0.0
LnGrp Delay(d),s/veh	0.0
LnGrp LOS	
Approach Vol, veh/h	
Approach Delay, s/veh	
Approach LOS	
Timer	

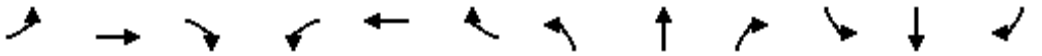
Intersection	
Int Delay, s/veh	3.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	60	373	476	59	49	84
Future Vol, veh/h	60	373	476	59	49	84
Conflicting Peds, #/hr	0	0	0	1	1	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	65	401	512	63	53	90

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	576	0	-	0	1076	545
Stage 1	-	-	-	-	545	-
Stage 2	-	-	-	-	531	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	997	-	-	-	243	538
Stage 1	-	-	-	-	581	-
Stage 2	-	-	-	-	590	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	997	-	-	-	222	537
Mov Cap-2 Maneuver	-	-	-	-	222	-
Stage 1	-	-	-	-	580	-
Stage 2	-	-	-	-	540	-

Approach	EB	WB	SB
HCM Control Delay, s	1.2	0	22
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	997	-	-	-	353
HCM Lane V/C Ratio	0.065	-	-	-	0.405
HCM Control Delay (s)	8.9	0	-	-	22
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0.2	-	-	-	1.9



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	848	10	0	1703	12	0	0	19	0	0	4
Future Volume (Veh/h)	0	848	10	0	1703	12	0	0	19	0	0	4
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	893	11	0	1793	13	0	0	20	0	0	4
Pedestrians					9						9	
Lane Width (ft)					12.0						12.0	
Walking Speed (ft/s)					3.5						3.5	
Percent Blockage					1						1	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		368			1129							
pX, platoon unblocked												
vC, conflicting volume	1802			893			1347	2700	312	2115	2702	464
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1802			893			1347	2700	312	2115	2702	464
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	97	100	100	99
cM capacity (veh/h)	335			755			108	21	678	27	21	540

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1
Volume Total	357	357	190	512	512	512	269	20	4
Volume Left	0	0	0	0	0	0	0	0	0
Volume Right	0	0	11	0	0	0	13	20	4
cSH	1700	1700	1700	1700	1700	1700	1700	678	540
Volume to Capacity	0.21	0.21	0.11	0.30	0.30	0.30	0.16	0.03	0.01
Queue Length 95th (ft)	0	0	0	0	0	0	0	2	1
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.5	11.7
Lane LOS								B	B
Approach Delay (s)	0.0			0.0				10.5	11.7
Approach LOS								B	B

Intersection Summary				
Average Delay	0.1			
Intersection Capacity Utilization	34.9%	ICU Level of Service		A
Analysis Period (min)	15			

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	777	89	0	1709	1	0	0	102	0	0	7
Future Vol, veh/h	0	777	89	0	1709	1	0	0	102	0	0	7
Conflicting Peds, #/hr	0	0	0	0	0	10	0	0	10	10	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Free	-	-	Free	-	-	Yield	-	-	Yield
Storage Length	-	-	-	-	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	818	94	0	1799	1	0	0	107	0	0	7

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	-	-	-	0	-	-	419	-	-	899
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	-	-	-	7.14	-	-	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	-	-	-	3.92	-	-	3.92
Pot Cap-1 Maneuver	0	-	0	0	-	0	0	0	498	0	0	242
Stage 1	0	-	0	0	-	0	0	0	-	0	0	-
Stage 2	0	-	0	0	-	0	0	0	-	0	0	-
Platoon blocked, %		-			-							
Mov Cap-1 Maneuver	-	-	-	-	-	-	-	-	493	-	-	242
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	14.3	20.3
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	EBT	WBT	SBLn1
Capacity (veh/h)	493	-	-	242
HCM Lane V/C Ratio	0.218	-	-	0.03
HCM Control Delay (s)	14.3	-	-	20.3
HCM Lane LOS	B	-	-	C
HCM 95th %tile Q(veh)	0.8	-	-	0.1

Traffic Volume Worksheets

17-136 Emerson Center Mixed-Use Development, Smyrna

Traffic Volumes
Future Conditions

A&R Engineering
December 2017

1. Cobb Pkwy @ Spring Rd

A.M. Peak Hour

	Cobb Pkwy Northbound					Cobb Pkwy Southbound					Spring Rd Eastbound					Circle 75 Pkwy Westbound				
Condition	U	L	T	R	Tot	U	L	T	R	Tot	U	L	T	R	Tot	U	L	T	R	Tot
Existing 2017:	5	286	727	186	1204	21	80	1803	46	1950	0	96	521	1240	1857	0	137	54	2	193
Growth Factor (%):	1.5	1.5	1.5	1.5		1.5	1.5	1.5	1.5		1.5	1.5	1.5	1.5		1.5	1.5	1.5	1.5	
Braves DRI Traffic:	0	0	38	251	289	0	62	32	0	94	0	0	17	0	17	0	96	2	13	111
No-Build 2020:	5	299	798	445	1547	22	146	1917	48	2133	0	100	562	1297	1959	0	239	58	15	312
New Retail Trips:	0	17	0	0	17	0	0	0	8	8	0	5	0	10	15	0	0	0	0	0
New Office/Residential Trips:	0	56	0	0	56	0	0	0	16	16	0	12	6	40	58	0	0	8	0	8
Total New Trips:	0	73	0	0	73	0	0	0	24	24	0	17	6	50	73	0	0	8	0	8
Pass-by Trips:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Future 2020 Traffic Volumes:	5	372	798	445	1620	22	146	1917	72	2157	0	117	568	1347	2032	0	239	66	15	320

P.M. Peak Hour

	Cobb Pkwy Northbound					Cobb Pkwy Southbound					Spring Rd Eastbound					Circle 75 Pkwy Westbound				
Condition	U	L	T	R	Tot	U	L	T	R	Tot	U	L	T	R	Tot	U	L	T	R	Tot
Existing 2017:	9	1366	1767	211	3353	13	35	1257	60	1365	0	109	248	397	754	0	539	328	49	916
Growth Factor (%):	1.5	1.5	1.5	1.5		1.5	1.5	1.5	1.5		1.5	1.5	1.5	1.5		1.5	1.5	1.5	1.5	
Braves DRI Traffic:	0	0	32	67	99	0	13	22	0	35	0	0	2	0	2	0	186	14	47	247
No-Build 2020:	9	1428	1880	288	3605	14	50	1336	63	1463	0	114	261	415	790	0	750	357	98	1205
New Retail Trips:	0	6	0	0	6	0	0	0	3	3	0	3	0	6	9	0	0	0	0	0
New Office/Residential Trips:	0	50	0	0	50	0	0	0	14	14	0	18	9	63	90	0	0	7	0	7
Total New Trips:	0	56	0	0	56	0	0	0	17	17	0	21	9	69	99	0	0	7	0	7
Pass-by Trips:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Future 2020 Traffic Volumes:	9	1484	1880	288	3661	14	50	1336	80	1480	0	135	270	484	889	0	750	364	98	1212

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Traffic Volumes
Future Conditions

A&R Engineering
December 2017

2. Spring Rd @ Cumberland Blvd

A.M. Peak Hour

	Cumberland Blvd Northbound					Cumberland Blvd Southbound					Spring Rd Eastbound					Spring Rd Westbound				
Condition	U	L	T	R	Tot	U	L	T	R	Tot	U	L	T	R	Tot	U	L	T	R	Tot
Existing 2017:	0	145	469	246	860	0	114	367	128	609	8	296	1534	517	2355	34	82	226	43	385
Growth Factor (%):	1.5	1.5	1.5	1.5		1.5	1.5	1.5	1.5		1.5	1.5	1.5	1.5		1.5	1.5	1.5	1.5	
Braves DRI Traffic:	0	0	6	3	9	0	0	5	12	17	0	12	13	0	25	0	1	2	0	3
No-Build 2020:	0	152	496	260	908	0	119	389	146	654	8	322	1617	541	2488	36	87	238	45	406
New Retail Trips:	0	12	5	4	21	0	8	0	0	8	0	0	21	0	21	23	3	0	0	26
New Office/Residential Trips:	0	12	6	0	18	0	6	2	0	8	0	0	11	5	16	56	24	0	0	80
Total New Trips:	0	24	11	4	39	0	14	2	0	16	0	0	32	5	37	79	27	0	0	106
Pass-by Trips:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Future 2020 Traffic Volumes:	0	176	507	264	947	0	133	391	146	670	8	322	1649	546	2525	115	114	238	45	512

P.M. Peak Hour

	Cumberland Blvd Northbound					Cumberland Blvd Southbound					Spring Rd Eastbound					Spring Rd Westbound				
Condition	U	L	T	R	Tot	U	L	T	R	Tot	U	L	T	R	Tot	U	L	T	R	Tot
Existing 2017:	0	557	605	150	1312	0	84	586	555	1225	0	294	589	279	1162	70	319	1364	74	1827
Growth Factor (%):	1.5	1.5	1.5	1.5		1.5	1.5	1.5	1.5		1.5	1.5	1.5	1.5		1.5	1.5	1.5	1.5	
Braves DRI Traffic:	0	0	4	1	5	0	0	3	7	10	0	8	2	0	10	0	2	10	0	12
No-Build 2020:	0	582	637	158	1377	0	88	616	587	1291	0	315	618	292	1225	73	336	1436	77	1922
New Retail Trips:	0	7	3	1	11	0	3	0	0	3	0	0	7	0	7	8	1	0	0	9
New Office/Residential Trips:	0	18	9	4	31	0	5	2	0	7	0	0	10	4	14	50	21	0	0	71
Total New Trips:	0	25	12	5	42	0	8	2	0	10	0	0	17	4	21	58	22	0	0	80
Pass-by Trips:	0	8	0	0	8	0	0	0	0	0	0	0	0	0	0	6	1	-7	0	0
Future 2020 Traffic Volumes:	0	615	649	163	1427	0	96	618	587	1301	0	315	635	296	1246	137	359	1429	77	2002

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Traffic Volumes
Future Conditions

A&R Engineering
December 2017

3. Cumberland @ Spring Hill

A.M. Peak Hour

	Cumberland Blvd Northbound					Cumberland Blvd Southbound					Eastbound					Spring Hill Pkwy Westbound				
Condition	U	L	T	R	Tot	U	L	T	R	Tot	U	L	T	R	Tot	U	L	T	R	Tot
Existing 2017:	0	0	363	10	373	0	160	872	0	1032	0	0	0	0	0	0	7	0	435	442
Growth Factor (%):	1.5	1.5	1.5	1.5		1.5	1.5	1.5	1.5		1.5	1.5	1.5	1.5		1.5	1.5	1.5	1.5	
Braves DRI Traffic:	0	0	9	0	9	0	0	6	0	6	0	0	0	0	0	0	0	0	0	0
No-Build 2020:	0	0	389	10	399	0	167	918	0	1085	0	0	0	0	0	0	7	0	455	462
New Retail Trips:	0	0	4	17	21	0	3	0	0	3	0	0	0	0	0	0	12	0	17	29
New Office/Residential Trips:	0	0	0	24	24	0	31	0	0	31	0	0	0	0	0	0	17	0	17	34
Total New Trips:	0	0	4	41	45	0	34	0	0	34	0	0	0	0	0	0	29	0	34	63
Pass-by Trips:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Future 2020 Traffic Volumes:	0	0	393	51	444	0	201	918	0	1119	0	0	0	0	0	0	36	0	489	525

P.M. Peak Hour

	Cumberland Blvd Northbound					Cumberland Blvd Southbound					Eastbound					Spring Hill Pkwy Westbound				
Condition	U	L	T	R	Tot	U	L	T	R	Tot	U	L	T	R	Tot	U	L	T	R	Tot
Existing 2017:	3	0	923	68	994	0	289	670	0	959	0	0	0	0	0	0	18	0	439	457
Growth Factor (%):	1.5	1.5	1.5	1.5		1.5	1.5	1.5	1.5		1.5	1.5	1.5	1.5		1.5	1.5	1.5	1.5	
Braves DRI Traffic:	0	0	5	0	5	0	0	5	0	5	0	0	0	0	0	0	0	0	0	0
No-Build 2020:	3	0	970	71	1044	0	302	706	0	1008	0	0	0	0	0	0	19	0	459	478
New Retail Trips:	0	0	1	6	7	0	1	0	0	1	0	0	0	0	0	0	7	0	10	17
New Office/Residential Trips:	0	0	0	21	21	0	28	0	0	28	0	0	0	0	0	0	27	0	27	54
Total New Trips:	0	0	1	27	28	0	29	0	0	29	0	0	0	0	0	0	34	0	37	71
Pass-by Trips:	0	0	-2	2	0	0	3	-2	0	1	0	0	0	0	0	0	2	0	9	11
Future 2020 Traffic Volumes:	3	0	969	100	1072	0	334	704	0	1038	0	0	0	0	0	0	55	0	505	560

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Traffic Volumes
Future Conditions

A&R Engineering
December 2017

4. Spring Hill @ Site Drwy 1

A.M. Peak Hour

	Northbound					Emerson Center Office Park Drwy Southbound					Spring Hill Pkwy Eastbound					Spring Hill Pkwy Westbound				
Condition	U	L	T	R	Tot	U	L	T	R	Tot	U	L	T	R	Tot	U	L	T	R	Tot
Existing 2017:	0	0	0	0	0	0	0	0	1	1	0	3	167	0	170	0	0	441	10	451
Growth Factor (%):	1.5	1.5	1.5	1.5		1.5	1.5	1.5	1.5		1.5	1.5	1.5	1.5		1.5	1.5	1.5	1.5	
Braves DRI Traffic:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
No-Build 2020:	0	0	0	0	0	0	0	0	1	1	0	3	175	0	178	0	0	461	10	471
New Retail Trips:	0	0	0	0	0	0	5	0	29	34	0	19	0	0	19	0	0	0	8	8
New Office/Residential Trips:	0	0	0	0	0	0	23	0	35	58	0	56	0	0	56	0	0	0	32	32
Total New Trips:	0	0	0	0	0	0	28	0	64	92	0	75	0	0	75	0	0	0	40	40
Pass-by Trips:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Future 2020 Traffic Volumes:	0	0	0	0	0	0	28	0	65	93	0	78	175	0	253	0	0	461	50	511

P.M. Peak Hour

	Northbound					Emerson Center Office Park Drwy Southbound					Spring Hill Pkwy Eastbound					Spring Hill Pkwy Westbound				
Condition	U	L	T	R	Tot	U	L	T	R	Tot	U	L	T	R	Tot	U	L	T	R	Tot
Existing 2017:	0	0	0	0	0	0	10	0	2	12	0	0	357	0	357	0	0	455	27	482
Growth Factor (%):	1.5	1.5	1.5	1.5		1.5	1.5	1.5	1.5		1.5	1.5	1.5	1.5		1.5	1.5	1.5	1.5	
Braves DRI Traffic:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
No-Build 2020:	0	0	0	0	0	0	10	0	2	12	0	0	373	0	373	0	0	476	28	504
New Retail Trips:	0	0	0	0	0	0	3	0	17	20	0	7	0	0	7	0	0	0	3	3
New Office/Residential Trips:	0	0	0	0	0	0	36	0	54	90	0	49	0	0	49	0	0	0	28	28
Total New Trips:	0	0	0	0	0	0	39	0	71	110	0	56	0	0	56	0	0	0	31	31
Pass-by Trips:	0	0	0	0	0	0	0	0	11	11	0	4	0	0	4	0	0	0	0	0
Future 2020 Traffic Volumes:	0	0	0	0	0	0	49	0	84	133	0	60	373	0	433	0	0	476	59	535

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Traffic Volumes
Future Conditions

A&R Engineering
December 2017

5. Spring Rd @ Site Drwy 2

A.M. Peak Hour

	Emerson Center Office Park Drwy Northbound					Papa Johns Drwy Southbound					Spring Road Eastbound					Spring Road Westbound				
Condition	U	L	T	R	Tot	U	L	T	R	Tot	U	L	T	R	Tot	U	L	T	R	Tot
Existing 2017:	0	0	0	2	2	0	0	0	0	0	0	0	1907	0	1907	0	0	362	5	367
Growth Factor (%):	1.5	1.5	1.5	1.5		1.5	1.5	1.5	1.5		1.5	1.5	1.5	1.5		1.5	1.5	1.5	1.5	
Braves DRI Traffic:	0	0	0	0	0	0	0	0	0	0	0	0	16	0	16	0	0	3	0	3
No-Build 2020:	0	0	0	2	2	0	0	0	0	0	0	0	2010	0	2010	0	0	382	5	387
New Retail Trips:	0	0	0	0	0	0	0	0	0	0	0	0	56	0	56	0	0	25	0	25
New Office/Residential Trips:	0	0	0	6	6	0	0	0	0	0	0	0	63	10	73	0	0	81	0	81
Total New Trips:	0	0	0	6	6	0	0	0	0	0	0	0	119	10	129	0	0	106	0	106
Pass-by Trips:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Future 2020 Traffic Volumes:	0	0	0	8	8	0	0	0	0	0	0	0	2129	10	2139	0	0	488	5	493

P.M. Peak Hour

	Emerson Center Office Park Drwy Northbound					Papa Johns Drwy Southbound					Spring Road Eastbound					Spring Road Westbound				
Condition	U	L	T	R	Tot	U	L	T	R	Tot	U	L	T	R	Tot	U	L	T	R	Tot
Existing 2017:	0	0	0	10	10	0	0	0	4	4	0	0	732	1	733	0	0	1541	11	1552
Growth Factor (%):	1.5	1.5	1.5	1.5		1.5	1.5	1.5	1.5		1.5	1.5	1.5	1.5		1.5	1.5	1.5	1.5	
Braves DRI Traffic:	0	0	0	0	0	0	0	0	0	0	0	0	3	0	3	0	0	12	0	12
No-Build 2020:	0	0	0	10	10	0	0	0	4	4	0	0	768	1	769	0	0	1623	12	1635
New Retail Trips:	0	0	0	0	0	0	0	0	0	0	0	0	19	0	19	0	0	9	0	9
New Office/Residential Trips:	0	0	0	9	9	0	0	0	0	0	0	0	55	9	64	0	0	71	0	71
Total New Trips:	0	0	0	9	9	0	0	0	0	0	0	0	74	9	83	0	0	80	0	80
Pass-by Trips:	0	0	0	0	0	0	0	0	0	0	0	0	6	0	6	0	0	0	0	0
Future 2020 Traffic Volumes:	0	0	0	19	19	0	0	0	4	4	0	0	848	10	858	0	0	1703	12	1715

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Traffic Volumes
Future Conditions

A&R Engineering
December 2017

6. Spring Rd @ Site Drwy 3

A.M. Peak Hour

	2800 Spring Road Drwy					Discount Tire Drwy					Spring Road					Spring Road				
	Northbound					**Southbound**					**Eastbound**					**Westbound**				
Condition	U	L	T	R	Tot	U	L	T	R	Tot	U	L	T	R	Tot	U	L	T	R	Tot
Existing 2017:	0	0	0	0	0	0	0	0	4	4	0	0	1925	1	1926	0	0	362	0	362
Growth Factor (%):	1.5	1.5	1.5	1.5		1.5	1.5	1.5	1.5		1.5	1.5	1.5	1.5		1.5	1.5	1.5	1.5	
Braves DRI Traffic:	0	0	0	0	0	0	0	0	0	0	0	0	16	0	16	0	0	3	0	3
No-Build 2020:	0	0	0	0	0	0	0	0	4	4	0	0	2029	1	2030	0	0	382	0	382
New Retail Trips:	0	0	0	14	14	0	0	0	0	0	0	0	0	56	56	0	0	25	0	25
New Office/Residential Trips:	0	0	0	52	52	0	0	0	0	0	0	0	6	63	69	0	0	81	0	81
Total New Trips:	0	0	0	66	66	0	0	0	0	0	0	0	6	119	125	0	0	106	0	106
Pass-by Trips:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Future 2020 Traffic Volumes:	0	0	0	66	66	0	0	0	4	4	0	0	2035	120	2155	0	0	488	0	488

P.M. Peak Hour

	2800 Spring Road Drwy					Discount Tire Drwy					Spring Road					Spring Road				
	Northbound					**Southbound**					**Eastbound**					**Westbound**				
Condition	U	L	T	R	Tot	U	L	T	R	Tot	U	L	T	R	Tot	U	L	T	R	Tot
Existing 2017:	0	0	0	7	7	0	0	0	7	7	0	0	736	4	740	0	0	1546	1	1547
Growth Factor (%):	1.5	1.5	1.5	1.5		1.5	1.5	1.5	1.5		1.5	1.5	1.5	1.5		1.5	1.5	1.5	1.5	
Braves DRI Traffic:	0	0	0	0	0	0	0	0	0	0	0	0	3	0	3	0	0	12	0	12
No-Build 2020:	0	0	0	7	7	0	0	0	7	7	0	0	773	4	777	0	0	1629	1	1630
New Retail Trips:	0	0	0	9	9	0	0	0	0	0	0	0	0	19	19	0	0	9	0	9
New Office/Residential Trips:	0	0	0	81	81	0	0	0	0	0	0	0	9	55	64	0	0	71	0	71
Total New Trips:	0	0	0	90	90	0	0	0	0	0	0	0	9	74	83	0	0	80	0	80
Pass-by Trips:	0	0	0	5	5	0	0	0	0	0	0	0	-5	11	6	0	0	0	0	0
Future 2020 Traffic Volumes:	0	0	0	102	102	0	0	0	7	7	0	0	777	89	866	0	0	1709	1	1710