



Traffic Impact Analysis

INDUSTRIAL WAREHOUSE

Prepared by:

Kimley-Horn and Associates, Inc.

046265011
August 2019
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189 South Orange Avenue, Suite 1000
Orlando, FL 32801

Kimley»Horn

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ENGINEERING CALCULATIONS WERE
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EXECUTIVE SUMMARY

Kimley-Horn has performed a Traffic Impact Analysis (TIA) for a proposed industrial warehouse development generally located on the east side of Normandy Boulevard and south of Graves Avenue in the City of Deltona, Florida. The site is proposed to include 1,094,865 square feet of industrial warehouse land use. The TIA has been performed in accordance with the River to Sea Transportation Planning Organization (TPO) TIA Guidelines and the methodology reviewed by the City of Deltona and Volusia County.

Access to the property is proposed via four full access connections to Normandy Boulevard. The northernmost full access connection on Normandy Boulevard will be a truck-only access connection. All other vehicles will enter the development through the three additional full access connections on Normandy Boulevard.

The traffic analysis was performed considering a buildout timeframe of 1 year (2020) for the proposed development program. The operating conditions within the study area were evaluated for future background (without project traffic) conditions and buildout (with project) traffic conditions. Transportation improvements were identified within the study area to be needed under future background traffic conditions (before adding project trips). Additionally, the following geometric improvements were identified to be needed at project buildout to meet acceptable future LOS standards, in addition to those improvements identified under future background traffic conditions:

- Construction of a second westbound left-turn lane and second northbound right-turn lane at the intersection of Graves Avenue & Veteran's Memorial Parkway
- Construction a second eastbound right-turn lane at the intersection of Graves Avenue & Normandy Boulevard (a first eastbound right-turn lane required in 2020 future background traffic conditions)
- Construction of an exclusive southbound right-turn lane at the intersection of Graves Avenue & Howland Boulevard
- Construction of a second southbound left-turn lane and second southbound right-turn lane at the intersection of Normandy Boulevard & Saxon Boulevard. The southbound left-turn lane has already been constructed and is gored. The goring will require removal and turn lane restriped.
- Construction of an additional travel lane along W Volusia Beltway (Kentucky Avenue) from SR 472 to Graves Avenue (included as a need within River to Sea TPO 2040 LRTP)
- Construction of an additional travel lane along Saxon Boulevard from Tivoli Drive to Providence Boulevard (included as a need within River to Sea TPO 2040 LRTP)

The developer will work with the City of Deltona and Volusia County to determine which improvements identified in future conditions are feasible or desired and calculate proportionate share mitigation costs per applicable Florida Statutes and local code.

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INTRODUCTION

Kimley-Horn has performed a TIA for the proposed industrial warehouse development. The project site is generally located south of Graves Avenue, west of Normandy Boulevard in the City of Deltona, Florida. The site will include 1,094,865 square feet of industrial warehouse land use.

The TIA identifies transportation needs within the study area under 2020 future background (without project traffic) and 2020 buildout (with project) traffic conditions. The analysis has been performed in accordance with the River to Sea Transportation Planning Organization (TPO) TIA Guidelines and the methodology which was reviewed by the City of Deltona and Volusia County. The methodology and methodology correspondence are included in **Appendix A**.

Access to the property is proposed via three proposed full access connections to Normandy Boulevard. The proposed northernmost full access connection on Normandy Boulevard will be a truck-only access connection. All other vehicles will enter the development via the two additional proposed full access connections on Normandy Boulevard. A copy of the current Conceptual Site Development Plan illustrating the site location and proposed project access is included in **Appendix B**.

This TIA is based on data collected by Kimley-Horn and supplemented by information obtained from City of Deltona, Volusia County, and the Florida Department of Transportation (FDOT) sources. The study observed the established procedures found in Institute of Transportation Engineers (ITE) sources, FDOT sources, and the *Highway Capacity Manual* (HCM 6).

PROJECT TRIP GENERATION

Trip generation for the proposed development was calculated using data provided by the end user from similar sites. For this facility, the end user data (located in **Appendix A**) anticipates 2,596 daily net new external trips, 577 AM peak hour net new external trips (571 in/ 6 out), and 1,043 PM peak hour net new external trips (429 in/ 614 out) upon buildout.

The trip generation estimate from the end user data was compared to data for the most comparable use listed in the Institute of Transportation Engineers' (ITE) Trip Generation Manual, Tenth Edition. ITE land use code 150 (Warehousing) trip rates were applied to the proposed project size for a comparable trip generation estimate. The ITE trip generation estimate for the development, shown in **Table 1**, is anticipated to be 1,905 daily net new external trips, 186 AM peak hour net new external trips (143 in/ 43 out), and 208 PM peak hour net new external trips (56 in/ 152 out) upon buildout.

The trip generation potential of the proposed site is likely better estimated from the end user data and, as demonstrated above, is more conservative than the most comparable data available in the ITE Trip Generation Manual, Tenth Edition. Therefore, the end user data was utilized to assess future impacts from the site. Trip generation calculations from end user data is provided within the TIA methodology (located in **Appendix A**).

Table 1 - Trip Generation Calculations

Land Use	Intensity	Daily Trips	AM Peak Hour of Adjacent Street			PM Peak Hour of Adjacent Street		
			Total	In	Out	Total	In	Out
Proposed Development Warehousing	1,094,865 SF	1,905	186	143	43	208	56	152
	<i>Subtotal</i>	1,905	186	143	43	208	56	152
Driveway Volumes		1,905	186	143	43	208	56	152
TOTAL NET NEW TRIPS		1,905	186	143	43	208	56	152
Note 1: Trip Generation was calculated using the data from ITE's Trip Generation Manual, 10th Edition <u>Warehousing [ITE 150]</u> Daily $T = 1.74*(X)$; (X is SF/1000) AM Peak Hour of Adjacent Street $T = 0.17*(X)$; (X is SF/1000); (77% in/ 23% out) PM Peak Hour of Adjacent Street $T = 0.19*(X)$; (X is SF/1000); (27% in/ 73% out)								

TRIP DISTRIBUTION, ASSIGNMENT, AND STUDY AREA

A projected traffic distribution was developed using output from the Central Florida Regional Planning Model (CFRPM) version 6.1, which is based on the Florida Standard Urban Transportation Model Structure (FSUTMS). Hand adjustments were made to the model output based on engineering judgment and knowledge of the area to establish a reasonable estimation for the project's travel patterns within the study area.

Project traffic was assigned within the study area by applying the external trip distribution to the trip generation potential and considering the proposed access scenario. The study area roadway segments and intersections were defined in accordance with the R2CTPO TIA Guidelines and are as follows:

- Any major roadway segment on which the project traffic consumes three (3) percent or more of the peak-hour two-way service volume for the minimum acceptable level of service standard.
- Any roadways considered critical or near critical by Volusia County in the project vicinity.
- Intersection analysis shall be performed within study area roadway segments.

According to R2CTPO Guidelines, any segments considered critical or near critical by Volusia County should be considered in the analysis. Based on this criterion, the following roadway segments were analyzed as part of this study:

- Orange Camp Road from US 17/92 to Interstate 4
- Main Street (Lake Helen) from Interstate 4 to Lakeview Drive
- Saxon Boulevard from Veteran's Memorial Parkway to Normandy Boulevard
- Veteran's Memorial Parkway from Graves Avenue to Harley Strickland Boulevard
- Providence Boulevard from Elkcarn Boulevard to Tivoli Drive
- Interstate 4 from Seminole/Volusia County Line to Saxon Boulevard
- Dr. Martin Luther King Jr. Beltway from Orange Camp Road to SR 472
- SR 472 from Interstate 4 to Graves Avenue
- Graves Avenue from Veteran's Memorial Parkway to Kentucky Avenue
- Howland Boulevard from Providence Boulevard to Elkcarn Boulevard
- Howland Boulevard from Graves Avenue to Wolf Pak Run

The following roadway segments were analyzed as part of this study based upon the project traffic consuming three percent or more of roadway segment peak-hour two-way service volumes (segments that meet this criterion, but are critical/near critical were included in the previous section):

- Graves Avenue from US 17/92 to Veteran's Memorial Parkway
- Graves Avenue from Kentucky Avenue to Howland Boulevard
- Kentucky Avenue from SR 472 to Graves Avenue
- Normandy Boulevard from Graves Avenue to Deltona Boulevard
- Elkcarn Boulevard from Normandy Boulevard to Providence Boulevard
- Fort Smith Boulevard from Elkcarn Boulevard to Providence Boulevard
- Howland Boulevard from Wolf Pack Run to Providence Boulevard
- Catalina Boulevard from Howland Boulevard to Lake Helen-Osteen Road
- Lake Helen-Osteen Road from Catalina Boulevard to Elkcarn Boulevard
- Rhode Island Avenue from US 17/92 to Veteran's Memorial Parkway

- Interstate 4 from Saxon Boulevard to SR 44
- Saxon Boulevard from Normandy Boulevard to Providence Boulevard
- Providence Boulevard from Howland Boulevard Elkcarn Boulevard

In addition to roadway segment analysis, the following intersections were evaluated for both AM peak hour (7:00 AM - 9:00 AM) and PM peak hour (4:00 PM - 6:00 PM) traffic conditions, as requested during the methodology process:

- Graves Avenue & US 17/92
- Graves Avenue & Veteran's Memorial Parkway
- Graves Avenue & W Volusia Avenue (Kentucky Avenue)
- Graves Avenue & Normandy Boulevard
- Graves Avenue & Howland Boulevard/SR 472
- SR 472 & W Volusia Beltway (Dr. Martin Luther King Jr)
- SR 472 & I-4 EB Ramps
- SR 472 & I-4 WB Ramps
- W Volusia Beltway (Dr. Martin Luther King Jr) & Orange Camp Road
- Normandy Boulevard & Project Access Locations (3)
- Normandy Boulevard & Elkcarn Boulevard
- Normandy Boulevard & Saxon Boulevard
- Normandy Boulevard & Deltona Boulevard
- Elkcarn Boulevard & Fort Smith Boulevard
- Elkcarn Boulevard & Providence Boulevard
- Fort Smith Boulevard & Providence Boulevard
- Saxon Boulevard & Veteran's Memorial Parkway
- Saxon Boulevard & FDOT Park & Ride
- Saxon Boulevard & I-4 EB Ramps
- Saxon Boulevard & I-4 WB Ramps
- Saxon Boulevard & Tivoli Drive
- Howland Boulevard & Catalina Boulevard
- Howland Boulevard & providence Boulevard
- Catalina Boulevard & Lake Helen-Osteen Road
- Lake Helen-Osteen Road & Elkcarn Boulevard
- Veteran's Memorial Parkway & Rhode Island Avenue
- Veteran's Memorial Parkway & Harley Strickland Road
- Rhode Island Avenue & US 17/92

Figure 1 illustrates the site location, trip distribution, and study area for the traffic analysis.

Proposed Truck Distribution

Truck traffic generated by the development will travel to/from the facility via Interstate 4 and the SR 472 interchange. The Saxon Boulevard interchange will not be used as truck route to and from Interstate 4. It has been assumed that approximately 50% of truck traffic will travel to/from the east on Interstate 4 and 50% of truck traffic will travel to/from the west on Interstate 4.

Entering Truck Traffic

Entering truck traffic will utilize the SR 472 interchange on Interstate 4 to access the development. All trucks entering the development will exit onto SR 472 and travel east to Graves Avenue. Truck traffic will turn right onto Graves Avenue and then turn left onto Normandy Boulevard, where they will enter the site via the first full access driveway connection (Driveway 1).

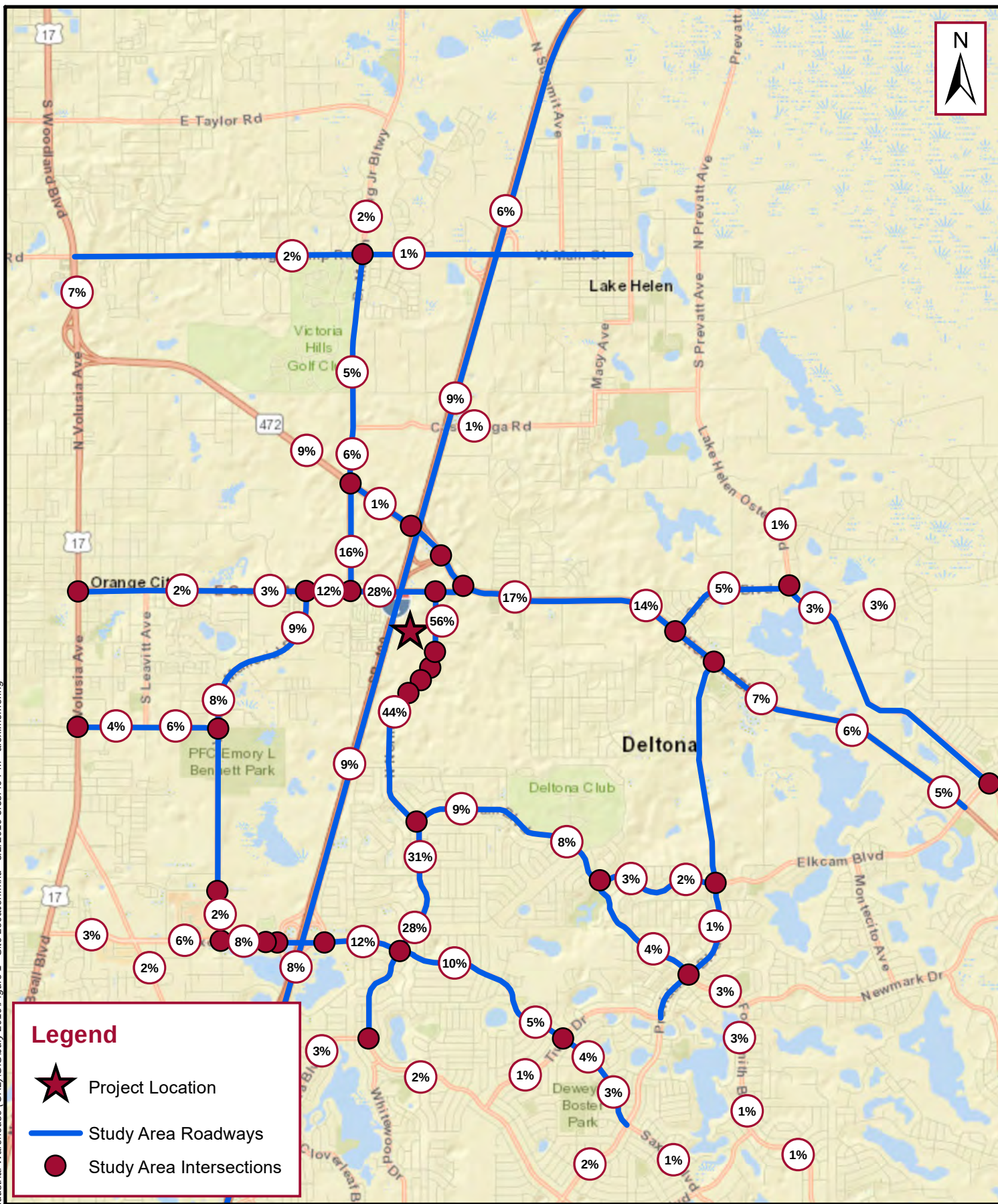
Exiting Truck Traffic

There will be two different routes that will allow for trucks to exit the development. Truck traffic traveling to eastbound Interstate 4 will travel onto Normandy Boulevard (from Driveway 1) and turn right onto Graves Avenue. After turning left at the intersection of Graves Avenue, trucks will be able to enter Interstate 4 via the Interstate 4 Eastbound on-ramp. Truck traffic traveling to westbound Interstate 4 will travel onto Normandy Boulevard and turn left onto Graves Avenue. After turning right onto Kentucky Avenue, trucks will then turn right onto SR 472. Trucks can enter Interstate 4 via the westbound on-ramps off SR 472.

Figure 2 illustrates the proposed truck trip distribution for the development.

Proposed Shift Operations

The proposed operations of the warehouse development will occur over a 24-hour period, and employees are spread over two shifts. The daytime shift will occur between 7:00AM-6:00PM and the nighttime shift will occur between 6:00PM-5:00AM. The peak hour of entering daytime shift traffic (AM peak hour) will occur between 6:30AM-7:30AM. The peak hour of exiting daytime shift traffic and entering nighttime shift traffic will occur between 5:30PM-6:30PM. The peak hour of exiting nighttime traffic will occur between 4:30AM-5:30AM and is less than the peak hour of entering daytime shift traffic (AM peak hour).



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FIGURE 1: SITE LOCATION, TRIP DISTRIBUTION, AND STUDY AREA

**INDUSTRIAL WAREHOUSE
CITY OF DELTONA, FLORIDA**



FIGURE 2- PROPOSED TRUCK TRIP DISTRIBUTION

**INDUSTRIAL WAREHOUSE
CITY OF DELTONA, FLORIDA**

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EXISTING CONDITIONS ANALYSIS

Data Collection

Turning movement counts were collected at the study area intersections during the AM peak hour (7:00 AM - 9:00 AM) and PM peak hour (4:00 PM – 6:00 PM) in June 2019. The turning movement counts were used for the existing conditions analysis and as a basis for forecasting the future year turning movement volumes. The turning movement counts are provided in **Appendix C**.

The appropriate peak season factors from FDOT were utilized to adjust the observed traffic volumes to peak season. Existing peak hour factors, right turns on red, and heavy vehicles were recorded during the turning movement counts. The existing intersection lane geometries were observed in the field. Existing signal timings obtained from Volusia County were utilized in the analysis and are included in **Appendix D**.

Roadway Segment Analysis

Study roadway segments were evaluated to determine the existing AM peak hour and PM peak hour levels of service and to provide a basis for the future conditions analysis. The maximum service volumes were obtained from the latest Volusia County Roadway Segment Tables and the 2013 FDOT Quality/Level of Service Handbook.

The existing AM peak hour and PM peak hour directional traffic volumes on the roadway segments were calculated using the AM peak hour and PM peak hour turning movement count (approach/departure) data collected at the study area intersections. The reported existing traffic volume is an average of the recorded approach and departure volumes, adjusted to peak season using the applicable FDOT peak season factor.

Table 2 and **Table 3** illustrate the existing peak hour volume and level of service for roadway segments in the study area during the AM peak hour and PM peak hour, respectfully. All the study area roadway segments are shown to operate within the adopted level of service standard under existing AM and PM peak hour traffic conditions with the exception of the following roadway segments:

- Providence Boulevard - from Elkcarn Boulevard to Fort Smith Boulevard
- Howland Boulevard - from Providence Boulevard to Elkcarn Boulevard
- Catalina Boulevard - from Howland Boulevard to Sixma Road
- Lake Helen-Osteen Road - from Catalina Boulevard to Haulover Boulevard
- Veteran's Memorial Parkway - Rhode Island Avenue to Harley Strickland Boulevard
- Interstate 4 - from Seminole County Line to SR 472

Table 2 - 2019 Existing AM Peak Hour Roadway Segment Summary

Roadway		Roadway Attributes ¹				Peak Hour Two-Way Maximum Service Volume ²	Existing Two-Way Peak Season Traffic Conditions			
		Functional Classification	Area Type	Adopted LOS	Number of Lanes		Volumes ³		V/C Ratios	LOS
							NB / EB	SB / WB		
From	To									
Graves Avenue US 17/92 Leavitt Avenue Veteran's Memorial Parkway Kentucky Avenue	Leavitt Avenue	Major Collector	U	E	2U	1,330	152	237	0.29	C
	Veteran's Memorial Parkway	Major Collector	U	E	2U	1,020	204	258	0.45	C
	Kentucky Avenue	Minor Arterial	U	E	2U	1,620	373	759	0.70	C
	Howland Boulevard	Minor Arterial	U	E	2U	1,620	396	473	0.54	C
W Volusia Beltway (Kentucky Avenue) SR 472	Graves Avenue	Major Collector	U	E	2U	1,540	312	357	0.43	C
W Volusia Beltway (Dr. Martin Luther King Jr.) Orange Camp Road Cassadaga Road	Cassadaga Road	Minor Arterial	U	E	2U	1,540	465	283	0.49	C
	SR 472	Minor Arterial	U	E	2U	1,540	403	348	0.49	C
Orange Camp Road Blue Lake Avenue W Volusia Beltway (Dr. MLK Jr.) W Volusia Beltway (Dr. MLK Jr I-4)	W Volusia Beltway (Dr. MLK Jr.)	Minor Arterial	U	E	2U	1540	489	412	0.59	C
		Minor Arterial	U	E	2U	1540	700	447	0.74	C
Main Street (Lake Helen) I-4	Lakeview Drive	Major Collector	U	C	2U	950	390	390	0.82	D
Normandy Boulevard Graves Avenue Project Access Location Project Access Location Rhode Island Avenue Elkcam Boulevard Saxson Boulevard Saxson Boulevard	Project Access Location	Major Collector	U	D	2U	1,150	463	190	0.57	C
	Rhode Island Avenue	Major Collector	U	D	2U	1,150	423	197	0.54	C
	Elkcam Boulevard	Major Collector	U	D	2U	2,630	382	203	0.22	C
	Saxson Boulevard	Major Collector	U	D	4D	2,630	268	525	0.30	C
	Deltona Boulevard	Major Collector	U	D	2U	960	307	259	0.59	D
Elkcam Boulevard Normandy Boulevard Fort Smith Boulevard	Fort Smith Boulevard	Major Collector	U	D	2U	960	153	431	0.61	D
	Providence Boulevard	Major Collector	U	D	2U	960	120	223	0.36	C
Fort Smith Boulevard Elkcam Boulevard	Providence Boulevard	Major Collector	U	D	2U	960	106	84	0.20	C
Providence Boulevard Howland Boulevard Elkcam Boulevard Fort Smith Boulvard	Elkcam Boulevard	Minor Arterial	U	E	2U	1,270	308	230	0.42	C
	Fort Smith Boulevard	Minor Arterial	U	E	2U	1,020	323	321	0.63	D
	Tivoli Drive	Minor Arterial	U	E	4D	2,740	282	611	0.33	C
Saxon Boulevard Veteran's Memorial Parkway FDOT Park & Ride I-4 Finland Drive Finland Drive Normandy Boulevard Normandy Boulevard Tivoli Drive Tivoli Drive	FDOT Park & Ride	Minor Arterial	U	E	6D	4,280	931	1,600	0.59	C
	I-4	Minor Arterial	U	E	6D	3,410	908	1,987	0.85	C
	Finland Drive	Minor Arterial	U	E	4D	3,410	854	2,106	0.87	C
	Normandy Boulevard	Minor Arterial	U	E	4D	3,410	556	1,808	0.69	C
	Tivoli Drive	Minor Arterial	U	E	4D	3,410	446	1,040	0.44	C
	Providence Blvd	Minor Arterial	U	E	2U	1,020	222	472	0.68	D
SR 472 CR 4101/MLK Boulevard	Graves Avenue	Principal Arterial	U	D	4D	3,580	681	1,586	0.63	C
Howland Boulevard I-4/SR 472 Wolf Pack Run Catalina Boulevard Providence Boulevard	Wolf Pack Run	Minor Arterial	U	E	4D	3,410	1,181	1,125	0.68	C
	Catalina Boulevard	Minor Arterial	U	E	4D	3,410	1,181	1,125	0.68	C
	Providence Boulevard	Minor Arterial	U	E	4D	3,410	453	995	0.42	C
	Elkcam Blvd	Minor Arterial	U	E	2U	1,230	317	734	0.85	C
Catalina Boulevard Howland Boulevard Sixma Road	Sixma Road	Major Collector	U	D	2U	960	135	604	0.77	D
	Lake Helen-Osteen Road	Major Collector	U	D	2U	960	106	543	0.68	D
Lake Helen-Osteen Road Catalina Boulevard Haulover Boulevard	Haulover Boulevard	Minor Arterial	U	E	2U	1,020	650	154	0.79	C
	Elkcam Boulevard	Minor Arterial	U	E	2U	1,020	138	196	0.33	C
Veteran's Memorial Parkway Graves Avenue Rhode Island Avenue	Rhode Island Avenue	Minor Arterial	U	E	2U	1,620	252	624	0.54	C
	Harley Strickland Boulevard	Minor Arterial	U	E	2U	1,540	347	610	0.62	C
Rhode Island Avenue US 17/92	Veteran's Memorial Parkway	Major Collector	U	E	2U	1,230	207	330	0.44	C
Interstate 4 Seminole County Dirksen Road Dirksen Road Saxon Boulevard SR 472 Orange Camp Road	Dirksen Road	Principal Arterial	U	D	6D	10,060	4,586	5,674	1.02	F
	Saxon Boulevard	Principal Arterial	U	D	6D	10,060	4,056	6,156	1.02	F
	SR 472	Principal Arterial	U	D	6D	10,060	3,782	4,678	0.84	C
	Orange Camp Road	Principal Arterial	U	D	6D	10,060	2,977	3,683	0.66	C
	SR 44	Principal Arterial	U	D	6D	10,060	2844	4266	0.71	C

- Notes:
1. The roadway attributes were obtained from the latest 2018 Volusia County Average Annual Daily Traffic & Historical Counts Report.
 2. Peak Hour Two-Way Service Volumes were determined using the sources listed in Note 1.
 3. Existing peak season volumes are based on existing turning movement counts performed in June 2019.
 4. The PM peak hour two-way traffic volume for this roadway segment was used as there is no study area intersection in close proximity.

Table 3 - 2019 Existing PM Peak Hour Roadway Segment Summary

Roadway FromTo		Roadway Attributes ¹				Peak Hour Two-Way Maximum Service Volume ²	Existing Two-Way Peak Season Traffic Conditions					
		Functional Classification	Area Type	Adopted LOS	Number of Lanes		Volumes ³		Two-Way Peak Hour Volumes	V/C Ratios	LOS	
							NB / EB	SB / WB				
Graves Avenue US 17/92		Leavitt Avenue	Major Collector	U	E	2U	1,330	320	320	640	0.48	D
Leavitt Avenue		Veteran's Memorial Parkway	Major Collector	U	E	2U	1,020	325	325	650	0.64	D
Veteran's Memorial Parkway		Kentucky Avenue	Minor Arterial	U	E	2U	1,620	800	800	1,600	0.99	D
Kentucky Avenue		Howland Boulevard	Minor Arterial	U	E	2U	1,620	700	700	1,400	0.86	C
W Volusia Beltway (Kentucky Avenue) SR 472		Graves Avenue	Major Collector	U	E	2U	1,540	475	475	950	0.62	C
W Volusia Beltway (Dr. Martin Luther King Jr.) Orange Camp Road		Cassadaga Road	Minor Arterial	U	E	2U	1,540	505	505	1,010	0.66	C
Cassadaga Road		SR 472	Minor Arterial	U	E	2U	1,540	540	540	1,080	0.70	C
Orange Camp Road Blue Lake Avenue		W Volusia Beltway (Dr. MLK Jr.)	Minor Arterial	U	E	2U	1540	635	635	1,270	0.82	C
W Volusia Beltway (Dr. MLK Jr I-4			Minor Arterial	U	E	2U	1540	695	695	1,390	0.90	C
Main Street (Lake Helen) I-4		Lakeview Drive	Major Collector	U	C	2U	950	390	390	780	0.82	D
Normandy Boulevard Graves Avenue		Project Access Location	Major Collector	U	D	2U	1,150	394	393	787	0.68	C
Project Access Location		Rhode Island Avenue	Major Collector	U	D	2U	1,150	394	393	787	0.68	C
Rhode Island Avenue		Elkcam Boulevard	Major Collector	U	D	2U	2,630	318	318	636	0.24	C
Elkcam Boulevard		Saxon Boulevard	Major Collector	U	D	4D	2,630	300	299	599	0.23	C
Saxon Boulevard		Deltona Boulevard	Major Collector	U	D	2U	960	468	468	936	0.98	D
Elkcam Boulevard Normandy Boulevard		Fort Smith Boulevard	Major Collector	U	D	2U	960	362	361	723	0.75	D
Fort Smith Boulevard		Providence Boulevard	Major Collector	U	D	2U	960	269	269	538	0.56	D
Fort Smith Boulevard Elkcam Boulevard		Providence Boulevard	Major Collector	U	D	2U	960	166	166	332	0.35	C
Providence Boulevard Howland Boulevard		Elkcam Boulevard	Minor Arterial	U	E	2U	1,270	425	425	850	0.67	D
Elkcam Boulevard		Fort Smith Boulevard	Minor Arterial	U	E	2U	1,020	580	580	1,160	1.14	F
Fort Smith Boulevard		Tivoli Drive	Minor Arterial	U	E	4D	2,740	715	715	1,430	0.52	D
Saxon Boulevard Veteran's Memorial Parkway		FDOT Park & Ride	Minor Arterial	U	E	6D	4,280	1,330	1,330	2,660	0.62	C
FDOT Park & Ride		I-4	Minor Arterial	U	E	6D	3,410	1,630	1,630	3,260	0.96	D
I-4		Finland Drive	Minor Arterial	U	E	4D	3,410	1,570	1,570	3,140	0.92	C
Finland Drive		Normandy Boulevard	Minor Arterial	U	E	4D	3,410	1,400	1,400	2,800	0.82	C
Normandy Boulevard		Tivoli Drive	Minor Arterial	U	E	4D	3,410	965	965	1,930	0.57	C
Tivoli Drive		Providence Blvd	Minor Arterial	U	E	2U	1,020	445	445	890	0.87	D
SR 472 CR 4101/MLK Boulevard		Graves Avenue	Principal Arterial	U	D	4D	3,580	1,237	1,236	2,473	0.69	C
Howland Boulevard I-4/SR 472		Wolf Pack Run	Minor Arterial	U	E	4D	3,410	1,450	1,450	2,900	0.85	C
Wolf Pack Run		Catalina Boulevard	Minor Arterial	U	E	4D	3,410	1,265	1,265	2,530	0.74	C
Catalina Boulevard		Providence Boulevard	Minor Arterial	U	E	4D	3,410	915	915	1,830	0.54	C
Providence Boulevard		Elkcam Blvd	Minor Arterial	U	E	2U	1,230	710	710	1,420	1.15	F
Catalina Boulevard Howland Boulevard		Sixma Road	Major Collector	U	D	2U	960	501	501	1,002	1.04	F
Sixma Road		Lake Helen-Osteen Road	Major Collector	U	D	2U	960	428	428	856	0.89	D
Lake Helen-Osteen Road Catalina Boulevard		Haulover Boulevard	Minor Arterial	U	E	2U	1,020	540	540	1,080	1.06	F
Haulover Boulevard		Elkcam Boulevard	Minor Arterial	U	E	2U	1020	425	425	850	0.83	D
Veteran's Memorial Parkway Graves Avenue		Rhode Island Avenue	Minor Arterial	U	E	2U	1,620	560	560	1,120	0.69	C
Rhode Island Avenue		Harley Strickland Boulevard	Minor Arterial	U	E	2U	1,540	785	785	1,570	1.02	F
Rhode Island Avenue US 17/92		Veteran's Memorial Parkway	Major Collector	U	E	2U	1,230	331	330	661	0.54	C
Interstate 4 Seminole County		Dirksen Road	Principal Arterial	U	D	6D	10,060	5,130	5,130	10,260	1.02	F
Dirksen Road		Saxon Boulevard	Principal Arterial	U	D	6D	10,060	5,072	5,072	10,143	1.01	F
Saxon Boulevard		SR 472	Principal Arterial	U	D	6D	10,060	4,230	4,230	8,460	0.84	C
SR 472		Orange Camp Road	Principal Arterial	U	D	6D	10,060	3,330	3,330	6,660	0.66	C
Orange Camp Road		SR 44	Principal Arterial	U	D	6D	10,060	3,555	3,555	7,110	0.71	C

Notes:

1. The roadway attributes were obtained from the latest the 2018 Volusia County Average Annual Daily Traffic & Historical Counts Report..
2. Peak Hour Two-Way Service Volumes were determined using the sources listed in Note 1.
3. Existing peak season volumes are based on Two-Way PM peak hour traffic counts from the 2018 Volusia County Average Annual Daily Traffic & Historical Counts Report.

Intersection Analysis

The existing intersection operating conditions were evaluated based on the data collection efforts summarized above. The operating conditions at the study intersections were analyzed using the Synchro 10 software package, which implements the procedures of the *Highway Capacity Manual* (HCM 6). The observed turning movement volumes were adjusted to peak season volumes for the existing conditions analysis. Existing lane geometry, peak hour factors, truck percentages, U-turn percentages, and right-turn-on-red percentages observed in the field were input into the capacity analyses.

Table 4 provides a summary of the average delay and level of service during the AM peak hour and PM peak hour under 2019 existing traffic conditions. All study area intersections operate with acceptable overall intersection level of service under existing PM peak hour conditions, except for the Interstate 4 interchange ramps on Saxon Boulevard. Additionally, several intersections are shown to operate with individual traffic movements having a volume to capacity (V/C) ratio exceeding 1.0, as summarized in **Table 4**. The Synchro 10 analysis output is provided in **Appendix H**.

Additionally, an arterial analysis was performed for the following Roadway segments during AM and PM peak hour 2019 existing conditions:

- SR 472 from Martin Luther King Jr. Beltway to Graves Avenue
 - AM Peak Hour
 - Eastbound - LOS F
 - Westbound - LOS C
 - PM Peak Hour
 - Eastbound - LOS E
 - Westbound - LOS D
- W Saxon Boulevard from Veteran's Memorial Parkway to Interstate 4
 - AM Peak Hour
 - Eastbound - LOS C
 - Westbound - LOS B
 - PM Peak Hour
 - Eastbound – LOS D
 - Westbound – LOS C
- E Saxon Boulevard from Interstate 4 to Tivoli Drive
 - AM Peak Hour
 - Eastbound - LOS B
 - Westbound - LOS C
 - PM Peak Hour
 - Eastbound – LOS B
 - Westbound – LOS B

The Synchro 10 arterial analysis output is also provided within **Appendix H**.

Table 4 - 2019 Existing Conditions AM and PM Peak Hour Intersection Analysis

Intersection	AM Peak Hour Conditions			PM Peak Hour Conditions		
	Inter-section LOS	Inter-section Delay (S)	Max Movement V/C	Inter-section LOS	Inter-section Delay (S)	Max Movement V/C
Unsignalized ¹						
16 Fort Smith Blvd & Elkcarn Blvd	B	13.0	0.24	C	15.3	0.26
23 I-4 WB Ramp & Saxon Blvd	F	167.0	1.27	F	97.3	1.06
Signalized						
1 Dr MLK Jr Bldwy & Orange Camp Rd	C	32.1	0.85	D	48.2	0.96
2 Kentucky Ave/MLK Jr Bldwy & SR 472	E	73.8	1.02	E	72.5	0.98
3 I-4 WB Ramp & SR 472	B	15.9	0.84	C	26.1	0.95
4 I-4 EB Ramp & SR 472	B	13.4	0.87	C	31.2	0.88
5 US 17/92/Volusia Ave & Graves Ave	B	18.6	0.81	C	21.6	0.84
6 Veterans Memorial Pkwy & Graves Ave	B	16.9	0.81	E	77.8	0.90
7 Kentucky Ave & Graves Ave	C	23.3	0.81	C	33.6	0.96
8 Normandy Blvd & Graves Ave	B	13.1	0.75	B	13.3	0.72
9 SR 472/Howland Blvd & Graves Ave	C	34.9	0.89	E	61.9	0.98
10 Catalina Blvd & Howland Blvd	C	33.2	0.89	C	24.9	0.77
11 Lake Helen-Osteen Rd & Catalina Blvd	A	10.0	0.60	B	18.5	0.76
12 Providence Blvd & Howland Blvd	C	22.1	0.82	B	11.4	0.75
13 US 17/92/Volusia Ave & Rhode Island Ave	C	22.5	0.68	C	26.4	0.75
14 Veterans Memorial Pkwy & Rhode Island Ave	B	18.4	0.85	B	16.9	0.82
15 Normandy Blvd & Elkcarn Blvd	B	15.4	0.80	B	12.6	0.74
17 Providence Blvd & Elkcarn Blvd	C	22.2	0.70	C	26.4	0.78
18 Lake Helen-Osteen Rd & Elkcarn Blvd	B	13.1	0.66	B	15.5	0.75
19 Providence Blvd & Fort Smith Blvd	B	16.7	0.65	B	19.5	0.75
20 Veterans Memorial Pkwy & Harley Strickland Blvd	B	18.9	0.53	D	41.1	1.04
21 Veterans Memorial Pkwy & Saxon Blvd	B	16.0	0.83	E	60.8	1.29
22 FDOT Park and Ride & Saxon Blvd	A	5.8	0.45	A	10.0	0.5
24 I-4 EB Ramp & Saxon Blvd ²	B	12.5	0.93	F	104.9	1.34
25 Normandy Blvd & Saxon Blvd	E	56.3	1.27	D	48.7	0.94
26 Tivoli Dr & Saxon Blvd	B	19.8	0.84	D	35.9	1.11
27 Normandy Blvd & Deltona Blvd	B	10.6	0.72	B	15.0	0.78

Note:

1. Intersection LOS and delay at unsignalized intersections are reported for the stop-controlled approaches only.
2. HCM 2000 analysis output was used for this intersection as HCM 6 can not evaluate the intersection phasing settings.

FUTURE CONDITIONS ANALYSIS

Committed Transportation Improvements

The following roadway improvements funded for construction within three years of the City's Capital Improvements Element (CIE), Volusia County's Capital Improvement Program (CIP), River to Sea Transportation Planning Organization's (R2CTPO) Transportation Improvement Plan (TIP), and FDOT 5-year work program were included within the study:

- Tivoli Drive & Saxon Boulevard (FDOT Project Number 4409201) – Improvements include an exclusive southbound right-turn lane and an extended southbound left-turn lane
- Howland Boulevard (Volusia County Project Number IFZ3-1) – Widen from 2-lane facility to a 4-lane facility from Providence Boulevard to Elkcarn Boulevard
- Orange Camp Road (Volusia County Project Number IFZ4-1) – Widen from 2-lane facility to a 4-lane facility from Dr. Martin Luther King Jr. Beltway to Interstate 4
- Interstate 4 Interchange at Saxon Boulevard (FDOT Project Number 441070-1) – Improvement includes realignment of the Interstate 4 eastbound off-ramp onto eastbound and westbound Saxon boulevard. This project also includes the widening of Saxon Boulevard to 6-lanes from the Interstate 4 eastbound off-ramp to Finland Drive.

Further planned improvements within the study area that are not financial funded within the next three years, but are provided as needed improvements within the River to Sea TPO 2040 LRTP shows the following road segments within the study area:

- Providence Boulevard – Widen to 4-lanes from Debary/Doyle Road to Elkcarn Road
- Saxon Boulevard – Widen to 4 lanes from Tivoli Drive to Providence Boulevard
- Normandy Boulevard – Widen to 4 Lanes from Firmwood Drive to Howland Boulevard
- Elkcarn Boulevard – Widen to 3 lanes from Normandy Boulevard to Fort Smith Boulevard
- SR 472 – Widen to 6-lanes from Graves Avenue to Kentucky/MLK Boulevard
- W. Volusia Beltway (Kentucky Avenue) – Widen to 4 lanes and realign facility from SR 472 to Harley Stickland Boulevard
- Rhode Island Avenue Extension – Extend Rhode Island Avenue from Veteran's Memorial Parkway to Normandy Boulevard. This project will be a part of the I-4 Ultimate project.
- Interstate 4 (I-4 Ultimate) – Widen to 10 lanes from Seminole/Volusia County line to 0.5 miles east of SR 472

Additionally, development agreements with approved developments within proximity of the development, Halifax Crossings and Deltona Village, shows the following committed improvements at the intersection of Graves Avenue & Howland Boulevard:

- Construction of additional southbound left-turn lane on Graves Avenue – Halifax Crossings
- Construction of westbound right-turn lane on Howland Boulevard – Halifax Crossings
- Construction of additional eastbound left-turn lane on SR 472 – Halifax Crossings
- Construction of additional northbound left-turn lane on Graves Avenue – Deltona Village

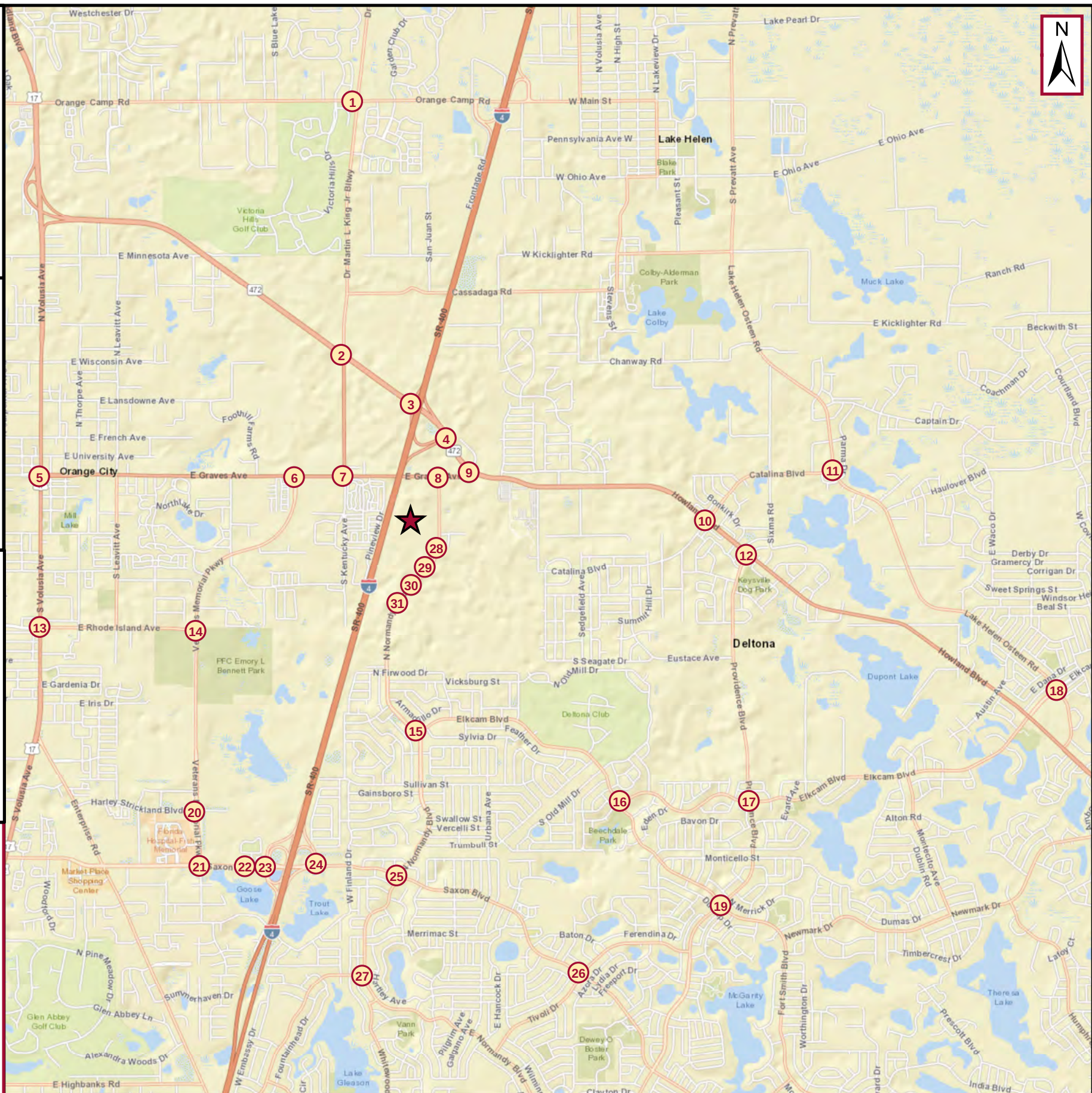
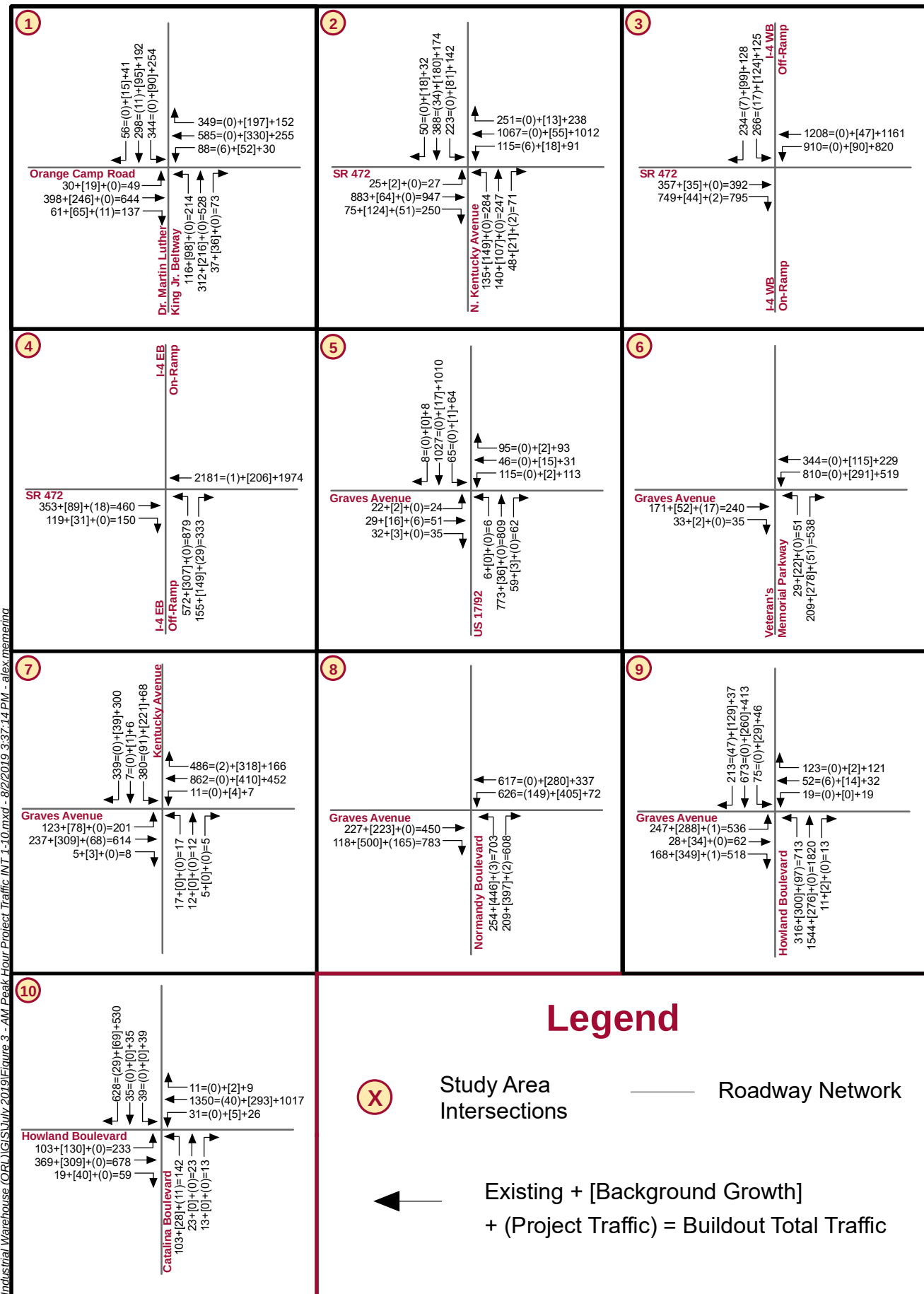
Committed transportation improvement information is provided in **Appendix F**.

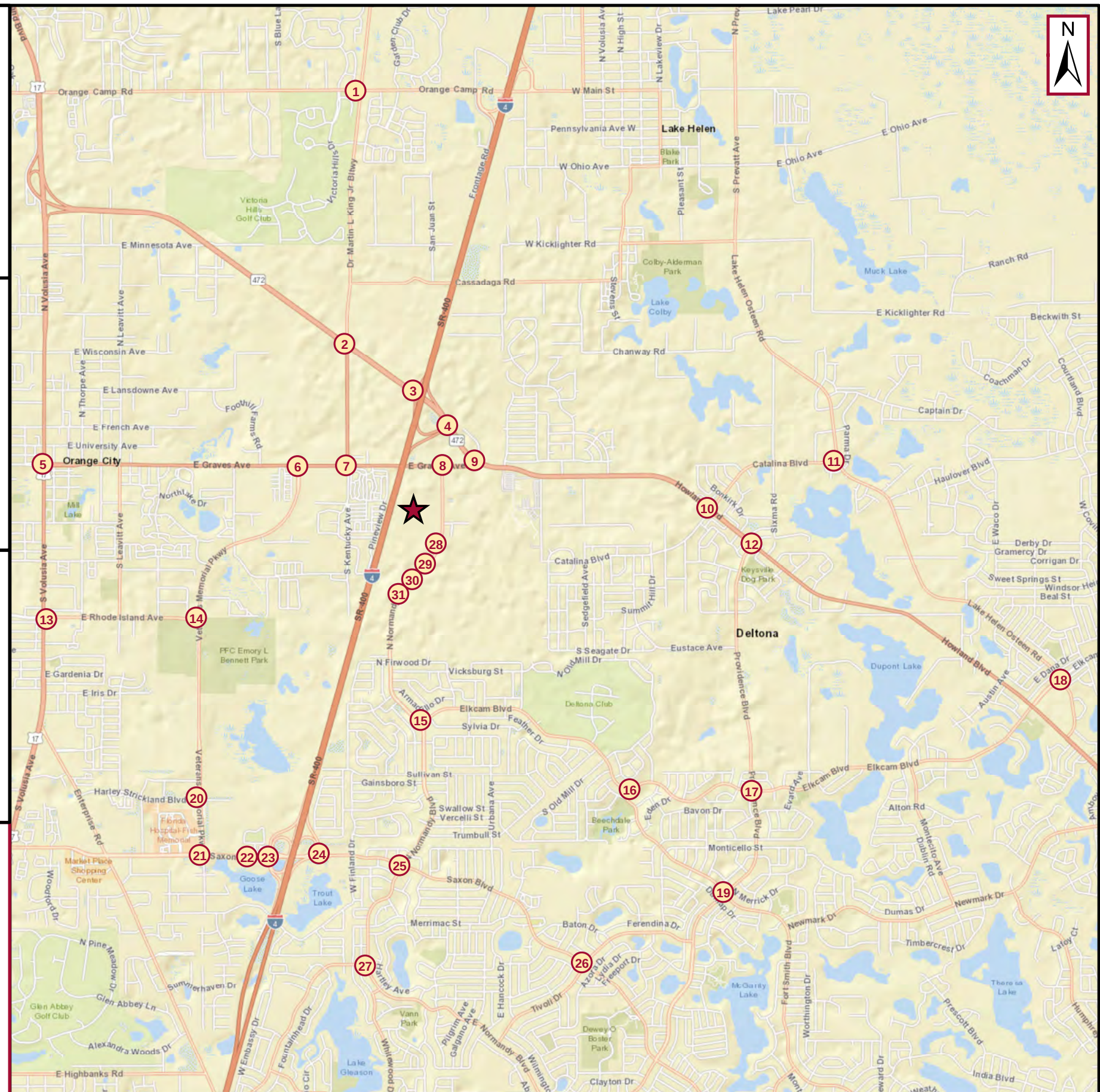
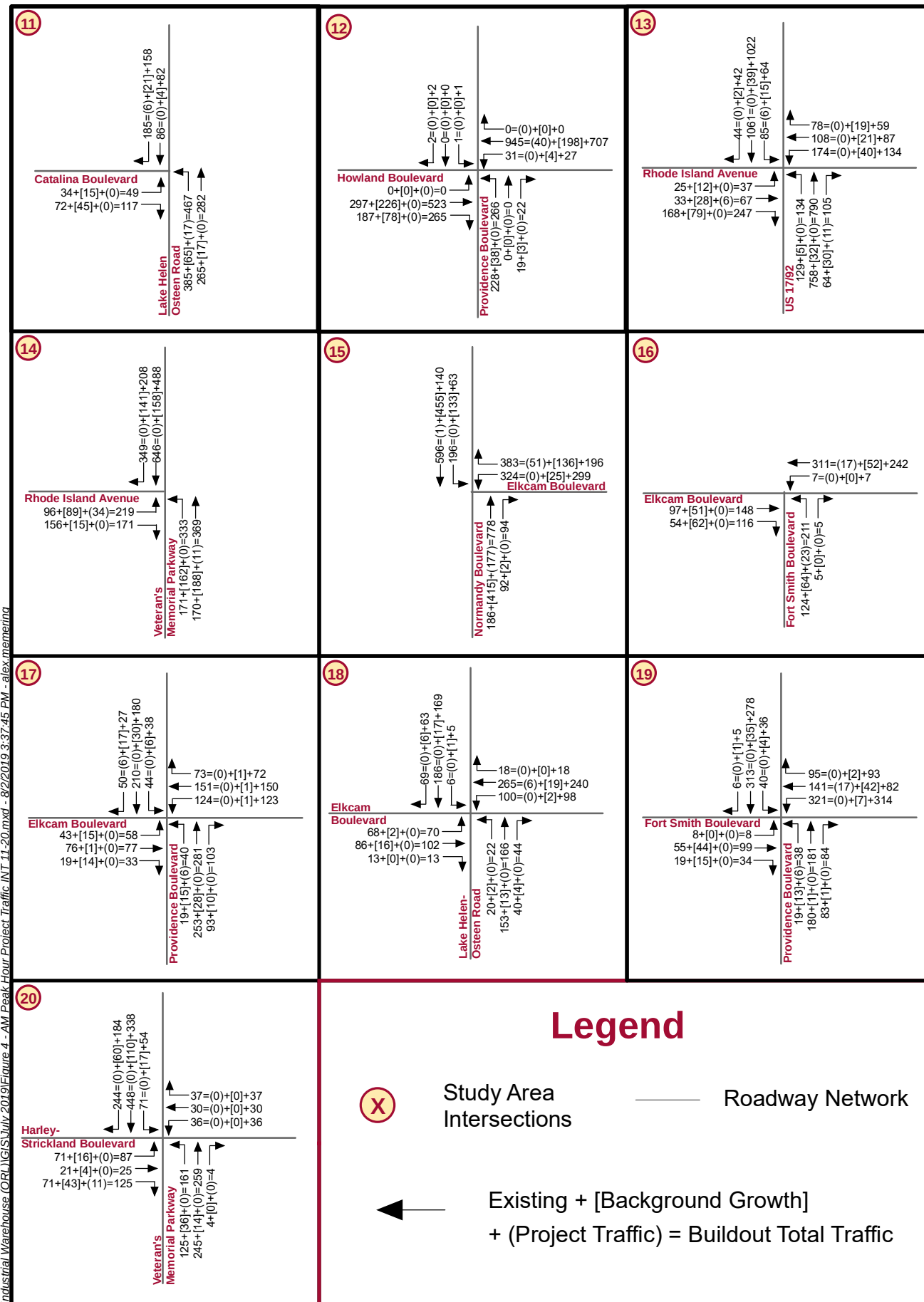
Traffic Volume Development

The future traffic volumes within the study area were calculated based on the methodology. Future background traffic volumes were calculated using existing peak season traffic volumes, an annual background growth rate applied over a 1-year buildout timeframe, and vested traffic from approved developments within the study area provided by the City of Deltona, Orange City, and Volusia County. As to not double count 2020 future background traffic, a 50% reduction was applied to the future background growth to calculate future traffic volumes. Vested traffic distribution at each intersection was based on existing travel patterns experienced at each intersection. Vested traffic information is included in **Appendix G**.

The total buildout traffic volumes were calculated as the sum of the background traffic volumes and project traffic. The PM peak hour project traffic volumes were calculated as an average across the segment length for the roadway segment evaluation.

Worksheets detailing the future conditions intersection volume development are provided in **Appendix E**. The buildout total traffic volumes during the weekday AM peak hour are illustrated in **Figures 3 through 5**. The buildout total traffic volumes during the weekday PM peak hour are illustrated in **Figures 6 through 8**.





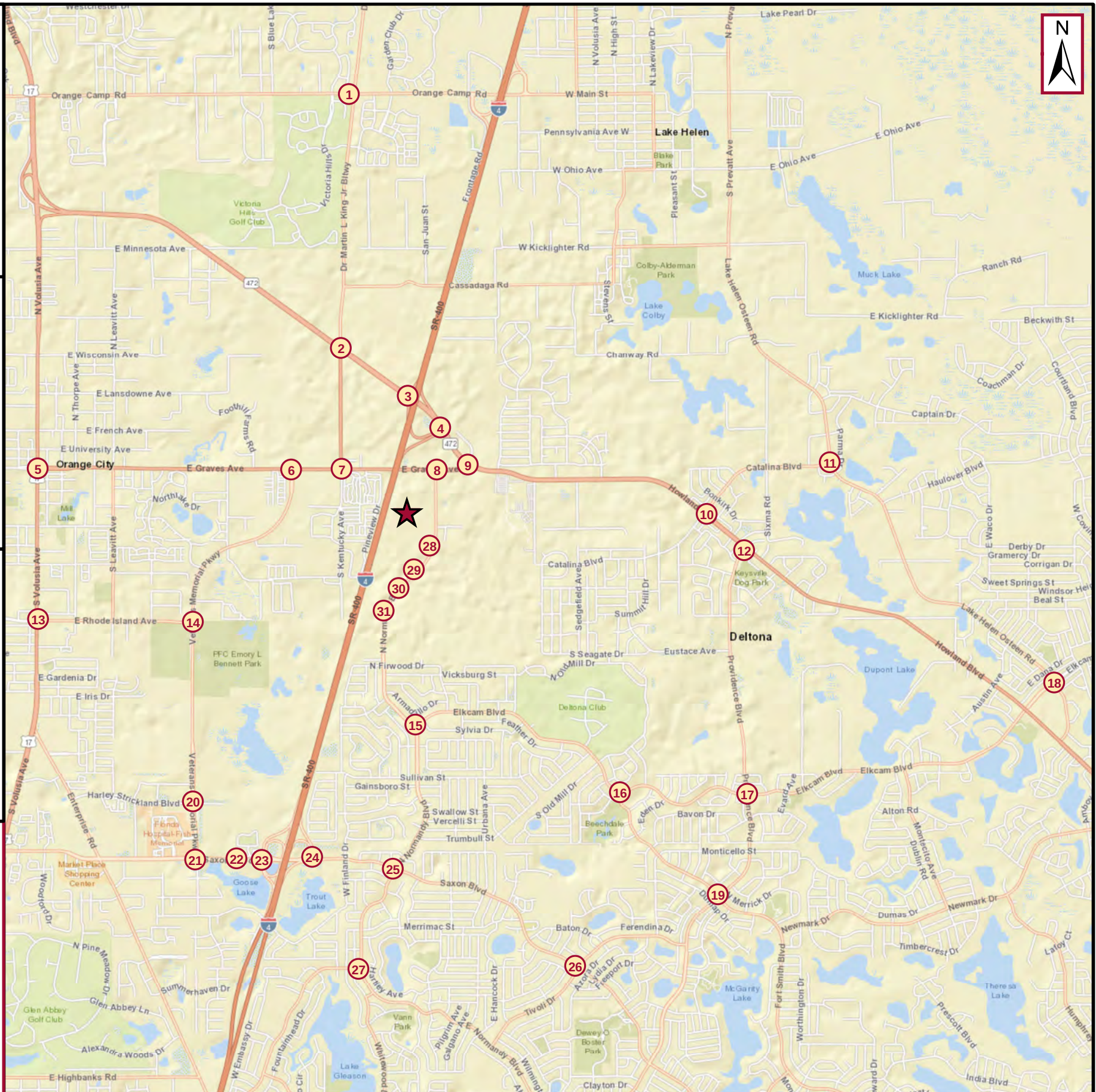
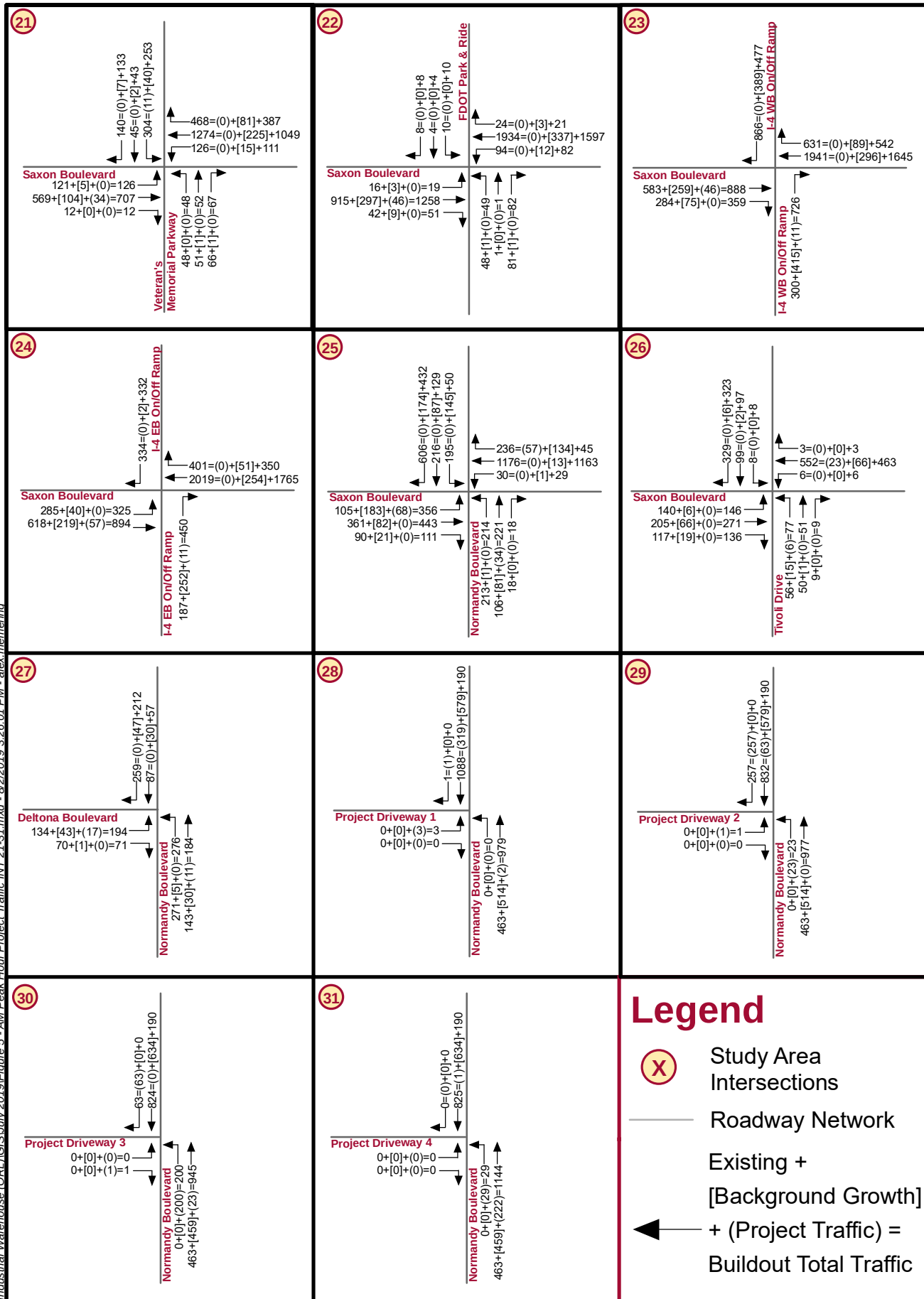


FIGURE 5 - AM PEAK HOUR BUILDOUT TOTAL TRAFFIC VOLUMES FOR LOCATIONS 21-31

INDUSTRIAL WAREHOUSE
CITY OF DELTONA, VOLUSIA COUNTY, FLORIDA

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K:\IOCA_Civil\046265011 - Industrial Warehouse (OR)UGS\July 2019\Figure 6 - PM Peak Hour Project Traffic NT 1-10.mxd - 8/2/2019 3:36:17 PM - alex.manning

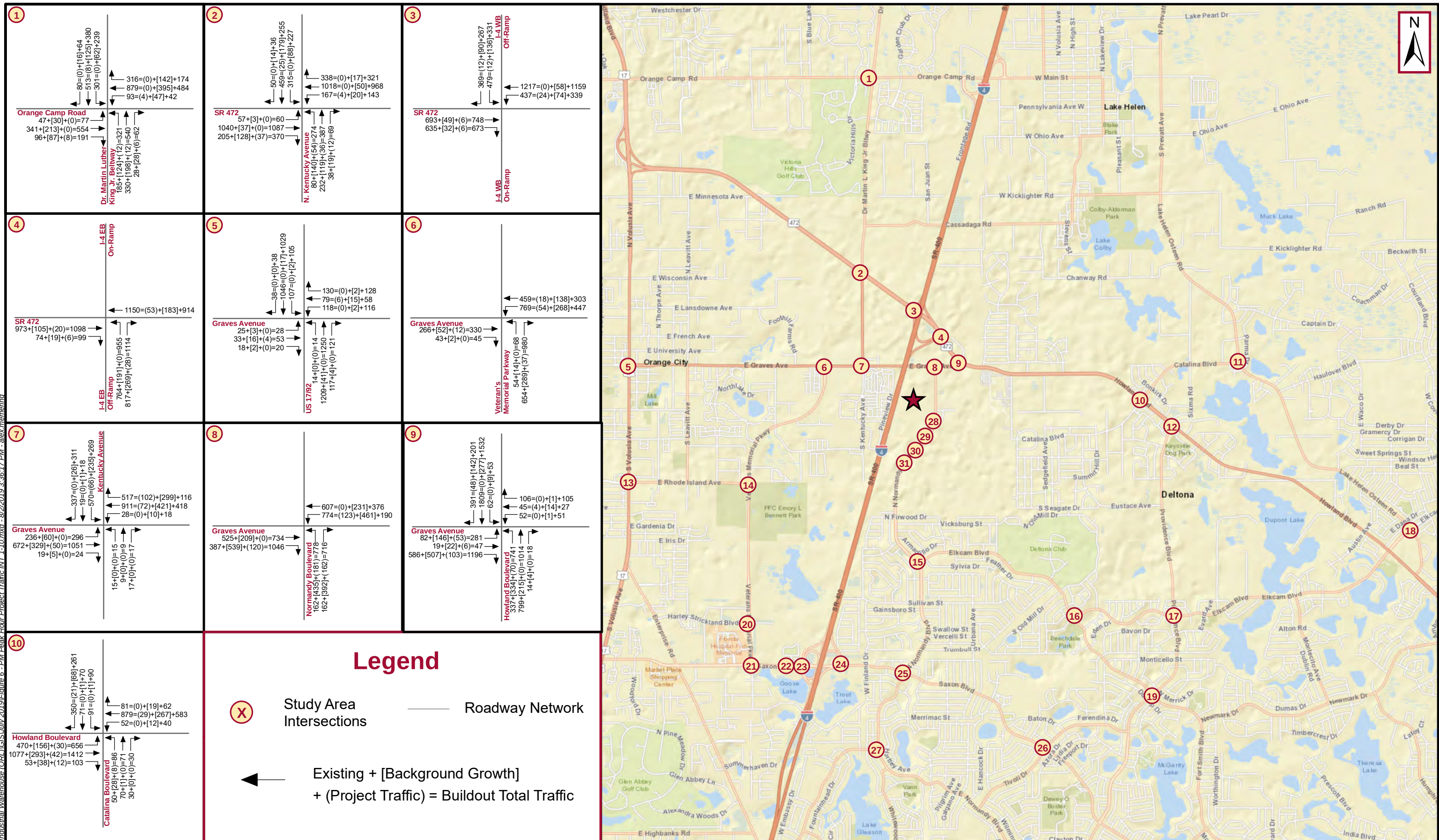


FIGURE 6 - PM PEAK HOUR BUILDOUT TOTAL TRAFFIC VOLUMES FOR LOCATIONS 1-10

INDUSTRIAL WAREHOUSE
CITY OF DELTONA, VOLUSIA COUNTY, FLORIDA

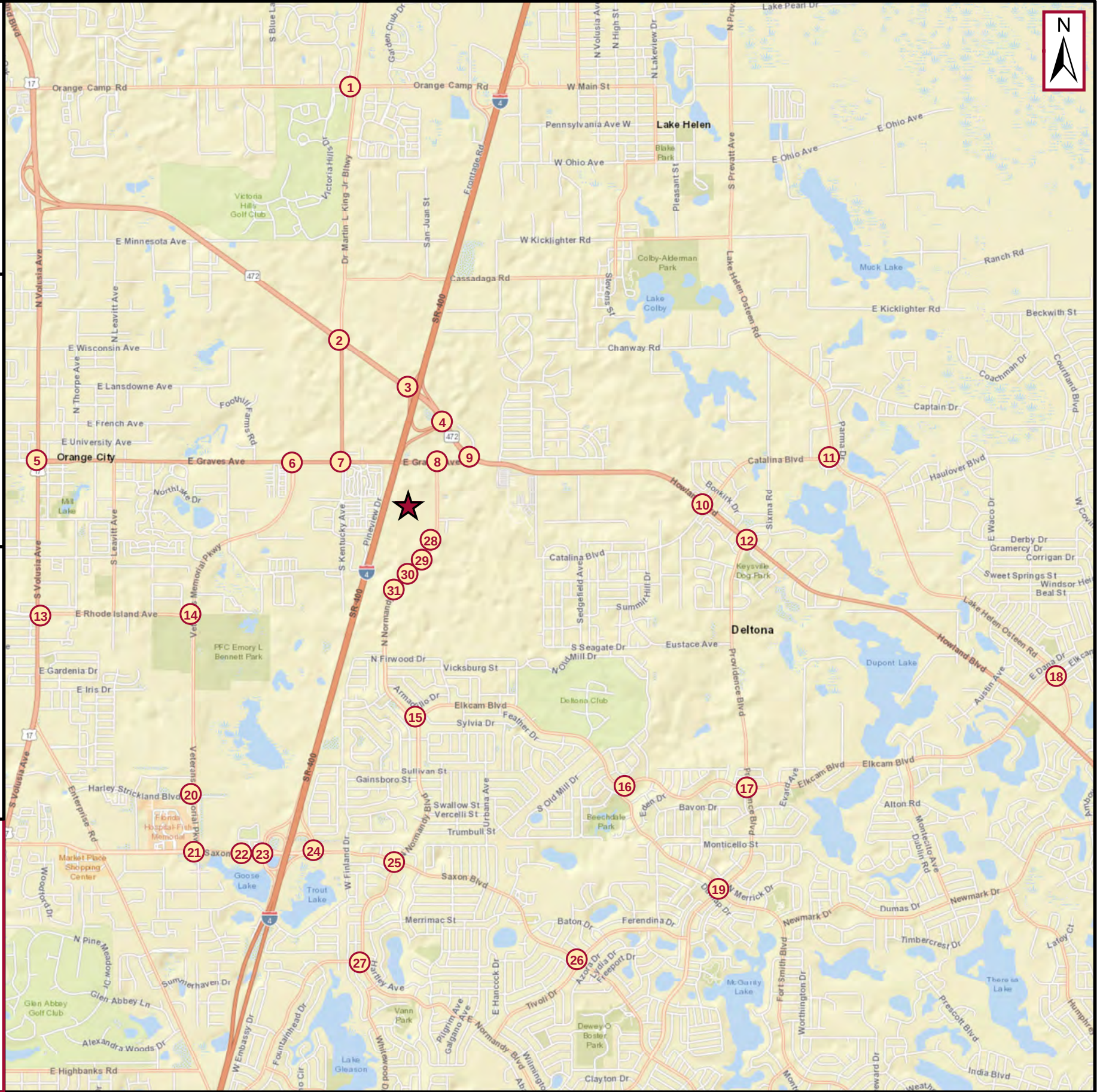
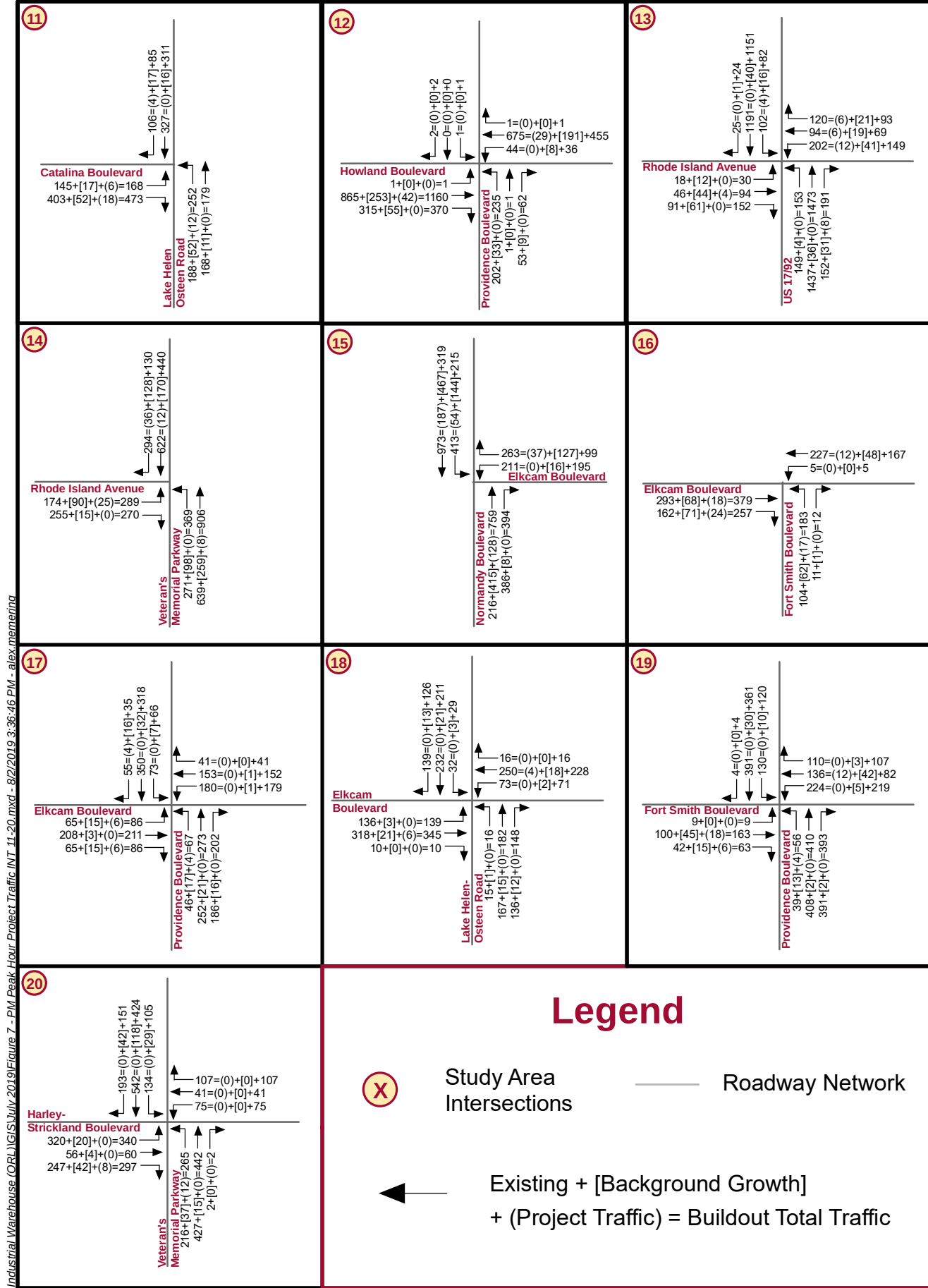
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K:\IOCA_Civil\046265011 - Industrial Warehouse (ORU)\GIS\July 2019\Figure 7 - PM Peak Hour Project Traffic INT_11-20.mxd - 8/2/2019 3:36:46 PM - alex.mnemeing

K:\IOCA_Civil\046265011 - Industrial Warehouse (ORNL)\GIS\July 2019\Figure 8 - PM Peak Hour Project Traffic INT 21-31.mxd - 8/2/2019 3:25:24 PM - alex.memeina

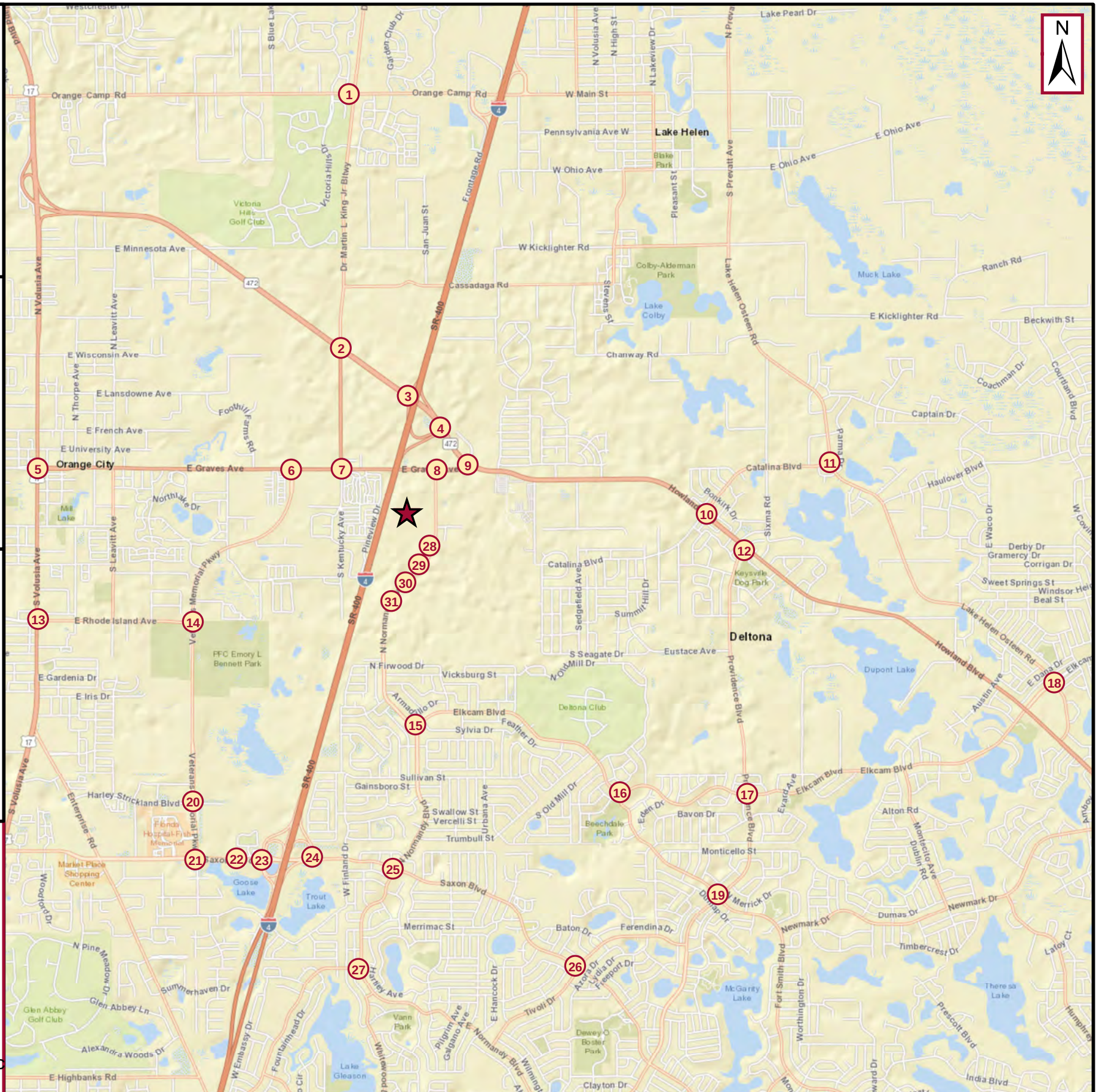
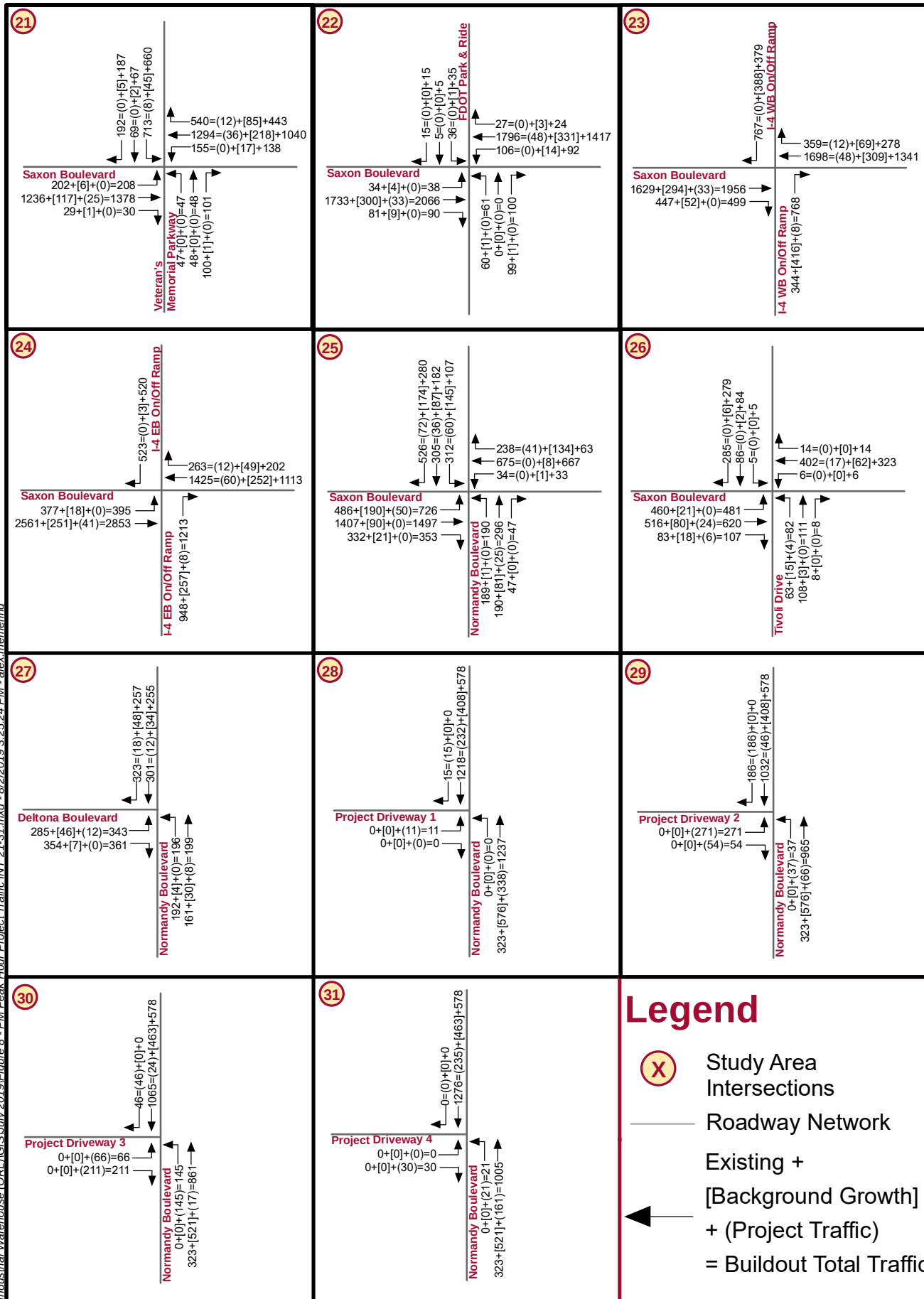


FIGURE 8 - PM PEAK HOUR BUILDOUT TOTAL TRAFFIC VOLUMES FOR LOCATIONS 21-31

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Future Background Roadway Segment Analysis

The roadway segments within the study area were evaluated for level of service under 2020 future background conditions (without project) traffic conditions during the AM and PM peak hour.

The service volumes for roadways within the study area were obtained utilizing functional classification and level of service information published by the Volusia County and FDOT. The following roadway segments, in addition to the road segments that operate with a failing LOS during 2019 existing traffic conditions, are shown to exceed the adopted service capacity under 2020 future background (non-project) traffic conditions during either the AM and/or PM peak hour:

- Graves Avenue - from Veteran's Memorial Parkway to Howland Boulevard
- Dr. Martin Luther King Jr Beltway - from Orange Camp Road to SR 472
- Orange Camp Road - from Blue Lake Avenue to Interstate 4
- Normandy Boulevard - from Graves Avenue to Rhode Island Avenue
- Normandy Boulevard - from Saxon Boulevard to Deltona Boulevard
- Saxon Boulevard - from FDOT Park & Ride to Interstate 4
- Saxon Boulevard – from Finland Drive to Normandy Boulevard
- Howland Boulevard - from Interstate 4/SR 472 to Catalina Boulevard
- Catalina Boulevard - from Sixma Road to Lake Helen-Osteen Road
- Veteran's Memorial Parkway from Graves Avenue to Rhode Island Avenue
- Elkcam Boulevard - from Normandy Boulevard to Fort Smith Boulevard

Future Buildout Roadway Segment Analysis

Furthermore, the roadway segments within the study area were evaluated for level of service under 2020 future buildout conditions during both the AM and PM peak hour. The service volumes utilized for the analysis are the same as those utilized for the future background conditions analysis.

Three roadway segments were identified to exceed the adopted generalized service capacity under buildout traffic conditions, in addition to the roadway segments identified under both 2019 existing and 2020 future background traffic conditions. The following roadway segments are shown to exceed generalized service capacity upon addition of project traffic at full buildout:

- Kentucky Avenue - from SR 472 to Graves Avenue
- Saxon Boulevard – from Tivoli Drive to Providence Boulevard

These additional roadway segments will operate with v/c ratios of 0.97 and 0.99 respectively during 2020 PM peak hour future background (without project) traffic conditions and will require minimal full buildout trip generation potential to operate with a v/c ratio above 1.0. Both roadway segments are noted in the River to Sea TPO 2040 LRTP as requiring increased capacity to support future traffic projections within the area but are not funded for construction within the next three years.

Increased capacity from committed roadway improvements within the study area are shown to operate with acceptable level of service with 2020 buildout traffic volumes.

The 2020 future background (without project) traffic and 2020 future buildout (with project) traffic roadway segment analyses are detailed in **Tables 5 and 6**, respectively.

Table 5 - 2020 Future Background and Buildout AM Peak Hour Roadway Segment Summary

Roadway From To		Peak Hour Two-Way Maximum Service Volume ¹	Applied Growth Rate ⁵	Vested Trips		Future Peak Season Traffic Conditions				PM Peak Hour Project Traffic			Future Buildout PM Peak Hour Traffic Conditions			
				Volumes		Volumes		V/C Ratio	LOS	% Assign ³	NB / EB	SB / WB	Volumes ⁴		V/C Ratio	LOS
				NB / EB	SB / WB	NB / EB	SB / WB						NB / EB	SB / WB		
Graves Avenue US 17/92 Leavitt Avenue Veteran's Memorial Parkway Kentucky Avenue Howland Boulevard		1,330 1,020 1,620 1,620	5.60% 2.00% 2.81% 4.30%	52 52 401 458	14 14 388 464	208 258 779 863	258 275 1,158 947	0.35 0.52 1.20 1.12	C C F F	1.0% 3.0% 12.0% 28.0%	6 17 69 160	0 0 1 2	214 275 848 1,023	258 275 1,159 949	0.35 0.54 1.24 1.22	D D F F
W Volusia Beltway (Kentucky Avenue) SR 472 Graves Avenue		1,540	3.44%	275	258	592	621	0.79	D	16.0%	1	91	593	712	0.85	D
W Volusia Beltway (Dr. Martin Luther King Jr.) Orange Camp Road Cassadaga Road SR 472		1,540 1,540	3.46% 4.55%	346 346	275 275	819 758	563 631	0.90 0.90	D D	5.0% 6.0%	0 0	29 0	819 758	592 631	0.92 0.90	D D
Orange Camp Road ² Blue Lake Avenue W Volusia Beltway (Dr. MLK Jr.) W Volusia Beltway (Dr. MLK Jr.) I-4		1,540 3,410	8.50% 9.20%	319 319	569 569	829 1,051	999 1,037	1.19 0.61	F C	2.0% 1.0%	11 0	11 0	840 1,051	1,010 1,037	1.20 0.61	F C
Main Street (Lake Helen) I-4 Lakeview Drive		950	11.67%	13	13	426	426	0.90	D	1.0%	0	0	426	426	0.90	D
Normandy Boulevard Graves Avenue Project Access Location Rhode Island Avenue Elkcam Boulevard Saxon Boulevard Deltona Boulevard		1,150 1,150 2,630 2,630 960	11.71% 2.00% 2.00% 2.00% 2.00%	592 663 663 411 80	409 574 574 402 72	1,082 1,090 1,049 682 390	610 773 779 932 334	1.47 1.62 0.70 0.61 0.75	F F D D D	48.0% 41.0% 41.0% 30.0% 6.0%	3 234 2 171 34	274 2 2 2 0	1,085 1,324 1,283 853 424	884 775 781 934 334	1.71 1.83 0.78 0.68 0.79	F D D C D
Elkcam Boulevard Normandy Boulevard Fort Smith Boulevard		960 960	8.42% 4.95%	100 40	119 28	259 163	568 257	0.86 0.44	D C	8.0% 3.0%	0 0	46 17	259 163	614 274	0.91 0.46	D C
Fort Smith Boulevard Elkcam Boulevard Providence Boulevard		960	2.00%	53	57	160	142	0.31	C	4.0%	0	23	160	165	0.34	C
Providence Boulevard Howland Boulevard Elkcam Boulevard Fort Smith Boulevard Tivoli Drive		1,270 1,020 2,740	2.00% 2.00% 2.00%	40 51 13	53 38 47	351 377 298	285 362 664	0.50 0.72 0.35	D D C	0.0% 1.0% 1.0%	0 6 6	0 0 0	351 383 304	285 362 664	0.50 0.73 0.35	D D C
Saxon Boulevard ⁶ Veteran's Memorial Parkway FDOT Park & Ride I-4 Finland Drive Normandy Boulevard Tivoli Drive		4,280 3,410 4,280 3,410 3,410 1,020	2.00% 3.95% 2.00% 2.00% 2.00% 2.00%	304 193 193 280 71 57	313 248 219 294 133 53	1,244 1,119 1,056 842 521 281	1,929 2,274 2,346 2,120 1,183 530	0.74 0.99 0.79 0.87 0.50 0.80	C D C C C D	8.0% 8.0% 11.0% 11.0% 7.0% 4.0%	46 46 63 63 0 0	0 0 1 1 40 23	1,290 1,165 1,119 905 521 281	1,929 2,274 2,347 2,121 1,223 553	0.75 1.01 0.81 0.89 0.51 0.82	C F C C C D
SR 472 CR 4101/MLK Boulevard Graves Avenue		3,580	4.46%	143	90	839	1,711	0.71	C	6.0%	34	0	873	1,711	0.72	C
Howland Boulevard ⁷ I-4/SR 472 Wolf Pack Run Catalina Boulevard Providence Boulevard Elkcam Blvd		3,410 3,410 3,410 3,410	2.00% 2.80% 2.00% 4.32%	476 476 301 325	548 548 293 194	1,669 1,674 759 649	1,684 1,689 1,298 944	0.98 0.99 0.60 0.47	D D C C	17.0% 15.0% 7.0% 6.0%	97 1 0 0	1 86 40 34	1,766 1,675 759 649	1,685 1,775 1,338 978	1.01 1.01 0.61 0.48	F F C C
Catalina Boulevard Howland Boulevard Sixma Road Lake Helen-Osteen Road Catalina Boulevard Haulover Boulevard		960 960 960 1,020 1,020	2.00% 2.00% 2.00% 6.38% 2.00%	57 57 57 40 40	66 53 66 43 43	193 164 193 711 179	676 601 676 202 241	0.91 0.80 0.91 0.41	D D D D C	5.0% 5.0% 5.0% 3.0% 0.0%	0 0 0 17 0	29 29 29 0 0	193 164 193 728 179	705 630 705 202 241	0.94 0.83 0.94 0.91 0.41	D D D D C
Veteran's Memorial Parkway Graves Avenue Rhode Island Avenue Harley Strickland Boulevard		1,620 1,540	2.00% 5.33%	299 346	295 180	554 702	925 806	0.91 0.98	C D	9.0% 2.0%	51 11	1 0	605 713	926 806	0.95 0.99	D D
Rhode Island Avenue US 17/92 Veteran's Memorial Parkway		1,230	2.00%	102	79	311	412	0.59	C	5.0%	29	0	340	412	0.61	C
Interstate 4 Seminole County Dirksen Road Dirksen Road Saxon Boulevard SR 472 Orange Camp Road SR 44 Orange Camp Road		10,060 10,060 10,060 10,060 10,060 10,060	2.00% 2.71% 2.00% 3.07% 4.85%	222 222 384 168 38	222 222 384 168 38	4,854 4,333 4,203 3,191 2,951	5,953 6,461 5,109 3,908 4,407	1.07 1.07 0.93 0.71 0.73	F F C C C	6.0% 8.0% 9.0% 9.0% 5.0%	34 46 51 1 0	0 0 1 51 29	4,888 4,379 4,254 3,192 2,951	5,953 6,461 5,110 3,959 4,436	1.08 1.08 0.93 0.71 0.73	F F D C C

- Note:
- 1) Peak Hour Directional Service Capacities and Level of Service were based on 2018 Volusia County Average Annual Daily Traffic & Historical Counts Report.
 - 2) Future non-project traffic volumes are the summation of the existing peak season volumes, background growth, and committed/vested traffic.
 - 3) The percent project traffic is the average across the roadway segment.
 - 4) Buildout project traffic volumes are the summation of future non-project traffic and project traffic.
 - 5) The roadway segment of Orange Camp Road from W Volusia Beltway (Dr. MLK Jr. Beltway) to Interstate 4 is planned to be widened from a 2-lane facility to a 4-lane facility (Volusia County Project Number IFZ4-1). There is currently construction funding for the project in 2019 and 2020. Therefore, the roadway capacity has been updated to reflect this roadway widening project.
 - 6) The roadway segment of Saxon Boulevard from Interstate 4 to Finland Drive is currently under construction to widen from a 4-lane facility to a 6-lane facility (FDOT Project Number 44410700-1). Therefore, the roadway capacity has been updated to reflect this roadway widening project.
 - 7) The roadway segment of Howland Boulevard from Providence Boulevard to Elkcam Boulevard is planned to be widened from a 2-lane facility to a 4-lane facility (Volusia County Project Number IFZ3-1). There is currently construction funding for the project in 2019 and 2020. Therefore, the roadway capacity has been updated to reflect this roadway widening project.

Table 6 - 2020 Future Background and Buildout PM Peak Hour Roadway Segment Summary

Roadway FromTo		Peak Hour Two-Way Maximum Service Volume ¹	Applied Growth Rate ⁵	Vested Trips		Future Peak Season Traffic Conditions				PM Peak Hour Project Traffic			Future Buildout PM Peak Hour Traffic Conditions			
				Volumes		Volumes		V/C Ratio	LOS	%Assign ³	NB / EB	SB / WB	Volumes ⁴		V/C Ratio	LOS
				NB / EB	SB / WB	NB / EB	SB / WB						NB / EB	SB / WB		
Graves Avenue US 17/92		1,330	5.60%	52	14	381	343	0.54	D	1.0%	4	6	385	349	0.55	D
Leavitt Avenue		1,020	2.00%	52	14	380	342	0.71	D	3.0%	13	18	393	360	0.74	D
Veteran's Memorial Parkway		1,620	2.81%	401	388	1,212	1,199	1.49	F	12.0%	51	74	1,263	1,273	1.57	F
Kentucky Avenue		1,620	4.30%	458	464	1,173	1,179	1.45	F	28.0%	120	172	1,293	1,351	1.63	F
W Volusia Beltway (Kentucky Avenue) SR 472		1,540	3.44%	275	258	758	741	0.97	D	16.0%	98	69	856	810	1.08	F
W Volusia Beltway (Dr. Martin Luther King Jr.) Orange Camp Road		1,540	3.46%	346	275	860	789	1.07	F	5.0%	31	21	891	810	1.10	F
Cassadaga Road		1,540	4.55%	346	275	898	827	1.12	F	6.0%	37	37	935	864	1.17	F
Orange Camp Road ² Blue Lake Avenue		1,540	8.50%	319	569	981	1,231	1.44	F	2.0%	9	9	990	1,240	1.45	F
W Volusia Beltway (Dr. MLK Jr.) W Volusia Beltway (Dr. MLK Jr.)		3,410	9.20%	319	569	1,046	1,296	0.69	C	1.0%	6	6	1,052	1,302	0.69	C
Main Street (Lake Helen) I-4		950	11.67%	13	13	426	426	0.90	D	1.0%	6	6	432	432	0.91	D
Normandy Boulevard Graves Avenue		1,150	11.71%	592	409	1,009	824	1.59	F	48.0%	295	206	1,304	1,030	2.03	F
Project Access Location		1,150	2.00%	663	574	1,060	970	1.77	F	41.0%	176	252	1,236	1,222	2.14	F
Rhode Island Avenue		2,630	2.00%	663	574	984	895	0.71	D	41.0%	176	252	1,160	1,147	0.88	D
Elkcam Boulevard		2,630	2.00%	411	402	713	703	0.54	D	30.0%	129	184	842	887	0.66	D
Saxon Boulevard		960	2.00%	80	72	553	545	1.14	F	6.0%	26	37	579	582	1.21	F
Elkcam Boulevard Normandy Boulevard		960	8.42%	100	119	477	495	1.01	D	8.0%	49	34	526	529	1.10	F
Fort Smith Boulevard		960	4.95%	40	28	316	304	0.65	D	3.0%	18	13	334	317	0.68	D
Fort Smith Boulevard Elkcam Boulevard		960	2.00%	53	57	221	225	0.46	C	4.0%	25	17	246	242	0.51	C
Providence Boulevard Howland Boulevard		1,270	2.00%	40	53	469	482	0.75	D	0.0%	0	0	469	482	0.75	D
Elkcam Boulevard		1,020	2.00%	51	38	637	624	1.24	F	1.0%	4	6	641	630	1.25	F
Fort Smith Boulevard		2,740	2.00%	13	42	735	764	0.55	D	1.0%	4	6	739	770	0.55	D
Saxon Boulevard ⁶ Veteran's Memorial Parkway		4,280	2.00%	304	313	1,647	1,656	0.77	C	8.0%	34	49	1,681	1,705	0.79	C
FDOT Park & Ride		3,410	3.95%	193	248	1,855	1,910	1.10	F	8.0%	34	49	1,889	1,959	1.13	F
I-4		4,280	2.00%	193	219	1,779	1,805	0.84	C	11.0%	47	68	1,826	1,873	0.86	C
Finland Drive		3,410	2.00%	280	294	1,694	1,708	1.00	F	11.0%	47	68	1,741	1,776	1.03	F
Normandy Boulevard		3,410	2.00%	71	133	1,046	1,108	0.63	C	7.0%	43	30	1,089	1,138	0.65	C
Tivoli Drive		1,020	2.00%	57	53	506	502	0.99	D	4.0%	25	17	531	519	1.03	F
SR 472 CR 4101/MLK Boulevard		3,580	4.46%	143	90	1,407	1,353	0.77	C	6.0%	26	37	1,433	1,390	0.79	C
Howland Boulevard ⁷ I-4/SR 472		3,410	2.00%	476	548	1,941	2,013	1.16	F	17.0%	73	104	2,014	2,117	1.21	F
Wolf Pack Run		3,410	2.80%	476	548	1,759	1,831	1.05	F	15.0%	92	64	1,851	1,895	1.10	F
Catalina Boulevard		3,410	2.00%	301	293	1,225	1,217	0.72	C	7.0%	43	30	1,268	1,247	0.74	C
Providence Boulevard		3,410	4.32%	348	194	1,073	919	0.58	C	6.0%	37	26	1,110	945	0.60	C
Catalina Boulevard Howland Boulevard		960	2.00%	57	66	563	572	1.18	F	5.0%	31	21	594	593	1.24	F
Sixma Road		960	2.00%	57	53	489	485	1.01	F	5.0%	31	21	520	506	1.07	F
Lake Helen-Osteen Road Catalina Boulevard		1,020	6.38%	40	43	597	600	1.17	F	3.0%	13	18	610	618	1.20	F
Haulover Boulevard		1,020	2.00%	40	43	469	472	0.92	D	0.0%	0	0	469	472	0.92	D
Veteran's Memorial Parkway Graves Avenue		1,620	2.00%	299	295	865	861	1.07	F	9.0%	39	55	904	916	1.12	F
Rhode Island Avenue		1,540	5.33%	346	180	1,152	986	1.39	F	2.0%	9	12	1,161	998	1.40	F
Rhode Island Avenue US 17/92		1,230	2.00%	102	79	436	412	0.69	C	5.0%	21	31	457	443	0.73	C
Interstate 4 Seminole County		10,060	2.00%	222	222	5,403	5,403	1.07	F	6.0%	26	37	5,429	5,440	1.08	F
Dirksen Road		10,060	2.71%	222	222	5,362	5,362	1.07	F	8.0%	34	49	5,396	5,411	1.07	F
Saxon Boulevard		10,060	2.00%	384	384	4,656	4,656	0.93	D	9.0%	39	55	4,695	4,711	0.93	D
SR 472		10,060	3.07%	168	168	3,549	3,549	0.71	C	9.0%	55	39	3,604	3,588	0.71	C
Orange Camp Road		10,060	4.85%	38	38	3,679	3,679	0.73	C	5.0%	31	21	3,710	3,700	0.74	C

- Note:
- 1) Peak Hour Directional Service Capacities and Level of Service were based on 2018 Volusia County Average Annual Daily Traffic & Historical Counts Report.
 - 2) Future non-project traffic volumes are the summation of the existing peak season volumes, background growth, and committed/vested traffic.
 - 3) The percent project traffic is the average across the roadway segment.
 - 4) Buildout project traffic volumes are the summation of future non-project traffic and project traffic.
 - 5) The roadway segment of Orange Camp Road from W Volusia Beltway (Dr. MLK Jr. Beltway) to Interstate 4 is planned to be widened from a 2-lane facility to a 4-lane facility (Volusia County Project Number IFZ4-1). There is currently construction funding for the project in 2019 and 2020. Therefore, the roadway capacity has been updated to reflect this roadway widening project.
 - 6) The roadway segment of Saxon Boulevard from Interstate 4 to Finland Drive is currently under construction to widen from a 4-lane facility to a 6-lane facility (FDOT Project Number 44410700-1). Therefore, the roadway capacity has been updated to reflect this roadway widening project.
 - 7) The roadway segment of Howland Boulevard from Providence Boulevard to Elkcam Boulevard is planned to be widened from a 2-lane facility to a 4-lane facility (Volusia County Project Number IFZ3-1). There is currently construction funding for the project in 2019 and 2020. Therefore, the roadway capacity has been updated to reflect this roadway widening project.

Future Background Conditions Intersections Analysis

The intersections within the study area were evaluated to determine improvement needs to provide an acceptable level of service and intersection operations with future background traffic conditions prior to addition of project traffic. The future background traffic volumes included existing peak season traffic, background traffic growth, and vested project traffic. Existing intersection geometry, signal timings (as obtained from Volusia County), and peak hour factor and percent heavy vehicles (as obtained from the traffic counts) were input into Synchro 10 for analysis.

Tables 7 and 8 summarizes the resultant intersection levels of service (LOS) for the future background conditions with existing intersection geometry and signal timings during the PM peak hour. Several transportation deficiencies are anticipated under 2020 future background (non-project) traffic conditions. The identified intersection improvements that are shown to be needed under future background traffic conditions to provide acceptable intersection operations and level of service are also summarized in the tables.

Committed improvements illustrated previously were included in the future background with improvements analysis. Information about the planned improvements is provided in **Appendix F**.

The intersections within the study area are shown to operate with acceptable level of service, delay, and V/C ratios with the identified improvements under future background traffic conditions. The resultant intersection LOS and V/C ratio under PM peak hour future background traffic conditions with the identified transportation improvements are summarized within **Tables 7 and 8**. Additionally, an arterial analysis was performed for the following roadway segments during AM and PM peak hour 2020 future background (non-project) traffic conditions:

- SR 472 from Martin Luther King Jr. Beltway to Graves Avenue
 - AM Peak Hour
 - Eastbound - LOS F / LOS E (with improvements)
 - Westbound - LOS D / LOS C (with improvements)
 - PM Peak Hour
 - Eastbound - LOS F / LOS E (with improvements)
 - Westbound - LOS D / LOS D (with improvements)
- W Saxon Boulevard from Veteran's Memorial Parkway to Interstate 4
 - AM Peak Hour
 - Eastbound - LOS C / LOS C (with improvements)
 - Westbound - LOS B / LOS C (with improvements)
 - PM Peak Hour
 - Eastbound – LOS D / LOS D (with improvements)
 - Westbound – LOS C / LOS E (with improvements)
- E Saxon Boulevard from Interstate 4 to Tivoli Drive
 - AM Peak Hour
 - Eastbound - LOS B / LOS B (with improvements)
 - Westbound - LOS C / LOS D (with improvements)
 - PM Peak Hour
 - Eastbound – LOS B / LOS B (with improvements)
 - Westbound – LOS C / LOS C (with improvements)

The Synchro 10 output reports and arterial analysis are provided in **Appendix H**.

Table 7 - 2020 Future Background AM Peak Hour Intersection Analysis

Intersection	2020 Future Background Conditions			2020 Future Background with Improvements Conditions			
	Inter-section LOS	Inter-section Delay (S)	Max Movement V/C	Identified Improvements	Inter-section LOS	Inter-section Delay (S)	Max Movement V/C
Unsignalized ¹							
16 Fort Smith Blvd & Elkcarn Blvd	C	17.9	0.43				
23 I-4 WB Ramp & Saxon Blvd	F	1009.8	3.17	Extension of westbound outside lane from FDOT Park & Ride to I-4 WB off-ramp for direct merge lane for southbound I-4 off-ramp. Removal of stop-controlled approach.	--	--	--
Signalized							
1 Dr MLK Jr Bltway & Orange Camp Rd	F	185.9	1.61	Additional westbound through lane, exclusive westbound right-turn lane, additional eastbound shared through-right turn lane	D	54.9	0.98
2 Kentucky Ave/MLK Jr Bltway & SR 472	F	147.5	1.79	Two exclusive northbound left-turn lanes, additional northbound through lane, additional southbound left-turn lane, additional southbound through lane, and removal of north/south split phasing	E	57.6	0.87
3 I-4 WB Ramp & SR 472	C	20.4	0.96				
4 I-4 EB Ramp & SR 472	B	17.4	0.95				
5 US 17/92/Volusia Ave & Graves Ave	B	19.6	0.81				
6 Veterans Memorial Pkwy & Graves Ave	F	164.0	1.67	Permissive-protected phasing for northbound right-turn lane	C	24.6	0.96
7 Kentucky Ave & Graves Ave	F	107.7	1.42	Additional westbound shared through-right turn lane, additional eastbound shared through-right turn lane, additional southbound left-turn lane, conversion of exclusive southbound right-turn lane to a shared through-right turn lane	D	50.2	0.97
8 Normandy Blvd & Graves Ave	F	185.3	2.02	Exclusive eastbound right-turn lane with permissive-over lap phasing, additional westbound left-turn lane, additional northbound left-turn lane	C	23.3	0.83
9 SR 472/Howland Blvd & Graves Ave	F	84.1	1.25	Additional left-turn lanes on all intersection approaches, an exclusive northbound right-turn lane, and an additional southbound shared through-right turn lane	D	46.9	0.95
10 Catalina Blvd & Howland Blvd	D	47.1	1.00	Signal timing adjustments	D	50.8	0.96
11 Lake Helen-Osteen Rd & Catalina Blvd	B	11.9	0.70				
12 Providence Blvd & Howland Blvd	C	25.9	0.95				
13 US 17/92/Volusia Ave & Rhode Island Ave	C	25.6	0.86				
14 Veterans Memorial Pkwy & Rhode Island Ave	E	65.2	1.35	Additional northbound left-turn lane	D	40.8	0.98
15 Normandy Blvd & Elkcarn Blvd	B	17.2	0.85				
17 Providence Blvd & Elkcarn Blvd	C	23.0	0.73				
18 Lake Helen-Osteen Rd & Elkcarn Blvd	B	13.3	0.67				
19 Providence Blvd & Fort Smith Blvd	B	17.8	0.67				
20 Veterans Memorial Pkwy & Harley Strickland Blvd	C	20.0	0.53				
21 Veterans Memorial Pkwy & Saxon Blvd	B	16.2	0.85	Removal of north-south split phasing	C	24.5	0.70
22 FDOT Park and Ride & Saxon Blvd	A	6.0	0.55				
24 I-4 EB Ramp & Saxon Blvd ³	C	24.6	1.10	Two additional eastbound through lanes and an additional northbound right-turn lane	C	22.4	0.95
25 Normandy Blvd & Saxon Blvd	F	100.7	1.45	Additional eastbound left-turn lane and an exclusive westbound right-turn lane	D	50.5	0.98
26 Tivoli Dr & Saxon Blvd	C	23.8	0.90	Exclusive southbound right-turn lane	B	17.7	0.84
27 Normandy Blvd & Deltona Blvd	B	11.8	0.75				

Note:

1. Intersection LOS and delay at unsignalized intersections are reported for the stop-controlled approaches only.
2. Intersection improvements were performed in order to allow intersection approaches to operate at the appropriate level of service for the corresponding roadway segment.
3. HCM 2000 analysis output was used for this intersection as HCM 6 can not evaluate the intersection phasing settings.

Table 8 - 2020 Future Background PM Peak Hour Intersection Analysis

Intersection	2020 Future Background Conditions			2020 Future Background with Improvements Conditions			
	Inter-section LOS	Inter-section Delay (S)	Max Movement V/C	Identified Improvements	Inter-section LOS	Inter-section Delay (S)	Max Movement V/C
Unsignalized ¹							
16 Fort Smith Blvd & Elkcarn Blvd	C	23.5	0.49				
23 I-4 WB Ramp & Saxon Blvd	F	482.6	2.00	Extension of westbound outside lane from FDOT Park & Ride to I-4 WB off-ramp for direct merge lane for southbound I-4 off-ramp. Removal of stop-controlled approach.	--	--	--
Signalized							
1 Dr MLK Jr Bltwy & Orange Camp Rd	F	253.1	2.12	Additional westbound through lane, exclusive westbound right-turn lane, additional eastbound shared through-right turn lane	D	52.1	0.92
2 Kentucky Ave/MLK Jr Bltwy & SR 472	F	156.7	1.81	Two exclusive northbound left-turn lanes, additional northbound through lane, additional southbound left-turn lane, additional southbound through lane, and removal of north/south split phasing	E	55.3	0.93
3 I-4 WB Ramp & SR 472	C	33.2	0.98				
4 I-4 EB Ramp & SR 472	C	32.8	0.92				
5 US 17/92/Volusia Ave & Graves Ave	C	23.3	0.85				
6 Veterans Memorial Pkwy & Graves Ave	F	242.9	1.98	Permissive-protected phasing for northbound right-turn lane	D	41.5	0.99
7 Kentucky Ave & Graves Ave	F	175.5	1.72	Additional westbound shared through-right turn lane, additional eastbound shared through-right turn lane, additional southbound left-turn lane, conversion of exclusive southbound right-turn lane to a shared through-right turn lane	D	41.8	0.92
8 Normandy Blvd & Graves Ave	F	200.1	2.08	Exclusive eastbound right-turn lane with permissive-over lap phasing, additional westbound left-turn lane, additional northbound left-turn lane	C	29.4	0.95
9 SR 472/Howland Blvd & Graves Ave	F	133.2	1.94	Additional left-turn lanes on all intersection approaches, an exclusive northbound right-turn lane, and an additional southbound shared through-right turn lane	D	52.9	0.97
10 Catalina Blvd & Howland Blvd	D	53.9	1.30	Signal timing adjustments	D	39.4	0.96
11 Lake Helen-Osteen Rd & Catalina Blvd	C	21.0	0.80				
12 Providence Blvd & Howland Blvd	B	18.1	0.98				
13 US 17/92/Volusia Ave & Rhode Island Ave	C	31.8	0.82				
14 Veterans Memorial Pkwy & Rhode Island Ave	D	54.9	1.34	Additional northbound left-turn lane	D	37.9	0.99
15 Normandy Blvd & Elkcarn Blvd	B	16.4	0.81				
17 Providence Blvd & Elkcarn Blvd	C	27.7	0.81				
18 Lake Helen-Osteen Rd & Elkcarn Blvd	B	16.1	0.76				
19 Providence Blvd & Fort Smith Blvd	C	21.5	0.77				
20 Veterans Memorial Pkwy & Harley Strickland Blvd	D	44.3	1.11	Signal timing adjustments	D	44.2	0.90
21 Veterans Memorial Pkwy & Saxon Blvd	E	68.8	1.37	Removal of north-south split phasing	D	47.8	0.92
22 FDOT Park and Ride & Saxon Blvd	B	10.9	0.59				
24 I-4 EB Ramp & Saxon Blvd ³	F	153.9	1.47	Two additional eastbound through lanes and an additional northbound right-turn lane	C	34.2	0.92
25 Normandy Blvd & Saxon Blvd	F	95.2	1.52	Additional eastbound left-turn lane and an exclusive westbound right-turn lane	E	60.8	0.97
26 Tivoli Dr & Saxon Blvd	D	48.4	1.24	Exclusive southbound right-turn lane	B	19.8	0.86
27 Normandy Blvd & Deltona Blvd	B	17.2	0.83				

Note:

1. Intersection LOS and delay at unsignalized intersections are reported for the stop-controlled approaches only.
2. Intersection improvements were performed in order to allow intersection approaches to operate at the appropriate level of service for the corresponding roadway segment.
3. HCM 2000 analysis output was used for this intersection as HCM 6 can not evaluate the intersection phasing settings.

Future Buildout Conditions Intersection Analysis

The intersection operating conditions were evaluated under buildout traffic conditions. The future buildout conditions analysis included future background non-project traffic and project traffic. The intersection geometry identified to be needed under future background traffic conditions was utilized in the buildout conditions analysis to identify any additional transportation improvements that are necessary to provide acceptable level of service and intersection operations due to the addition of project traffic.

Tables 9 and 10 detail the resultant intersection LOS and delay for AM and PM peak hour future buildout conditions with background improved geometry, respectively. The intersection capacity analysis shows the need for the following transportation improvements in addition to those identified in the future background traffic scenario to provide acceptable traffic operations at project buildout.

- Construction of a second westbound left-turn lane and second northbound right-turn lane at the intersection of Graves Avenue & Veteran's Memorial Parkway
- Construction a second eastbound right-turn lane at the intersection of Graves Avenue & Normandy Boulevard
- Construction of an exclusive southbound right-turn lane at the intersection of Graves Avenue & Howland Boulevard
- Construction of a second southbound left-turn lane and second southbound right-turn lane at the intersection of Normandy Boulevard & Saxon Boulevard. The southbound left-turn lane is already constructed at the intersection and would need to be restriped.

The intersections within the study area are shown to operate with acceptable LOS and V/C ratios under PM peak hour buildout traffic conditions considering the additional improvements identified above. Additionally, an arterial analysis was performed for the following roadway segments during AM and PM peak hour 2020 future buildout (with project) traffic conditions:

- SR 472 from Martin Luther King Jr. Beltway to Graves Avenue
 - AM Peak Hour
 - Eastbound - LOS E / LOS E (with improvements)
 - Westbound - LOS C / LOS C (with improvements)
 - PM Peak Hour
 - Eastbound - LOS E / LOS E (with improvements)
 - Westbound - LOS D / LOS D (with improvements)
- W Saxon Boulevard from Veteran's Memorial Parkway to Interstate 4
 - AM Peak Hour
 - Eastbound - LOS C / LOS C (with improvements)
 - Westbound - LOS D / LOS D (with improvements)
 - PM Peak Hour
 - Eastbound – LOS D / LOS D (with improvements)
 - Westbound – LOS E / LOS E (with improvements)

- E Saxon Boulevard from Interstate 4 to Tivoli Drive
 - AM Peak Hour
 - Eastbound - LOS B / LOS B (with improvements)
 - Westbound - LOS D / LOS C (with improvements)
 - PM Peak Hour
 - Eastbound – LOS C / LOS B (with improvements)
 - Westbound – LOS D / LOS C (with improvements)

Figure 9 illustrates the required intersection geometry needed to provide acceptable traffic operations at the study area intersections under future background traffic conditions and buildout traffic conditions. Additionally, **Table 11** illustrates the required storage lengths for turn lanes at each intersection with recommended improvements. The Synchro 10 output reports and arterial analysis are provided in **Appendix H**.

Table 9 - 2020 Buildout Conditions AM Peak Hour Intersection Analysis

Intersection	2020 Buildout Conditions			2020 Buildout with Improvements Conditions			
	Inter-section LOS	Inter-section Delay (S)	Max Movement V/C	Identified Improvements	Inter-section LOS	Inter-section Delay (S)	Max Movement V/C
Unsignalized ¹							
16 Fort Smith Blvd & Elkcaml Blvd	C	19.8	0.49				
23 I-4 WB Ramp & Saxon Blvd	--	--	--				
28 Normandy Blvd & Project Dwy 1	D	27.7	0.02				
31 Normandy Blvd & Project Dwy 4	B	11.4	0.01				
Signalized							
1 Dr MLK Jr Bldwy & Orange Camp Rd	E	55.9	1.00				
2 Kentucky Ave/MLK Jr Bldwy & SR 472	E	58.3	0.89				
3 I-4 WB Ramp & SR 472	C	21.9	0.97				
4 I-4 EB Ramp & SR 472	C	32.3	0.95				
5 US 17/92/Volusia Ave & Graves Ave	B	19.8	0.81				
6 Veterans Memorial Pkwy & Graves Ave	C	26.2	0.97	Additional westbound left-turn lane and an additional northbound right-turn lane	B	11.9	0.70
7 Kentucky Ave & Graves Ave	D	50.9	0.97	Exclusive westbound right-turn lane	D	50.8	0.99
8 Normandy Blvd & Graves Ave	D	39.0	1.10	Additional eastbound right-turn lane	C	25.0	0.89
9 SR 472/Howland Blvd & Graves Ave	D	48.4	0.95	Exclusive southbound right-turn lane	D	48.3	0.99
10 Catalina Blvd & Howland Blvd	E	58.7	0.99				
11 Lake Helen-Osteen Rd & Catalina Blvd	B	12.5	0.72				
12 Providence Blvd & Howland Blvd	C	26.2	0.95				
13 US 17/92/Volusia Ave & Rhode Island Ave	C	26.8	0.88				
14 Veterans Memorial Pkwy & Rhode Island Ave	D	41.1	0.99				
15 Normandy Blvd & Elkcaml Blvd	B	19.3	0.87				
17 Providence Blvd & Elkcaml Blvd	C	23.0	0.73				
18 Lake Helen-Osteen Rd & Elkcaml Blvd	B	13.4	0.67				
19 Providence Blvd & Fort Smith Blvd	B	17.8	0.67				
20 Veterans Memorial Pkwy & Harley Strickland Blvd	B	18.2	0.53				
21 Veterans Memorial Pkwy & Saxon Blvd	C	24.7	0.72				
22 FDOT Park and Ride & Saxon Blvd	A	8.2	0.55				
24 I-4 EB Ramp & Saxon Blvd ³	C	22.2	0.95				
25 Normandy Blvd & Saxon Blvd	E	55.4	1.01	Additional southbound left-turn lane and additional southbound right-turn lane	E	56.4	0.98
26 Tivoli Dr & Saxon Blvd	C	27.6	0.93				
27 Normandy Blvd & Deltona Blvd	B	12.1	0.76				
29 Normandy Blvd & Project Dwy 2	A	5.4	0.83				
30 Normandy Blvd & Project Dwy 3	A	4.8	0.73				

Note:

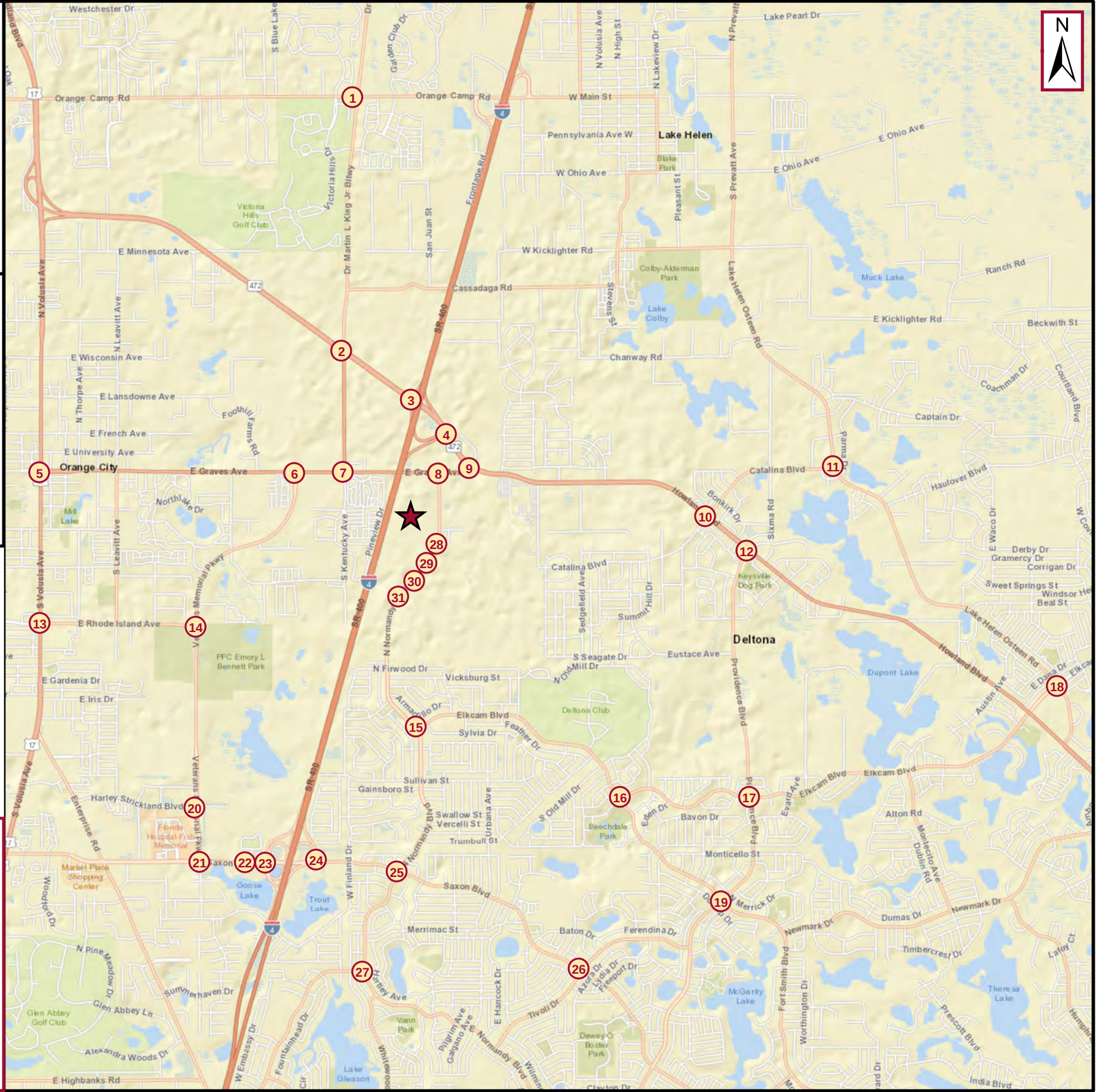
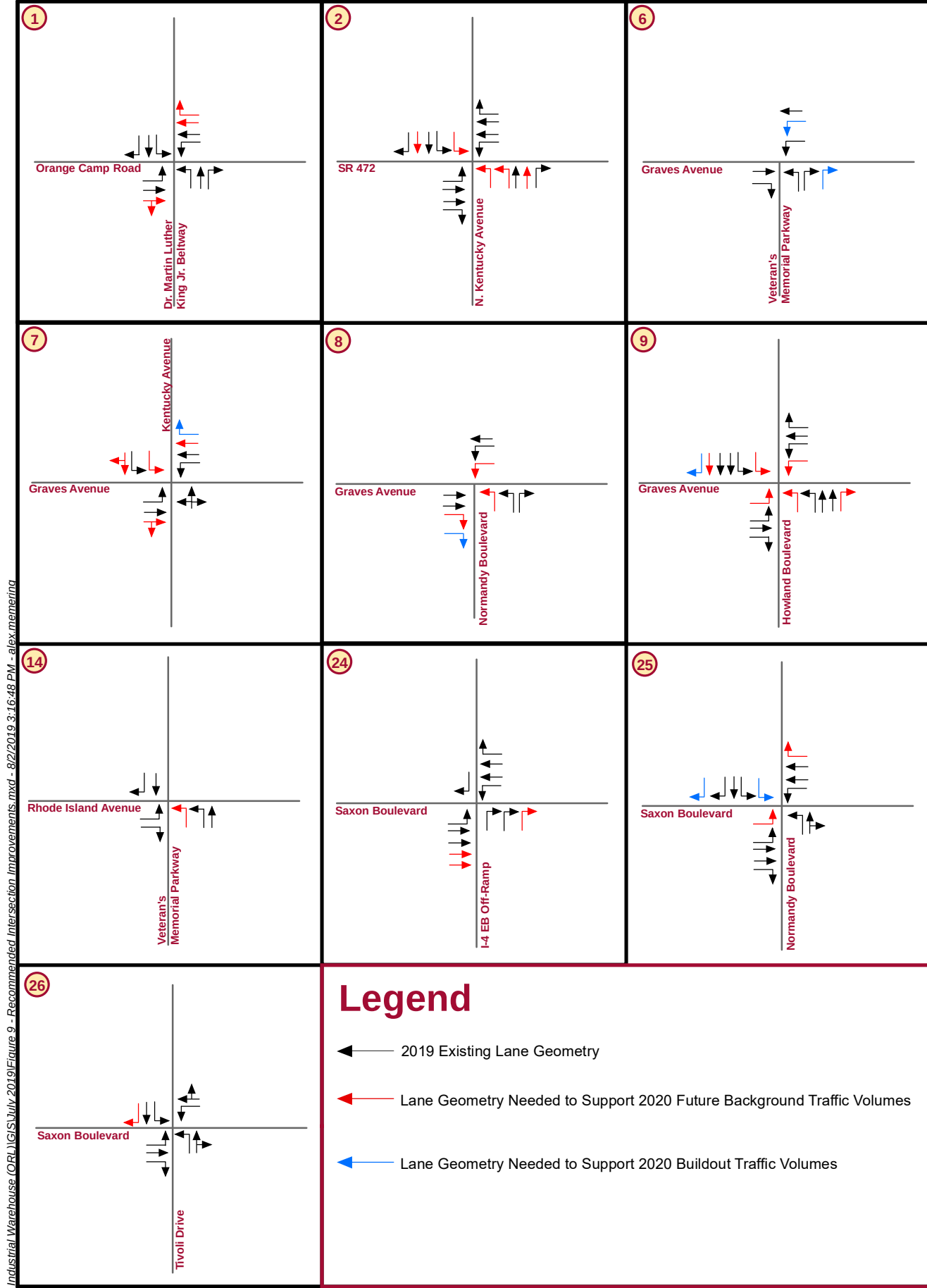
1. Intersection LOS and delay at unsignalized intersections are reported for the stop-controlled approaches only.
2. Intersection improvements were performed in order to allow intersection approaches to operate at the appropriate level of service for the corresponding roadway segment.
3. HCM 2000 analysis output was used for this intersection as HCM 6 can not evaluate the intersection phasing settings.

Table 10 - 2020 Buildout Conditions PM Peak Hour Intersection Analysis

Intersection	2020 Buildout Conditions			2020 Buildout with Improvements Conditions			
	Inter-section LOS	Inter-section Delay (S)	Max Movement V/C	Identified Improvements	Inter-section LOS	Inter-section Delay (S)	Max Movement V/C
Unsignalized ¹							
16 Fort Smith Blvd & Elcam Blvd	D	28.3	0.58				
23 I-4 WB Ramp & Saxon Blvd	--	--	--				
28 Normandy Blvd & Project Dwy 1	E	37.1	0.10				
31 Normandy Blvd & Project Dwy 4	B	11.6	0.06				
Signalized							
1 Dr MLK Jr Bltwy & Orange Camp Rd	D	54.6	0.93				
2 Kentucky Ave/MLK Jr Bltwy & SR 472	E	56.5	0.93				
3 I-4 WB Ramp & SR 472	D	36.3	1.03	Signal timing adjustments	C	34.3	0.98
4 I-4 EB Ramp & SR 472	C	32.6	0.92				
5 US 17/92/Volusia Ave & Graves Ave	C	23.8	0.86				
6 Veterans Memorial Pkwy & Graves Ave	D	54.3	1.08	Additional westbound left-turn lane and an additional northbound right-turn lane	B	15.7	0.83
7 Kentucky Ave & Graves Ave	D	51.8	1.07	Exclusive westbound right-turn lane	C	33.3	0.92
8 Normandy Blvd & Graves Ave	D	45.5	1.08	Additional eastbound right-turn lane	C	33.1	0.94
9 SR 472/Howland Blvd & Graves Ave	E	66.1	1.14	Exclusive southbound right-turn lane	D	45.5	0.96
10 Catalina Blvd & Howland Blvd	D	44.8	0.97				
11 Lake Helen-Osteen Rd & Catalina Blvd	C	21.6	0.80				
12 Providence Blvd & Howland Blvd	C	22.5	1.02				
13 US 17/92/Volusia Ave & Rhode Island Ave	C	33.7	0.84				
14 Veterans Memorial Pkwy & Rhode Island Ave	D	40.0	1.00				
15 Normandy Blvd & Elcam Blvd	C	22.7	1.00	Signal timing adjustments	C	21.6	0.93
17 Providence Blvd & Elcam Blvd	C	27.9	0.81				
18 Lake Helen-Osteen Rd & Elcam Blvd	B	16.2	0.76				
19 Providence Blvd & Fort Smith Blvd	C	22.2	0.78				
20 Veterans Memorial Pkwy & Harley Strickland Blvd	D	37.0	0.84				
21 Veterans Memorial Pkwy & Saxon Blvd	D	45.6	0.91				
22 FDOT Park and Ride & Saxon Blvd	B	10.8	0.60				
24 I-4 EB Ramp & Saxon Blvd ³	C	34.9	0.92				
25 Normandy Blvd & Saxon Blvd	E	72.4	1.05	Additional southbound left-turn lane and additional southbound right-turn lane	E	62.2	0.95
26 Tivoli Dr & Saxon Blvd	B	19.4	0.86				
27 Normandy Blvd & Deltona Blvd	B	17.9	0.84				
29 Normandy Blvd & Project Dwy 2	C	26.9	0.97				
30 Normandy Blvd & Project Dwy 3	C	24	0.98				

Note:

1. Intersection LOS and delay at unsignalized intersections are reported for the stop-controlled approaches only.
2. Intersection improvements were performed in order to allow intersection approaches to operate at the appropriate level of service for the corresponding roadway segment.
3. HCM 2000 analysis output was used for this intersection as HCM 6 can not evaluate the intersection phasing settings.



K:\IOCA_Civil\046265011 - Industrial Warehouse (ORNL)\GIS\July 2019\Figure 9 - Recommended Intersection Improvements.mxd - 8/2/2019 3:46:48 PM - alex.mcmemering

Table 11 - Recommended Intersection Storage Length Summary

Impacted Turn Lane and Location	Existing Total Turn Lane Length (Ft)	Recommended Queue Storage (Ft) ¹	Required Deceleration (Ft) ²	95th Percentile Queue Length (Ft) ⁴	Required Total Turn Lane Length (Ft) ³	Required Additional Total Turn Lane Length (Ft) ³
<i>Orange Camp Road & Dr. Martin Luther King Jr Beltway</i>						
Existing Northbound Left-turn Lane	340	250	350	375	600	260
Existing Northbound Right-turn Lane	375	0	350	25	350	N/A
Proposed Westbound Right-turn Lane	-	125	240	275	365	N/A
<i>SR 472 & N. Kentucky Ave</i>						
Proposed Dual Northbound Left-turn Lane	-	150	350	200	500	N/A
Existing Northbound Right-turn Lane	485	0	350	0	350	N/A
Proposed Additional Southbound Left-turn Lane	350	175	350	225	525	N/A
Existing Eastbound Right-turn Lane	395	0	350	75	350	N/A
Existing Westbound Left-turn Lane	425	300	350	450	650	225
<i>Graves Ave & Veteran's Memorial Parkway</i>						
Proposed Additional Northbound Right-turn Lane	-	75	240	175	315	N/A
Proposed Additional Westbound Left-turn Lane	300	75	185	100	260	N/A
<i>Graves Ave & Kentucky Ave</i>						
Proposed Additional Southbound Left-turn Lane	320	325	185	475	510	190
Proposed Westbound Right-turn Lane	-	0	185	75	185	N/A
<i>Graves Ave & Normandy Blvd</i>						
Proposed Northbound Left-turn Lane	-	250	185	350	435	N/A
Existing Northbound Right-turn Lane	-	125	185	400	400	N/A
Proposed Dual Eastbound Right-turn Lane	-	225	185	300	410	N/A
Proposed Additional Westbound Left-turn Lane	400	250	185	375	435	N/A
<i>Graves Ave & Howland Blvd</i>						
Proposed Additional Northbound Left-turn Lane	280	525	145	675	675	395
Proposed Northbound Right-turn Lane	-	0	145	0	145	N/A
Proposed Additional Southbound Left-turn Lane	185	50	145	75	195	10
Proposed Southbound Right-turn Lane	-	100	145	200	245	N/A
Proposed Additional Eastbound Left-turn Lane	330	325	240	450	565	235
Proposed Additional Westbound Left-turn Lane	565	25	240	50	265	N/A
<i>Rhode Island Ave & Veteran's Memorial Parkway</i>						
Proposed Additional Northbound Left-turn Lane	385	100	240	175	340	N/A
Existing Southbound Right-turn Lane	385	300	240	500	540	155
Existing Eastbound Left-turn Lane	450	150	155	300	305	N/A
Existing Eastbound Right-turn Lane	-	0	155	75	155	N/A
<i>Saxon Blvd & I-4 EB Off Ramp</i>						
Proposed Additional Northbound Left-turn Lane	1000	525	460	565	985	N/A
<i>Saxon Blvd & Normandy Blvd</i>						
Proposed Additional Southbound Left-turn Lane	-	175	145	225	320	N/A
Proposed Additional Southbound Right-turn Lane	385	275	145	350	420	35
Proposed Additional Eastbound Left-turn Lane	520	375	155	225	530	10
Proposed Westbound Right-turn Lane	-	50	155	125	205	N/A
<i>Saxon Blvd & Tivoli Dr</i>						
Existing Northbound Left-turn Lane	265	50	145	100	195	N/A
Proposed Southbound Right-turn Lane	-	0	145	75	145	N/A
Existing Eastbound Left-turn Lane	390	150	155	300	305	N/A

Notes:

1. Based on the 50th percentile back of queue length upon project buildout as reported in Synchro.
2. Based on the 2019 FDOT Design Manual, Index 212.6
3. Sum of recommended 50th percentile back of queue length and required deceleration length.
4. The recommended turn lane length (50th percentile queue + required deceleration length) must accommodate the 95th percentile queue to be considered acceptable.

SITE ACCESS ANALYSIS

Access to the property is proposed via three proposed full access connections to Normandy Boulevard. The proposed northernmost full access connection on Normandy Boulevard will be a truck-only access connection. All other vehicles will enter the development via the two additional proposed full access connections on Normandy Boulevard. The proposed site access locations were evaluated for required turn lane needs and intersection control to accommodate the traffic at project buildout.

Driveway Connections to Normandy Boulevard

For recommended turn lanes, the recommended length is the sum of the required deceleration length and the anticipated queue length. The posted speed limit on Normandy Boulevard is 45 mph. A design speed of 50 mph has been utilized for the turn lane recommendations. Based on the 50-mph design speed for a rural roadway, the required deceleration length from the FDOT Design Standards Index is 290 feet. The required queue length was determined from the 50th percentile queues reported by Synchro. Proposed storage lengths were evaluated to confirm the 50th percentile queue length and declaration length could accommodate the 95th percentile queue length. A minimum queue length of 25-feet is recommended to accommodate a typical vehicle.

Normandy Boulevard at Driveway 1

This proposed full access connection will be the truck-only entrance into the industrial site. Based on the FDOT Driveway Information Guide, a right-turn lane should be provided where the right-turning movement exceeds 80 vehicles per hour for a roadway with a posted speed of 45 mph or less. Based on the projected volumes, the noted threshold of 80 vehicles is not exceeded at Driveway 1. Additionally, a northbound left-turn lane is not recommended based on projected ingress traffic at this location.

Normandy Boulevard at Driveway 2

This proposed full access connection will be one of two employee entrances into the industrial site. Based on the FDOT Driveway Information Guide, a right-turn lane should be provided where the right-turning movement exceeds 80 vehicles per hour for a roadway with a posted speed of 45 mph or less. Based on the projected volumes, the noted threshold of 80 vehicles is exceeded at Driveway 2. Additionally, a northbound left-turn lane is recommended based on projected ingress traffic at this location.

Normandy Boulevard at Driveway 3

This proposed full access connection will be the additional employee entrance into the industrial site. Based on the FDOT Driveway Information Guide, a right-turn lane should be provided where the right-turning movement exceeds 80 vehicles per hour for a roadway with a posted speed of 45 mph or less. Based on the projected volumes, the noted threshold of 80 vehicles is not exceeded at Driveway 3. However, a northbound left-turn lane is recommended based on projected ingress traffic at this location.

Normandy Boulevard at Driveway 4

This proposed full access connection will be an employee entrance into the industrial site. Based on the FDOT Driveway Information Guide, a right-turn lane should be provided where the right-turning movement exceeds 80 vehicles per hour for a roadway with a posted speed of 45 mph or less. Based on the projected volumes, the noted threshold of 80 vehicles is not exceeded at Driveway 1. However, a northbound left-turn lane is recommended based on projected ingress traffic at this location.

Table 12 shows the recommended storage lengths for ingress turn lanes at each of the full access driveways on Normandy Boulevard.

Table 12 - Recommended Driveway Storage Length Summary

Proposed Turn Lane and Location	Recommended Queue Storage (Ft) ¹	Required Deceleration (Ft) ²	95th Percentile Queue Length (Ft) ⁴	Required Total Turn Lane Length (Ft) ³
<i>Normandy Boulevard & Driveway 1</i>				
Proposed Northbound Left-turn Lane	25	240	0	265
<i>Normandy Boulevard & Driveway 2</i>				
Proposed Northbound Left-turn Lane	25	240	75	265
Proposed Southbound Right-turn Lane	25	240	25	265
<i>Normandy Boulevard & Driveway 3</i>				
Proposed Northbound Left-turn Lane	25	240	125	265
<i>Normandy Boulevard & Driveway 4</i>				
Proposed Northbound Left-turn Lane	25	240	25	265
Notes: 1. Based on the 50th percentile back of queue length upon project buildout as reported in Synchro. 2. Based on the 2019 FDOT Design Manual, Index 212.6 3. Sum of recommended 50th percentile back of queue length and required deceleration length. 4. The recommended turn lane length (50th percentile queue + required deceleration length) must accommodate the 95th percentile queue to be considered acceptable.				

PRELIMINARY SIGNAL WARRANT ANALYSIS

An AM peak hour and PM peak hour signal warrant analysis were conducted considering future buildout traffic volumes at the four full access driveways along Normandy Boulevard. Guidelines established in the Manual on Uniform Traffic Control Devices (MUTCD) 2009 Edition for peak hour volume Warrant 3 were used for the analysis.

Normandy Boulevard & Driveway 1

The major street (Normandy Boulevard) was evaluated as a one-lane approach with a speed limit over 40 mph (meaning that the 70% columns were utilized). The minor street (Driveway 1) was analyzed as a single-lane approach. The projected AM and PM peak hour traffic volumes at buildout do not meet peak hour signal warrant criterion for signalization at the intersection.

Normandy Boulevard & Driveway 2

The major street (Normandy Boulevard) was evaluated as a one-lane approach with a speed limit over 40 mph (meaning that the 70% columns were utilized). The minor street (Driveway 2) was analyzed as a single-lane approach. The projected PM peak hour traffic volumes at buildout meet peak hour signal warrant criterion for signalization at the intersection.

Considering unsignalized operation, the eastbound approach is shown to exhibit LOS "F", with V/C ratios exceeding 1.0 under future buildout traffic conditions. The intersection is shown to operate with acceptable level of service and delay considering signalized intersection control with AM and PM peak hour future buildout traffic conditions.

Normandy Boulevard & Driveway 3

The major street (Normandy Boulevard) was evaluated as a one-lane approach with a speed limit over 40 mph (meaning that the 70% columns were utilized). The minor street (northbound left-turn lane on Normandy Boulevard) was analyzed as a single-lane approach. The projected AM and PM peak hour traffic volumes at buildout meets peak hour signal warrant criteria for signalization at the intersection.

Considering unsignalized operation, the eastbound approach is shown to exhibit LOS "F", with V/C ratios exceeding 1.0 under future buildout traffic conditions. The intersection is shown to operate with acceptable level of service and delay considering signalized intersection control with AM and PM peak hour future buildout traffic conditions.

Normandy Boulevard & Driveway 4

The major street (Normandy Boulevard) was evaluated as a one-lane approach with a speed limit over 40 mph (meaning that the 70% columns were utilized). The minor street (northbound left-turn lane on Normandy Boulevard) was analyzed as a single-lane approach. The projected PM peak hour traffic volumes at buildout meet peak hour signal warrant criterion for signalization at the intersection.

The preliminary signal warrant worksheets are provided in **Appendix I**.

ALTERNATIVE MODE ANALYSIS

There are currently no existing sidewalk/bicycle facilities along Normandy Boulevard or Graves Avenue, with no future sidewalk/bicycle improvements shown within City, County, or FDOT work plans. A proposed sidewalk will front the development along Normandy Boulevard and connect to internal sidewalks through the development.

The existing Howland Boulevard bus transit route (Route 25) operates with stops at the Epic Theaters property on the east side of Normandy Boulevard, near the proposed development. A proposed bus stop will be located within a drop off/pick up area of the development's parking lot. The proposed bus stop will connect to the Howland Boulevard bus transit route (Route 25). Based on the location of the bus stop, busses will enter through Driveway 3 to pick up and drop employees and leave through Driveway 4 (southernmost driveway).

CONCLUSION

Kimley-Horn has performed a TIA for a proposed industrial warehouse development generally located on the east side of Normandy Boulevard and south of Graves Avenue in the City of Deltona, Florida. The site will include 1,094,865 square feet of industrial warehouse land use. The traffic analysis provided is consistent with the methodology document.

The traffic analysis was performed considering a buildout timeframe of 1 year (2020) for the proposed development program. The operating conditions within the study area were evaluated for future background (without project) traffic conditions and future buildout (with project) traffic conditions. Transportation improvements were identified within the study area to be needed under future background traffic conditions and are needed prior to the addition to project traffic.

The following geometric improvements were identified to be needed at project buildout, in addition to those identified under future background traffic conditions:

- Construction of a second westbound left-turn lane and second northbound right-turn lane at the intersection of Graves Avenue & Veteran's Memorial Parkway
- Construction a second eastbound right-turn lane at the intersection of Graves Avenue & Normandy Boulevard (a first eastbound right-turn lane required in 2020 future background traffic conditions)
- Construction of an exclusive southbound right-turn lane at the intersection of Graves Avenue & Howland Boulevard
- Construction of a second southbound left-turn lane and second southbound right-turn lane at the intersection of Normandy Boulevard & Saxon Boulevard. The southbound left-turn lane has already been constructed and is gored. The goring will require removal and turn lane restriped.
- Construction of an additional travel lane along W Volusia Beltway (Kentucky Avenue) from SR 472 to Graves Avenue (included as a need within River to Sea TPO 2040 LRTP)
- Construction of an additional travel lane along Saxon Boulevard from Tivoli Drive to Providence Boulevard (included as a need within River to Sea TPO 2040 LRTP)

The developer will work with the City of Deltona and Volusia County to determine which improvements identified in future conditions are feasible or desired and calculate proportionate share mitigation costs per applicable Florida Statutes and local code.

In addition to proportionate share contribution towards off-site improvements, transportation improvements are needed to accommodate project traffic at the site access locations on Normandy Boulevard. The traffic analysis identifies the required turn lanes and intersection control for the site access locations. A preliminary signal warrant analysis shows that the projected traffic volumes at Driveway 2 and Driveway 3 on Normandy Boulevard will meet peak hour signal warrants at project buildout. Site access improvements are the responsibility of the developer.

APPENDICES

APPENDIX A: TRAFFIC ANALYSIS METHODOLOGY

Volusia County
Traffic Engineering

The following proposed development project has an APPROVED TIA METHODOLOGY (valid for 6 months):

Project: Industrial Warehouse (Deltona)

Date of Approval: July 26, 2019

Conditions: N/A Reminder: Please submit traffic growth rates/traffic trends for review and approval prior to the TIA as specified in the methodology.

Approval Signature:  _____

A TIA can now be accepted for review by the county. TIAs must be completed per the River-to-Sea TPO TIA Guidelines, which can be found on the R2CTPO.org website.

- ☐ **If submitting a Volusia County development application, the following TIA-related items are required at project submission:**

Completed TIA Checklist

Two (2) Hard Copies of the complete TIA

One (1) CD that includes a PDF copy of the complete TIA

All computer input files

Response to Comments (if resubmitted)



City Development projects that need a TIA approval from the county must submit TIAs through the Volusia County Right-of-Way Use Permit application process. Please see the following for more information: <http://www.volusia.org/services/public-works/engineering-and-construction/development-engineering/use-permits.stml>. The items below are required (Please coordinate this with the Project Engineer/Manager since a TIA is required with the Use Permit application. Not including the TIA limits our review and prolongs the review period.):

Completed TIA Checklist

Two (2) Hard Copies of the complete TIA

One (1) CD that includes a PDF copy of the complete TIA

All computer input files

Response to Comments (if resubmitted)

Applicants with large projects, complex projects, or projects with access concerns on county roads are highly suggested to meet with county reviewers earlier in the process. The applicant is responsible for setting up these meetings with the county. A city development review staff representative must also be in attendance for coordination purposes.

Questions about TIAs and TIA methodologies should be addressed to Melissa Winsett at mwinsett@volusia.org or Anthony Taylor at ataylor@volusia.org.

Table 1: Historical Growth Rate Determination

Roadway From To		Station Number	Trend R-Squared	Trend Annual Historical Growth Rate	Is Trend R-Squared > 70% & Trend Annual Historical Growth Rate > 2% ²	Proposed Historical Growth Rate ²
Graves Avenue/CR 4053	US 17/92	770	75.96%	5.60%	Yes	5.60%
	Leavitt Avenue	772	65.79%	3.33%	No	2.00%
	Veteran's Memorial Parkway	775	76.82%	2.81%	Yes	2.81%
	Kentucky Avenue	900	78.83%	4.30%	Yes	4.30%
W Volusia Beltway (Kentucky Avenue)						
SR 472	Graves Avenue	1030	72.48%	3.44%	Yes	3.44%
W Volusia Beltway (Dr. Martin Luther King Jr.)						
Orange Camp Road	Cassadaga Road	1942	76.50%	3.46%	Yes	3.46%
Cassadaga Road	SR 472	1940	73.83%	4.55%	Yes	4.55%
Orange Camp Road						
Blue Lake Avenue	W Volusia Beltway (Dr. MLK Jr.)	1384	94.81%	8.50%	Yes	8.50%
W Volusia Beltway (Dr. MLK Jr.)	I-4	1385	91.99%	9.20%	Yes	9.20%
Main Street (Lake Helen)						
I-4	Lakeview Drive	1176	92.90%	11.67%	Yes	11.67%
Normandy Boulevard						
Graves Avenue	Rhode Island Avenue	105.000	70.82%	11.71%	Yes	11.71%
Rhode Island Avenue	Elkcam Boulevard	105.000	69.82%	6.96%	No	2.00%
Elkcam Boulevard	Saxon Boulevard	105.030	59.30%	-2.33%	No	2.00%
Saxon Boulevard	Deltona Boulevard	105.050	71.39%	-1.81%	No	2.00%
Deltona Boulevard	Tivoli Drive	105.070	70.65%	-2.26%	No	2.00%
Elkcam Boulevard						
Normandy Boulevard	Fort Smith Boulevard	45.000	73.19%	8.42%	Yes	8.42%
Fort Smith Boulevard	Providence Boulevard	45.010	74.48%	4.95%	Yes	4.95%
Fort Smith Boulevard						
Elkcam Boulevard	Providence Boulevard	60.000	66.50%	6.92%	No	2.00%
Providence Boulevard						
Howland Boulevard	Elkcam Boulevard	1542	69.94%	-2.21%	No	2.00%
Elkcam Boulevard	Fort Smith Boulevard	1541	53.89%	-1.66%	No	2.00%
Fort Smith Boulevard	Tivoli Drive	1539	62.58%	-1.95%	No	2.00%
Saxon Boulevard						
Veteran's Memorial Parkway	FDOT Park & Ride	1674	55.27%	-1.48%	No	2.00%
FDOT Park & Ride	I-4	1685	78.80%	3.95%	Yes	3.95%
I-4	Finland Drive	1675	54.51%	-1.47%	No	2.00%
Finland Drive	Normandy Boulevard	1676	42.52%	3.65%	No	2.00%
Normandy Boulevard	Tivoli Drive	1677	58.54%	4.47%	No	2.00%
Tivoli Drive	Providence Blvd	1679	50.65%	2.86%	No	2.00%
SR 472						
CR 4101/MLK Boulevard	Graves Avenue	535	84.24%	4.46%	Yes	4.46%
Howland Boulevard ⁹						
I-4/SR 472	Wolf Pack Run	901	69.41%	6.55%	No	2.00%
Wolf Pack Run	Catalina Boulevard	903	70.03%	2.80%	Yes	2.80%
Catalina Boulevard	Providence Boulevard	905	69.00%	2.56%	No	2.00%
Providence Boulevard	Elkcam Blvd	906	91.28%	4.32%	Yes	4.32%
Catalina Boulevard						
Howland Boulevard	Sixma Road	20.020	50.00%	-2.88%	No	2.00%
Sixma Road	Lake Helen-Osteen Road	20.030	54.52%	2.13%	No	2.00%
Lake Helen-Osteen Road						
Catalina Boulevard	Haulover Boulevard	1072	93.94%	6.38%	Yes	6.38%
Haulover Boulevard	Elkcam Boulevard	1071	23.49%	10.00%	No	2.00%
Veteran's Memorial Parkway						
Graves Avenue	Rhode Island Avenue	1902	61.15%	2.34%	No	2.00%
Rhode Island Avenue	Harley Strickland Boulevard	1901	78.44%	5.33%	Yes	5.33%
Rhode Island Avenue						
US 17/92	Veteran's Memorial Parkway	798112	60.27%	2.07%	No	2.00%
Interstate 4						
Seminole County	Dirksen Road	484	76.38%	1.03%	No	2.00%
Dirksen Road	Saxon Boulevard	9906	86.08%	2.71%	Yes	2.71%
Saxon Boulevard	SR 472	1003	77.78%	1.04%	No	2.00%
SR 472	Orange Camp Road	485	73.79%	3.07%	Yes	3.07%
Orange Camp Road	SR 44	497	94.73%	4.85%	Yes	4.85%

Notes:

1. Station numbers and historical AADT information were taken from the 2018 Volusia County Average Annual Daily Traffic & Historical Counts Report.

2. The necessary amount of AADT data was used in order to achieve the required Trend R-squared percentage of at least 70%. If a Trend R-squared of 70% was unobtainable from the AADT data, or if the data resulted in a negative growth rate, a 2.00% annual background growth rate was applied per the approved methodology.



July 25, 2019

Mr. Jon Cheney, P.E.
County of Volusia Traffic Engineering
123 West Indiana Avenue
DeLand, FL 32720-4262

**RE: *Response to VCTE Comments Letter 7/2/2019 – Industrial Warehouse TIA Methodology
City of Deltona, Florida
Kimley-Horn Project No. 046265011***

Dear Mr. Cheney:

Kimley-Horn and Associates, Inc. has reviewed the Volusia County Traffic Engineering comments dated July 2, 2019 for the above referenced project. For your staff's review, please consider our responses below to these remaining County comments on the proposed TIA methodology:

1. Page 2, 3% significance segments: Please add A) Saxon Boulevard from Normandy Boulevard to Providence Boulevard, and B) Providence Boulevard from Howland Avenue to Elkcam Boulevard.

Response: The TIA Methodology dated July 19, 2019 has been updated to include these two segments to the study area.

2. Page 3, Critical/Near Critical segments: The City of Lake Helen recently adopted a lower LOS D standard to MainStreet; Therefore, the segment; s capacity is 950 instead of 470. The road is now considered Vested Near Critical, so it remains on the list to be studied.

Response: The TIA Methodology dated July 19, 2019 has been updated to include the appropriate adopted roadway capacity for Main Street (950 instead of 470).

3. Page 3, study intersections: please add A) Saxon Boulevard/Tivoli, B) Providence Boulevard/Tivoli, C) Howland Avenue/Providence Boulevard.

Response: The TIA Methodology dated July 19, 2019 has been updated to include the intersections of Saxon Boulevard & Tivoli Drive and Providence Boulevard & Howland Boulevard. However, the intersection of Providence Boulevard & Tivoli Drive is shown in the TIA Methodology to have minimal project traffic utilizing the intersection (all intersection approaches at less than 3% MSV and not identified as critical or near critical facilities). Furthermore, no project trips are anticipated to add left or right turning movements to the intersection. Therefore, the intersection of Providence Boulevard & Tivoli Drive was not included in the study area.

4. Project Driveways: Page 3 commits to analyzing 2 project driveways, but Appendix A shows the site has 3 driveways. Please confirm the number of project driveways and correct in the methodology.

Response: The TIA Methodology dated July 19, 2019 has been updated to provide the most recent site plan iteration as recently submitted to the City of Deltona. As shown in the site plan, the proposed development will have four (4) driveway connections to Normandy Boulevard, with the northernmost driveway allowing for truck only-access.

5. Signal System Analyses: Please analyze the following segments as a signalized corridor: A) SR 472-Howland Boulevard (Martin Luther King Jr. Boulevard to Graves Avenue) and B) Saxon Boulevard (Veterans Memorial Parkway to Normandy Avenue).

Response: The TIA Methodology dated July 19, 2019 has been updated to indicate these two segments will be analyzed as a signalized corridor using Synchro 10 software.

6. Page 4, Programmed Improvements: Please delete the 5th bullet referencing the I-4 10-laning improvement. This project's construction phase is unfunded.

Response: The TIA Methodology dated July 19, 2019 has been updated to remove this improvement as a programmed improvement.

7. Analysis Scenarios: Please use the county's AADT spreadsheet to obtain approved 2018 peak-hour 2-way traffic count data.

Response: The TIA Methodology dated July 19, 2019 has been updated to reference the County's AADT worksheet for 2-way PM peak hour roadway analysis. The AM peak hour roadway analysis will utilize AM peak hour 2-way traffic count data from study area intersection volume counts performed in June 2019.

Additionally, historical growth will be calculated based upon the County's AADT worksheet. The historical growth rates will use the necessary amount of AADT data in order to achieve the required Trend R-squared percentage of at least 70%. If 70% is unobtainable from the existing data, or if the data results in a negative growth rate, a 2.00% annual background growth rate will be applied. Growth rate calculations will be submitted to Volusia County for review prior to incorporating into the traffic study.

8. Response to Comments: Please provide a response to comments letter with the revised methodology.

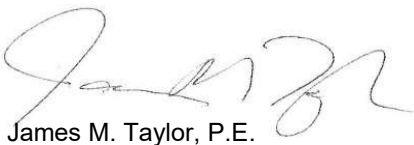
Response: Acknowledged.

9. Please revise the methodology based on the comments above. For record-keeping purposes, a final methodology is needed. Once the TIA methodology is approved, an approval letter will be provided. TIA's without approved final methodologies will not be reviewed.

Response: Acknowledged.

We trust these responses will be found sufficient for the additional information requested. Please feel free to contact our office if you have any questions.

Sincerely,
KIMLEY-HORN



James M. Taylor, P.E.

Attachments: Volusia County Traffic Engineering comments dated July 2, 2019
Industrial Warehouse TIA Methodology dated July 25, 2019

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July 25, 2019

Ron Paradise
Director
Planning and Development Services
2345 Providence Boulevard
City of Deltona, Florida 32725

RE: ***Industrial Warehouse Development - Proposed Traffic Methodology
Kimley-Horn Project No. 046265011***

Introduction

The purpose of this memorandum is to document the site impact analysis methodology for a proposed development in the City of Deltona, Florida. The development is located on the south side of Graves Avenue, west of Normandy Boulevard. Access to the site will be provided via four full access connections to Normandy Boulevard. One proposed full access connection on Normandy Boulevard will be a truck-only access with all other vehicles entering the site at the three additional; full access connections on Normandy Boulevard. Buildout for the development is anticipated by 2020. A conceptual site plan is included in **Appendix A**.

Project Trip Generation

Trip generation for the proposed development was calculated using data provided by the end user from similar sites. For this facility, the end user data (located in **Appendix B**) anticipates 2,596 daily net new external trips, 577 AM peak hour net new external trips (571 in/ 6 out), and 1,043 PM peak hour net new external trips (429 in/ 614 out) upon buildout.

The trip generation estimate from the end user data was compared to data for the most comparable use listed in the Institute of Transportation Engineers' (ITE) Trip Generation Manual, Tenth Edition. ITE land use code 150 (Warehousing) trip rates were applied to the proposed project size for a comparable trip generation estimate. The ITE trip generation estimate for the development (located in **Appendix B**) is anticipated to be 1,905 daily net new external trips, 186 AM peak hour net new external trips (143 in/ 43 out), and 208 PM peak hour net new external trips (56 in/ 152 out) upon buildout.

The trip generation potential of the proposed site is likely better estimated from the end user data and, as demonstrated above, is more conservative than the most comparable data available in the ITE Trip Generation Manual, Tenth Edition. Therefore, the end user data was utilized to assess future impacts from the site.

Multi-Modal Analysis

A multi-modal analysis will be conducted which will evaluate present and programmed bike, pedestrian, and transit mobility options. This analysis will include locations of transit stops and connectivity to the proposed site.

Study Area

The study area roadway segments and intersections, were defined in accordance with the R2CTPO Transportation Impact Analysis (TIA) Guidelines and are as follows:

- Any major roadway segment on which the project traffic consumes three (3) percent or more of the peak-hour two-way service volume for the minimum acceptable level of service standard.
- Any roadways considered critical or near critical by Volusia County in the project vicinity.
- Intersection analysis shall be performed within study area roadway segments.

According to R2CTPO Guidelines, any segments considered critical or near critical by Volusia County should be considered in the analysis. Based on this criterion, the following roadway segments will be analyzed as part of this study:

- Orange Camp Road from US 17/92 to Interstate 4
- Main Street (Lake Helen) from Interstate 4 to Lakeview Drive
- Saxon Boulevard from Veteran's Memorial Parkway to Normandy Boulevard
- Veteran's Memorial Parkway from Graves Avenue to Harley Strickland Boulevard
- Providence Boulevard from Elkcarn Boulevard to Tivoli Drive
- Interstate 4 from Seminole/Volusia County Line to Saxon Boulevard
- Dr. Martin Luther King Jr. Beltway from Orange Camp Road to SR 472
- SR 472 from Interstate 4 to Graves Avenue
- Graves Avenue from Veteran's Memorial Parkway to Kentucky Avenue
- Howland Boulevard from Providence Boulevard to Elkcarn Boulevard
- Howland Boulevard from Graves Avenue to Wolf Pak Run

The following roadway segments will be analyzed as part of this study based upon the project traffic consuming three (3) percent or more of roadway segment peak-hour two-way service volumes (segments that meet this criterion, but are critical/near critical were included in the previous section):

- Graves Avenue from US 17/92 to Veteran's Memorial Parkway
- Graves Avenue from Kentucky Avenue to Howland Boulevard
- Kentucky Avenue from SR 472 to Graves Avenue
- Normandy Boulevard from Graves Avenue to Deltona Boulevard
- Elkcarn Boulevard from Normandy Boulevard to Providence Boulevard
- Fort Smith Boulevard from Elkcarn Boulevard to Providence Boulevard
- Howland Boulevard from Wolf Pack Run to Providence Boulevard
- Catalina Boulevard from Howland Boulevard to Lake Helen-Osteen Road
- Lake Helen-Osteen Road from Catalina Boulevard to Elkcarn Boulevard
- Rhode Island Avenue from US 17/92 to Veteran's Memorial Parkway
- Interstate 4 from Saxon Boulevard to SR 44
- Saxon Boulevard from Normandy Boulevard to Providence Boulevard
- Providence Boulevard from Howland Boulevard to Elkcarn Boulevard

In addition to the impacted roadway segments shown above, the following intersections will be included in the analysis:

- Graves Avenue & US 17/92
- Graves Avenue & Veteran's Memorial Parkway
- Graves Avenue & W Volusia Avenue (Kentucky Avenue)
- Graves Avenue & Normandy Boulevard
- Graves Avenue & Howland Boulevard/SR 472

- SR 472 & W Volusia Beltway (Dr. Martin Luther King Jr)
- SR 472 & I-4 EB Ramps
- SR 472 & I-4 WB Ramps
- W Volusia Beltway (Dr. Martin Luther King Jr) & Orange Camp Road
- Normandy Boulevard & Project Access Locations (4)
- Normandy Boulevard & Elkcarn Boulevard
- Normandy Boulevard & Saxon Boulevard
- Normandy Boulevard & Deltona Boulevard
- Elkcarn Boulevard & Fort Smith Boulevard
- Elkcarn Boulevard & Providence Boulevard
- Fort Smith Boulevard & Providence Boulevard
- Saxon Boulevard & Veteran's Memorial Parkway
- Saxon Boulevard & FDOT Park & Ride
- Saxon Boulevard & I-4 EB Ramps
- Saxon Boulevard & I-4 WB Ramps
- Saxon Boulevard & Tivoli Drive
- Howland Boulevard & Catalina Boulevard
- Howland Boulevard & Providence Boulevard
- Catalina Boulevard & Lake Helen-Osteen Road
- Lake Helen-Osteen Road & Elkcarn Boulevard
- Veteran's Memorial Parkway & Rhode Island Avenue
- Veteran's Memorial Parkway & Harley Strickland Road
- Rhode Island Avenue & US 17/92

The study area determination and 3-mile Volusia County critical/near critical roadway buffer map is included in **Appendix C. Figure 1** illustrates the site location, trip distribution, and study area for the proposed development as in provided within **Appendix D**.

Project Trip Distribution

The project traffic was assigned to the roadway network using the latest adopted Florida Standard Urban Transportation Model Structure (FSUTMS) Central Florida Regional Planning Model (CFRPM), Version 6.1. Adjustments to the distribution were made based upon engineering judgement. The hand adjusted model printout is included in **Appendix E**. Truck traffic patterns will utilize the Interstate 4 interchange at SR 472 to travel to and from the development. **Figure 2** provides the proposed truck distribution for the development.

Analysis Scenarios

A traffic analysis will be conducted for 2019 existing conditions, 2020 future background conditions, and 2020 buildout year conditions during the AM and PM Peak Hour. These analyses will be conducted for the AM and PM Peak Hour under peak-season conditions using the Florida Department of Transportation's (FDOT) most recent seasonal factor information.

Background Traffic

Background traffic will be developed based on growth rates and vested trips in the study area. Future conditions will be evaluated for the proposed 2020 opening year conditions with the proposed development. The following projects will be included as vested traffic improvements within the traffic study:

- 2020 Parc Hill
- Sparkman Ridge
- SWAC Phase IA
- WVRC 106 MF Units
- FL Hospital Tower Expansion
- Blue Springs Ridge
- Huntington Downs
- Ford Property
- Victoria Park Phase 2
- Victoria Park Phase 3
- Halifax Crossings
- Osteen Pet and Feed
- Deltona Wawa
- Dirksen Site
- Hawthorne Landing
- Canterwood ALF
- Fernanda Place
- Integra Dunes Apartments
- Florida Hospital ER Site
- I-4 Automall
- Deltona Village

Additionally, the following roadway improvements funded for construction within three years of the City's Capital Improvements Element (CIE), Volusia County's Capital Improvement Program (CIP), River to Sea Transportation Planning Organization's (R2CTPO) Transportation Improvement Plan (TIP), and FDOT 5-year work program will be included within the study:

- Tivoli Drive & Saxon Boulevard (FDOT Project Number 4409201) – Improvements include an exclusive southbound right-turn lane and an extended southbound left-turn lane
- Howland Boulevard (Volusia County Project Number IFZ3-1) – Widen from 2-lane facility to a 4-lane facility from Providence Boulevard to Elkcam Boulevard
- Orange Camp Road (Volusia County Project Number IFZ4-1) – Widen from 2-lane facility to a 4-lane facility from Dr. Martin Luther King Jr. Beltway to Interstate 4
- Interstate 4 Interchange at Saxon Boulevard (FDOT Project Number 441070-1) – Improvement includes realignment of eastbound off ramp onto eastbound and westbound Saxon Boulevard

Historical Growth Rate

Historical growth will be calculated based upon Annual Average Daily Traffic (AADT) data found in the 2018 Volusia County Average Annual Daily Traffic & Historical Counts. These historical growth rates will use the necessary amount of AADT data in order to achieve the required Trend R-squared percentage of at least 70%. If 70% is unobtainable from the existing data, or if the data results in a negative growth rate, a 2.00% annual background growth rate will be applied. Growth rate calculations will be submitted to Volusia County for review prior to incorporating into the traffic study.

Traffic Analysis

Traffic analysis will be performed for the existing (2019) and buildout (2020) conditions as follows:

- Roadway Segment Analysis – PM Roadway segment analysis will be conducted by comparing Two-Way PM peak hour traffic counts from the 2018 Volusia County Average Annual Daily Traffic & Historical Counts Report with project traffic, to the available capacity. AM Roadway segment analysis will be conducted comparing existing turning movement counts performed in June 2019 with project traffic, to the available capacity.

- **Intersection Analysis**- Intersection analyses will be conducted using Trafficware's *Synchro* (v10) and/or *HCS 7* software for all study intersections under AM and PM Peak Hour conditions.
 - o A queue analysis will be included for intersections and access driveways, which will compare existing deceleration and storage length to existing and future traffic conditions
 - o A signalized corridor analysis using *Synchro 10* will be performed for the following roadway segments:
 - SR 472/Howland Boulevard from Martin Luther King Jr Boulevard to Graves Avenue
 - Saxon Boulevard from Veterans Memorial Parkway to Normandy Avenue
 - o Site access driveways will be analyzed for ingress turn lanes. A signal warrant analysis will also be performed at each of the site driveways.

Additionally, worker shift changes for the industrial warehouse will be analyzed to minimize the amount of impact during the AM peak hour and PM peak hour and area school drop off and pick up times.

Required Transportation Improvements

Transportation improvements, if warranted, will be based on roadway and intersection deficiencies and identified within 2019 existing conditions, 2020 future background conditions, and 2020 buildout year conditions during both the AM and PM Peak Hour. Additionally, proportionate share percentages will be included within the traffic study and calculated per Florida Statutes HB 319 adopted May 30, 2013. Construction costs approved by Volusia County will be used to calculate proportionate share payments, if any.

Documentation

All analysis and findings will be documented in a report. Two paper copies and an electronic copy will be signed and sealed by a registered professional engineer and submitted to the City of Deltona and Volusia County.

APPENDIX A:

Site Plan

APPENDIX B:

Excerpts from Trip Generation Documents

Non Sortable FC - Peak Season

Headcount

Headcount - Day Shift 570
Headcount Night Shift 477

Shift Structure

	Start	End
Day Shift Inbound	7:00:00 AM	5:30:00 PM
Day Shift Outbound	7:30:00 AM	6:00:00 PM
Night Shift Inbound	6:00:00 PM	4:30:00 AM
Night Shift Outbound	6:30:00 PM	5:00:00 AM

Inbound Are Employees Working Receiving Side of Operation
Outbound Are Employees Working Shipping Side of Operation

Note: Adjustments to car volumes should be made to account for carpooling and mass transit use, as may be appropriate to the local jurisdiction.

Traffic Schedule

Cars				Trucks				Total			
Average Weekday - Peak				Average Weekday - Peak				Average Weekday - Peak			
	In	Out	Total		In	Out	Total		In	Out	Total
00:00	2	2	4	00:00	8	5	13	00:00	10	7	17
01:00	2	2	4	01:00	4	6	10	01:00	6	8	14
02:00	2	2	4	02:00	8	4	12	02:00	10	6	16
03:00	2	2	4	03:00	2	8	10	03:00	4	10	14
04:00	5	0	5	04:00	3	3	6	04:00	8	3	11
04:15	0	0	0	04:15	0	0	0	04:15	0	0	0
04:30	0	104	104	04:30	0	0	0	04:30	0	104	104
04:45	0	103	103	04:45	0	0	0	04:45	0	103	103
05:00	34	104	138	05:00	3	3	6	05:00	37	107	144
05:15	0	103	103	05:15	0	0	0	05:15	0	103	103
05:30	0	0	0	05:30	0	0	0	05:30	0	0	0
05:45	0	0	0	05:45	0	0	0	05:45	0	0	0
06:00	0	3	3	06:00	4	5	9	06:00	4	8	12
06:15	0	0	0	06:15	0	0	0	06:15	0	0	0
06:30	143	0	143	06:30	0	0	0	06:30	143	0	143
06:45	142	0	142	06:45	0	0	0	06:45	142	0	142
07:00	143	3	146	07:00	1	3	4	07:00	144	6	150
07:15	142	0	142	07:15	0	0	0	07:15	142	0	142
07:30	0	0	0	07:30	0	0	0	07:30	0	0	0
07:45	0	0	0	07:45	0	0	0	07:45	0	0	0
08:00	9	9	18	08:00	4	2	6	08:00	13	11	24
09:00	9	9	18	09:00	8	10	18	09:00	17	19	36
10:00	9	9	18	10:00	7	10	17	10:00	16	19	35
11:00	9	9	18	11:00	8	7	15	11:00	17	16	33
12:00	17	17	34	12:00	12	7	19	12:00	29	24	53
13:00	9	9	18	13:00	15	13	28	13:00	24	22	46
14:00	9	9	18	14:00	13	16	29	14:00	22	25	47
15:00	9	9	18	15:00	4	8	12	15:00	13	17	30
16:00	9	9	18	16:00	10	4	14	16:00	19	13	32
17:00	0	0	0	17:00	12	11	23	17:00	12	11	23
17:15	0	0	0	17:15	0	0	0	17:15	0	0	0
17:30	104	151	255	17:30	0	0	0	17:30	104	151	255
17:45	103	150	253	17:45	0	0	0	17:45	103	150	253
18:00	104	151	255	18:00	15	11	26	18:00	119	162	281
18:15	103	151	254	18:15	0	0	0	18:15	103	151	254
18:30	0	0	0	18:30	0	0	0	18:30	0	0	0
18:45	0	0	0	18:45	0	0	0	18:45	0	0	0
19:00	2	2	4	19:00	6	12	18	19:00	8	14	22
20:00	2	2	4	20:00	3	3	6	20:00	5	5	10
21:00	2	2	4	21:00	9	7	16	21:00	11	9	20
22:00	2	2	4	22:00	7	6	13	22:00	9	8	17
23:00	2	2	4	23:00	2	4	6	23:00	4	6	10
1,130	1,130	2,260		168	168	336		1,298	1,298	2,596	

Table 1: Buildout Trip Generation

Land Use	Intensity	Daily Trips	AM Peak Hour of Adjacent Street			PM Peak Hour of Adjacent Street		
			Total	In	Out	Total	In	Out
Proposed Development Warehousing	1,094,865 SF	1,905	186	143	43	208	56	152
	<i>Subtotal</i>	1,905	186	143	43	208	56	152
Driveway Volumes		1,905	186	143	43	208	56	152
TOTAL NET NEW TRIPS		1,905	186	143	43	208	56	152

Note 1: Trip Generation was calculated using the data from ITE's Trip Generation Manual, 10th Edition

Warehousing [ITE 150]

Daily $T = 1.74*(X)$; (X is SF/1000)
AM Peak Hour of Adjacent Street $T = 0.17*(X)$; (X is SF/1000); (77% in/ 23% out)
PM Peak Hour of Adjacent Street $T = 0.19*(X)$; (X is SF/1000); (27% in/ 73% out)

Warehousing (150)

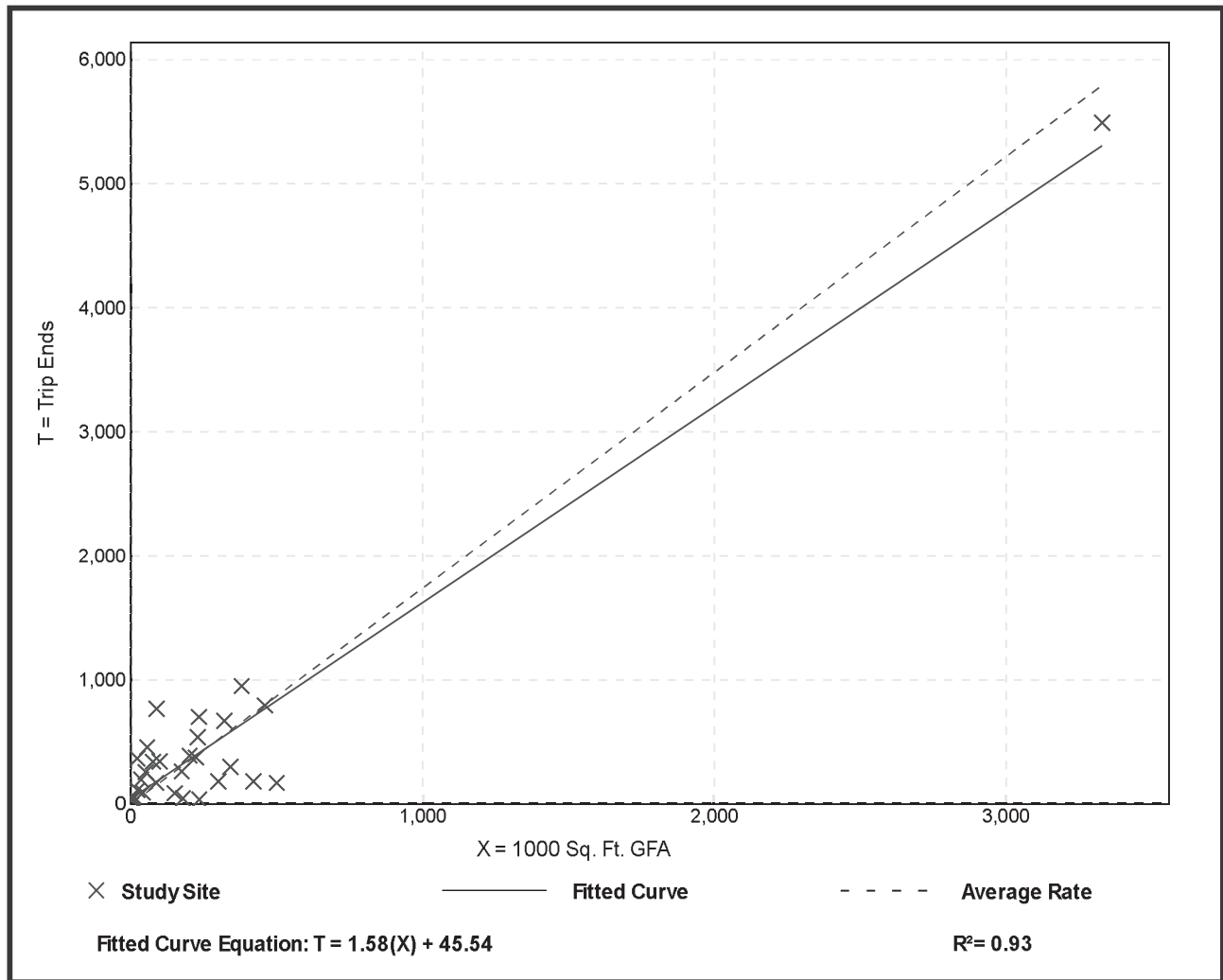
Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
On a: Weekday

Setting/Location: General Urban/Suburban
Number of Studies: 29
1000 Sq. Ft. GFA: 285
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
1.74	0.15 - 16.93	1.55

Data Plot and Equation



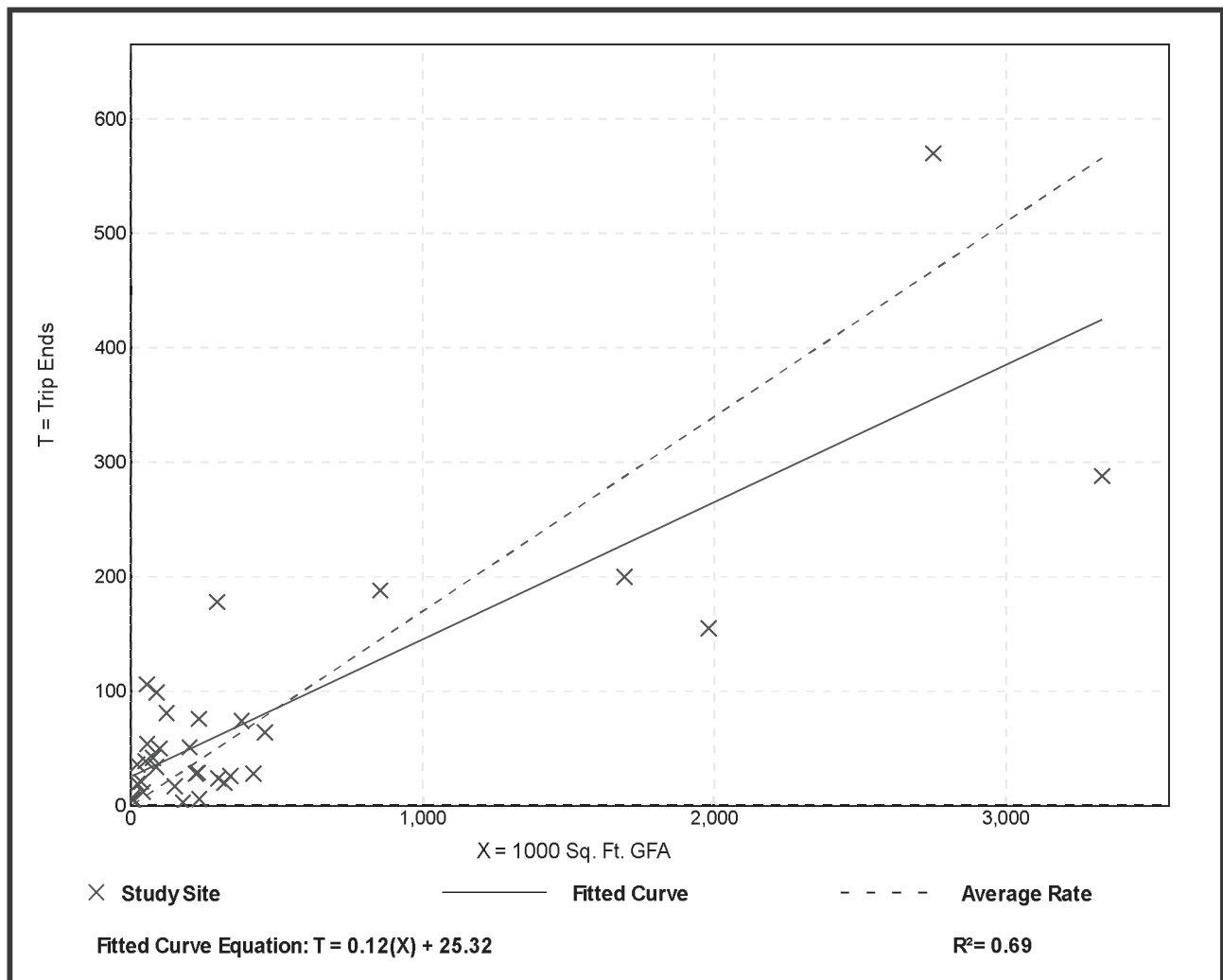
Warehousing (150)

Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
 On a: Weekday,
 Peak Hour of Adjacent Street Traffic,
 One Hour Between 7 and 9 a.m.
 Setting/Location: General Urban/Suburban
 Number of Studies: 34
 1000 Sq. Ft. GFA: 451
 Directional Distribution: 77% entering, 23% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
0.17	0.02 - 1.93	0.20

Data Plot and Equation



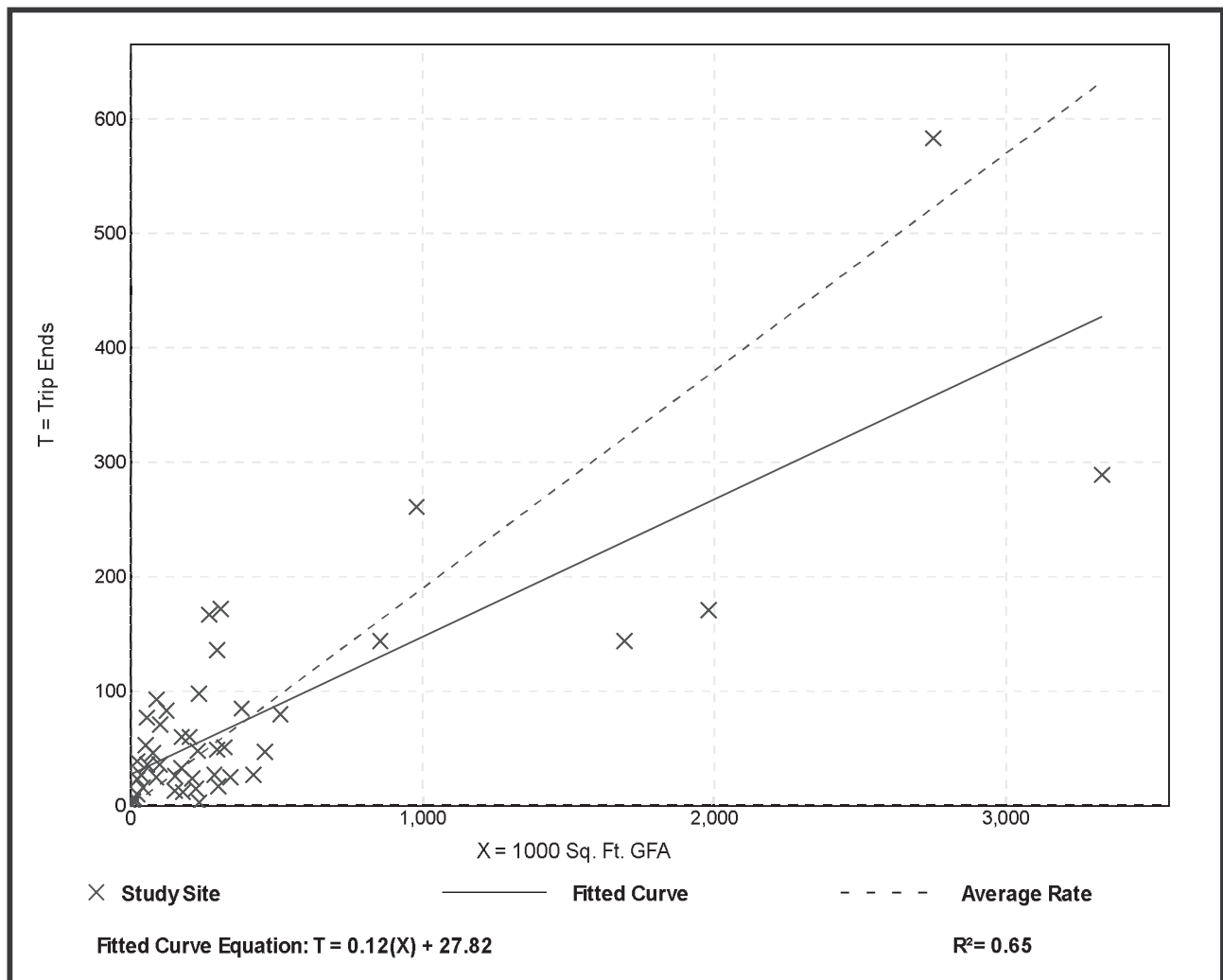
Warehousing (150)

Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.
Setting/Location: General Urban/Suburban
 Number of Studies: 47
 1000 Sq. Ft. GFA: 400
 Directional Distribution: 27% entering, 73% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
0.19	0.01 - 1.80	0.18

Data Plot and Equation



APPENDIX C:

Table 1 –Study Area Determination

Table 2: Study Area Determination

Roadway		Roadway Attributes ¹				Peak Hour Two-Way Maximum Service Volume ²	PM Peak Hour Project Traffic				Significant Impact? ⁵	Include In Study Area?	
		Functional Classification	Area Type	Adopted LOS	Number of Lanes		% Assign ³	NB / EB	SB / WB	Max % Impact ⁴			
Graves Avenue/CR 4053	US 17/92	Leavitt Avenue	Major Collector	U	E	2U	1,330	1.0%	4	6	0.75%	No	Yes ^a
	Leavitt Avenue	Veteran's Memorial Parkway	Major Collector	U	E	2U	1,020	3.0%	13	18	3.04%	Yes	Yes
	Veteran's Memorial Parkway	Kentucky Avenue	Minor Arterial	U	E	2U	1,620	12.0%	51	74	7.72%	Yes	Yes
	Kentucky Avenue	Howland Boulevard	Minor Arterial	U	E	2U	1,620	28.0%	120	172	18.02%	Yes	Yes
W Volusia Beltway (Kentucky Avenue)													
SR 472	Graves Avenue	Major Collector	U	E	2U	1,540	16.0%	98	69	10.84%	Yes	Yes	
W Volusia Beltway (Dr. Martin Luther King Jr.)													
Taylor Road	Orange Camp Road	Minor Arterial	U	E	2U	1,540	2.0%	12	9	1.36%	No	No	
Orange Camp Road	Cassadaga Road	Minor Arterial	U	E	2U	1,540	5.0%	31	21	3.38%	Yes	Yes	
Cassadaga Road	SR 472	Minor Arterial	U	E	2U	1,540	6.0%	37	26	4.09%	Yes	Yes	
Orange Camp Road													
Blue Lake Avenue	W Volusia Beltway (Dr. MLK Jr.)	Minor Arterial	U	E	2U	1,540	2.0%	9	12	1.36%	No	Yes ⁷	
W Volusia Beltway (Dr. MLK Jr.)	I-4	Minor Arterial	U	E	2U	1,540	1.0%	4	6	0.65%	No	Yes ⁷	
Main Street (Lake Helen)													
I-4	Lakeview Drive	Major Collector	U	E	2U	950	1.0%	6	4	1.05%	No	Yes ⁷	
Normandy Boulevard													
Graves Avenue	Rhode Island Avenue	Major Collector	U	D	2U	1,150	48.0%	206	295	43.57%	Yes	Yes	
Rhode Island Avenue	Elkcam Boulevard	Major Collector	U	D	2U	2,630	41.0%	176	252	16.27%	Yes	Yes	
Elkcam Boulevard	Saxon Boulevard	Major Collector	U	D	4D	2,630	30.0%	129	184	11.90%	Yes	Yes	
Saxon Boulevard	Deltona Boulevard	Major Collector	U	D	2U	960	6.0%	26	37	6.56%	Yes	Yes	
Deltona Boulevard	Tivoli Drive	Major Collector	U	D	3U	960	1.0%	4	6	1.04%	No	No	
Deltona Boulevard													
Normandy Boulevard	Cloverleaf Boulevard/Anderson Drive	Major Collector	U	D	4D	2,630	3.0%	13	18	1.18%	No	No	
Elkcam Boulevard													
Normandy Boulevard	Fort Smith Boulevard	Major Collector	U	D	2U	960	8.0%	49	34	8.65%	Yes	Yes	
Fort Smith Boulevard	Providence Boulevard	Major Collector	U	D	2U	960	3.0%	18	13	3.23%	Yes	Yes	
Providence Boulevard	Montecito Avenue	Major Collector	U	D	2U	960	0.0%	0	0	0.00%	No	No	
Fort Smith Boulevard													
Elkcam Boulevard	Providence Boulevard	Major Collector	U	D	2U	960	4.0%	25	17	4.38%	Yes	Yes	
Providence Boulevard	Newmark Drive	Major Collector	U	D	2U	1,260	3.0%	18	13	2.46%	No	No	
Providence Boulevard													
Howland Boulevard	Elkcam Boulevard	Minor Arterial	U	E	2U	1,270	0.0%	0	0	0.00%	No	Yes ^a	
Elkcam Boulevard	Fort Smith Boulevard	Minor Arterial	U	E	2U	1,020	1.0%	4	6	0.98%	No	Yes ⁷	
Fort Smith Boulevard	Tivoli Drive	Minor Arterial	U	E	4D	2,740	1.0%	4	6	0.36%	No	Yes ⁷	
Saxon Boulevard													
Enterprise Road	Veteran's Memorial Parkway	Minor Arterial	U	E	6D	4,280	6.0%	26	37	1.47%	No	No	
Veteran's Memorial Parkway	FDOT Park & Ride	Minor Arterial	U	E	6D	4,280	8.0%	34	49	1.94%	No	Yes ⁷	
FDOT Park & Ride	I-4	Minor Arterial	U	E	6D	3,410	8.0%	34	49	2.43%	No	Yes ⁷	
I-4	Finland Drive	Minor Arterial	U	E	4D	3,410	11.0%	47	68	3.37%	Yes	Yes	
Finland Drive	Normandy Boulevard	Minor Arterial	U	E	4D	3,410	11.0%	47	68	3.37%	Yes	Yes	
Normandy Boulevard	Tivoli Drive	Minor Arterial	U	E	4D	3,410	7.0%	30	43	2.14%	No	Yes ^a	
Tivoli Drive	Providence Blvd	Minor Arterial	U	E	2U	1,020	4.0%	25	17	4.12%	Yes	Yes ^a	
Providence Blvd	Normandy Boulevard	Minor Arterial	U	E	2U	1,020	1.0%	6	4	0.98%	No	No	
SR 472													
US 17/92	CR 4101/MLK Boulevard	Principal Arterial	U	D	4D	5,900	9.0%	39	55	1.59%	No	No	
CR 4101/MLK Boulevard	Graves Avenue	Principal Arterial	U	D	4D	3,580	6.0%	26	37	1.76%	No	Yes ⁷	
Howland Boulevard ⁹													
I-4/SR 472	Wolf Pack Run	Minor Arterial	U	E	4D	3,410	17.0%	104	73	5.19%	Yes	Yes	
Wolf Pack Run	Catalina Boulevard	Minor Arterial	U	E	4D	3,410	15.0%	92	64	4.57%	Yes	Yes	
Catalina Boulevard	Providence Boulevard	Minor Arterial	U	E	4D	3,410	7.0%	43	30	2.14%	No	Yes ^a	
Providence Boulevard	Elkcam Blvd	Minor Arterial	U	E	2U	1,230	6.0%	37	26	5.12%	No	Yes ⁷	
Elkcam Blvd	Lake Helen-Osteen Road	Minor Arterial	U	E	2U	3,410	4.0%	25	17	1.23%	No	No	
Catalina Boulevard													
Wolf Pack Run	Howland Boulevard	Major Collector	U	D	2U	960	1.0%	4	6	1.04%	No	No	
Howland Boulevard	Sixma Road	Major Collector	U	D	2U	960	5.0%	31	21	5.42%	Yes	Yes	
Sixma Road	Lake Helen-Osteen Road	Major Collector	U	D	2U	960	5.0%	31	21	5.42%	Yes	Yes	
Lake Helen-Osteen Road													
Captain Drive	Catalina Boulevard	Minor Arterial	U	E	2U	1,020	1.0%	4	6	0.98%	No	No	
Catalina Boulevard	Haulover Boulevard	Minor Arterial	U	E	2U	1,020	3.0%	18	13	3.04%	Yes	Yes	
Haulover Boulevard	Elkcam Boulevard	Minor Arterial	U	E	2U	1,020	0.0%	0	0	0.00%	No	Yes ^a	
Veteran's Memorial Parkway													
Graves Avenue	Rhode Island Avenue	Minor Arterial	U	E	2U	1,620	9.0%	39	55	5.80%	Yes	Yes ⁷	
Rhode Island Avenue	Harley Strickland Boulevard	Minor Arterial	U	E	2U	1,540	2.0%	9	12	1.36%	No	Yes ⁷	
Harley Strickland Boulevard	Saxon Boulevard	Minor Arterial	U	E	4D	3,410	2.0%	9	12	0.62%	No	No	
Rhode Island Avenue													
Carpenter Avenue	US 17/92	Minor Collector	U	E	2U	1,330	1.0%	4	6	0.75%	No	No	
US 17/92	Veteran's Memorial Parkway	Major Collector	U	E	2U	1,230	5.0%	21	31	4.23%	Yes	Yes	
US 17/92													
Graves Avenue	Rhode Island Avenue	Principal Arterial	U	D	4D	3,580	1.0%	4	6	0.28%	No	No	
Rhode Island Avenue	Enterprise Road	Principal Arterial	U	D	4D	3,580	2.0%	9	12	0.59%	No	No	
Interstate 4													
Seminole County	Dirksen Road	Principal Arterial	U	D	6D	10,060	6.0%	26	37	0.63%	No	Yes ^a	
Dirksen Road	Saxon Boulevard	Principal Arterial	U	D	6D	10,060	8.0%	34	49	0.83%	No	Yes ^a	
Saxon Boulevard	SR 472	Principal Arterial	U	D	6D	10,060	9.0%	39	55	0.93%	No	Yes ^a	
SR 472	Orange Camp Road	Principal Arterial	U	D	6D	10,060	9.0%	55	39	0.93%	No	Yes ^a	
Orange Camp Road	SR 44	Principal Arterial	U	D	6D	10,060	5.0%	31	21	0.52%	No	Yes ^a	

Notes:

1. The roadway attributes were obtained from the latest the 2017 Volusia County Average Annual Daily Traffic & Historical Counts Report.

2. Peak Hour Two-Way Service Volumes were determined using the sources listed in Note 1.

3. Percent project traffic assignment was calculated as the average across the segment.

4. Percent impact was calculated as the PM peak hour two-way project traffic divided by the two-way service volume.

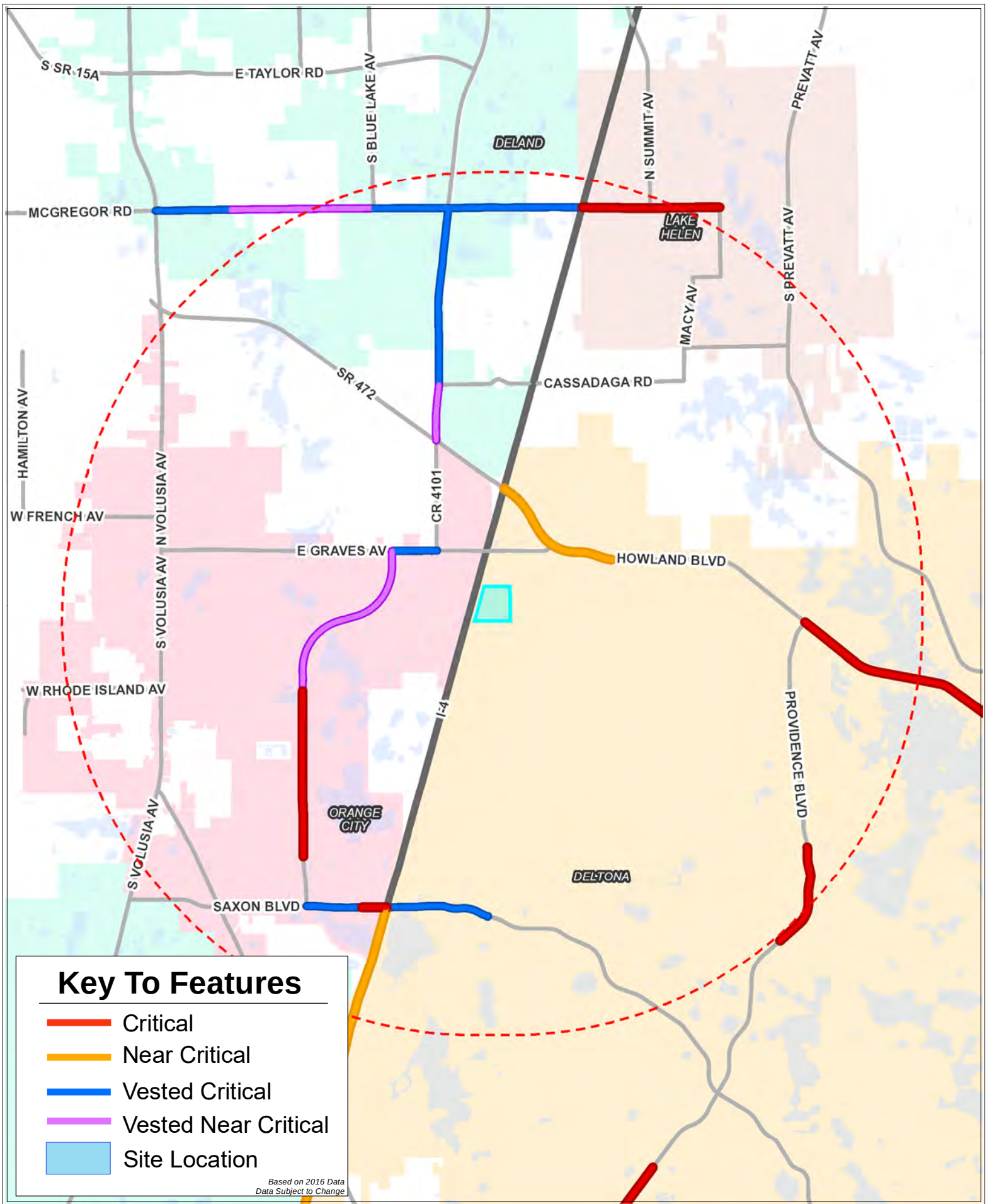
5. In accordance with River To Sea TPO TIA Guidelines, the minimum threshold for significance was at least 3% impact of two-way peak hour trips.

6. In accordance with River To Sea TPO TIA Guidelines, the study area includes all impacted segments and directly adjacent segments.

7. In accordance with River To Sea TPO TIA Guidelines, the study area includes all critical or near critical segments.

8. The study area includes these roadway segments based on input from City of Deltona and Volusia County Traffic staff.

9. The roadway segment of Howland Boulevard from Providence Boulevard to Elkcam Boulevard is planned to be widened from a 2-lane facility to a 4-lane facility (Volusia County Project Number IF23-1). There is currently construction funding for the project in 2019 and 2020. Therefore, the roadway capacity has been updated to reflect this roadway widening project.



Mapping Tool Provided Courtesy of
Volusia County Public Works and is
a graphic representation only.

Date 06/18/2019

3 mile Critical/Near Critical Roadway Buffer

Industrial Warehouse



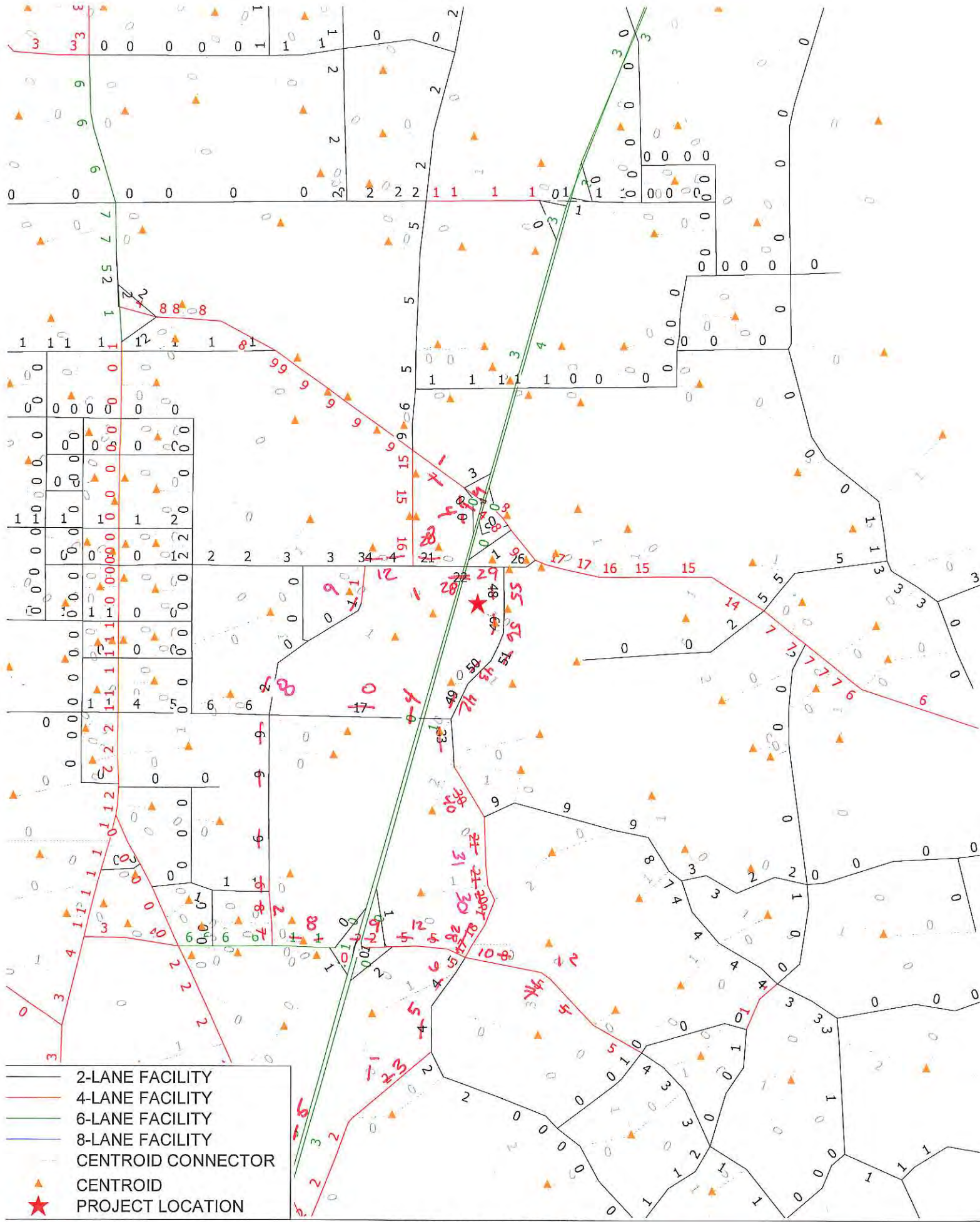
1 inch = 5,302 feet

APPENDIX D:

Figure 1 – Site Location, Trip Distribution, and Study Area

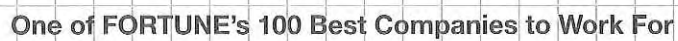
APPENDIX E:

Hand Adjusted Model Plot



CFRPM v6.1 INDUSTRIAL WAREHOUSE
 TRAFFIC DISTRIBUTION (PERCENTAGES)
 5/28/2019

car distribution

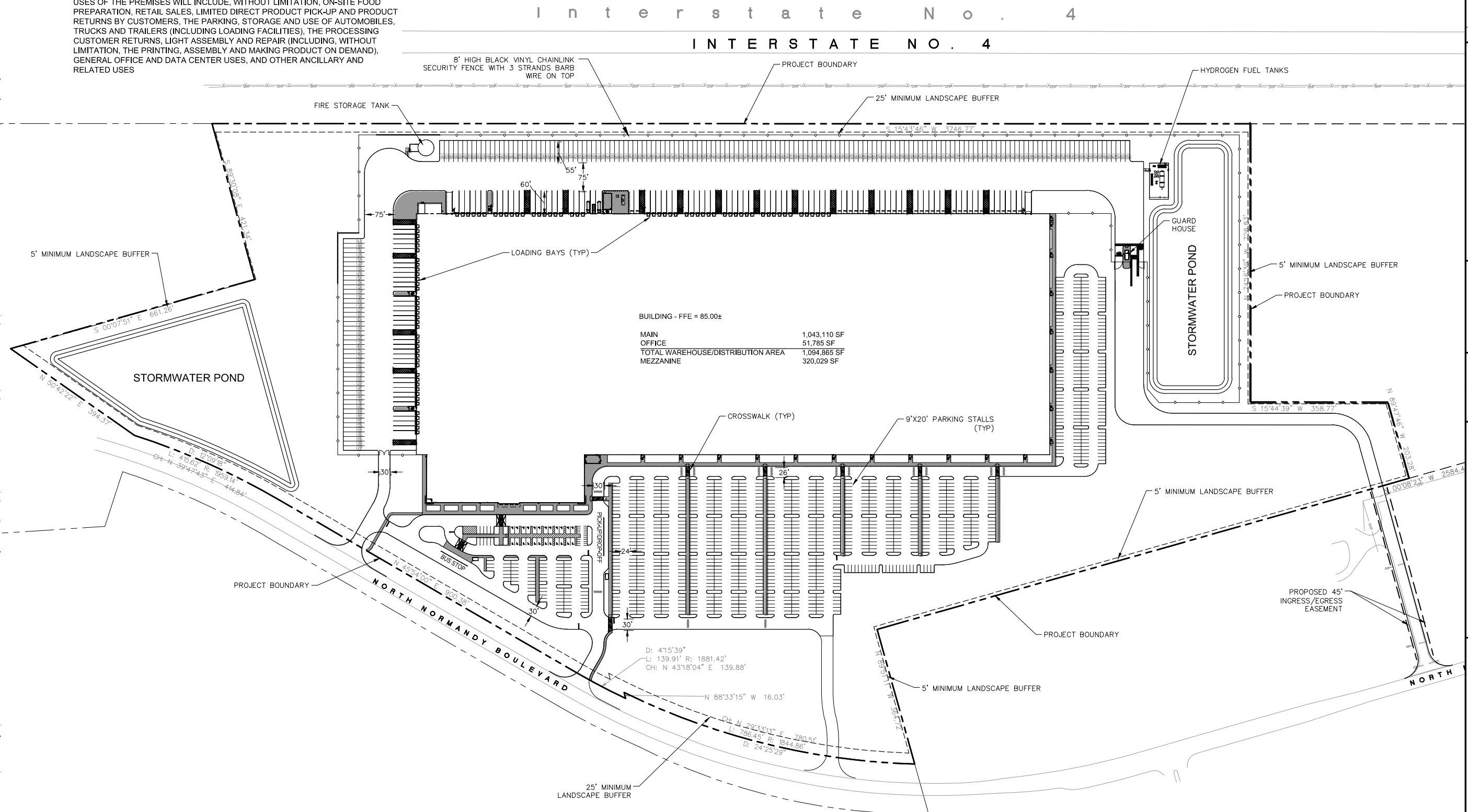
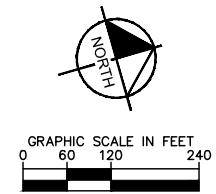


APPENDIX B: CONCEPTUAL SITE PLAN

4. **PERMISSIBLE USES:** PREMISES IS TO BE USED FOR LIGHT MANUFACTURING AND WAREHOUSE USES. THESE LIGHT MANUFACTURING/WAREHOUSES USES INCLUDE, WITHOUT LIMITATION, THE WAREHOUSING, STORAGE, DISTRIBUTION AND SALE OF PRODUCTS, MATERIALS AND MERCHANDISE, INCLUDING LIQUOR AND GROCERY/FOOD ITEMS OF ALL TYPES (INCLUDING, WITHOUT LIMITATION, DAIRY, FRESH VEGETABLES, RAW MEATS AND SEAFOOD, CANNED OR FROZEN FOODS OR PREPARED MEALS). OTHER PERMITTED ACCESSORY AND ANCILLARY USES OF THE PREMISES WILL INCLUDE, WITHOUT LIMITATION, ON-SITE FOOD PREPARATION, RETAIL SALES, LIMITED DIRECT PRODUCT PICK-UP AND PRODUCT RETURNS BY CUSTOMERS, THE PARKING, STORAGE AND USE OF AUTOMOBILES, TRUCKS AND TRAILERS (INCLUDING LOADING FACILITIES), THE PROCESSING CUSTOMER RETURNS, LIGHT ASSEMBLY AND REPAIR (INCLUDING, WITHOUT LIMITATION, THE PRINTING, ASSEMBLY AND MAKING PRODUCT ON DEMAND), GENERAL OFFICE AND DATA CENTER USES, AND OTHER ANCILLARY AND RELATED USES

PROPOSED IPUD WAREHOUSE/DISTRIBUTION FAR (FOOTPRINT) = 0.30

5. PARKING PROVIDED:
1,200 REGULAR AUTO PARKING SPACES
200 TRAILER SPACES
6. MAXIMUM BUILDING HEIGHT ALLOWED = 75 FT.
PROPOSED IPUD WAREHOUSE/DISTRIBUTION BUILDING HEIGHT = 50 FT.



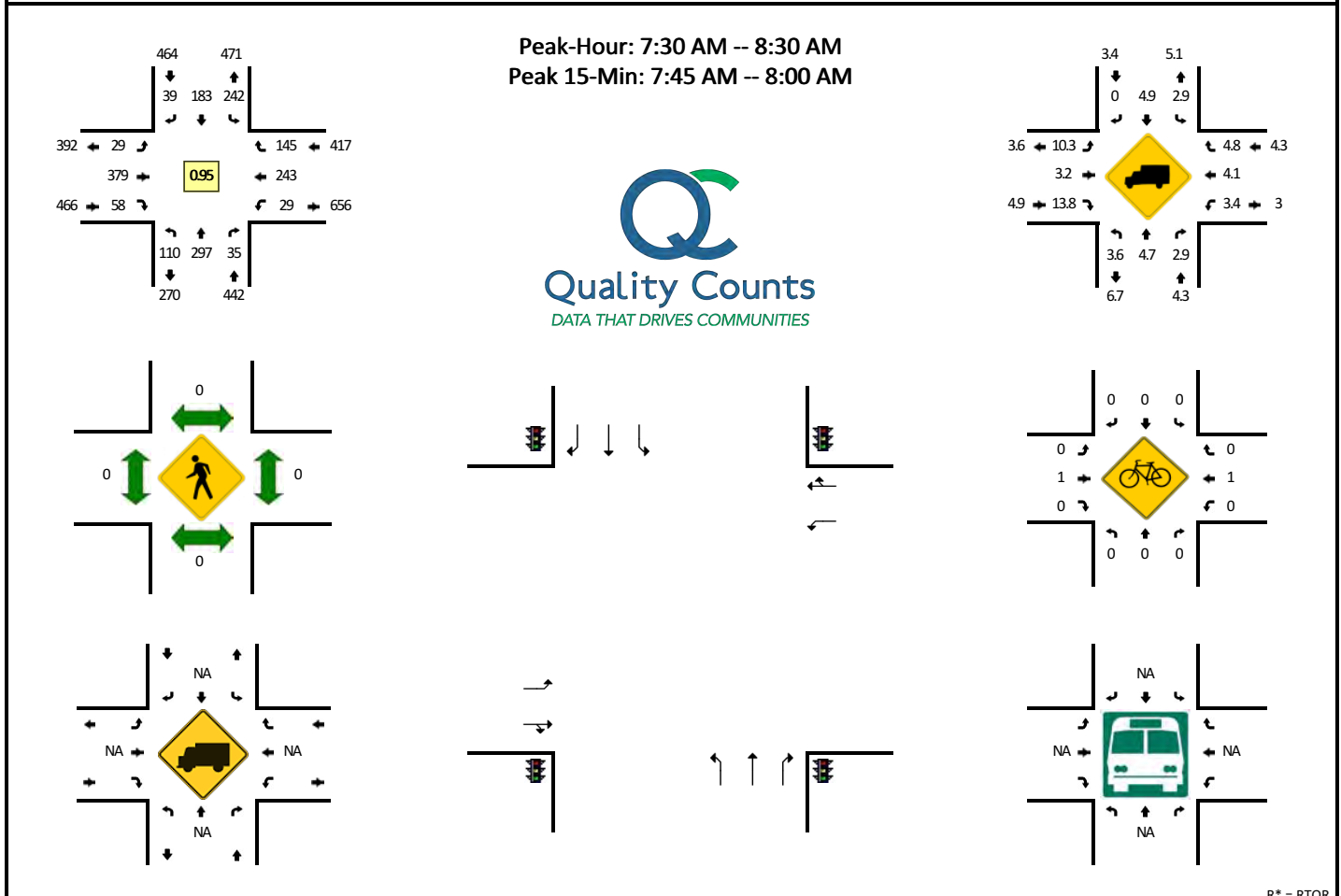
This document, together with the concepts and designs presented herein, as an instrument of service, is intended only for the specific purpose and client for which it was prepared. Reuse of and improper reliance on this document without written authorization and adaptation by Kinley-Horn and Associates, Inc. shall be without liability to Kinley-Horn and Associates, Inc.

INDUSTRIAL PLANNED UNIT DEVELOPMENT	PROJECT NORMANDY	KHA PROJECT	LICENSED PROFESSIONAL	 © 2017 KIMLEY-HORN AND ASSOCIATES, INC. 116 S. KENTUCKY AVENUE, LAKELAND, FL 33801 PHONE: 863-701-8702 WWW.KIMLEY-HORN.COM CA 00000696			
		DATE					
		JUNE 2019					
		SCALE AS SHOWN					
		DESIGNED BY SDS					
		DRAWN BY SDS					
		CHECKED BY JAL					
		DATE:					
SHEET NUMBER				No.	REVISIONS	DATE	BY
IPUD							

APPENDIX C: TRAFFIC DATA

LOCATION: Dr Martin L King Jr Beltway -- Orange Camp Rd
CITY/STATE: DeLand, FL

QC JOB #: 15005901
DATE: Thu, Jun 6 2019



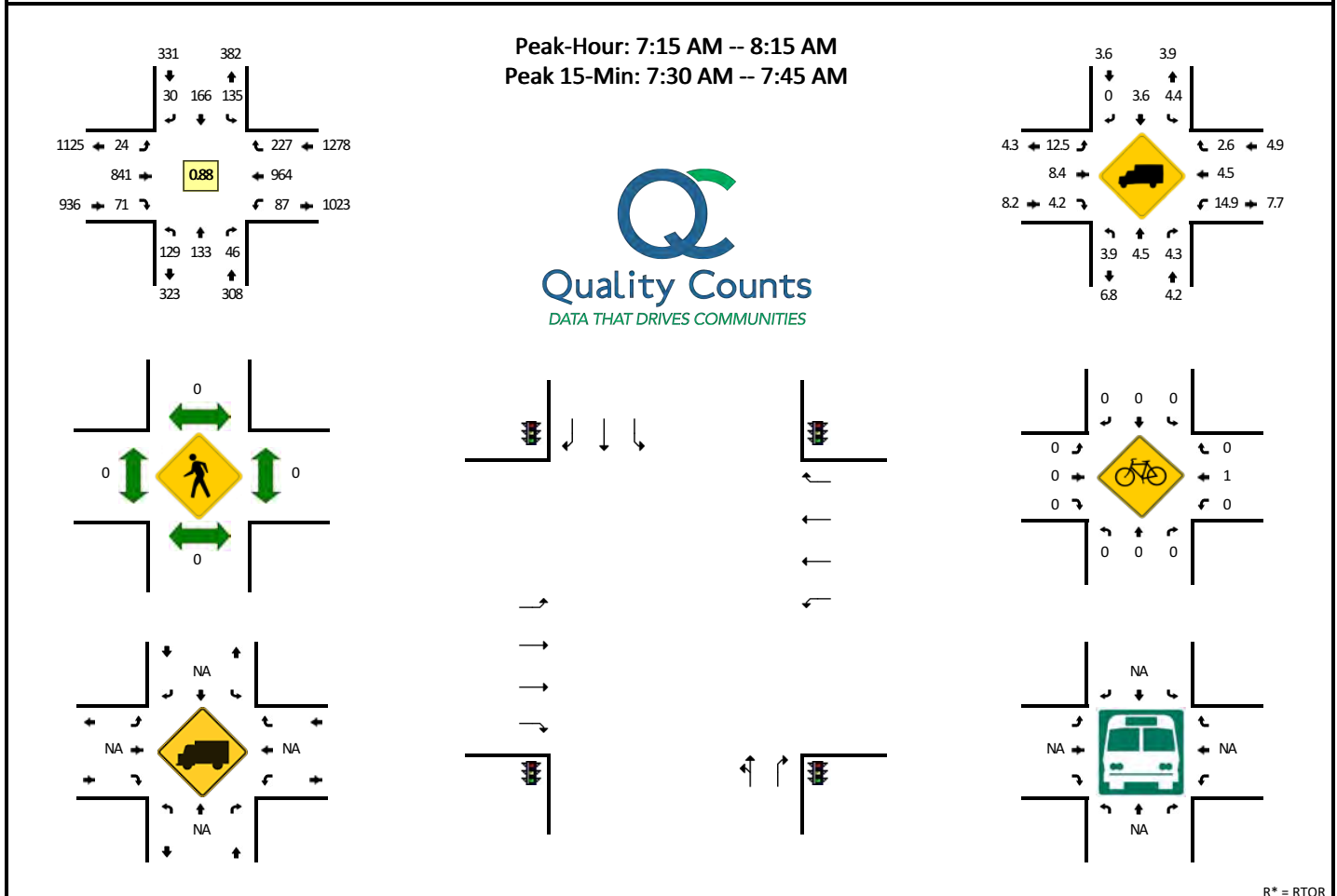
R* = RTOR

15-Min Count Period Beginning At	Dr Martin L King Jr Beltway (Northbound)					Dr Martin L King Jr Beltway (Southbound)					Orange Camp Rd (Eastbound)					Orange Camp Rd (Westbound)					Total	Hourly Totals
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
7:00 AM	21	64	4	0	3	67	42	3	0	4	13	78	9	0	4	4	35	21	0	2	374	
7:15 AM	14	51	5	0	4	66	43	5	0	3	11	88	5	0	0	9	65	35	0	0	404	
7:30 AM	27	79	5	0	1	57	43	2	0	1	5	108	14	0	1	3	64	36	0	5	451	
7:45 AM	33	85	5	0	5	67	38	10	0	2	8	93	13	0	1	6	71	33	0	3	473	1702
8:00 AM	27	74	6	0	4	61	52	14	0	3	6	76	18	0	1	5	46	26	0	7	426	1754
8:15 AM	23	59	7	0	2	57	50	5	0	2	10	102	8	0	2	15	62	30	0	5	439	1789
8:30 AM	25	71	9	0	3	61	43	8	0	3	7	63	13	0	0	6	71	27	0	1	411	1749
8:45 AM	16	61	5	0	0	44	55	6	0	0	4	70	9	0	3	10	62	32	0	3	380	1656
Peak 15-Min Flowrates	Northbound					Southbound					Eastbound					Westbound					Total	
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
All Vehicles	132	340	40	0	20	268	152	48	0	8	32	372	56	0	4	24	284	144	0	12	1936	
Heavy Trucks	12	12	0			8	16	0			4	8	12			4	20	12			108	
Pedestrians		0					0					0					0				0	
Bicycles	0	0	0			0	0	0			0	0	0			0	0	0			0	
Railroad																						
Stopped Buses																						

Comments:

LOCATION: Dr Martin L King Jr Beltway/N Kentucky Ave -- State Hwy 472
CITY/STATE: DeLand, FL

QC JOB #: 15005905
DATE: Thu, Jun 6 2019



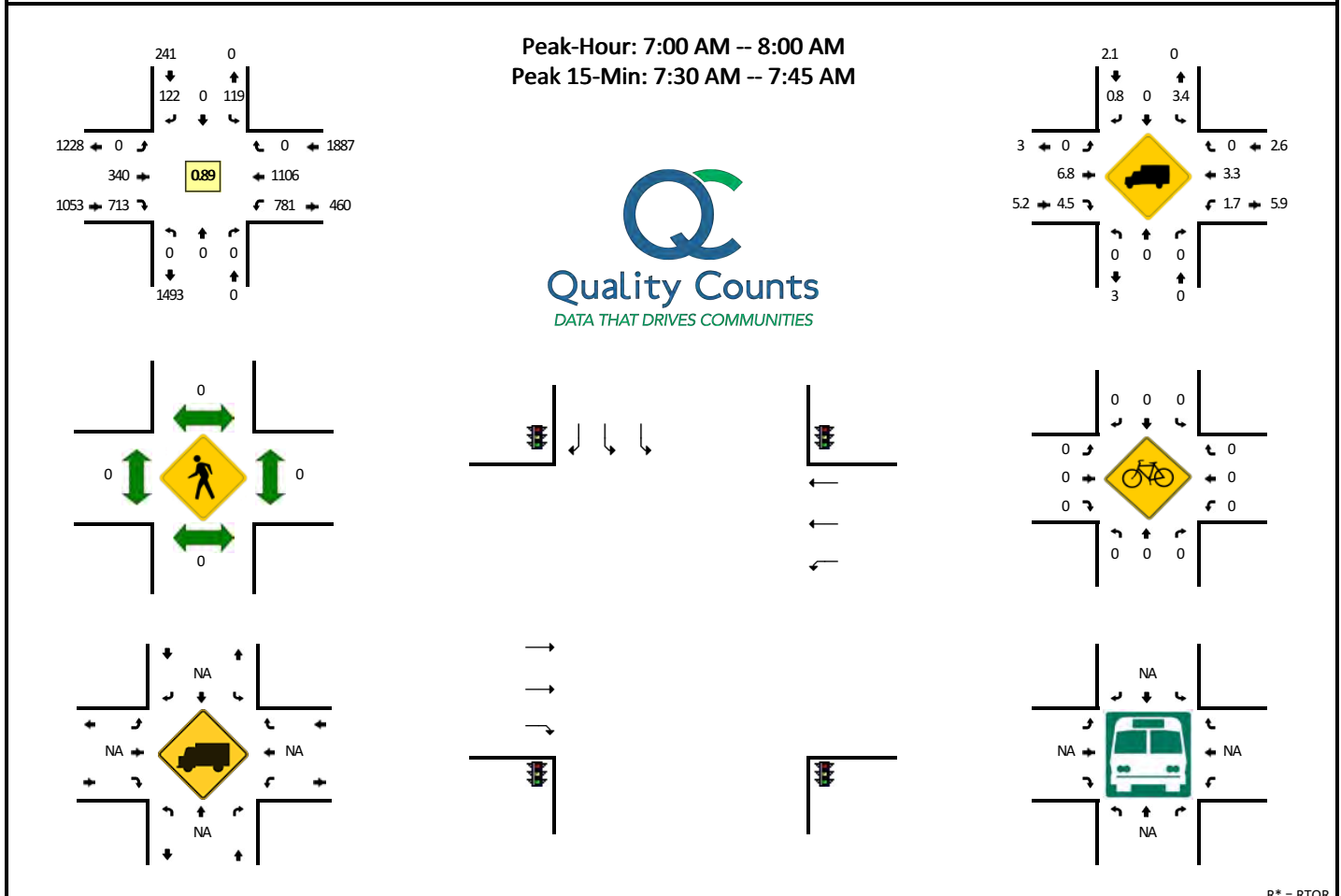
R* = RTOR

15-Min Count Period Beginning At	Dr Martin L King Jr Beltway/N Kentucky Ave (Northbound)					Dr Martin L King Jr Beltway/N Kentucky Ave (Southbound)					State Hwy 472 (Eastbound)					State Hwy 472 (Westbound)					Total	Hourly Totals
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
7:00 AM	19	40	5	0	13	34	34	1	0	8	6	200	12	0	8	8	188	25	0	16	617	
7:15 AM	38	22	5	0	12	35	32	1	0	3	3	247	6	1	4	18	223	25	0	20	695	
7:30 AM	34	33	7	0	10	34	45	2	0	4	3	232	19	1	8	16	289	50	1	24	812	
7:45 AM	30	45	3	0	4	27	45	3	0	12	8	177	12	0	8	27	245	31	0	35	712	2836
8:00 AM	27	33	2	0	3	39	44	1	0	4	8	185	9	0	5	25	207	23	0	19	634	2853
8:15 AM	29	23	2	0	7	31	60	0	0	6	5	193	15	1	4	17	198	35	0	25	651	2809
8:30 AM	24	37	1	0	12	33	40	0	0	5	11	161	10	0	9	12	213	32	1	9	610	2607
8:45 AM	27	30	5	0	4	41	48	1	0	6	6	157	15	0	6	19	215	23	0	17	620	2515
Peak 15-Min Flowrates	Northbound					Southbound					Eastbound					Westbound					Total	
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
All Vehicles	136	132	68	0	40	136	180	24	0	16	12	928	108	4	32	64	1156	296	4	96	3432	
Heavy Trucks	4	4	0			0	0	0			4	68	4			0	28	8			120	
Pedestrians		0					0					0					0				0	
Bicycles		0					0					0					0				0	
Railroad																						
Stopped Buses																						

Comments:

LOCATION: I-4 SB Ramps -- State Hwy 472
CITY/STATE: DeLand, FL

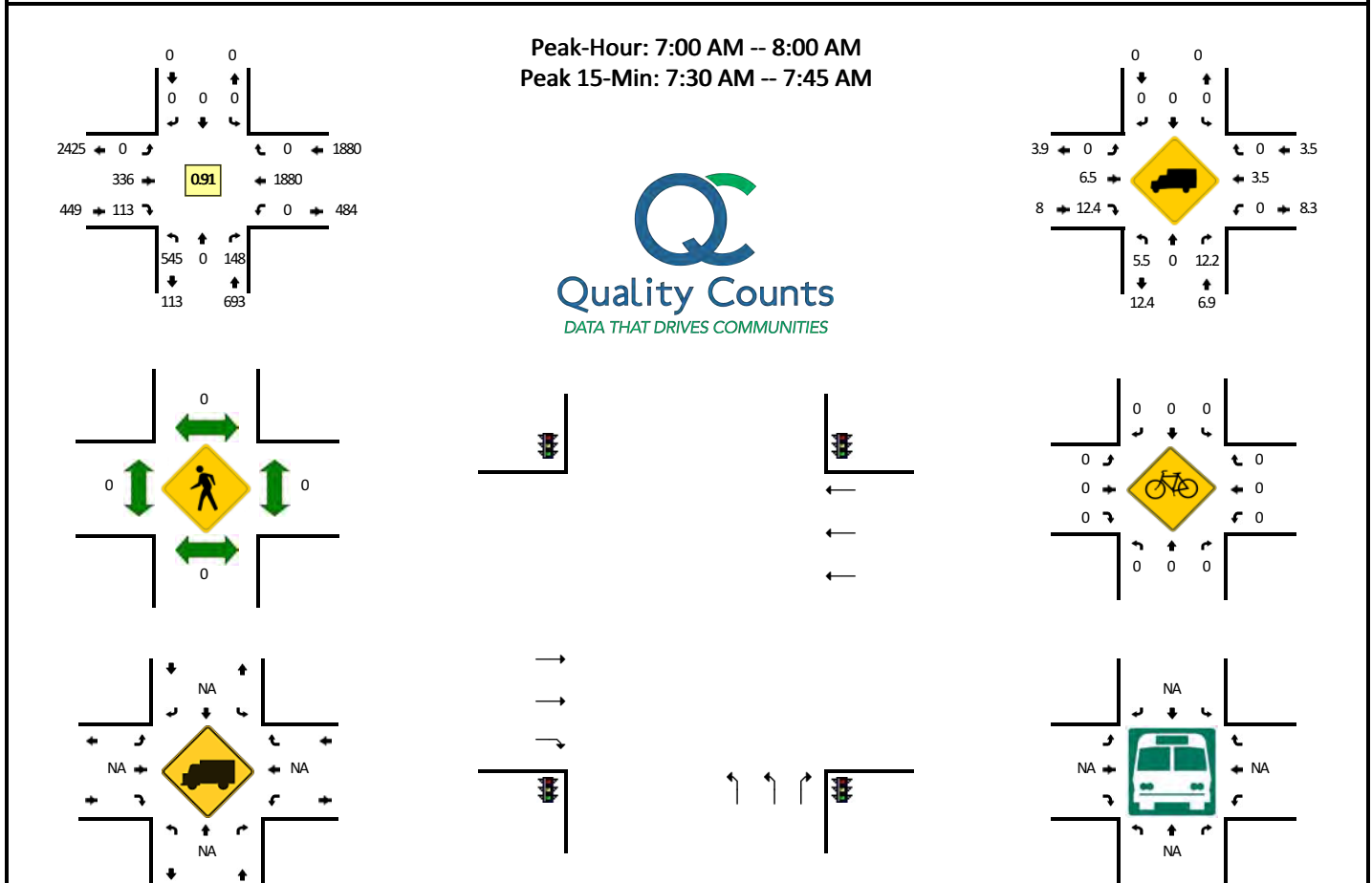
QC JOB #: 15005907
DATE: Thu, Jun 6 2019



R* = RTOR

15-Min Count Period Beginning At	I-4 SB Ramps (Northbound)					I-4 SB Ramps (Southbound)					State Hwy 472 (Eastbound)					State Hwy 472 (Westbound)					Total	Hourly Totals
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
7:00 AM	0	0	0	0	0	18	0	4	0	14	0	83	168	0	0	192	221	0	1	0	701	
7:15 AM	0	0	0	0	0	22	0	2	0	20	0	98	201	0	0	220	258	0	0	0	821	
7:30 AM	0	0	0	0	0	32	0	12	0	25	0	82	201	0	0	206	339	0	0	0	897	
7:45 AM	0	0	0	0	0	47	0	11	0	34	0	77	143	0	0	162	288	0	0	0	762	3181
8:00 AM	0	0	0	0	0	32	0	5	0	29	0	86	141	0	0	164	222	0	0	0	679	3159
8:15 AM	0	0	0	0	0	16	0	7	0	18	0	73	144	0	0	161	244	0	0	0	663	3001
8:30 AM	0	0	0	0	0	26	0	6	0	16	0	65	152	0	0	148	241	0	1	0	655	2759
8:45 AM	0	0	0	0	0	24	0	4	0	18	0	75	132	0	0	113	241	0	0	0	607	2604
Peak 15-Min Flowrates	Northbound					Southbound					Eastbound					Westbound					Total	
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
All Vehicles	0	0	0	0	0	128	0	148	0	100	0	328	804	0	0	824	1356	0	0	0	3688	
Heavy Trucks	0	0	0			12	0	0			0	24	40			12	40	0			128	
Pedestrians																					0	
Bicycles	0	0	0			0	0	0			0	0	0			0	0	0			0	
Railroad																						
Stopped Buses																						

Comments:

LOCATION: I-4 NB Ramps -- State Hwy 472**CITY/STATE:** Deltona, FL**QC JOB #:** 15005909**DATE:** Tue, Jun 11 2019

R* = RTOR

15-Min Count Period Beginning At	I-4 NB Ramps (Northbound)					I-4 NB Ramps (Southbound)					State Hwy 472 (Eastbound)					State Hwy 472 (Westbound)					Total	Hourly Totals
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
7:00 AM	89	0	32	0	0	0	0	0	0	0	0	45	37	0	0	0	420	0	0	0	623	
7:15 AM	126	0	39	0	0	0	0	0	0	0	0	73	27	0	0	0	531	0	0	0	796	
7:30 AM	180	0	35	0	0	0	0	0	0	0	0	98	30	0	0	0	484	0	0	0	827	
7:45 AM	150	0	42	0	0	0	0	0	0	0	0	120	19	0	0	0	445	0	0	0	776	3022
8:00 AM	118	0	44	0	0	0	0	0	0	0	0	74	28	0	0	0	323	0	1	0	588	2987
8:15 AM	111	0	40	0	0	0	0	0	0	0	0	95	30	0	0	0	375	0	0	0	651	2842
8:30 AM	129	0	47	0	0	0	0	0	0	0	0	93	20	0	0	0	323	0	0	0	612	2627
8:45 AM	111	0	40	0	0	0	0	0	0	0	0	115	15	0	0	0	296	0	0	0	577	2428
Peak 15-Min Flowrates	Northbound					Southbound					Eastbound					Westbound					Total	
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
All Vehicles	720	0	140	0	0	0	0	0	0	0	0	392	120	0	0	0	1936	0	0	0	3308	
Heavy Trucks	32	0	16			0	0	0			0	20	4			0	84	0			156	
Pedestrians																					0	
Bicycles	0	0	0			0	0	0			0	0	0			0	0	0			0	
Railroad																						
Stopped Buses																						

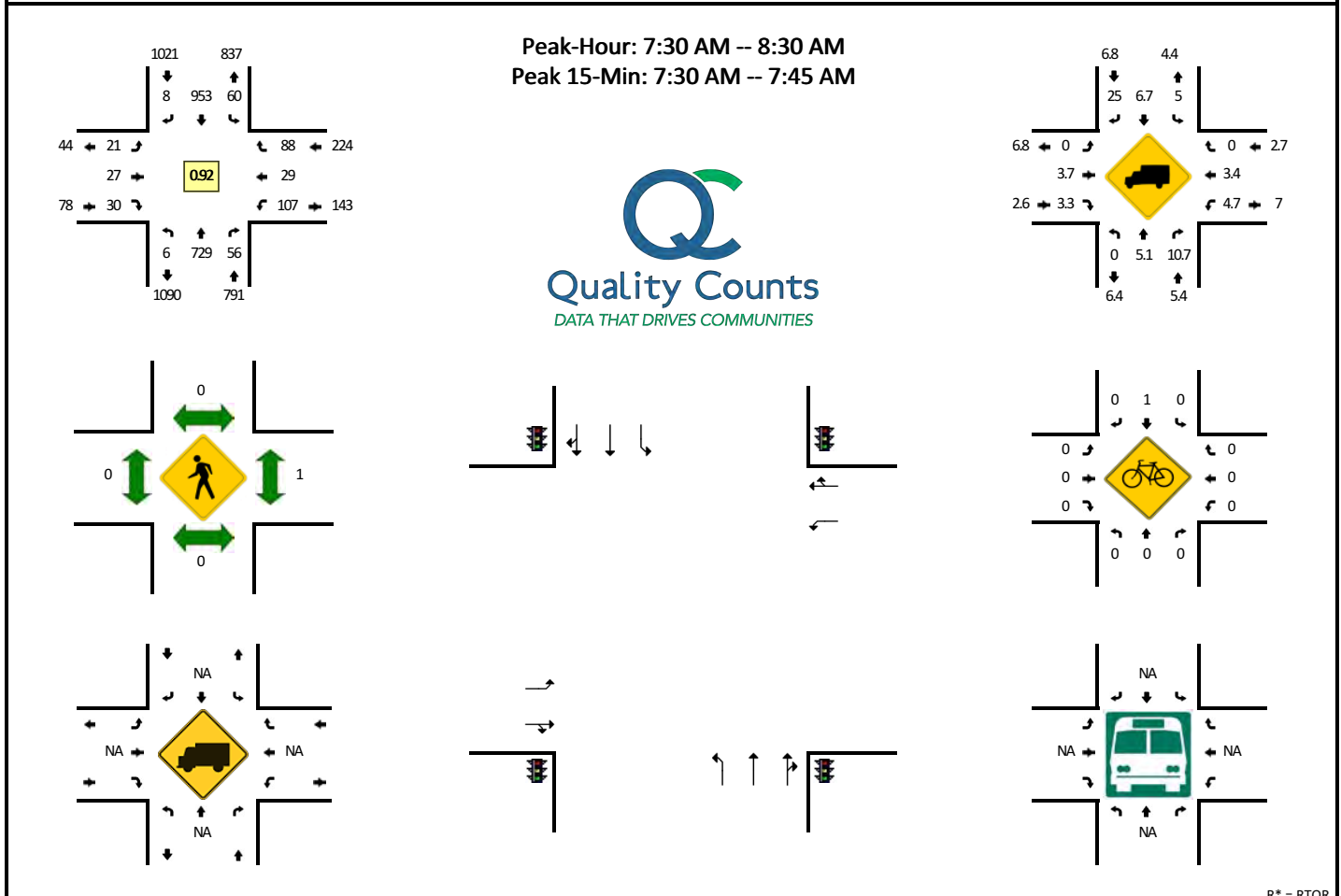
Comments:

Report generated on 6/14/2019 4:04 PM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>) 1-877-580-2212

LOCATION: US 17/92 -- Graves Ave
CITY/STATE: Volusia, FL

QC JOB #: 15012207
DATE: Wed, Jun 19 2019



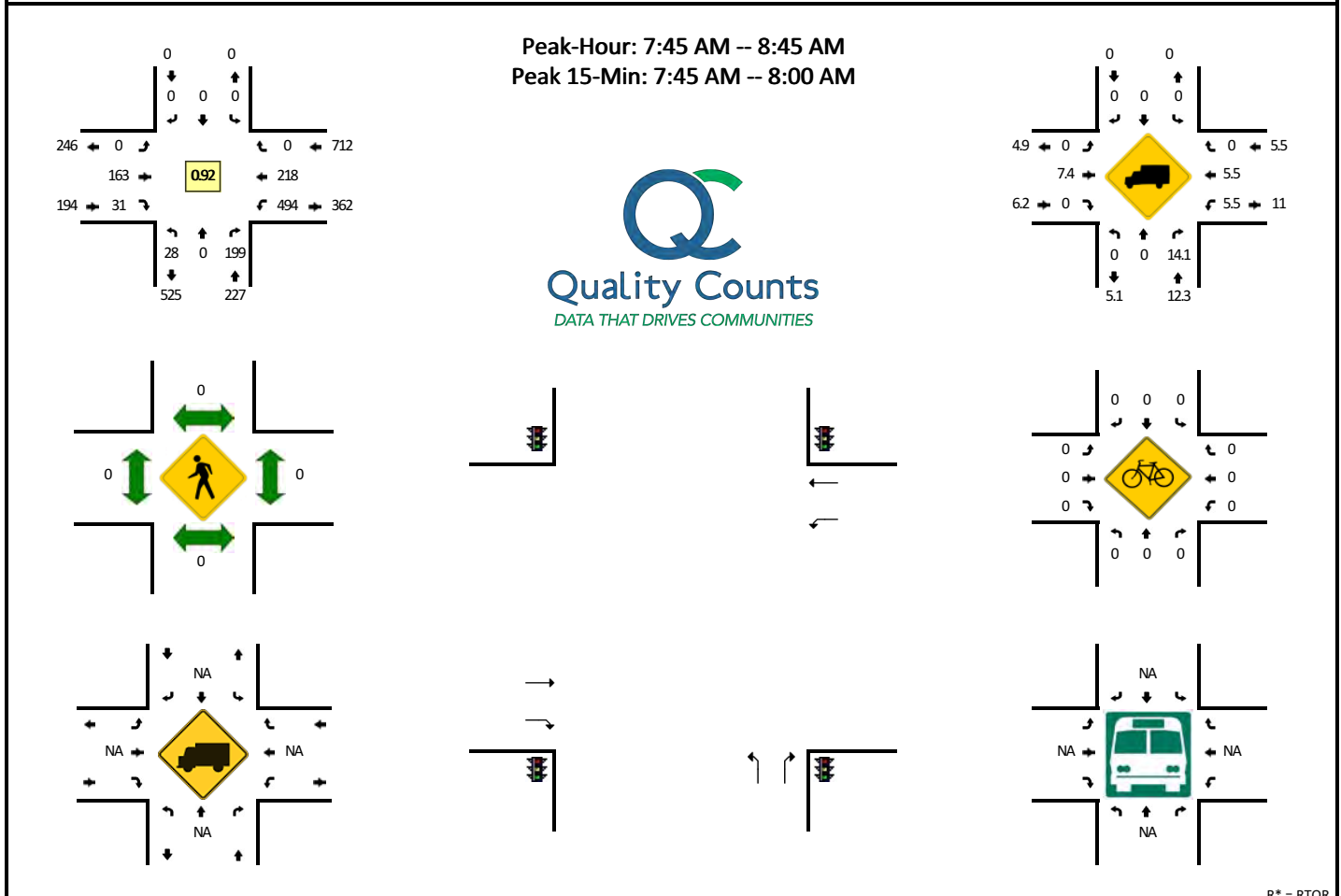
R* = RTOR

15-Min Count Period Beginning At	US 17/92 (Northbound)					US 17/92 (Southbound)					Graves Ave (Eastbound)					Graves Ave (Westbound)					Total	Hourly Totals
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
7:00 AM	1	121	8	0	1	11	171	1	0	0	5	8	4	0	4	16	2	8	0	10	371	
7:15 AM	0	160	17	0	0	16	218	1	0	0	6	10	9	0	0	18	1	16	1	6	479	
7:30 AM	1	210	13	0	1	14	255	2	0	0	5	6	6	1	2	29	8	19	0	2	574	
7:45 AM	1	181	13	0	2	12	275	1	0	1	5	8	7	0	5	34	4	8	0	14	571	1995
8:00 AM	2	158	11	0	1	21	212	0	0	0	5	7	2	0	2	20	12	13	0	13	479	2103
8:15 AM	2	180	12	0	3	13	211	4	0	0	5	6	2	0	4	24	5	8	0	11	490	2114
8:30 AM	0	168	17	0	3	18	226	1	0	0	3	3	1	0	6	12	3	4	0	10	475	2015
8:45 AM	1	181	18	0	1	17	230	2	0	0	4	6	1	0	3	35	0	2	0	13	514	1958
Peak 15-Min Flowrates	Northbound					Southbound					Eastbound					Westbound					Total	
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
All Vehicles	4	840	56	0	4	56	1020	8	0	0	20	24	32	4	8	116	32	84	0	8	2316	
Heavy Trucks	0	52	0			4	24	0			0	0	0			8	0	0			88	
Pedestrians	0	0				0					0					0					0	
Bicycles	0	0	0			0	1	0			0	0	0			0	0	0			1	
Railroad																						
Stopped Buses																						

Comments:

LOCATION: Veterans Memorial Pkwy -- E Graves Ave
CITY/STATE: Orange City, FL

QC JOB #: 15005923
DATE: Thu, Jun 6 2019



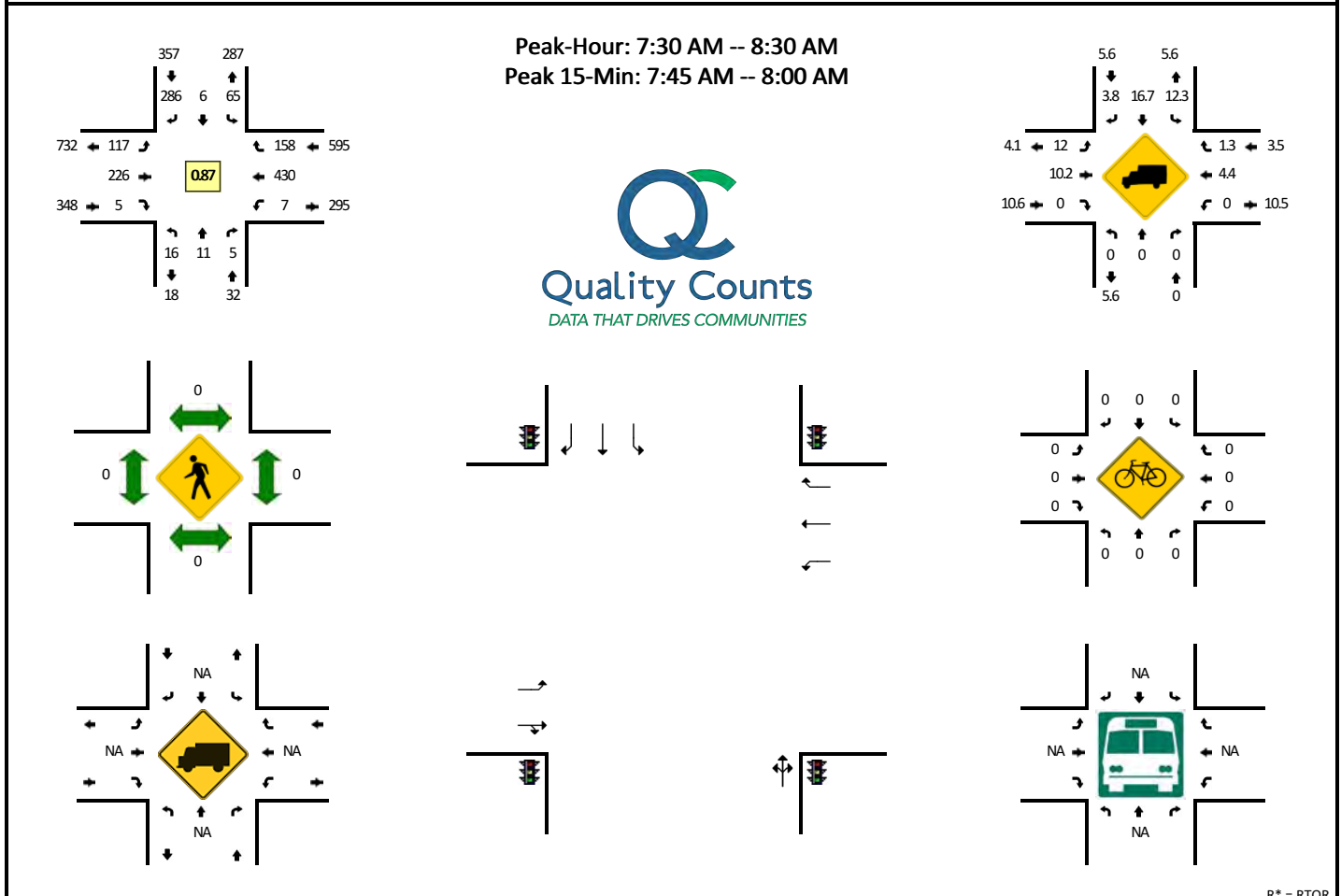
R* = RTOR

15-Min Count Period Beginning At	Veterans Memorial Pkwy (Northbound)					Veterans Memorial Pkwy (Southbound)					E Graves Ave (Eastbound)					E Graves Ave (Westbound)					Total	Hourly Totals
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
7:00 AM	1	0	29	0	21	0	0	0	0	0	0	37	2	0	5	87	35	0	0	0	217	
7:15 AM	6	0	36	0	14	0	0	0	0	0	0	49	3	0	2	86	53	0	0	0	249	
7:30 AM	3	0	37	0	14	0	0	0	0	0	0	37	5	0	3	108	53	0	0	0	260	
7:45 AM	5	0	39	0	15	0	0	0	0	0	0	42	2	0	7	138	59	0	0	0	307	1033
8:00 AM	8	0	40	0	12	0	0	0	0	0	0	43	1	0	4	114	46	0	0	0	268	1084
8:15 AM	7	0	30	0	6	0	0	0	0	0	0	32	3	0	6	139	62	0	0	0	285	1120
8:30 AM	8	0	40	0	17	0	0	0	0	0	0	46	6	0	2	103	51	0	0	0	273	1133
8:45 AM	4	0	28	0	11	0	0	0	0	0	0	28	3	0	4	131	47	0	0	0	256	1082
Peak 15-Min Flowrates	Northbound					Southbound					Eastbound					Westbound					Total	
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
All Vehicles	20	0	216	0	60	0	0	0	0	0	0	168	36	0	28	552	236	0	0	0	1316	
Heavy Trucks	0	0	28			0	0	0			0	12	0			40	16	0			96	
Pedestrians			0					0				0					0				0	
Bicycles	0	0	0			0	0	0			0	0	0			0	0	0			0	
Railroad																						
Stopped Buses																						

Comments:

LOCATION: N Kentucky Ave -- E Graves Ave
CITY/STATE: Orange City, FL

QC JOB #: 15005921
DATE: Thu, Jun 6 2019

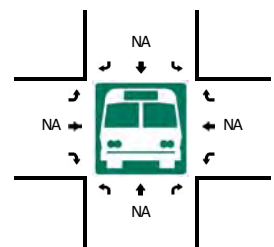
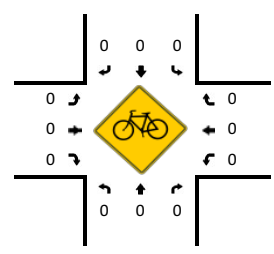
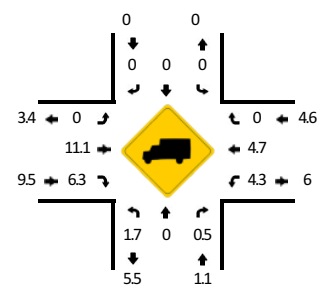


R* = RTOR

15-Min Count Period Beginning At	N Kentucky Ave (Northbound)					N Kentucky Ave (Southbound)					E Graves Ave (Eastbound)					E Graves Ave (Westbound)					Total	Hourly Totals
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
7:00 AM	3	4	3	0	0	16	0	14	2	29	29	52	0	0	0	2	83	34	0	9	280	
7:15 AM	0	4	1	0	3	18	0	10	1	32	35	66	0	0	0	4	88	36	0	8	306	
7:30 AM	6	3	1	0	0	15	2	36	0	30	30	55	0	0	0	0	95	31	0	12	316	
7:45 AM	3	1	0	0	0	16	1	47	0	24	40	66	0	0	0	2	132	33	0	16	381	1283
8:00 AM	4	2	0	0	1	18	1	31	1	37	21	67	3	0	0	1	76	25	0	7	295	1298
8:15 AM	3	5	2	0	1	15	2	57	0	24	26	38	2	0	0	4	127	30	0	4	340	1332
8:30 AM	4	2	0	0	4	20	1	25	0	24	32	64	1	0	1	2	94	36	0	3	313	1329
8:45 AM	6	6	2	0	1	20	0	41	0	27	24	53	1	0	0	5	105	20	0	12	323	1271
Peak 15-Min Flowrates	Northbound					Southbound					Eastbound					Westbound					Total	
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
All Vehicles	12	4	0	0	0	64	4	284	0	96	160	264	0	0	0	8	528	196	0	64	1684	
Heavy Trucks	0	0	0			4	4	24			24	24	0			0	20	4			104	
Pedestrians			0					0					0					0			0	
Bicycles	0	0	0			0	0	0			0	0	0			0	0	0			0	
Railroad																						
Stopped Buses																						

Comments:

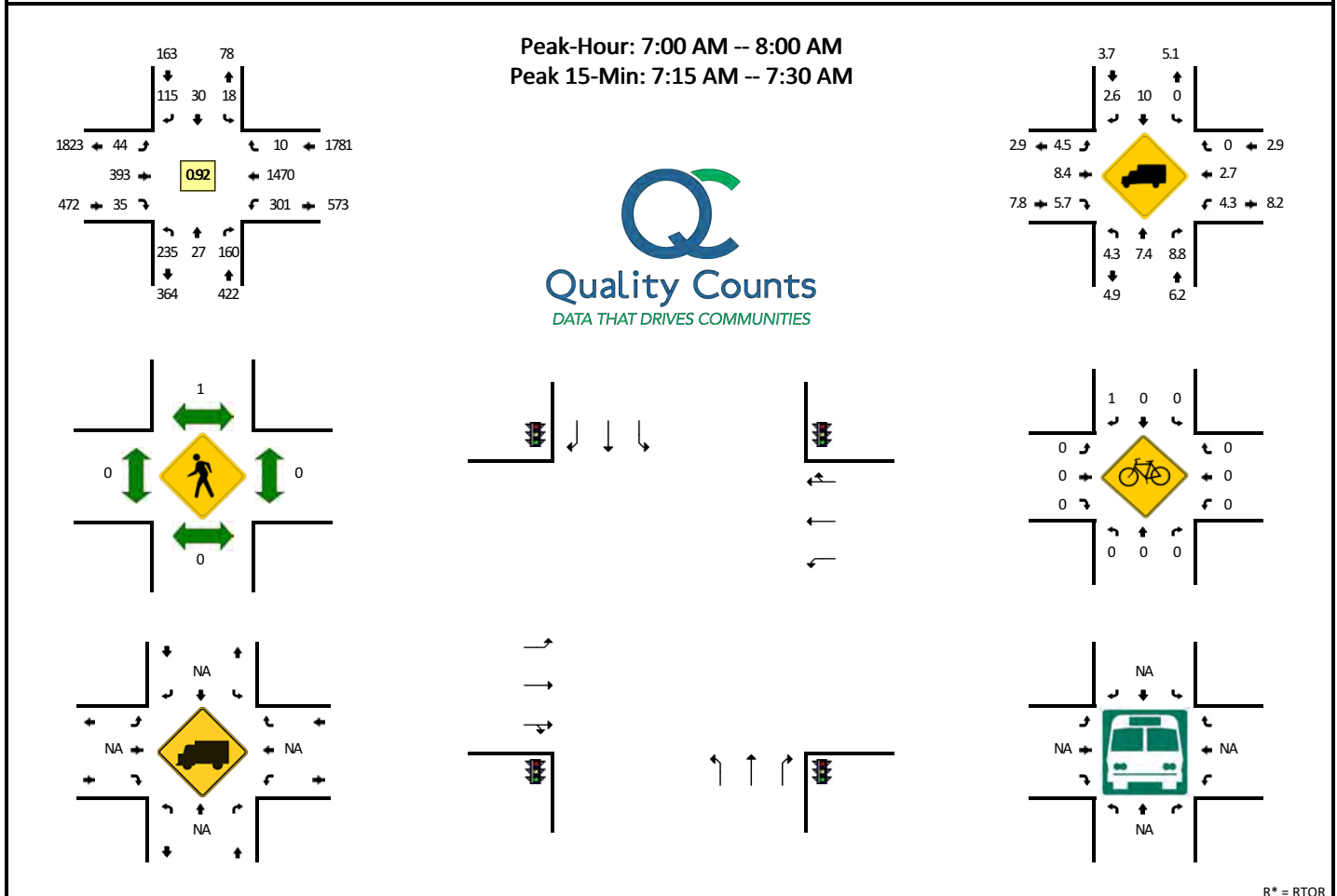
QC JOB #: 15005919
DATE: Thu, Jun 6 2019

[illegible]

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>) 1-877-580-2212

LOCATION: E Graves Ave/Halifax Crossing Blvd -- State Hwy 472
CITY/STATE: Deltona, FL

QC JOB #: 15005911
DATE: Thu, Jun 6 2019



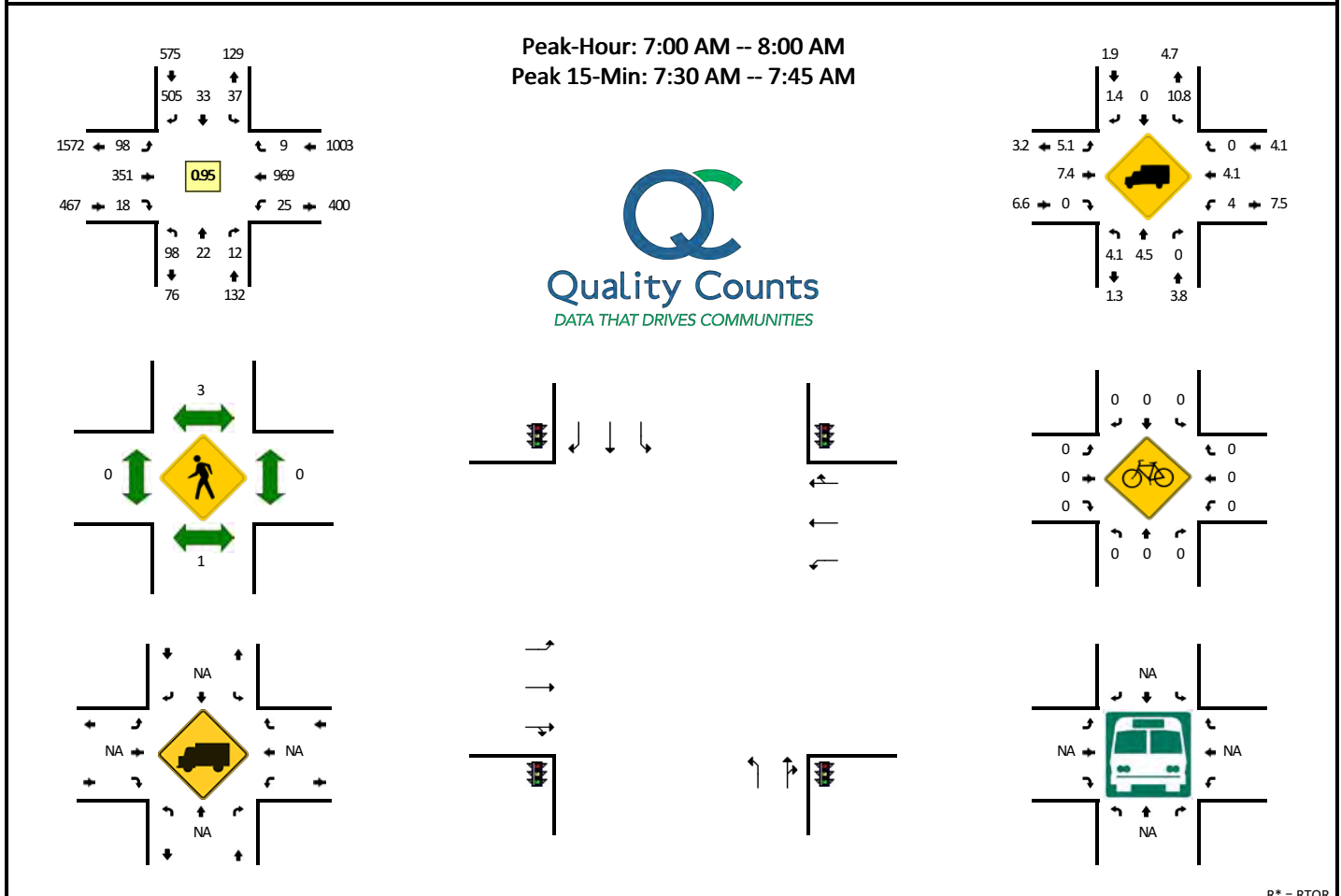
R* = RTOR

15-Min Count Period Beginning At	E Graves Ave/Halifax Crossing Blvd (Northbound)					E Graves Ave/Halifax Crossing Blvd (Southbound)					State Hwy 472 (Eastbound)					State Hwy 472 (Westbound)					Total	Hourly Totals
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
7:00 AM	53	8	29	0	0	4	7	10	0	30	13	89	4	0	2	62	332	2	2	0	647	
7:15 AM	77	8	37	0	0	6	10	9	0	16	9	99	6	0	0	68	421	2	0	0	768	
7:30 AM	59	8	43	0	0	6	9	7	0	20	11	98	6	2	1	83	392	2	0	0	747	
7:45 AM	46	3	51	0	0	2	4	5	0	18	8	107	14	1	2	86	325	4	0	0	676	2838
8:00 AM	34	10	39	0	0	6	8	4	0	30	10	119	8	0	1	72	289	3	2	0	635	2826
8:15 AM	30	12	39	0	0	8	6	4	0	23	8	101	9	0	1	106	332	2	1	0	682	2740
8:30 AM	38	5	55	0	0	6	7	9	0	12	12	104	11	1	0	62	295	4	0	1	622	2615
8:45 AM	14	2	67	0	0	10	3	0	0	16	9	111	10	1	4	94	235	2	0	0	578	2517
Peak 15-Min Flowrates	Northbound					Southbound					Eastbound					Westbound					Total	
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
All Vehicles	308	32	148	0	0	24	40	100	0	64	36	396	24	0	0	272	1684	8	0	0	3136	
Heavy Trucks	16	8	20			0	0	4			8	40	0			20	40	0			156	
Pedestrians		0					0					0					0				0	
Bicycles		0					0					0					0				0	
Railroad																						
Stopped Buses																						

Comments:

LOCATION: Catalina Blvd -- State Hwy 472
CITY/STATE: Deltona, FL

QC JOB #: 15005913
DATE: Tue, Jun 11 2019



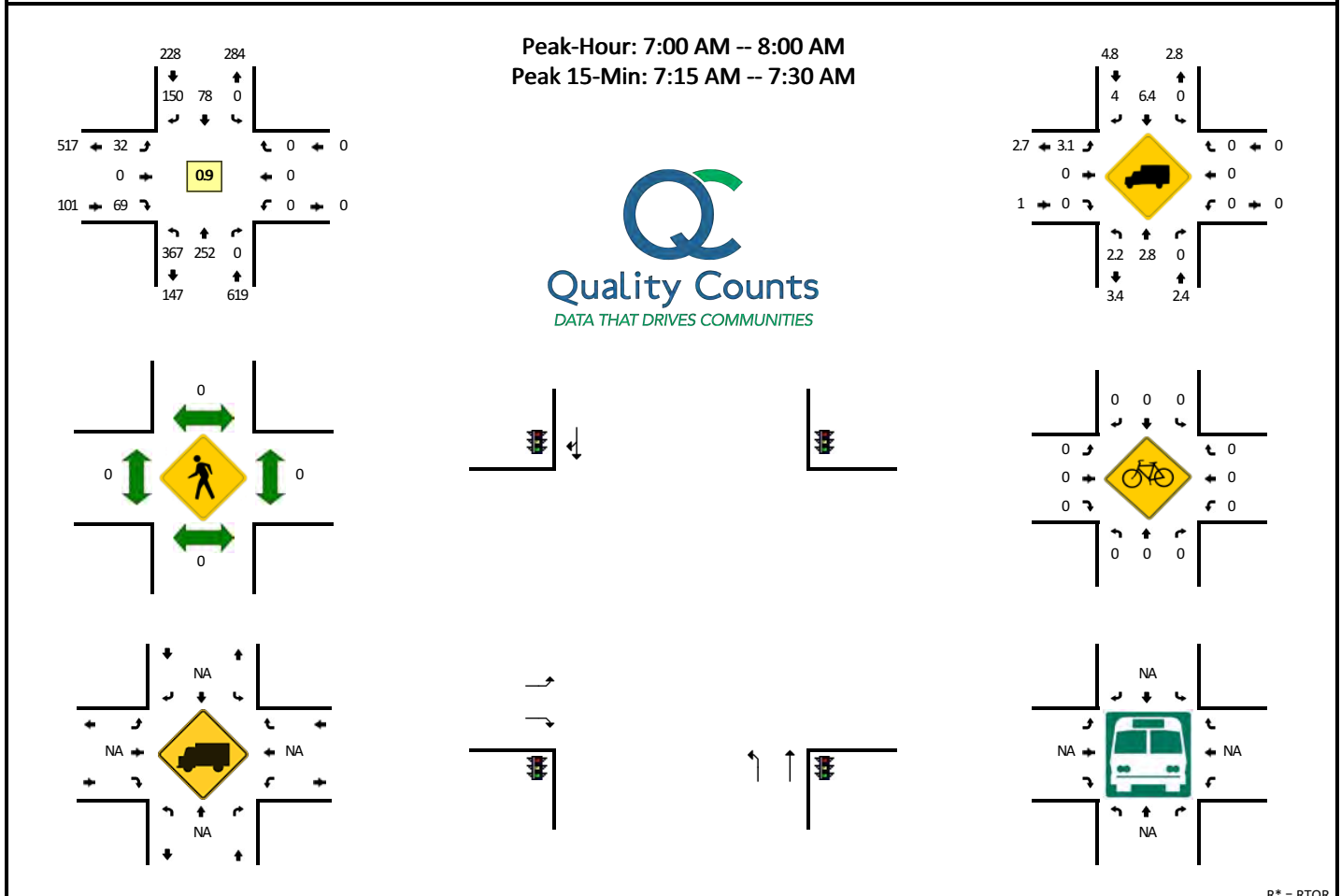
R* = RTOR

15-Min Count Period Beginning At	Catalina Blvd (Northbound)					Catalina Blvd (Southbound)					State Hwy 472 (Eastbound)					State Hwy 472 (Westbound)					Total	Hourly Totals
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
7:00 AM	31	3	3	0	1	10	7	48	0	62	17	70	5	0	0	6	225	0	0	0	488	
7:15 AM	19	7	1	0	0	10	9	86	0	62	17	87	4	0	0	6	257	1	0	0	566	
7:30 AM	20	5	1	0	2	9	10	83	0	57	30	89	3	0	0	6	255	4	0	0	574	
7:45 AM	28	7	4	0	0	8	7	56	0	51	34	105	5	0	1	7	232	4	0	0	549	2177
8:00 AM	20	4	2	0	2	7	5	34	0	72	26	94	3	0	0	8	204	3	1	0	485	2174
8:15 AM	19	5	3	0	1	18	17	46	0	56	21	103	4	0	1	3	184	9	0	0	490	2098
8:30 AM	13	4	1	0	3	13	7	34	0	67	33	93	7	0	0	10	171	10	0	1	467	1991
8:45 AM	13	9	5	0	3	7	13	12	0	79	28	105	5	1	0	5	171	8	0	0	464	1906
Peak 15-Min Flowrates	Northbound					Southbound					Eastbound					Westbound					Total	
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
All Vehicles	80	20	12	0	8	36	40	560	0	228	120	356	12	0	0	24	1020	16	0	0	2532	
Heavy Trucks	4	0	0			0	0	4			8	16	0			0	28	0			60	
Pedestrians																					0	
Bicycles	0	0	0			0	0	0			0	0	0			0	0	0			0	
Railroad																						
Stopped Buses																						

Comments:

LOCATION: Lake Helen Osteen Rd -- Catalina Blvd
CITY/STATE: Deltona, FL

QC JOB #: 15005915
DATE: Thu, Jun 6 2019



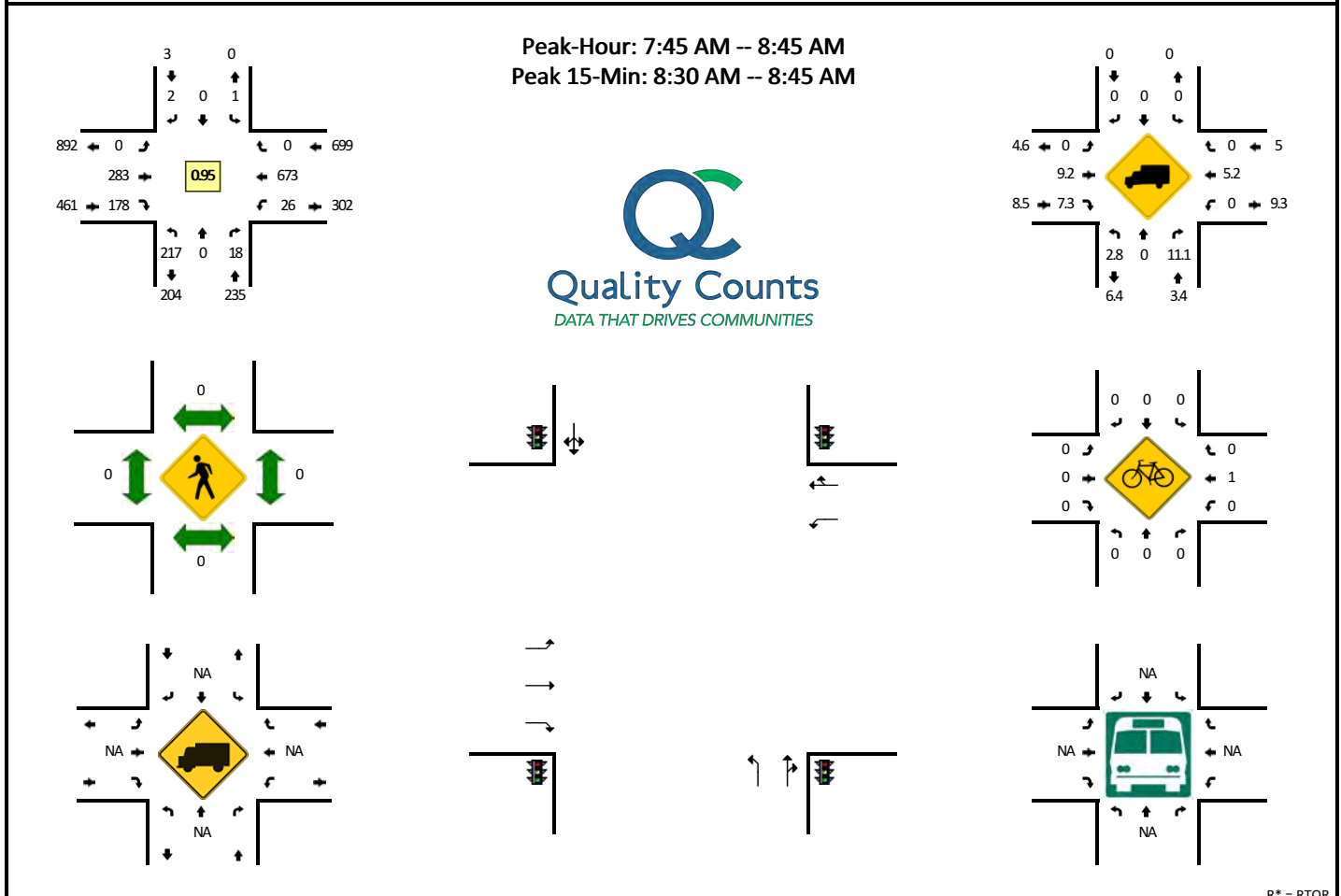
R* = RTOR

15-Min Count Period Beginning At	Lake Helen Osteen Rd (Northbound)					Lake Helen Osteen Rd (Southbound)					Catalina Blvd (Eastbound)					Catalina Blvd (Westbound)					Total	Hourly Totals
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
7:00 AM	93	63	0	0	0	0	24	36	0	3	4	0	0	0	13	0	0	0	0	0	236	
7:15 AM	113	64	0	0	0	0	20	31	0	4	8	0	2	0	21	0	0	0	0	0	263	
7:30 AM	89	78	0	0	0	0	16	31	0	5	8	0	3	0	16	0	0	0	0	0	246	
7:45 AM	72	47	0	0	0	0	18	33	0	7	12	0	1	0	13	0	0	0	0	0	203	948
8:00 AM	56	39	0	0	0	0	20	45	0	2	14	0	3	0	19	0	0	0	0	0	198	910
8:15 AM	92	31	0	0	0	0	17	23	0	4	7	0	3	0	11	0	0	0	0	0	188	835
8:30 AM	67	28	0	0	0	0	15	20	0	5	7	0	4	0	17	0	0	0	0	0	163	752
8:45 AM	62	36	0	0	0	0	19	26	0	5	14	0	6	0	23	0	0	0	0	0	191	740
Peak 15-Min Flowrates	Northbound					Southbound					Eastbound					Westbound					Total	
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
All Vehicles	452	256	0	0	0	0	80	140	0	16	32	0	92	0	84	0	0	0	0	0	1152	
Heavy Trucks	12	12	0			0	8	8			0	0	0			0	0	0			40	
Pedestrians		0					0					0					0				0	
Bicycles	0	0	0			0	0	0			0	0	0			0	0	0			0	
Railroad																						
Stopped Buses																						

Comments:

LOCATION: Providence Blvd -- Howland Blvd
CITY/STATE: Deltona, FL

QC JOB #: 15005951
DATE: Thu, Jun 13 2019



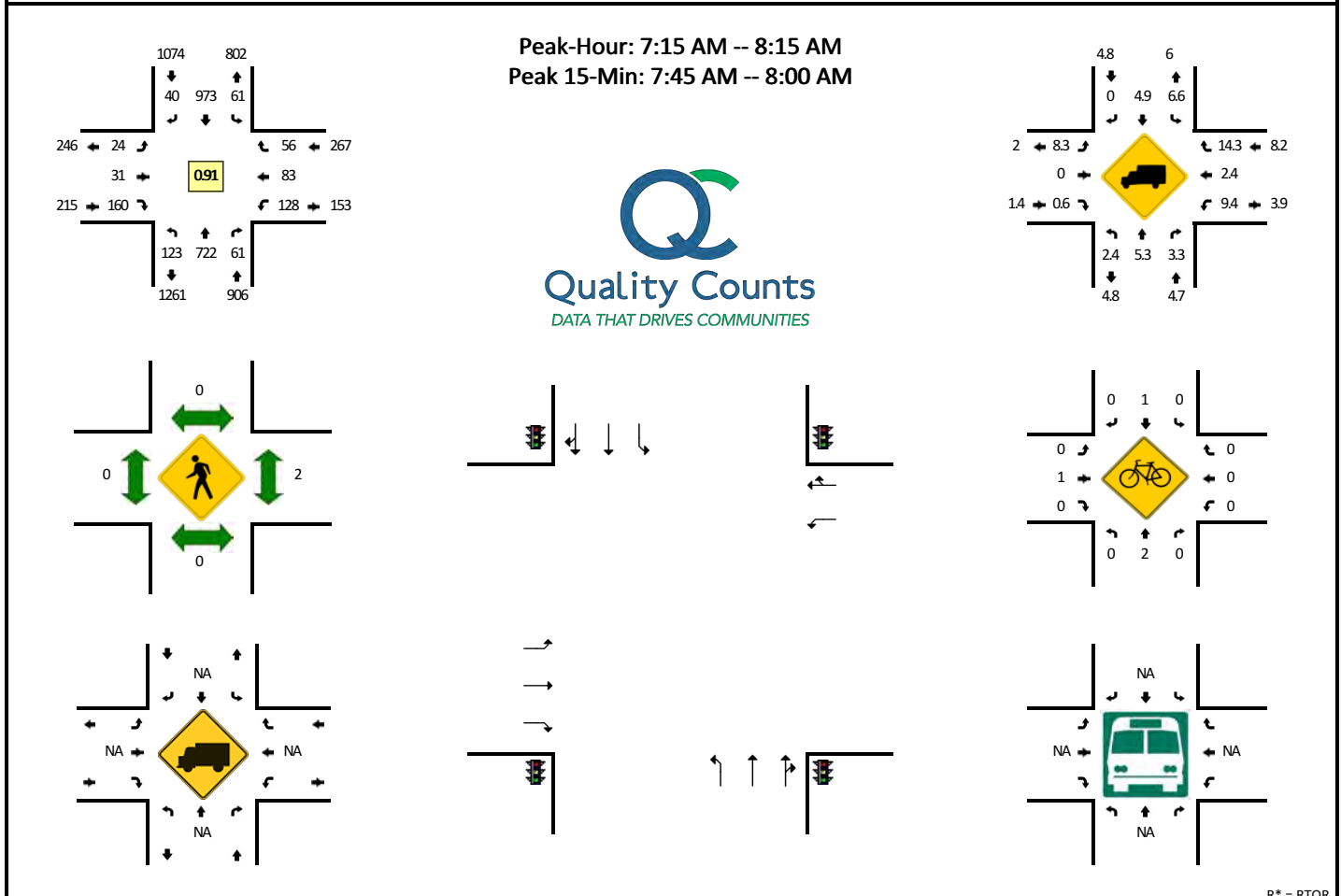
R* = RTOR

15-Min Count Period Beginning At	Providence Blvd (Northbound)					Providence Blvd (Southbound)					Howland Blvd (Eastbound)					Howland Blvd (Westbound)					Total	Hourly Totals
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
7:00 AM	52	0	1	0	3	1	0	1	0	0	0	54	21	0	5	3	179	0	0	0	320	
7:15 AM	55	1	1	0	1	0	0	0	0	0	0	69	15	0	4	4	213	0	0	0	363	
7:30 AM	46	0	0	0	4	0	1	0	0	0	0	78	25	0	2	3	170	0	0	0	329	
7:45 AM	58	0	1	0	7	0	0	0	0	1	0	65	32	0	8	8	159	0	0	0	339	1351
8:00 AM	60	0	1	0	3	0	0	0	0	0	0	70	42	0	9	5	170	0	0	0	360	1391
8:15 AM	40	0	1	0	1	1	0	0	0	0	0	64	39	0	2	9	174	0	0	0	331	1359
8:30 AM	59	0	1	0	3	0	0	0	0	1	0	84	37	0	9	4	170	0	0	0	368	1398
8:45 AM	52	0	3	0	4	0	0	0	0	0	0	78	26	1	6	12	136	0	0	0	318	1377
Peak 15-Min Flowrates	Northbound					Southbound					Eastbound					Westbound					Total	
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
All Vehicles	236	0	16	0	12	0	0	4	0	4	0	336	184	0	36	16	680	0	0	0	1524	
Heavy Trucks	4	0	4			0	0	0			0	32	8			0	36	0			84	
Pedestrians		0					0					0					0				0	
Bicycles	0	0	0			0	0	0			0	0	0			0	0	0			0	
Railroad																						
Stopped Buses																						

Comments:

LOCATION: US 92 -- W Rhode Island Ave
CITY/STATE: Orange City, FL

QC JOB #: 15005929
DATE: Thu, Jun 6 2019



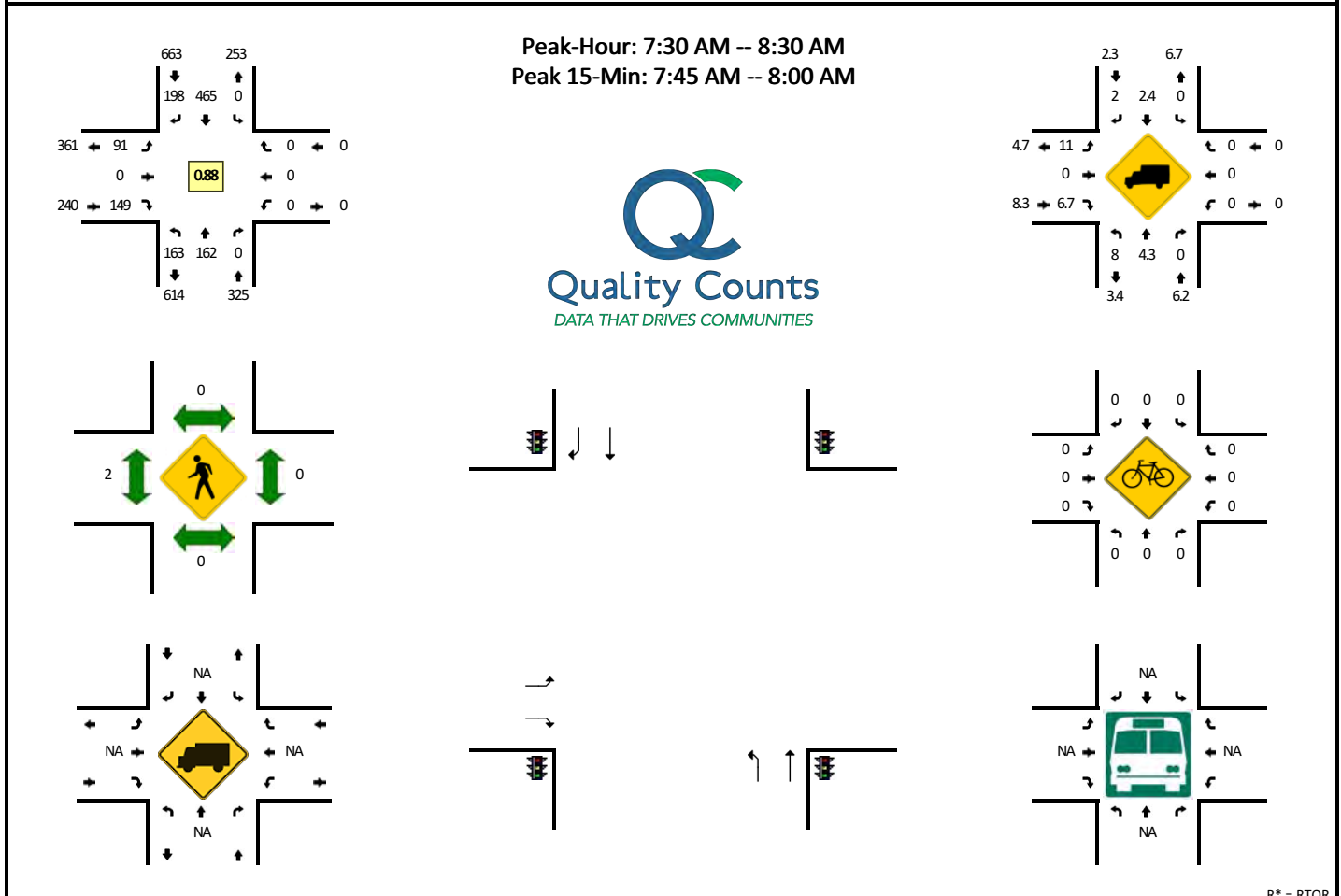
R* = RTOR

15-Min Count Period Beginning At	US 92 (Northbound)					US 92 (Southbound)					W Rhode Island Ave (Eastbound)					W Rhode Island Ave (Westbound)					Total	Hourly Totals
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
7:00 AM	6	129	9	0	0	12	188	2	0	1	6	11	4	0	32	17	12	5	0	4	438	
7:15 AM	17	161	12	0	1	15	230	3	0	0	3	2	2	0	29	27	16	7	0	5	530	
7:30 AM	30	204	11	0	0	14	238	7	0	1	9	10	8	0	29	38	20	8	0	4	631	
7:45 AM	43	178	21	0	6	13	258	18	0	3	5	7	6	0	39	34	25	13	0	6	675	2274
8:00 AM	33	179	8	0	2	19	247	7	0	1	7	12	11	0	36	29	22	9	0	4	626	2462
8:15 AM	18	148	23	0	1	15	223	4	0	0	6	3	2	0	23	28	11	5	0	3	513	2445
8:30 AM	16	179	24	0	4	18	228	4	0	1	9	10	3	0	18	41	8	6	0	6	575	2389
8:45 AM	18	194	24	0	2	12	222	5	0	0	6	5	10	0	28	44	10	7	0	6	593	2307
Peak 15-Min Flowrates	Northbound					Southbound					Eastbound					Westbound					Total	
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
All Vehicles	172	712	108	0	24	52	1032	84	0	12	20	28	180	0	156	136	100	76	0	24	2916	
Heavy Trucks	8	28	4			0	36	0			0	0	0			8	0	4			88	
Pedestrians			0					0					0					0			0	
Bicycles	0	0	0			0	0	0			0	0	0			0	0	0			0	
Railroad																						
Stopped Buses																						

Comments:

LOCATION: Veterans Memorial Pkwy -- E Rhode Island Ave
CITY/STATE: Orange City, FL

QC JOB #: 15005927
DATE: Tue, Jun 11 2019



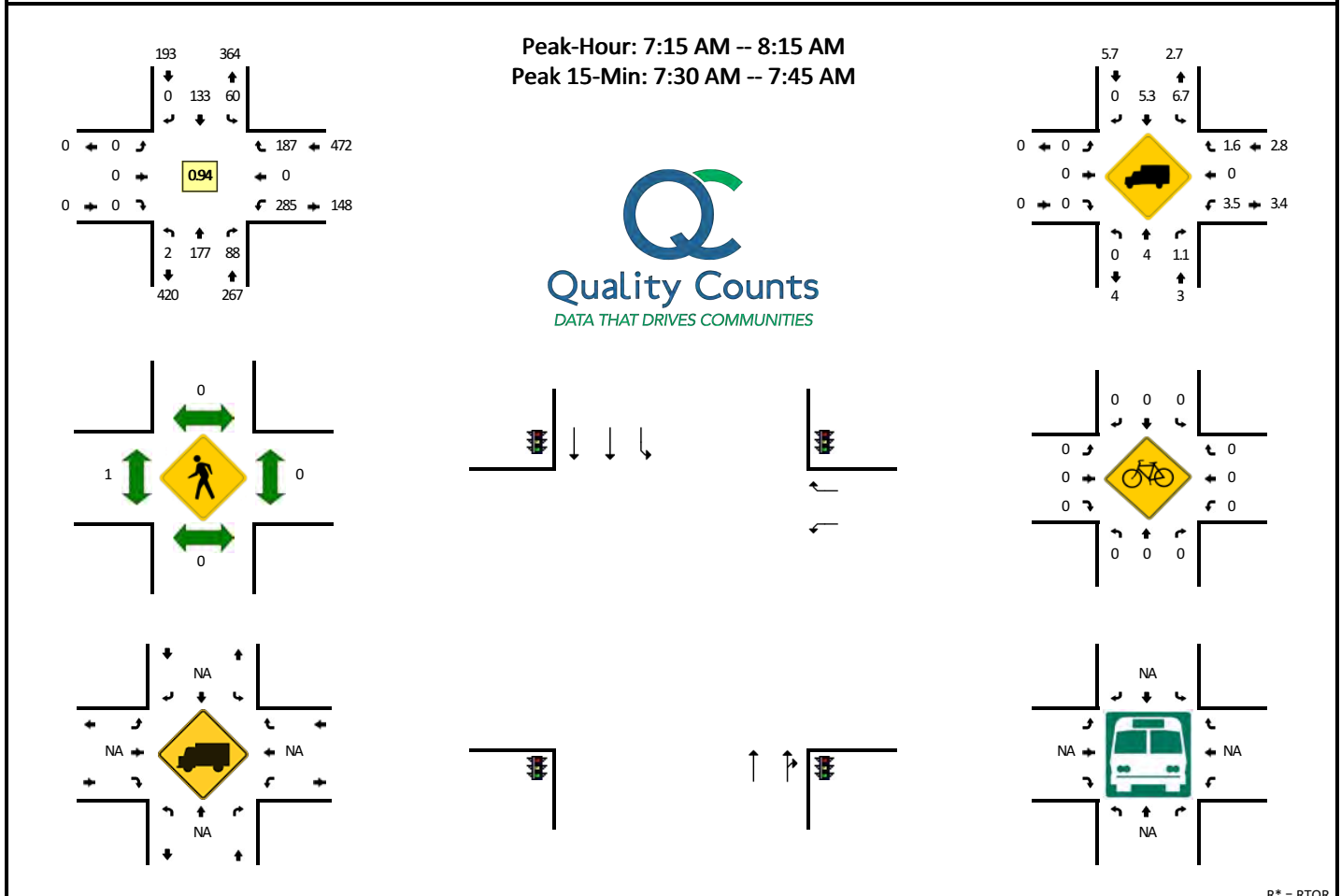
R* = RTOR

15-Min Count Period Beginning At	Veterans Memorial Pkwy (Northbound)					Veterans Memorial Pkwy (Southbound)					E Rhode Island Ave (Eastbound)					E Rhode Island Ave (Westbound)					Total	Hourly Totals
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
7:00 AM	29	30	0	0	0	0	81	26	0	0	25	0	10	0	14	0	0	0	0	0	215	
7:15 AM	35	38	0	0	0	0	94	30	0	0	21	0	15	0	19	0	0	0	0	0	252	
7:30 AM	38	37	0	0	0	0	116	55	0	0	24	0	12	0	16	0	0	0	0	0	298	
7:45 AM	51	38	0	0	0	0	113	62	0	0	25	0	20	0	39	0	0	0	0	0	348	1113
8:00 AM	38	43	0	0	0	0	127	33	0	0	25	0	20	0	18	0	0	0	0	0	304	1202
8:15 AM	36	44	0	0	0	0	109	48	0	0	17	0	6	0	18	0	0	0	0	0	278	1228
8:30 AM	42	40	0	0	0	0	127	33	0	0	21	0	13	0	17	0	0	0	0	0	293	1223
8:45 AM	38	52	0	0	0	0	115	36	0	0	27	0	17	0	9	0	0	0	0	0	294	1169
Peak 15-Min Flowrates	Northbound					Southbound					Eastbound					Westbound					Total	
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
All Vehicles	204	152	0	0	0	0	452	248	0	0	100	0	236	0	156	0	0	0	0	0	1548	
Heavy Trucks	16	0	0			0	12	4			12	0	16			0	0	0			60	
Pedestrians		0					0					0					0				0	
Bicycles	0	0	0			0	0	0			0	0	0			0	0	0			0	
Railroad																						
Stopped Buses																						

Comments:

LOCATION: N Normandy Blvd -- Elkcaml Blvd
CITY/STATE: Deltona, FL

QC JOB #: 15005943
DATE: Thu, Jun 6 2019



R* = RTOR

15-Min Count Period Beginning At	N Normandy Blvd (Northbound)					N Normandy Blvd (Southbound)					Elkcaml Blvd (Eastbound)					Elkcaml Blvd (Westbound)					Total	Hourly Totals
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
7:00 AM	0	45	8	0	9	11	20	0	0	0	0	0	0	0	0	62	0	17	0	19	191	
7:15 AM	0	41	15	0	4	17	38	0	0	0	0	0	0	0	0	68	0	34	0	24	241	
7:30 AM	0	63	13	0	3	13	24	0	0	0	0	0	0	0	0	82	0	36	0	15	249	
7:45 AM	0	41	16	1	10	18	47	0	0	0	0	0	0	0	0	68	0	21	0	20	242	923
8:00 AM	0	32	17	1	10	12	24	0	0	0	0	0	0	0	0	67	0	22	0	15	200	932
8:15 AM	0	36	11	0	16	9	32	0	0	0	0	0	0	0	0	72	0	17	0	15	208	899
8:30 AM	0	42	14	0	12	10	25	0	0	0	0	0	0	0	0	71	0	11	0	18	203	853
8:45 AM	0	46	22	0	10	11	43	0	0	0	0	0	0	0	0	70	0	10	0	16	228	839
Peak 15-Min Flowrates	Northbound					Southbound					Eastbound					Westbound					Total	
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
All Vehicles	0	252	64	0	12	52	96	0	0	0	0	0	0	0	0	328	0	204	0	60	1068	
Heavy Trucks	0	4	0			12	8	0			0	0	0			8	0	0			32	
Pedestrians		0					0					0					0				0	
Bicycles	0	0	0			0	0	0			0	0	0			0	0	0			0	
Railroad																						
Stopped Buses																						

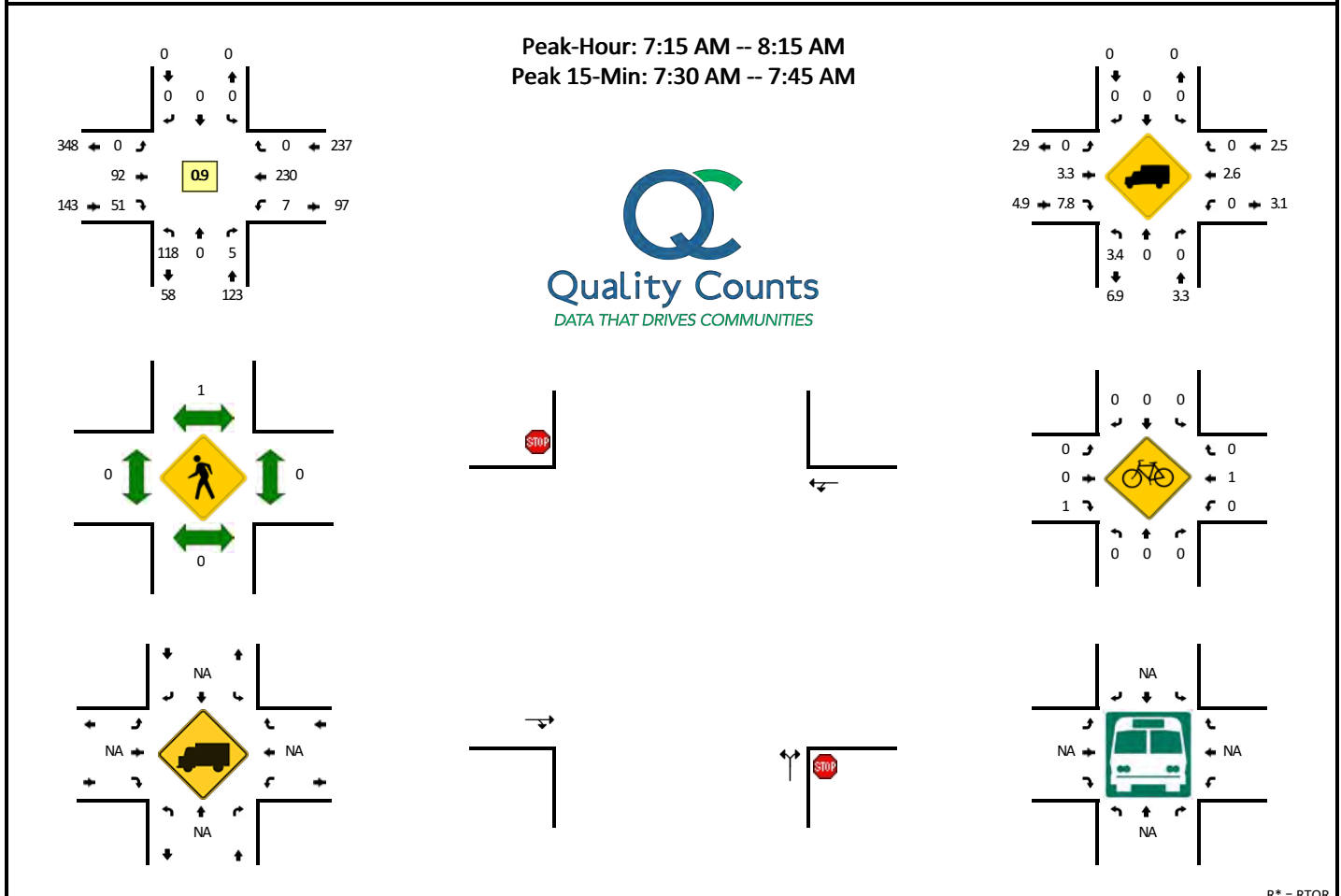
Comments:

Report generated on 6/14/2019 4:04 PM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>) 1-877-580-2212

LOCATION: Fort Smith Blvd -- Elkcaml Blvd
CITY/STATE: Deltona, FL

QC JOB #: 15005945
DATE: Thu, Jun 6 2019



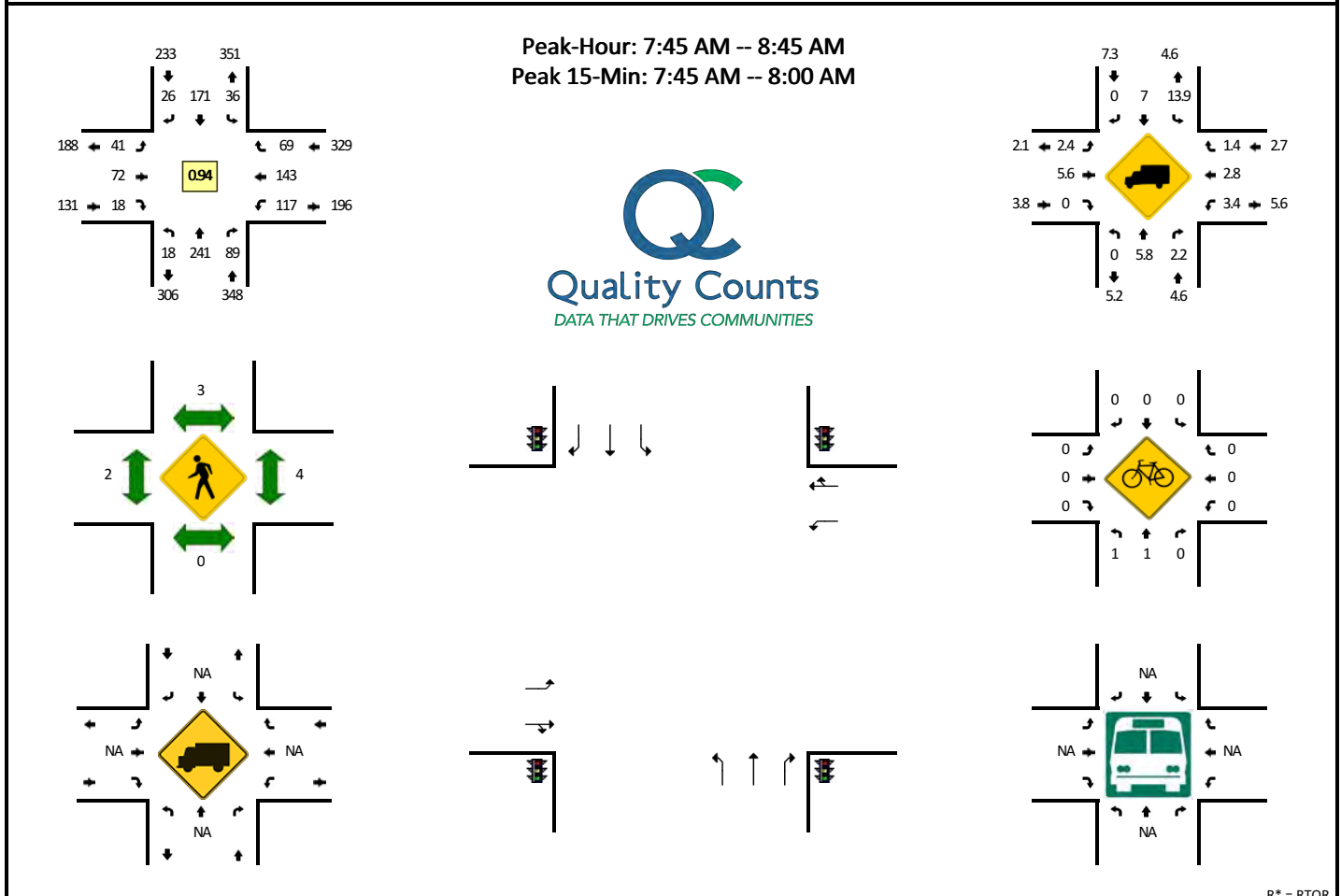
R* = RTOR

15-Min Count Period Beginning At	Fort Smith Blvd (Northbound)					Fort Smith Blvd (Southbound)					Elkcaml Blvd (Eastbound)					Elkcaml Blvd (Westbound)					Total	Hourly Totals
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
7:00 AM	29	0	0	0	0	0	0	0	0	0	0	18	14	0	0	1	43	0	1	0	106	
7:15 AM	40	0	0	0	0	0	0	0	0	0	0	15	14	0	0	3	48	0	0	0	120	
7:30 AM	34	0	3	0	0	0	0	0	0	0	0	20	17	0	0	2	64	0	0	0	140	
7:45 AM	20	0	1	0	0	0	0	0	0	0	0	29	10	0	0	0	59	0	0	0	119	485
8:00 AM	24	0	1	0	0	0	0	0	0	0	0	28	10	0	0	2	59	0	0	0	124	503
8:15 AM	27	0	1	0	0	0	0	0	0	0	0	22	8	0	0	0	46	0	0	0	104	487
8:30 AM	21	0	2	0	0	0	0	0	0	0	0	33	9	0	0	1	48	0	0	0	114	461
8:45 AM	17	0	1	0	0	0	0	0	0	0	0	29	11	0	0	1	56	0	0	0	115	457
Peak 15-Min Flowrates	Northbound					Southbound					Eastbound					Westbound					Total	
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
All Vehicles	136	0	12	0	0	0	0	0	0	0	0	80	68	0	0	8	256	0	0	0	560	
Heavy Trucks	0	0	0			0	0	0			0	12	0			0	8	0			20	
Pedestrians	0					0					0					0					0	
Bicycles	0	0	0			0	0	0			0	0	0			0	0	0			0	
Railroad																						
Stopped Buses																						

Comments:

LOCATION: Providence Blvd -- Elkcaml Blvd
CITY/STATE: Deltona, FL

QC JOB #: 15005947
DATE: Tue, Jun 11 2019

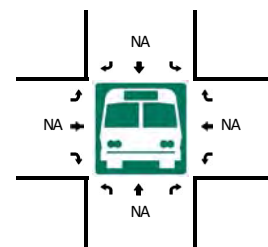


R* = RTOR

15-Min Count Period Beginning At	Providence Blvd (Northbound)					Providence Blvd (Southbound)					Elkcaml Blvd (Eastbound)					Elkcaml Blvd (Westbound)					Total	Hourly Totals
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
7:00 AM	6	43	8	0	9	5	22	2	0	3	8	13	2	0	3	25	28	13	0	5	195	
7:15 AM	6	45	8	0	9	6	29	3	0	0	10	16	6	0	2	23	41	3	0	3	210	
7:30 AM	10	50	7	0	11	5	47	2	0	2	6	19	3	0	0	27	38	9	0	3	239	
7:45 AM	4	80	11	0	10	6	57	5	0	2	8	17	3	0	2	20	41	10	0	2	278	922
8:00 AM	3	36	11	0	13	11	30	1	1	4	12	14	3	1	0	35	37	10	0	3	225	952
8:15 AM	5	67	6	0	10	12	43	4	0	5	9	19	4	0	2	28	34	16	0	6	270	1012
8:30 AM	6	58	15	0	13	6	41	3	0	2	11	22	1	0	3	34	31	15	0	7	268	1041
8:45 AM	4	49	10	0	14	9	38	2	0	6	8	20	2	0	1	39	35	5	0	2	244	1007
Peak 15-Min Flowrates	Northbound					Southbound					Eastbound					Westbound					Total	
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
All Vehicles	16	320	84	0	40	24	228	28	0	8	32	68	20	0	8	80	164	48	0	8	1176	
Heavy Trucks	0	28	0			8	16	0			0	0	0			4	4	0			60	
Pedestrians		0					0					0					0				0	
Bicycles	0	0	0			0	0	0			0	0	0			0	0	0			0	
Railroad																						
Stopped Buses																						

Comments:

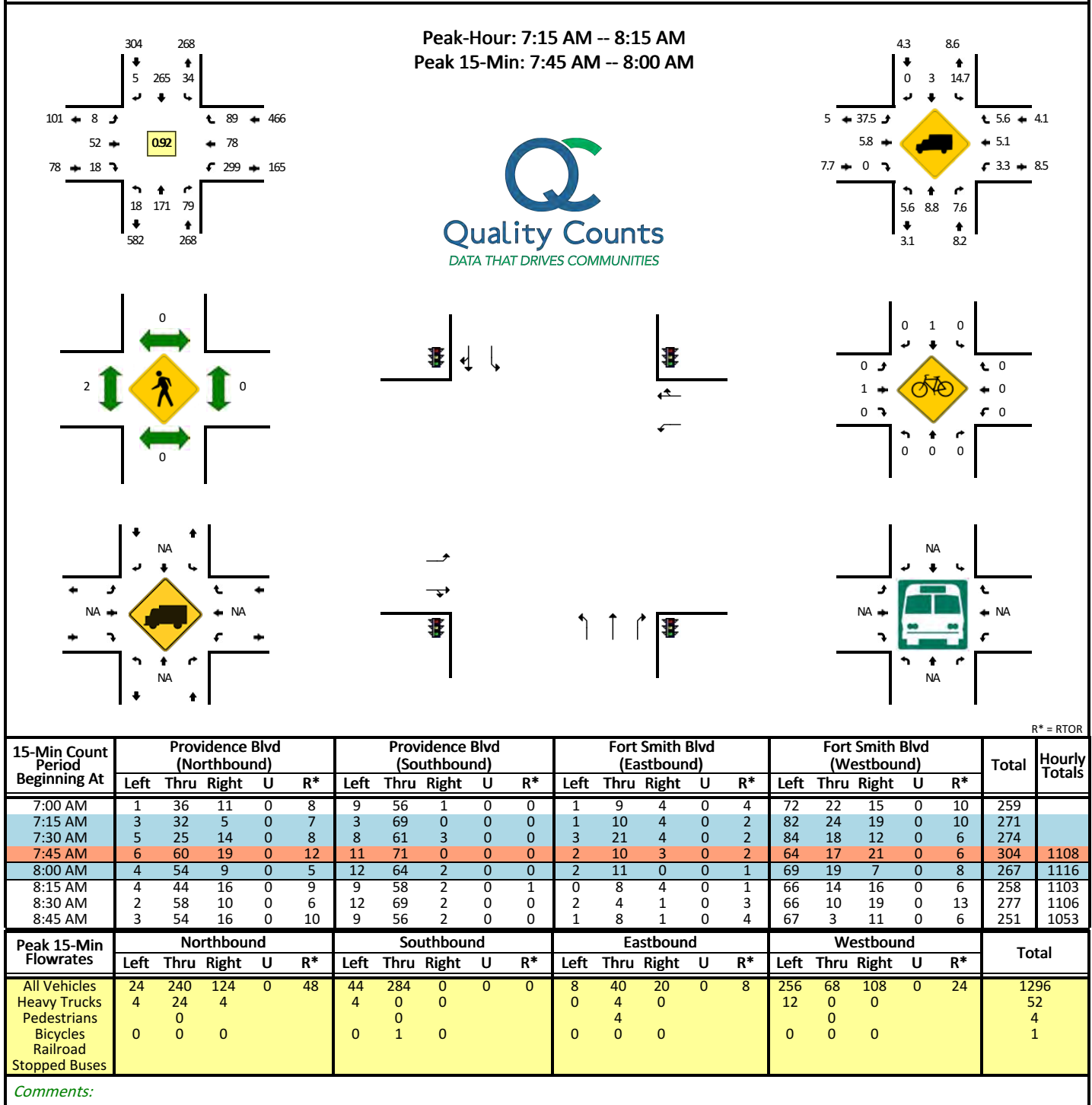
QC JOB #: 15012209
DATE: Wed, Jun 19 2019

[illegible]

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>) 1-877-580-2212

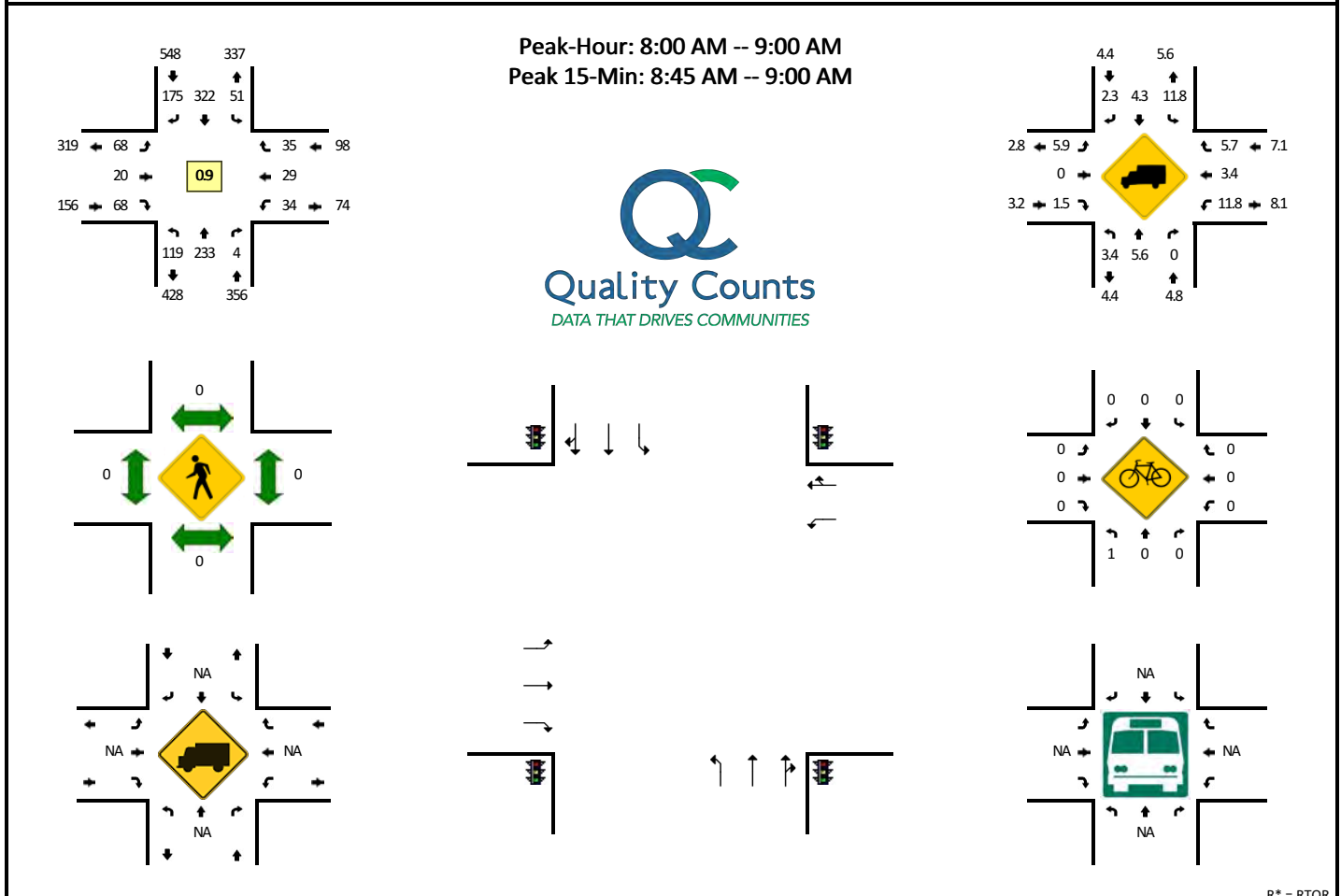
LOCATION: Providence Blvd -- Fort Smith Blvd
CITY/STATE: Deltona, FL

QC JOB #: 15005949
DATE: Thu, Jun 6 2019



LOCATION: Veterans Memorial Pkwy -- Harley Strickland Blvd
CITY/STATE: Orange City, FL

QC JOB #: 15005931
DATE: Thu, Jun 6 2019



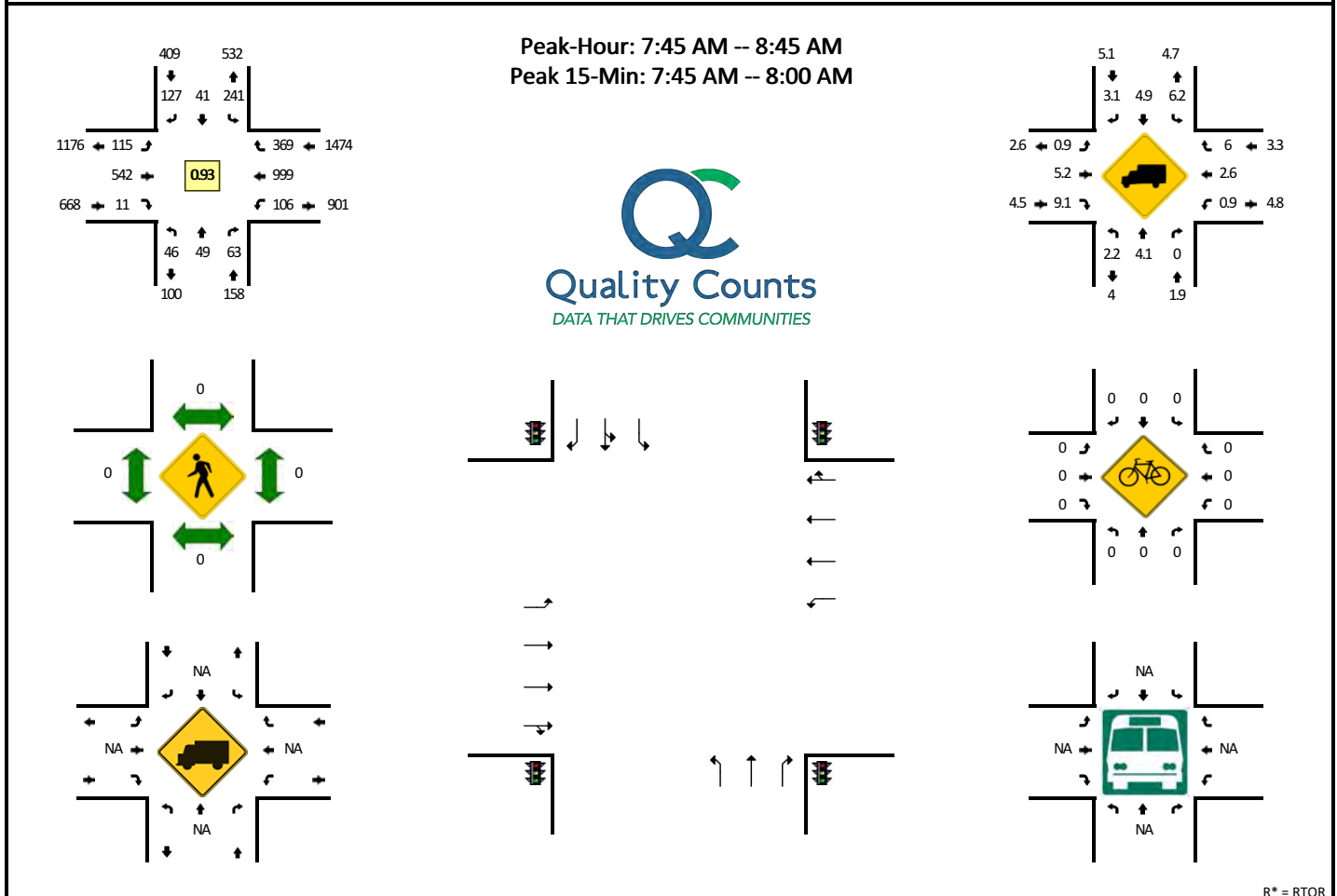
R* = RTOR

15-Min Count Period Beginning At	Veterans Memorial Pkwy (Northbound)					Veterans Memorial Pkwy (Southbound)					Harley Strickland Blvd (Eastbound)					Harley Strickland Blvd (Westbound)					Total	Hourly Totals
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
7:00 AM	15	57	0	0	0	6	69	26	0	8	11	1	5	0	7	1	7	2	0	7	222	
7:15 AM	11	58	0	0	0	8	80	24	0	3	19	3	5	0	1	6	4	1	0	4	227	
7:30 AM	17	53	1	3	0	12	88	40	0	2	17	4	3	0	17	2	4	2	0	3	268	
7:45 AM	21	84	0	0	0	9	75	37	0	5	11	7	4	0	10	2	4	2	0	6	277	994
8:00 AM	21	57	1	1	0	11	82	28	0	5	18	2	3	0	9	9	5	2	0	4	258	1030
8:15 AM	29	61	1	1	0	10	86	41	0	6	13	3	1	0	10	3	8	4	0	3	280	1083
8:30 AM	38	51	1	1	0	10	93	38	0	3	16	6	6	0	17	8	3	4	0	4	299	1114
8:45 AM	27	64	0	1	1	19	61	46	1	8	21	9	3	0	19	14	13	6	0	8	321	1158
Peak 15-Min Flowrates	Northbound					Southbound					Eastbound					Westbound					Total	
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
All Vehicles	108	256	4	4	4	76	244	216	4	32	84	36	88	0	76	56	52	56	0	32	1428	
Heavy Trucks	0	20	0			8	16	4			4	0	0			8	4	4			68	
Pedestrians	0	0	0			0	0	0			0	0	0			0	0	0			0	
Bicycles	0	0	0			0	0	0			0	0	0			0	0	0			0	
Railroad																						
Stopped Buses																						

Comments:

LOCATION: Veterans Memorial Pkwy -- Saxon Blvd
CITY/STATE: Orange City, FL

QC JOB #: 15005933
DATE: Thu, Jun 6 2019



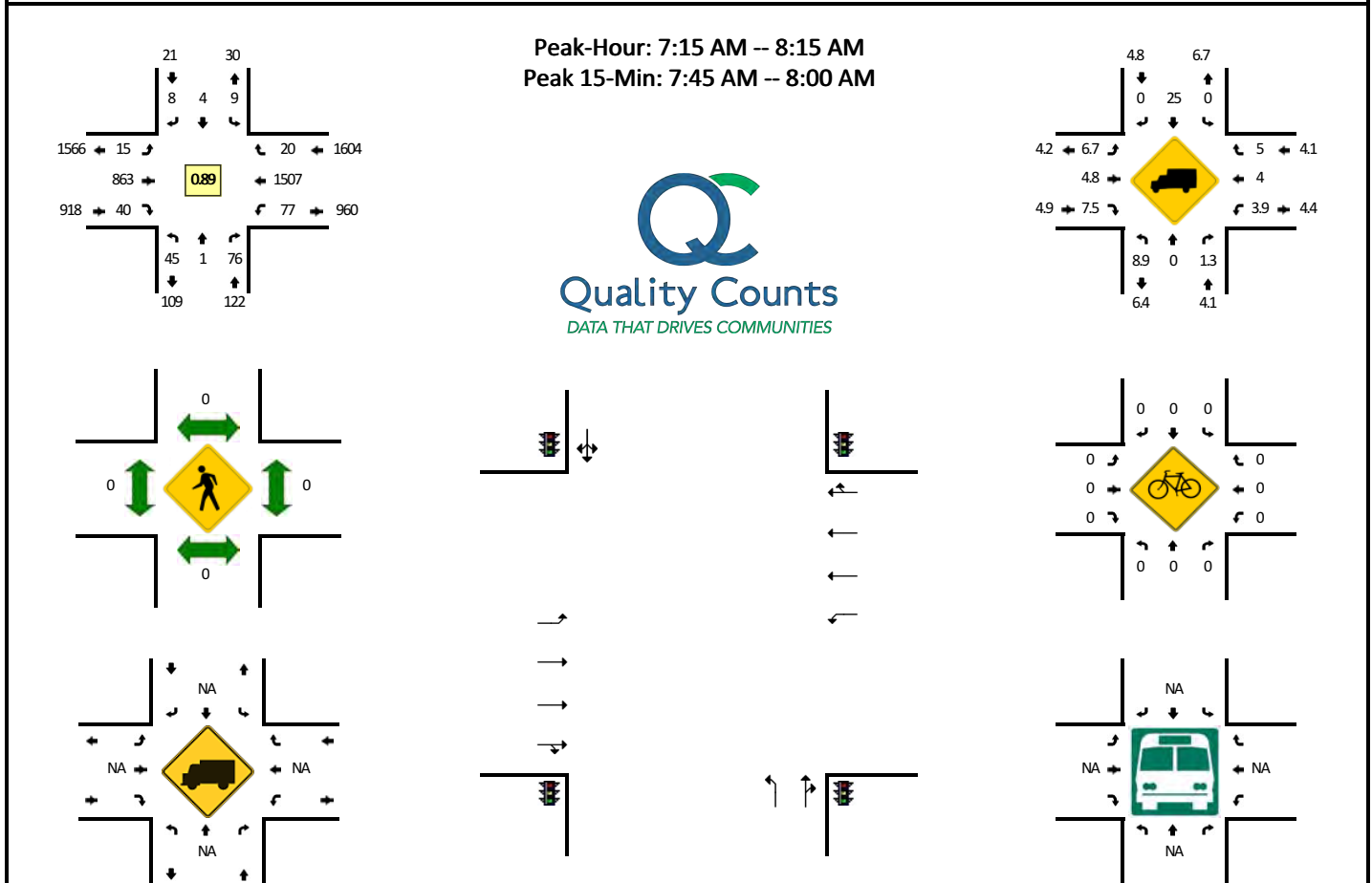
R* = RTOR

15-Min Count Period Beginning At	Veterans Memorial Pkwy (Northbound)					Veterans Memorial Pkwy (Southbound)					Saxon Blvd (Eastbound)					Saxon Blvd (Westbound)					Total	Hourly Totals
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
7:00 AM	7	10	5	0	17	75	7	4	0	15	9	99	2	0	0	10	115	71	19	0	465	
7:15 AM	14	13	4	0	14	62	11	13	0	12	12	145	1	0	1	13	173	77	16	1	582	
7:30 AM	10	7	5	0	4	77	8	12	0	18	13	125	1	0	2	16	226	76	15	1	616	
7:45 AM	17	9	1	0	16	57	9	9	1	15	28	131	1	3	0	11	289	123	12	0	732	2395
8:00 AM	6	6	3	0	10	60	8	14	0	17	26	139	2	0	1	11	243	78	16	0	640	2570
8:15 AM	12	23	5	0	14	62	18	14	0	25	22	137	2	1	0	12	219	85	17	1	669	2657
8:30 AM	11	11	2	0	12	59	6	12	2	21	35	135	4	0	1	14	248	82	13	0	668	2709
8:45 AM	10	9	3	0	11	84	7	23	0	15	31	116	1	0	2	21	234	78	7	0	652	2629
Peak 15-Min Flowrates	Northbound					Southbound					Eastbound					Westbound					Total	
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
All Vehicles	68	36	68	0	64	228	36	96	4	60	112	524	4	12	0	44	1156	492	48	0	3052	
Heavy Trucks	0	4	0			12	0	0			0	44	0			0	24	32			116	
Pedestrians			0					0					0					0			0	
Bicycles	0	0	0			0	0	0			0	0	0			0	0	0			0	
Railroad																						
Stopped Buses																						

Comments:

LOCATION: FDOT Park/Ride -- Saxon Blvd
CITY/STATE: Volusia, FL

QC JOB #: 15012211
DATE: Wed, Jun 19 2019



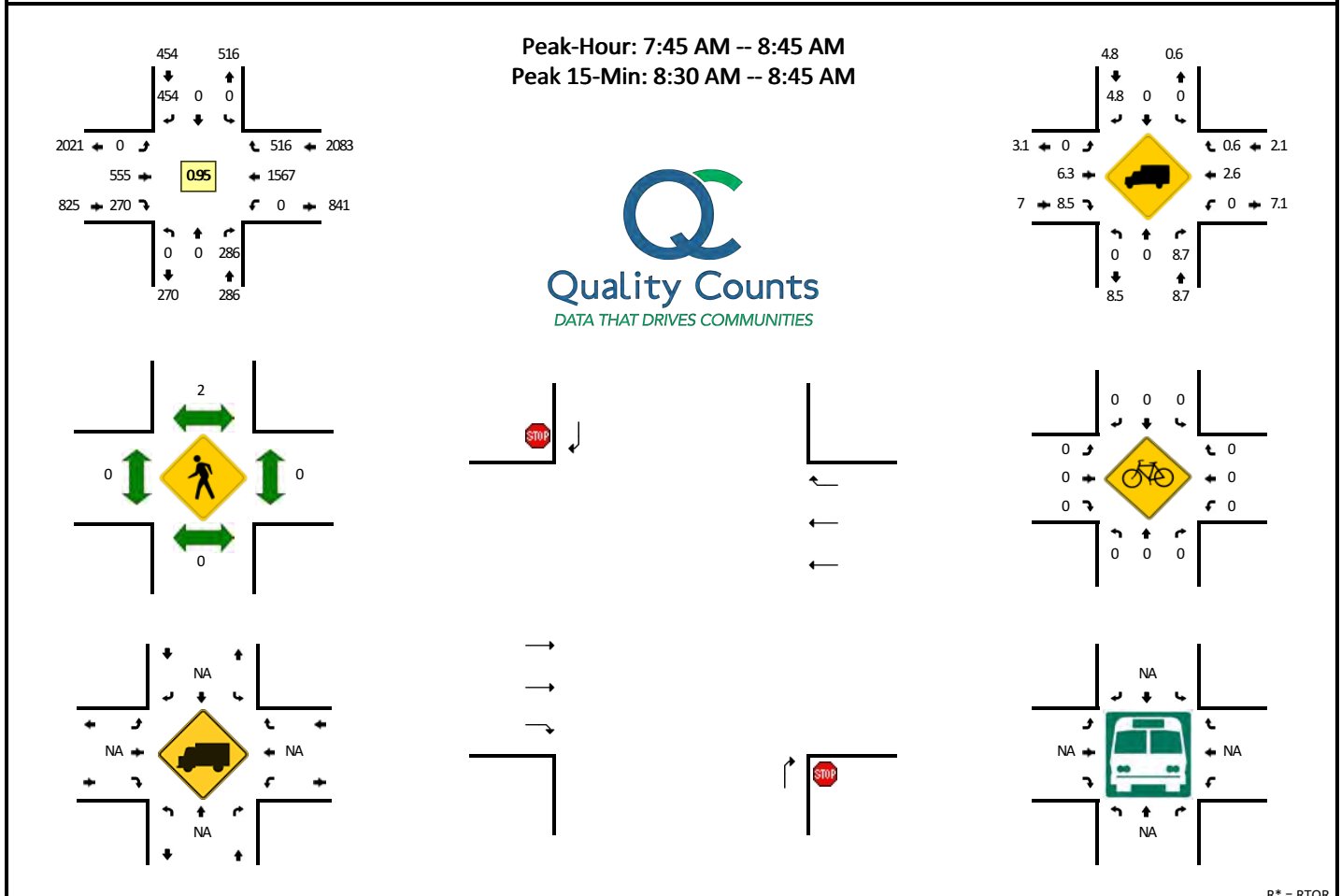
R* = RTOR

15-Min Count Period Beginning At	FDOT Park/Ride (Northbound)					FDOT Park/Ride (Southbound)					Saxon Blvd (Eastbound)					Saxon Blvd (Westbound)					Total	Hourly Totals
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
7:00 AM	10	2	3	0	5	3	0	0	0	1	6	208	4	0	0	14	228	3	0	0	487	
7:15 AM	21	0	5	0	13	2	0	0	0	3	3	229	13	2	0	13	295	2	2	0	603	
7:30 AM	11	0	2	0	20	2	1	0	0	1	1	208	8	1	2	14	387	3	5	0	666	
7:45 AM	6	0	0	0	20	0	1	2	0	2	4	188	7	3	1	21	482	8	4	1	750	2506
8:00 AM	7	1	3	0	13	5	2	0	0	0	1	238	8	0	1	17	343	6	1	0	646	2665
8:15 AM	5	1	0	0	10	1	0	0	0	0	5	189	7	1	0	16	355	6	0	1	597	2659
8:30 AM	8	0	3	0	18	1	1	1	0	2	0	203	9	0	1	13	367	2	1	0	630	2623
8:45 AM	8	0	7	0	15	0	0	0	0	0	1	184	16	1	0	15	408	0	1	0	656	2529
Peak 15-Min Flowrates	Northbound					Southbound					Eastbound					Westbound					Total	
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
All Vehicles	24	0	80	0	80	0	4	16	0	8	16	752	32	12	4	84	1928	36	16	4	3096	
Heavy Trucks	0	0	0			0	0	0			0	40	0			0	32	0			72	
Pedestrians												0					0				0	
Bicycles	0	0	0			0	0	0			0	0	0			0	0	0			0	
Railroad																						
Stopped Buses																						

Comments:

LOCATION: I-4 SB Ramps -- Saxon Blvd
CITY/STATE: Orange City, FL

QC JOB #: 15005935
DATE: Tue, Jun 11 2019



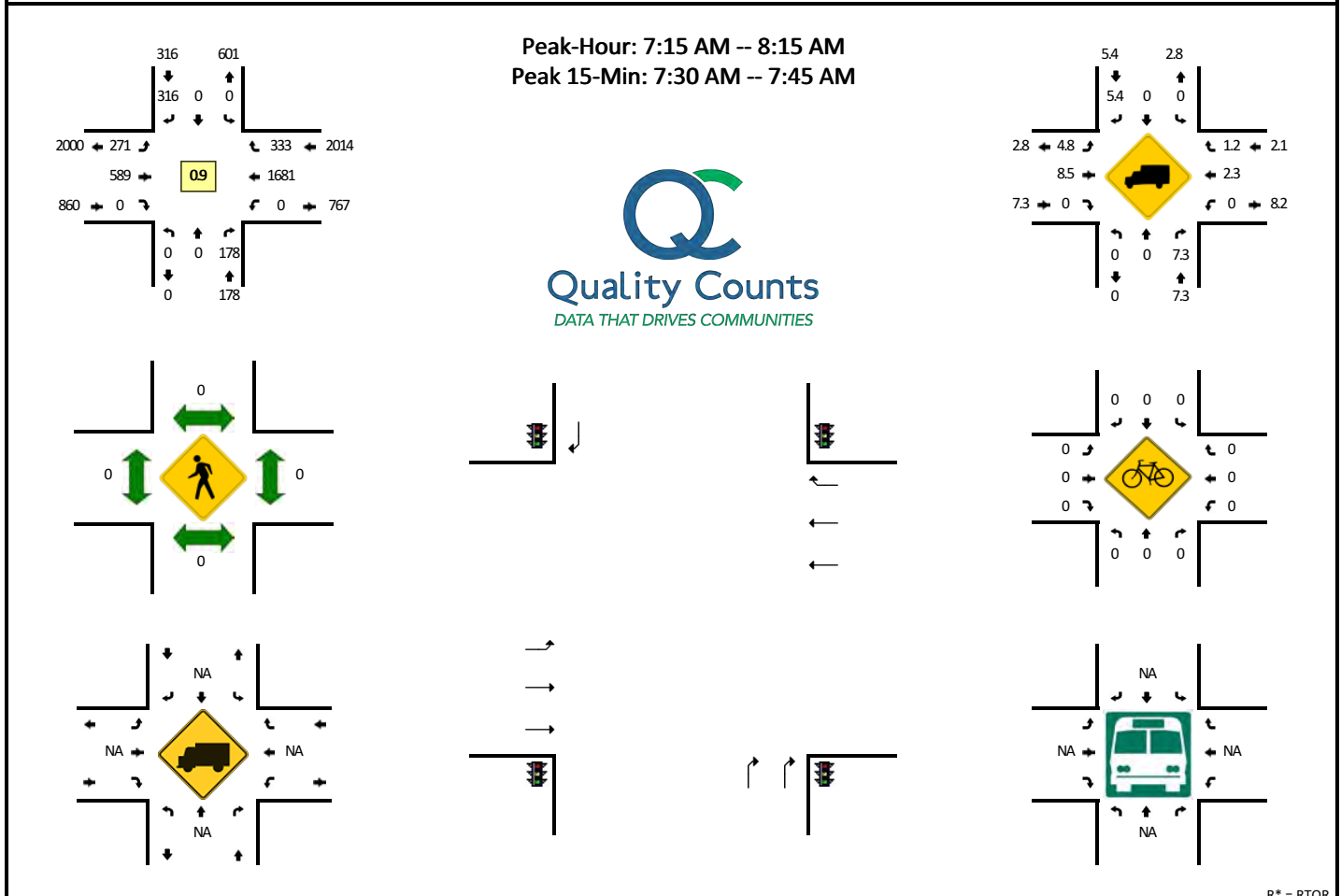
R* = RTOR

15-Min Count Period Beginning At	I-4 SB Ramps (Northbound)					I-4 SB Ramps (Southbound)					Saxon Blvd (Eastbound)					Saxon Blvd (Westbound)					Total	Hourly Totals
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
7:00 AM	0	0	19	0	0	0	0	56	0	0	0	119	107	0	0	0	180	259	0	0	740	
7:15 AM	0	0	32	0	0	0	0	80	0	0	0	150	97	0	0	0	228	299	0	0	886	
7:30 AM	0	0	25	0	0	0	0	115	0	0	0	139	90	0	0	0	278	256	0	0	903	
7:45 AM	0	0	34	0	0	0	0	119	0	0	0	134	71	0	0	0	390	178	0	0	926	3455
8:00 AM	0	0	37	0	0	0	0	129	0	0	0	137	66	0	0	0	311	142	0	0	822	3537
8:15 AM	0	0	90	0	0	0	0	112	0	0	0	144	67	0	0	0	420	108	0	0	941	3592
8:30 AM	0	0	125	0	0	0	0	94	0	0	0	140	66	0	0	0	446	88	0	0	959	3648
8:45 AM	0	0	64	0	0	0	0	133	0	0	0	137	59	0	0	0	347	98	0	0	838	3560
Peak 15-Min Flowrates	Northbound					Southbound					Eastbound					Westbound					Total	
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
All Vehicles	0	0	500	0	0	0	0	376	0	0	0	560	264	0	0	0	1784	352	0	0	3836	
Heavy Trucks	0	0	32	0	0	0	0	24	0	0	0	48	32	0	0	0	60	0	0	0	196	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Comments:

LOCATION: I-4 NB Ramps -- Saxon Blvd
CITY/STATE: Deltona, FL

QC JOB #: 15005937
DATE: Thu, Jun 6 2019



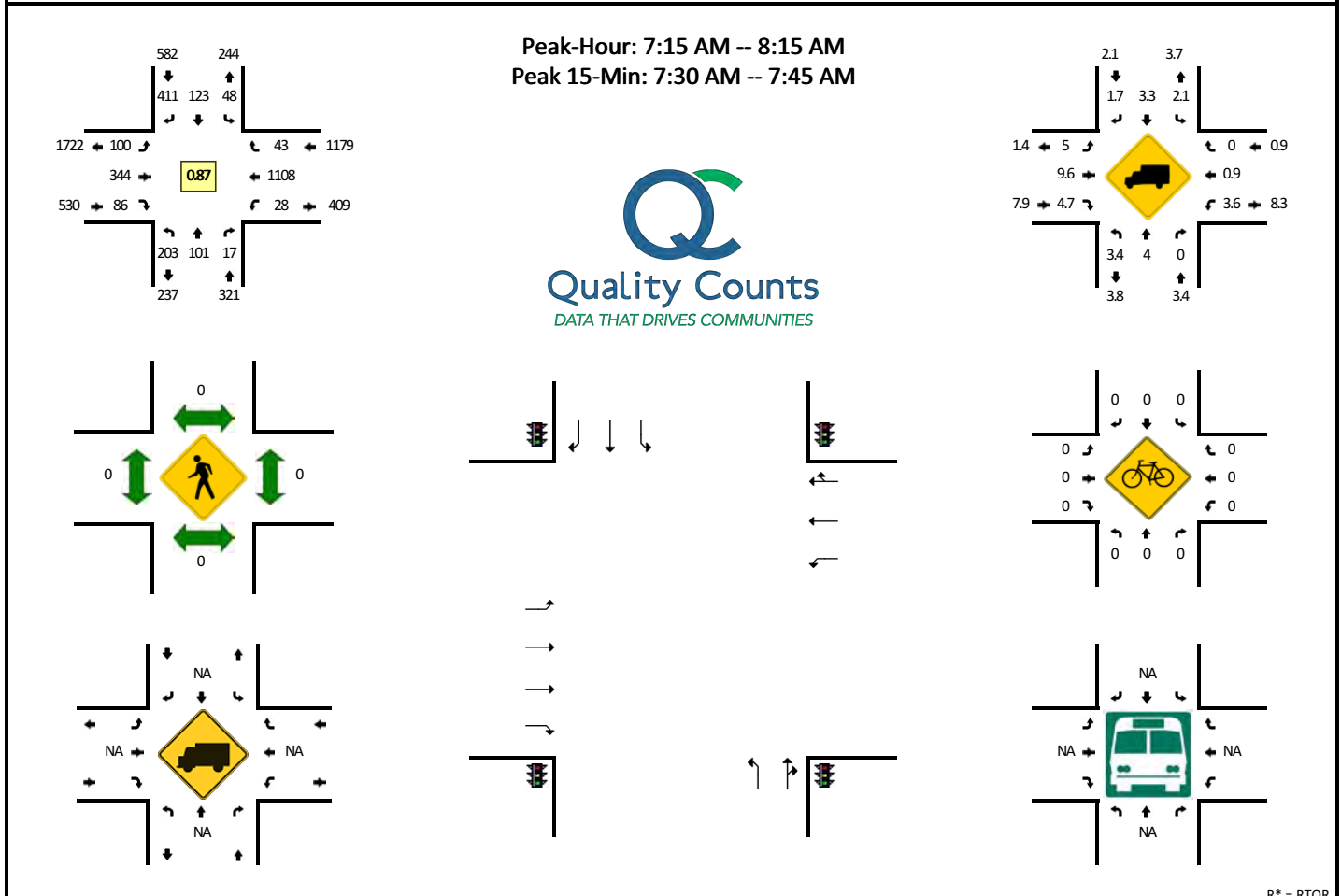
R* = RTOR

15-Min Count Period Beginning At	I-4 NB Ramps (Northbound)					I-4 NB Ramps (Southbound)					Saxon Blvd (Eastbound)					Saxon Blvd (Westbound)					Total	Hourly Totals
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
7:00 AM	0	0	34	0	0	0	0	59	0	0	54	88	0	1	0	0	377	74	0	13	700	
7:15 AM	0	0	41	0	0	0	0	60	0	0	71	135	0	0	0	0	430	79	0	13	829	
7:30 AM	0	0	45	0	0	0	0	78	0	0	78	163	0	2	0	0	457	95	0	18	936	
7:45 AM	0	0	44	0	0	0	0	97	0	0	55	146	0	0	0	0	456	57	0	9	864	3329
8:00 AM	0	0	48	0	0	0	0	81	0	0	64	145	0	1	0	0	338	53	0	9	739	3368
8:15 AM	0	0	57	0	0	0	0	86	0	0	41	169	0	2	0	0	367	60	0	7	789	3328
8:30 AM	0	0	57	0	0	0	0	79	0	0	55	165	0	2	0	0	366	51	0	3	778	3170
8:45 AM	0	0	56	0	0	0	0	70	0	0	42	190	0	0	0	0	355	49	0	7	769	3075
Peak 15-Min Flowrates	Northbound					Southbound					Eastbound					Westbound					Total	
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
All Vehicles	0	0	180	0	0	0	0	312	0	0	312	652	0	8	0	0	1828	452	0	72	3816	
Heavy Trucks	0	0	12			0	0	12			20	64	0			0	36	4			148	
Pedestrians			0					0				0					0				0	
Bicycles	0	0	0			0	0	0			0	0	0			0	0	0			0	
Railroad																						
Stopped Buses																						

Comments:

LOCATION: N Normandy Blvd -- Saxon Blvd
CITY/STATE: Deltona, FL

QC JOB #: 15005941
DATE: Tue, Jun 11 2019



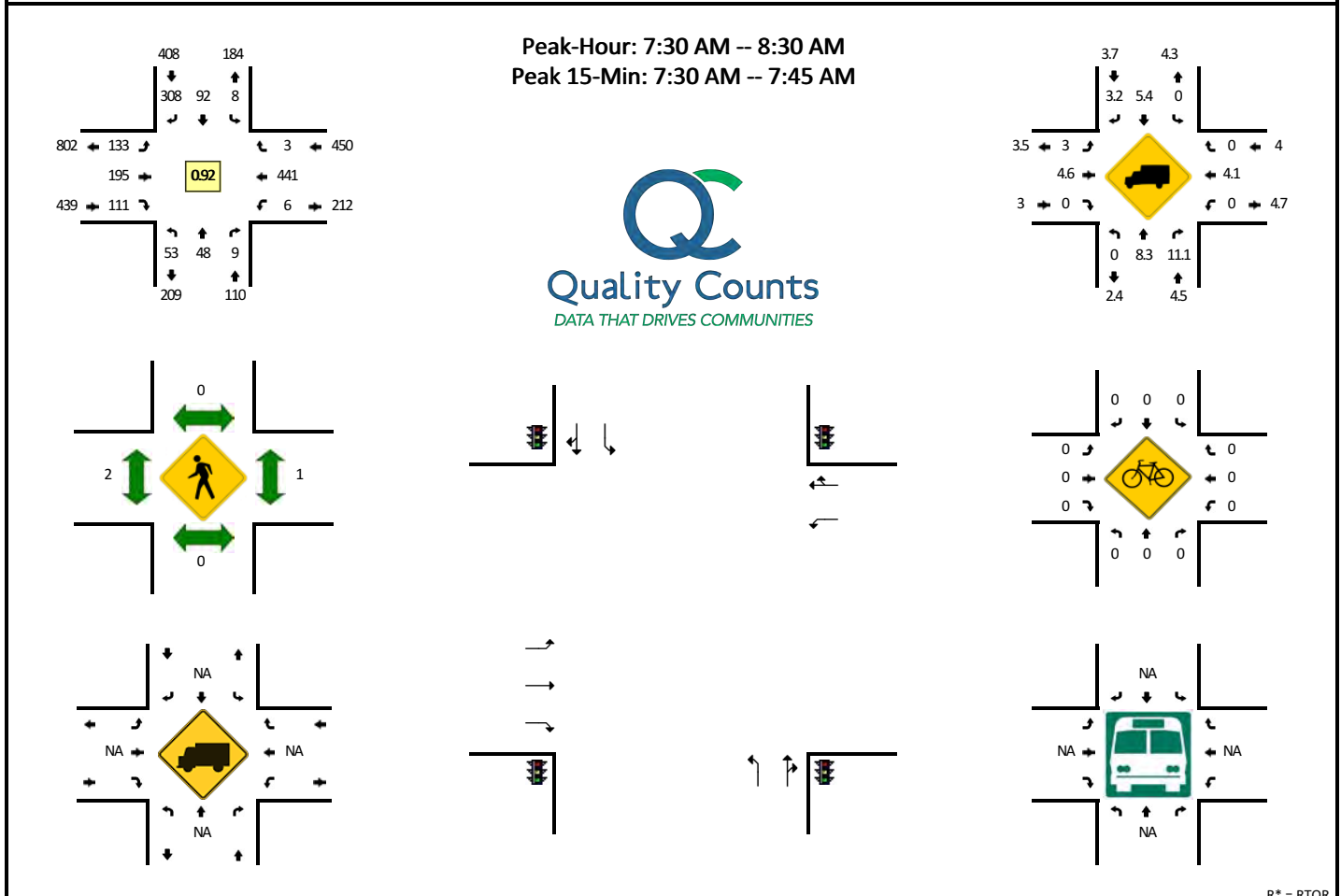
R* = RTOR

15-Min Count Period Beginning At	N Normandy Blvd (Northbound)					N Normandy Blvd (Southbound)					Saxon Blvd (Eastbound)					Saxon Blvd (Westbound)					Total	Hourly Totals
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
7:00 AM	48	21	2	0	0	3	20	73	0	43	25	70	8	0	3	7	252	7	0	2	584	
7:15 AM	65	25	4	0	1	10	33	83	0	30	31	64	9	0	7	6	257	2	0	1	628	
7:30 AM	54	23	3	0	1	17	31	80	0	27	23	85	15	0	11	7	358	17	0	0	752	
7:45 AM	42	29	5	0	0	10	31	68	0	39	18	100	10	0	12	10	247	9	0	0	630	2594
8:00 AM	42	24	2	0	1	11	28	58	0	26	28	95	11	0	11	5	246	13	0	1	602	2612
8:15 AM	45	25	3	0	0	8	26	62	0	36	36	78	20	0	15	10	249	4	0	1	618	2602
8:30 AM	51	29	3	0	2	9	32	62	0	28	33	89	24	0	24	5	222	13	0	3	629	2479
8:45 AM	40	25	6	0	1	8	32	42	0	35	31	104	18	0	12	8	225	13	0	2	602	2451
Peak 15-Min Flowrates	Northbound					Southbound					Eastbound					Westbound					Total	
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
All Vehicles	216	92	16	0	4	68	124	428	0	108	92	340	104	0	44	28	1432	68	0	0	3164	
Heavy Trucks	4	4	0			4	12	8			8	32	4			0	16	0			92	
Pedestrians			0					0					0					0			0	
Bicycles	0	0	0			0	0	0			0	0	0			0	0	0			0	
Railroad																						
Stopped Buses																						

Comments:

LOCATION: Tivoli Dr -- Saxon Blvd
CITY/STATE: Deltona, FL

QC JOB #: 15005953
DATE: Thu, Jun 13 2019



R* = RTOR

15-Min Count Period Beginning At	Tivoli Dr (Northbound)					Tivoli Dr (Southbound)					Saxon Blvd (Eastbound)					Saxon Blvd (Westbound)					Total	Hourly Totals
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
7:00 AM	14	12	1	0	0	3	23	71	0	0	19	27	3	0	31	2	93	0	0	0	299	
7:15 AM	13	7	1	0	2	1	13	86	0	0	23	43	2	0	23	3	95	0	0	0	312	
7:30 AM	15	13	0	0	0	2	16	97	0	0	29	51	6	0	26	1	128	0	0	0	384	
7:45 AM	8	15	2	0	2	2	31	70	0	0	37	58	6	0	33	1	96	2	0	0	363	1358
8:00 AM	15	9	2	0	1	3	24	67	0	0	29	55	3	0	19	1	107	1	0	0	336	1395
8:15 AM	15	11	1	0	1	1	21	74	0	0	38	31	4	0	14	3	110	0	0	0	324	1407
8:30 AM	16	15	1	0	0	1	25	79	0	0	38	37	3	0	20	5	128	0	0	0	368	1391
8:45 AM	7	12	1	0	3	4	26	74	0	0	50	41	6	0	26	0	108	2	0	0	360	1388
Peak 15-Min Flowrates	Northbound					Southbound					Eastbound					Westbound					Total	
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
All Vehicles	60	52	0	0	0	8	64	388	0	0	116	204	128	0	104	4	512	0	0	0	1640	
Heavy Trucks	0	0	0			0	0	8			0	16	0			0	16	0			40	
Pedestrians		0					0					0					4				4	
Bicycles	0	0	0			0	0	0			0	0	0			0	0	0			0	
Railroad																						
Stopped Buses																						

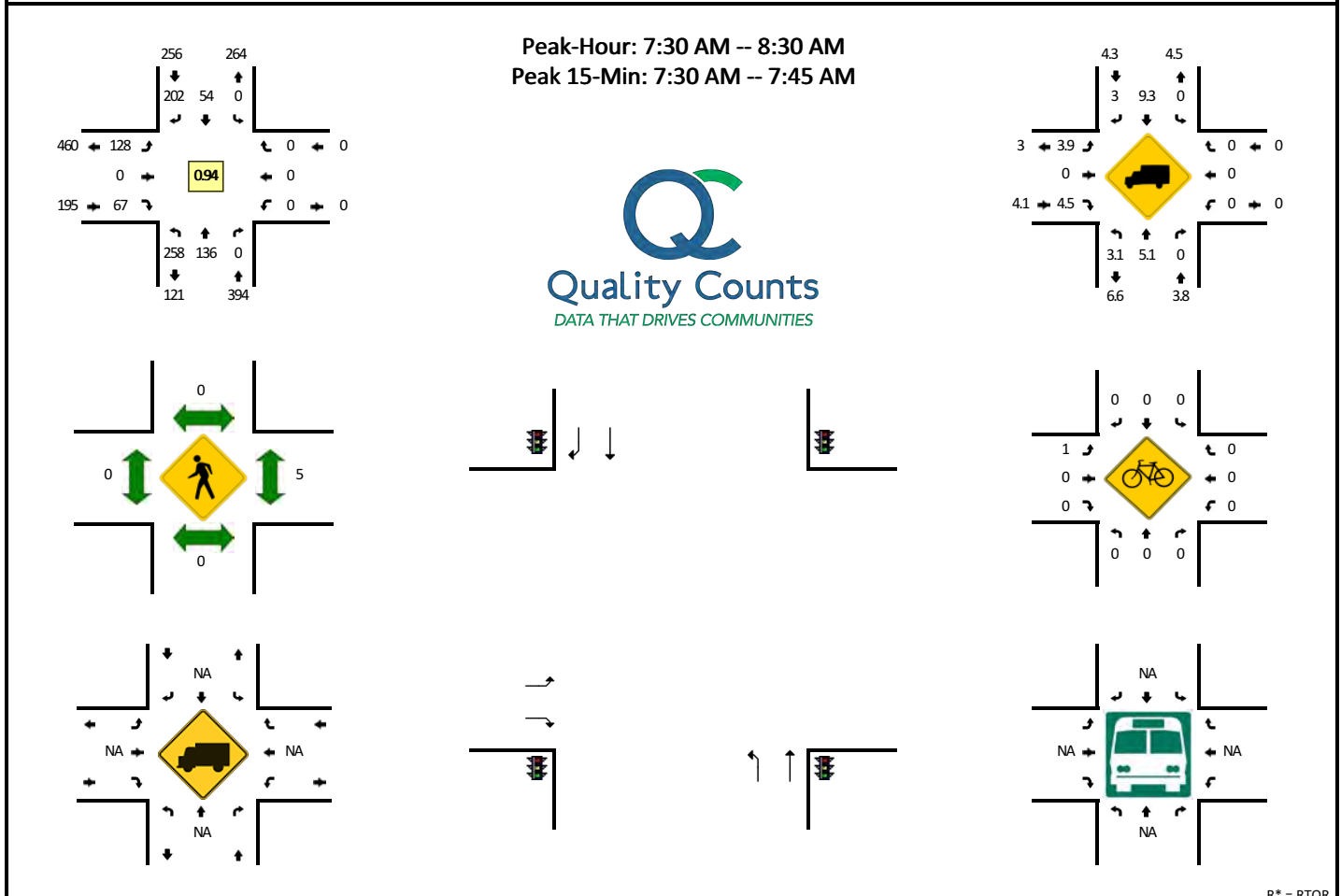
Comments:

Report generated on 7/1/2019 11:48 AM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>) 1-877-580-2212

LOCATION: N Normandy Blvd -- Deltona Blvd
CITY/STATE: Deltona, FL

QC JOB #: 15005939
DATE: Thu, Jun 6 2019



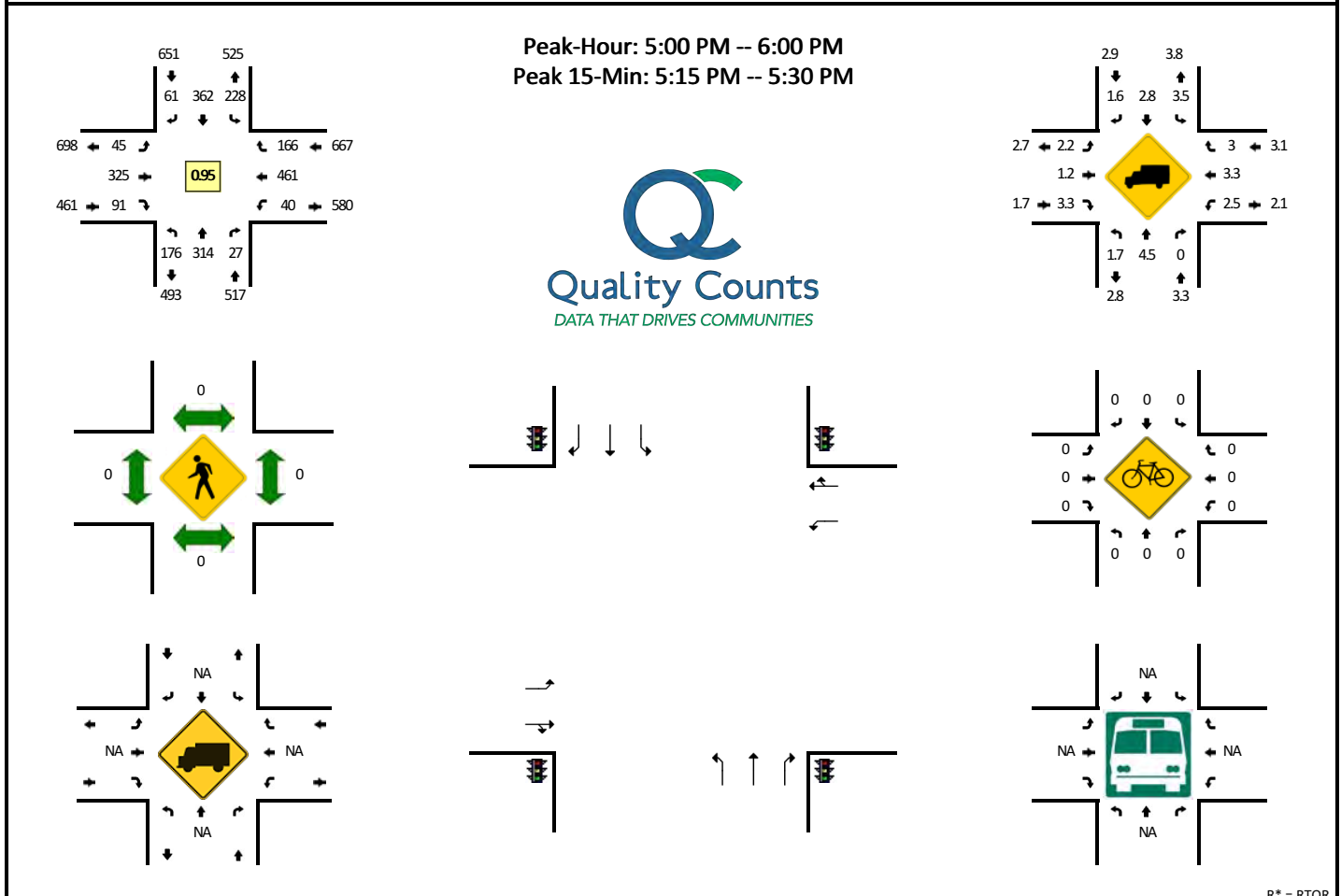
R* = RTOR

15-Min Count Period Beginning At	N Normandy Blvd (Northbound)					N Normandy Blvd (Southbound)					Deltona Blvd (Eastbound)					Deltona Blvd (Westbound)					Total	Hourly Totals
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
7:00 AM	38	41	0	0	0	0	10	12	0	17	27	0	3	0	12	0	0	0	0	0	160	
7:15 AM	41	49	0	0	0	0	12	32	0	15	31	0	6	0	8	0	0	0	0	0	194	
7:30 AM	82	37	0	0	0	0	9	29	0	28	25	0	5	0	9	0	0	0	0	0	224	
7:45 AM	67	34	0	0	0	0	16	31	0	21	34	0	8	0	12	0	0	0	0	0	223	801
8:00 AM	51	33	0	0	0	0	16	18	0	15	28	0	6	0	10	0	0	0	0	0	177	818
8:15 AM	58	32	0	0	0	0	13	34	0	26	41	0	2	0	15	0	0	0	0	0	221	845
8:30 AM	51	35	0	0	0	0	19	24	0	26	35	0	5	0	18	0	0	0	0	0	213	834
8:45 AM	60	27	0	0	0	0	18	18	0	24	35	0	11	0	16	0	0	0	0	0	209	820
Peak 15-Min Flowrates	Northbound					Southbound					Eastbound					Westbound					Total	
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
All Vehicles	328	148	0	0	0	0	36	228	0	112	100	0	56	0	36	0	0	0	0	0	1044	
Heavy Trucks	8	4	0	0	0	0	0	4	0	0	0	0	12	0	0	0	0	0	0	0	28	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	4	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Comments:

LOCATION: Dr Martin L King Jr Beltway -- Orange Camp Rd
CITY/STATE: DeLand, FL

QC JOB #: 15005902
DATE: Thu, Jun 6 2019



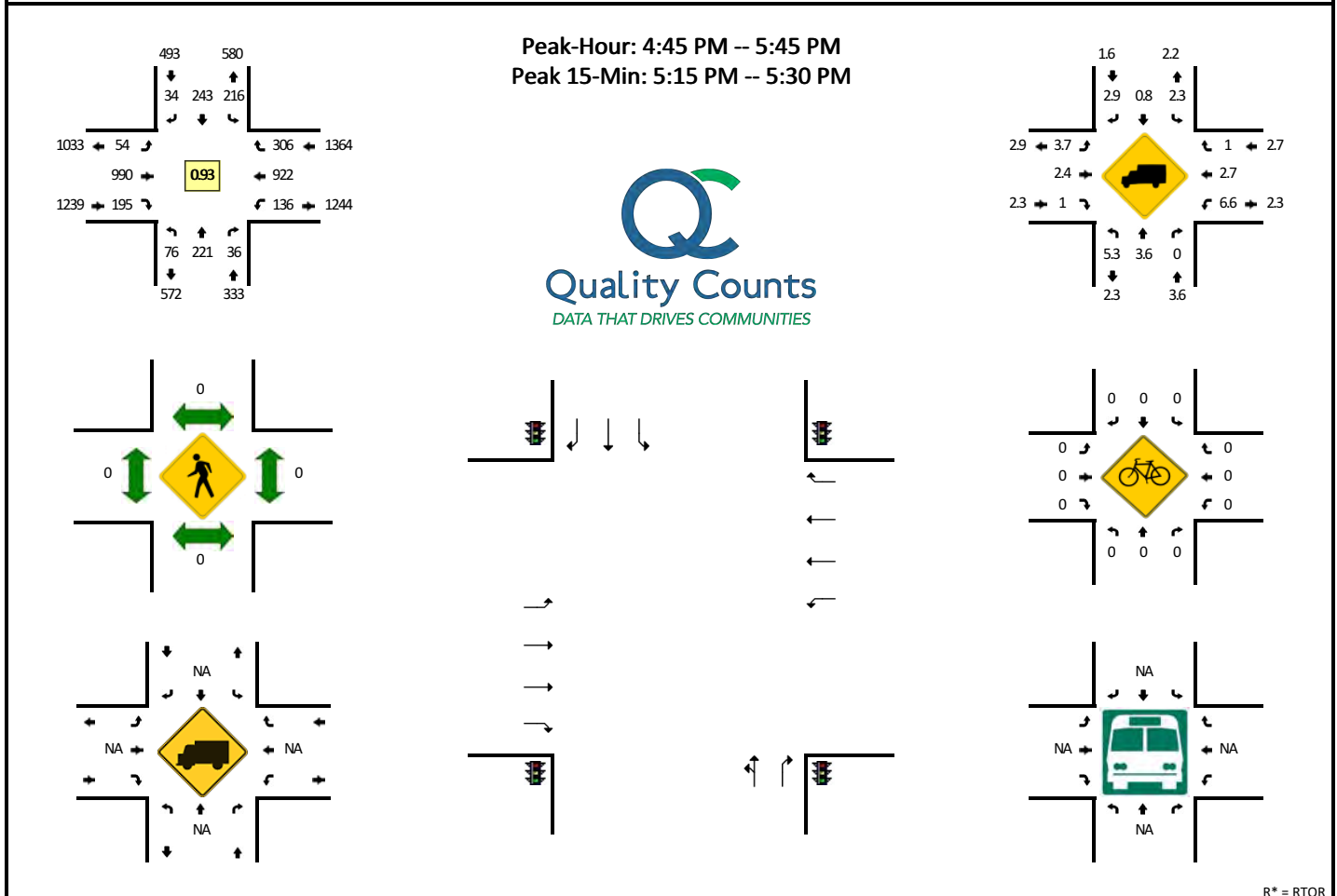
R* = RTOR

15-Min Count Period Beginning At	Dr Martin L King Jr Beltway (Northbound)					Dr Martin L King Jr Beltway (Southbound)					Orange Camp Rd (Eastbound)					Orange Camp Rd (Westbound)					Total	Hourly Totals
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
4:00 PM	32	75	9	0	5	33	73	14	0	1	15	90	16	0	3	10	98	40	0	3	517	
4:15 PM	32	72	6	0	4	41	53	4	0	6	8	79	20	0	4	14	88	49	0	1	481	
4:30 PM	30	83	5	0	1	40	79	13	0	6	12	73	17	0	2	8	100	29	0	1	499	
4:45 PM	26	78	7	0	8	61	90	11	0	5	16	73	24	0	1	8	93	30	0	6	537	2034
5:00 PM	40	74	4	0	5	57	80	13	0	5	12	75	10	0	5	10	115	42	0	6	553	2070
5:15 PM	40	82	4	0	3	46	101	10	0	6	8	93	28	0	3	13	127	41	0	0	605	2194
5:30 PM	56	92	1	0	2	71	91	9	0	5	8	79	14	0	4	8	103	39	0	2	584	2279
5:45 PM	40	66	5	0	3	54	90	2	0	11	17	78	24	0	3	9	116	34	0	2	554	2296
Peak 15-Min Flowrates	Northbound					Southbound					Eastbound					Westbound					Total	
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
All Vehicles	160	328	28	0	12	184	404	64	0	24	32	372	124	0	12	52	508	164	0	0	2468	
Heavy Trucks	0	16	0			0	16	0			0	8	0			4	24	0			68	
Pedestrians		0					0					0					0				0	
Bicycles	0	0	0			0	0	0			0	0	0			0	0	0			0	
Railroad																						
Stopped Buses																						

Comments:

LOCATION: Dr Martin L King Jr Beltway/N Kentucky Ave -- State Hwy 472
CITY/STATE: DeLand, FL

QC JOB #: 15005906
DATE: Thu, Jun 6 2019



R* = RTOR

15-Min Count Period Beginning At	Dr Martin L King Jr Beltway/N Kentucky Ave (Northbound)					Dr Martin L King Jr Beltway/N Kentucky Ave (Southbound)					State Hwy 472 (Eastbound)					State Hwy 472 (Westbound)					Total	Hourly Totals
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
4:00 PM	13	60	4	0	9	41	53	1	0	5	10	208	13	0	16	34	189	29	0	30	715	
4:15 PM	24	59	3	0	6	45	59	0	0	3	7	207	24	0	25	24	222	25	0	33	766	
4:30 PM	16	53	1	0	4	48	48	0	0	6	13	207	17	0	28	25	186	35	0	38	725	
4:45 PM	21	47	1	0	4	58	54	0	0	4	14	239	19	0	29	31	211	41	0	35	808	3014
5:00 PM	26	53	1	0	7	44	55	0	0	11	8	246	20	0	13	36	207	37	0	40	804	3103
5:15 PM	15	64	0	0	14	54	73	4	0	9	19	247	29	0	35	34	246	36	2	45	926	3263
5:30 PM	14	57	1	0	8	60	61	1	0	5	12	258	24	1	26	33	258	29	0	43	891	3429
5:45 PM	18	51	3	0	4	57	66	1	0	1	11	221	19	0	16	24	223	32	0	30	777	3398
Peak 15-Min Flowrates	Northbound					Southbound					Eastbound					Westbound					Total	
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
All Vehicles	60	256	56	0	56	216	292	52	0	36	76	988	256	0	140	136	984	324	8	180	4116	
Heavy Trucks	0	4	0			0	4	4			0	20	0			4	28	0			64	
Pedestrians	0	0				0	0				0	0				0	0				0	
Bicycles	0	0	0			0	0	0			0	0	0			0	0	0			0	
Railroad																						
Stopped Buses																						

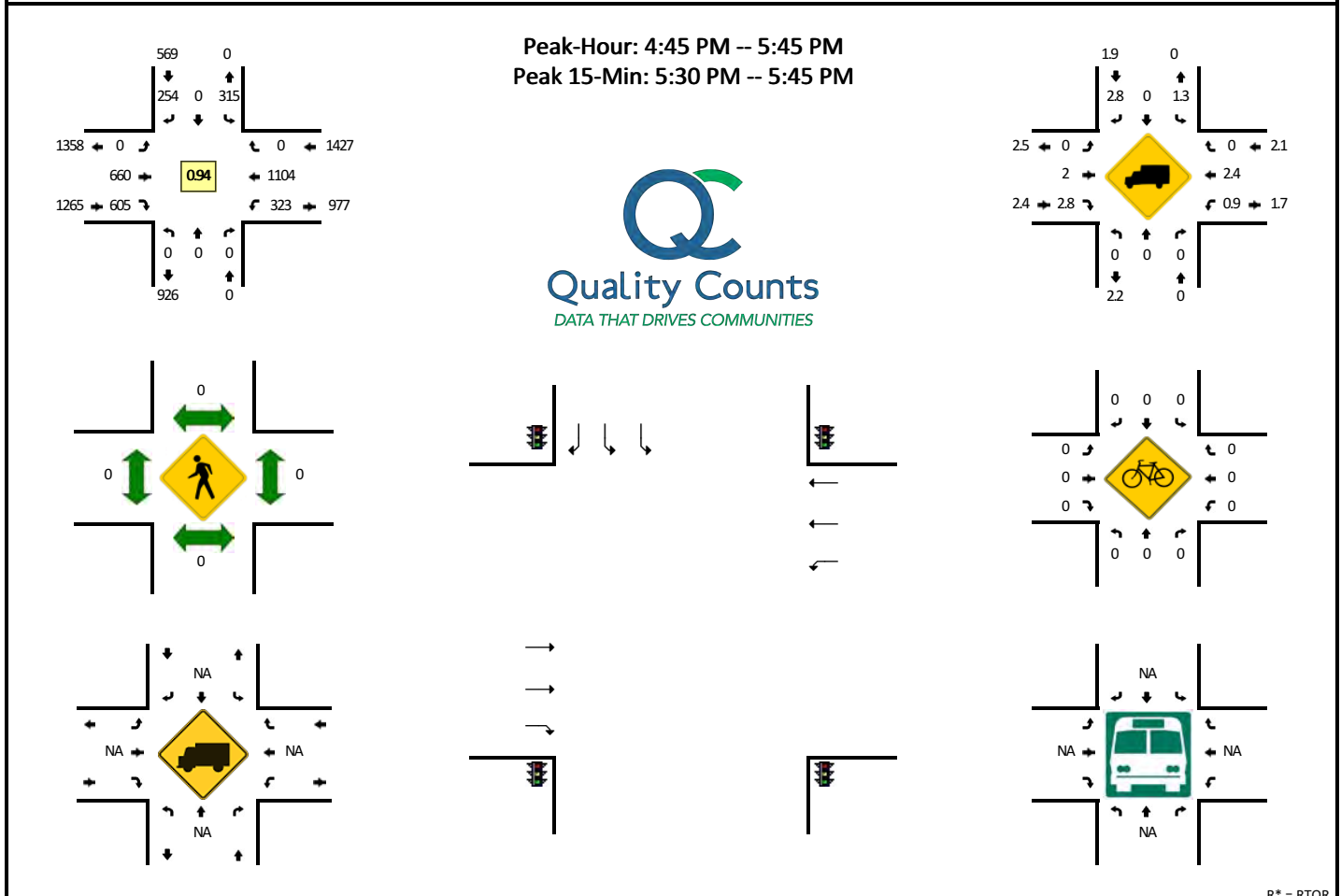
Comments:

Report generated on 6/14/2019 4:04 PM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>) 1-877-580-2212

LOCATION: I-4 SB Ramps -- State Hwy 472
CITY/STATE: DeLand, FL

QC JOB #: 15005908
DATE: Thu, Jun 6 2019



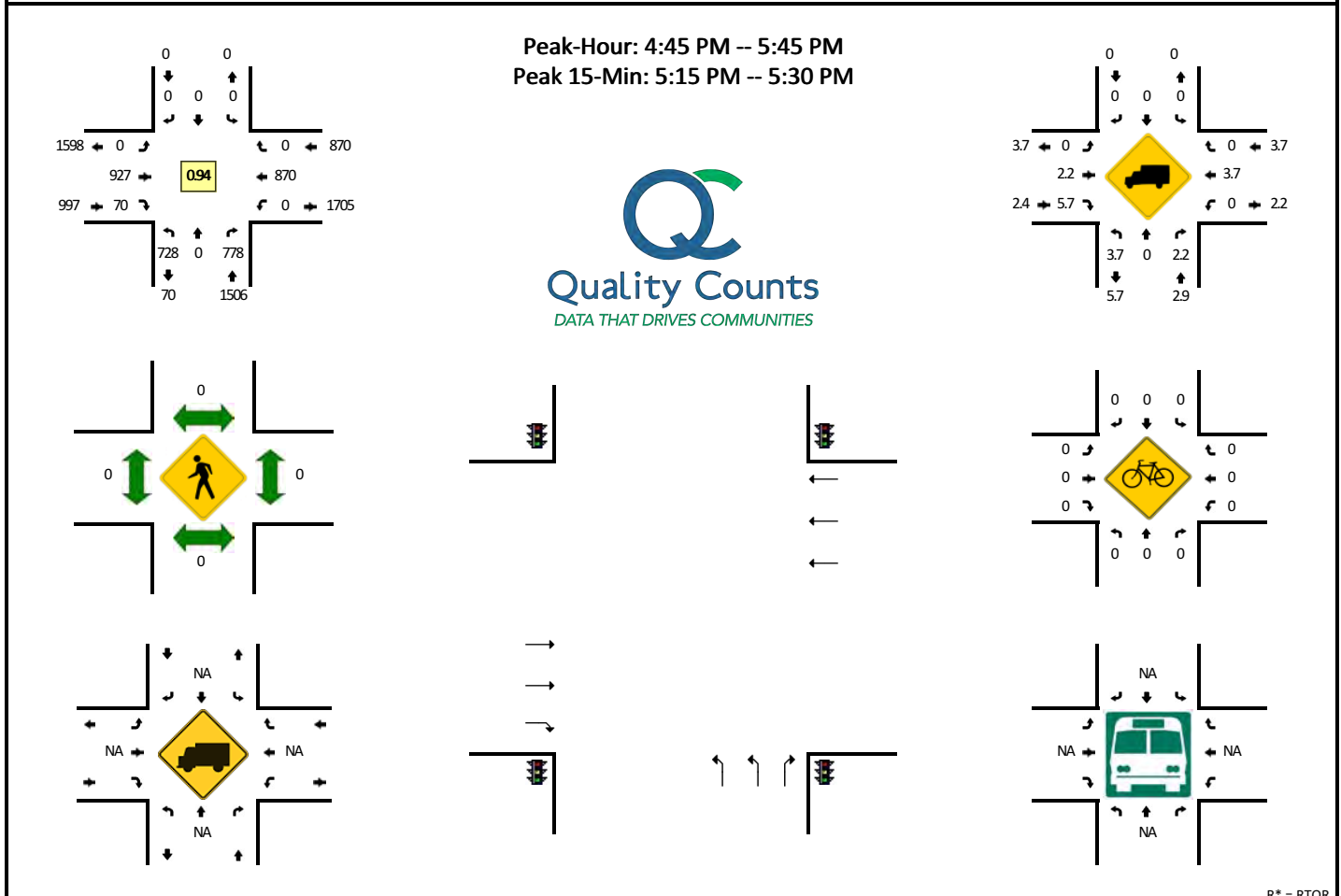
R* = RTOR

15-Min Count Period Beginning At	I-4 SB Ramps (Northbound)					I-4 SB Ramps (Southbound)					State Hwy 472 (Eastbound)					State Hwy 472 (Westbound)					Total	Hourly Totals
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
4:00 PM	0	0	0	0	0	63	0	13	0	26	0	143	122	0	0	85	244	0	1	0	697	
4:15 PM	0	0	0	0	0	55	0	15	0	17	0	137	127	0	0	67	261	0	0	0	679	
4:30 PM	0	0	0	0	0	61	0	20	0	25	0	139	134	0	0	89	242	0	0	0	710	
4:45 PM	0	0	0	0	0	73	0	29	0	31	0	152	155	0	0	58	257	0	0	0	755	2841
5:00 PM	0	0	0	0	0	75	0	23	0	44	0	147	150	0	0	82	267	0	1	0	789	2933
5:15 PM	0	0	0	0	0	81	0	24	0	40	0	180	147	0	0	96	283	0	0	0	851	3105
5:30 PM	0	0	0	0	0	86	0	32	0	31	0	181	153	0	0	85	297	0	1	0	866	3261
5:45 PM	0	0	0	0	0	66	0	14	0	32	0	149	145	0	0	76	245	0	0	0	727	3233
Peak 15-Min Flowrates	Northbound					Southbound					Eastbound					Westbound					Total	
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
All Vehicles	0	0	0	0	0	344	0	252	0	124	0	724	612	0	0	340	1188	0	4	0	3588	
Heavy Trucks	0	0	0	0	0	0	0	4	0	0	0	4	28	0	0	4	24	0	0	0	64	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Comments:

LOCATION: I-4 NB Ramps -- State Hwy 472
CITY/STATE: Deltona, FL

QC JOB #: 15005910
DATE: Tue, Jun 11 2019



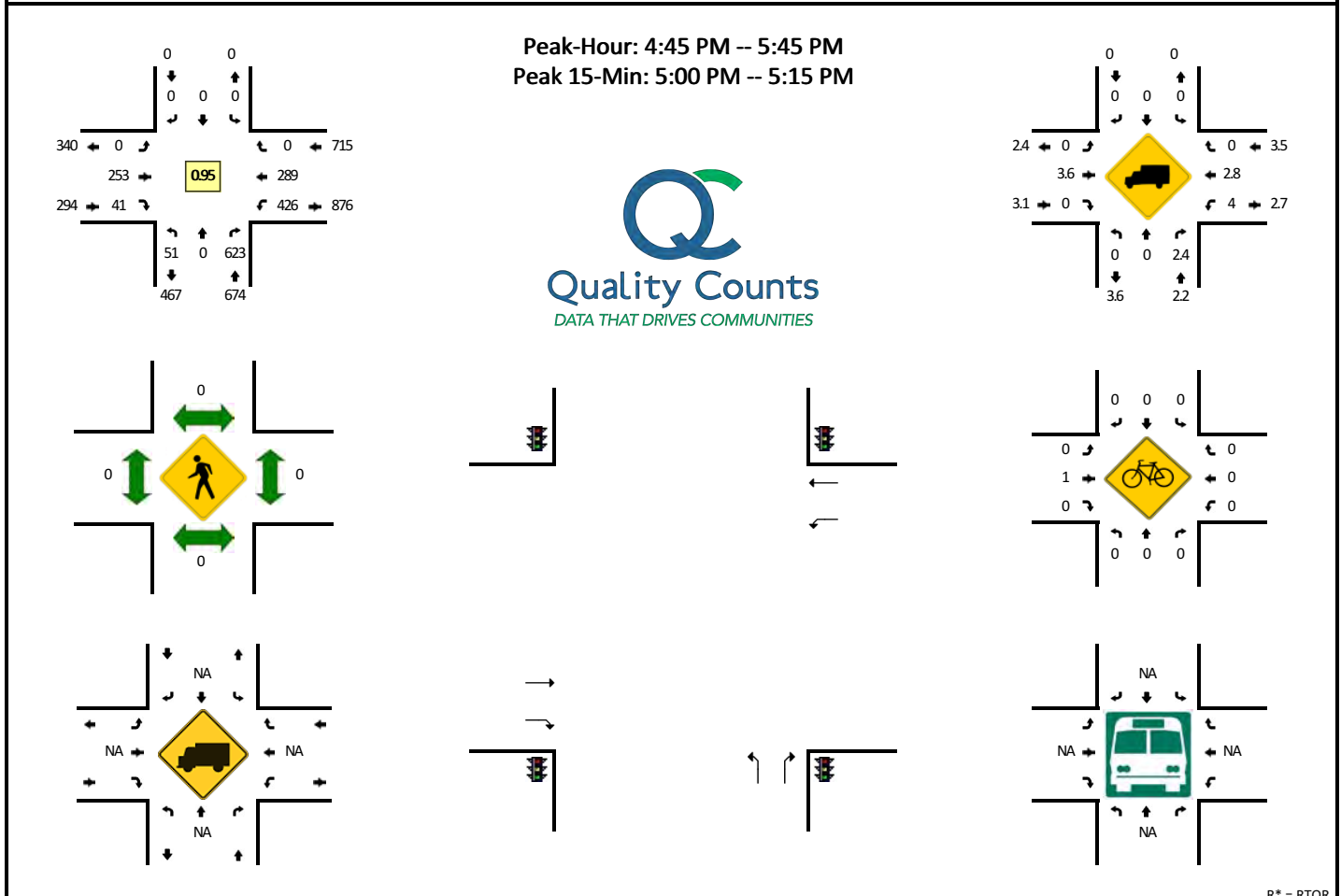
R* = RTOR

15-Min Count Period Beginning At	I-4 NB Ramps (Northbound)					I-4 NB Ramps (Southbound)					State Hwy 472 (Eastbound)					State Hwy 472 (Westbound)					Total	Hourly Totals	
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*			
4:00 PM	150	0	142	0	0	0	0	0	0	0	0	150	20	0	0	0	0	189	0	0	0	651	2922 3142 3297 3373 3357
4:15 PM	198	0	202	0	0	0	0	0	0	0	0	170	16	0	0	0	0	158	0	0	0	744	
4:30 PM	197	0	166	0	0	0	0	0	0	0	0	180	20	1	0	0	0	185	0	0	0	749	
4:45 PM	172	0	185	0	0	0	0	0	0	0	0	188	20	0	0	0	0	213	0	0	0	778	
5:00 PM	182	0	188	0	0	0	0	0	0	0	0	266	14	0	0	0	0	221	0	0	0	871	
5:15 PM	193	0	201	0	0	0	0	0	0	0	0	251	16	0	0	0	0	238	0	0	0	899	
5:30 PM	181	0	204	0	0	0	0	0	0	0	0	222	20	0	0	0	0	198	0	0	0	825	
5:45 PM	198	0	170	0	0	0	0	0	0	0	0	200	11	1	0	0	0	182	0	0	0	762	
Peak 15-Min Flowrates	Northbound					Southbound					Eastbound					Westbound					Total		
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*			
All Vehicles	772	0	804	0	0	0	0	0	0	0	0	1004	64	0	0	0	0	952	0	0	0	3596	
Heavy Trucks	24	0	20			0	0	0			0	16	0			0	32	0			92		
Pedestrians			0					0				0					0				0		
Bicycles	0	0	0			0	0	0			0	0	0			0	0	0			0		
Railroad																							
Stopped Buses																							

Comments:

LOCATION: Veterans Memorial Pkwy -- E Graves Ave
CITY/STATE: Orange City, FL

QC JOB #: 15005924
DATE: Thu, Jun 6 2019



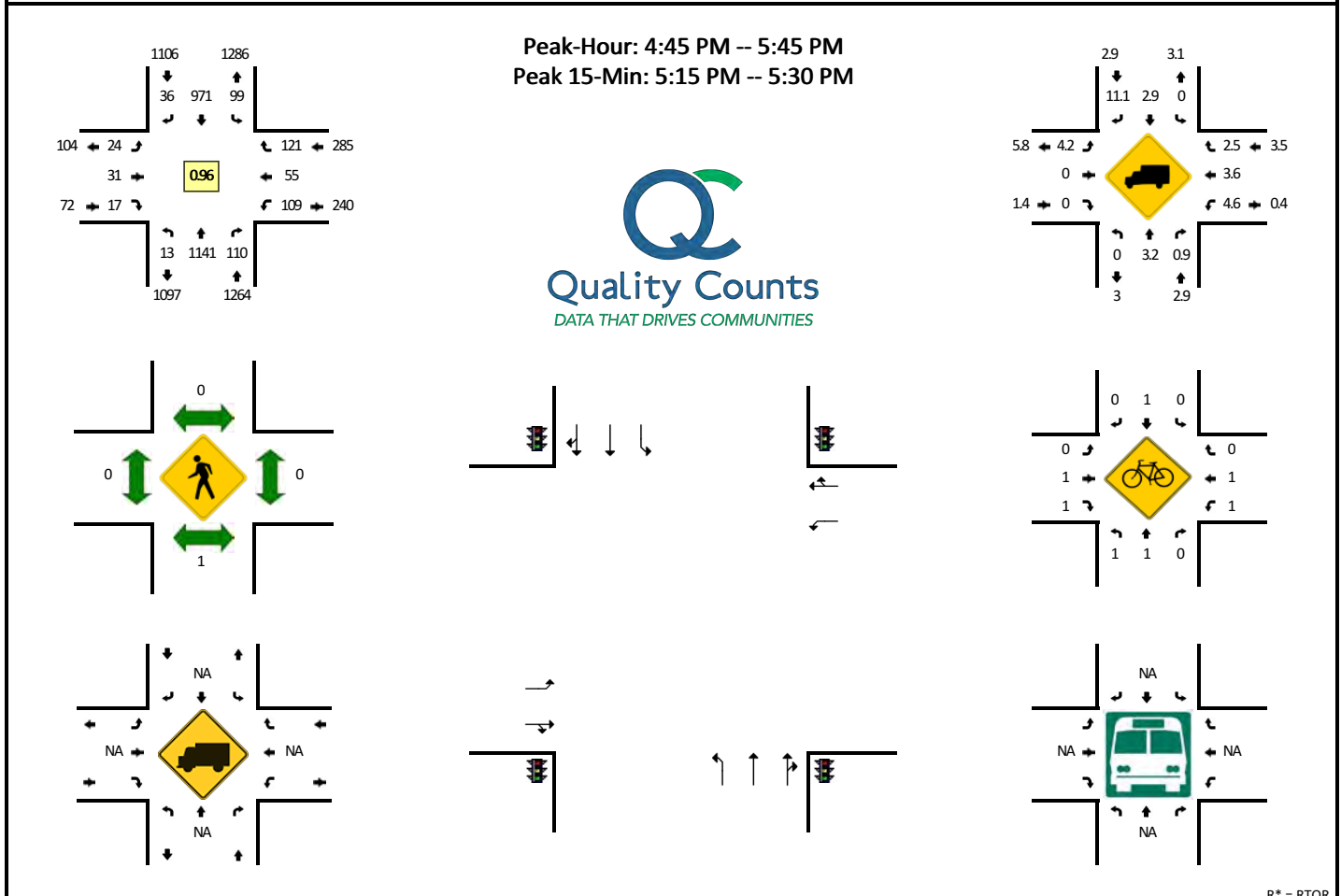
R* = RTOR

15-Min Count Period Beginning At	Veterans Memorial Pkwy (Northbound)					Veterans Memorial Pkwy (Southbound)					E Graves Ave (Eastbound)					E Graves Ave (Westbound)					Total	Hourly Totals
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
4:00 PM	14	0	114	0	19	0	0	0	0	0	0	65	1	0	3	90	61	0	0	0	367	
4:15 PM	8	0	118	0	25	0	0	0	0	0	0	51	2	0	5	103	60	0	0	0	372	
4:30 PM	12	0	113	0	19	0	0	0	0	0	0	64	4	0	5	96	55	0	0	0	368	
4:45 PM	10	0	117	0	24	0	0	0	0	0	0	48	4	0	7	109	62	0	0	0	381	1488
5:00 PM	12	0	165	0	24	0	0	0	0	0	0	64	2	0	7	90	81	0	0	0	445	1566
5:15 PM	14	0	122	0	31	0	0	0	0	0	0	78	5	0	8	102	79	0	0	0	439	1633
5:30 PM	15	0	121	0	19	0	0	0	0	0	0	63	4	0	4	125	67	0	0	0	418	1683
5:45 PM	11	0	101	0	22	0	0	0	0	0	0	73	5	0	3	101	61	0	0	0	377	1679
Peak 15-Min Flowrates	Northbound					Southbound					Eastbound					Westbound					Total	
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
All Vehicles	48	0	756	0	96	0	0	0	0	0	0	256	36	0	28	360	324	0	0	0	1904	
Heavy Trucks	0	0	16			0	0	0			0	8	0			12	16	0			52	
Pedestrians			0					0				0					0				0	
Bicycles	0	0	0			0	0	0			0	1	0			0	0	0			1	
Railroad																						
Stopped Buses																						

Comments:

LOCATION: US 17/92 -- Graves Ave
CITY/STATE: Volusia, FL

QC JOB #: 15012208
DATE: Wed, Jun 19 2019



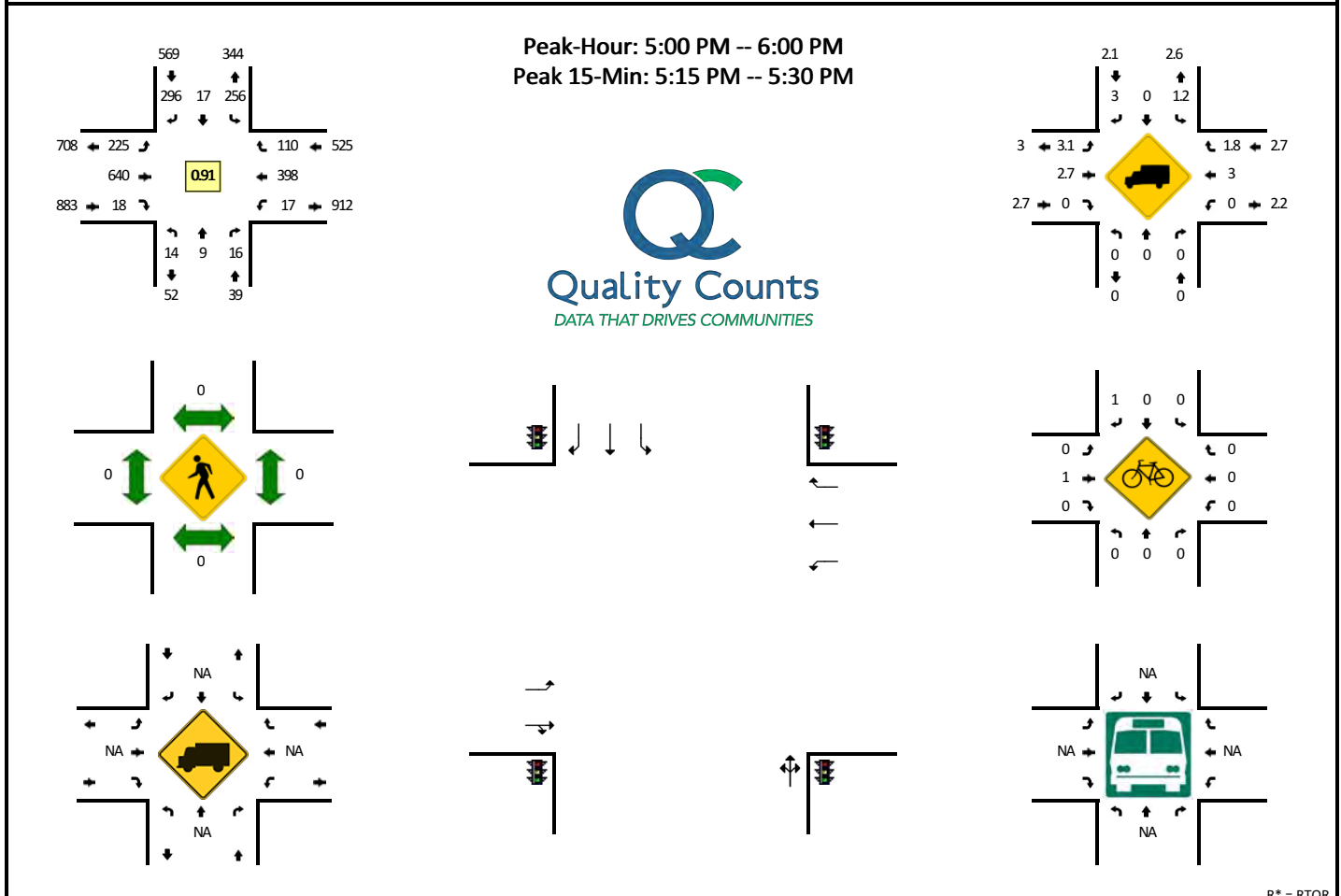
R* = RTOR

15-Min Count Period Beginning At	US 17/92 (Northbound)					US 17/92 (Southbound)					Graves Ave (Eastbound)					Graves Ave (Westbound)					Total	Hourly Totals
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
4:00 PM	3	287	21	0	2	25	226	2	0	0	4	6	0	0	3	16	10	14	0	11	630	
4:15 PM	4	271	19	0	0	25	223	3	0	0	6	3	2	0	1	26	15	21	0	7	626	
4:30 PM	2	262	26	0	1	23	246	7	0	0	2	6	2	0	4	13	8	15	0	8	625	
4:45 PM	5	256	33	0	2	27	229	8	0	1	7	6	1	0	4	31	13	16	0	7	646	2527
5:00 PM	1	262	35	0	0	33	248	8	0	2	4	6	4	0	0	25	11	20	0	16	675	2572
5:15 PM	0	309	18	0	2	19	238	9	0	0	7	10	1	0	3	34	17	29	0	11	707	2653
5:30 PM	7	314	20	0	0	20	256	8	0	0	6	9	2	0	2	19	14	16	0	6	699	2727
5:45 PM	7	193	22	0	3	24	186	3	0	2	5	4	3	0	1	21	16	17	0	13	520	2601
Peak 15-Min Flowrates	Northbound					Southbound					Eastbound					Westbound					Total	
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
All Vehicles	0	1236	80	0	8	76	952	36	0	0	28	40	16	0	12	136	68	160	0	44	2892	
Heavy Trucks	0	24	0			0	32	8			0	0	0			8	0	0			72	
Pedestrians		0					0					0					0				0	
Bicycles	0	1	0			0	0	0			0	1	1			0	0	0			3	
Railroad																						
Stopped Buses																						

Comments:

LOCATION: N Kentucky Ave -- E Graves Ave
CITY/STATE: Orange City, FL

QC JOB #: 15005922
DATE: Thu, Jun 6 2019

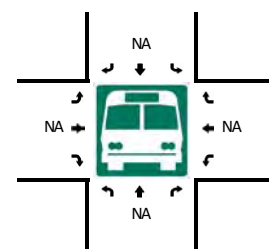
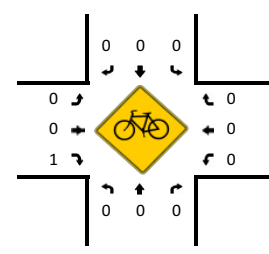
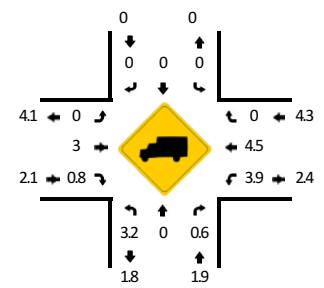


R* = RTOR

15-Min Count Period Beginning At	N Kentucky Ave (Northbound)					N Kentucky Ave (Southbound)					E Graves Ave (Eastbound)					E Graves Ave (Westbound)					Total	Hourly Totals
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
4:00 PM	5	1	2	0	2	47	4	47	0	19	60	145	5	0	0	4	82	26	0	4	453	
4:15 PM	1	3	1	0	5	62	4	33	0	33	58	129	1	0	1	6	93	18	0	7	455	
4:30 PM	2	3	2	0	3	53	2	24	0	37	52	139	3	0	0	4	75	20	0	2	421	
4:45 PM	4	2	0	0	0	61	4	50	0	25	45	137	2	0	0	4	98	21	0	1	454	1783
5:00 PM	3	4	3	0	5	46	3	59	0	24	63	174	3	0	1	3	104	13	0	9	517	1847
5:15 PM	5	3	0	0	1	73	6	49	0	33	70	175	7	0	0	5	93	24	0	8	552	1944
5:30 PM	4	1	2	0	2	79	5	49	0	26	48	156	1	0	0	3	95	13	0	7	491	2014
5:45 PM	2	1	0	0	3	58	3	39	0	17	44	135	6	0	0	6	106	29	0	7	456	2016
Peak 15-Min Flowrates	Northbound					Southbound					Eastbound					Westbound					Total	
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
All Vehicles	20	12	4	0	4	292	24	328	0	132	280	700	28	0	0	20	372	128	0	32	2376	
Heavy Trucks	0	0	0			4	0	12			8	16	0			0	24	4			68	
Pedestrians			0					0					0					0			0	
Bicycles	0	0	0			0	0	0			0	0	0			0	0	0			0	
Railroad																						
Stopped Buses																						

Comments:

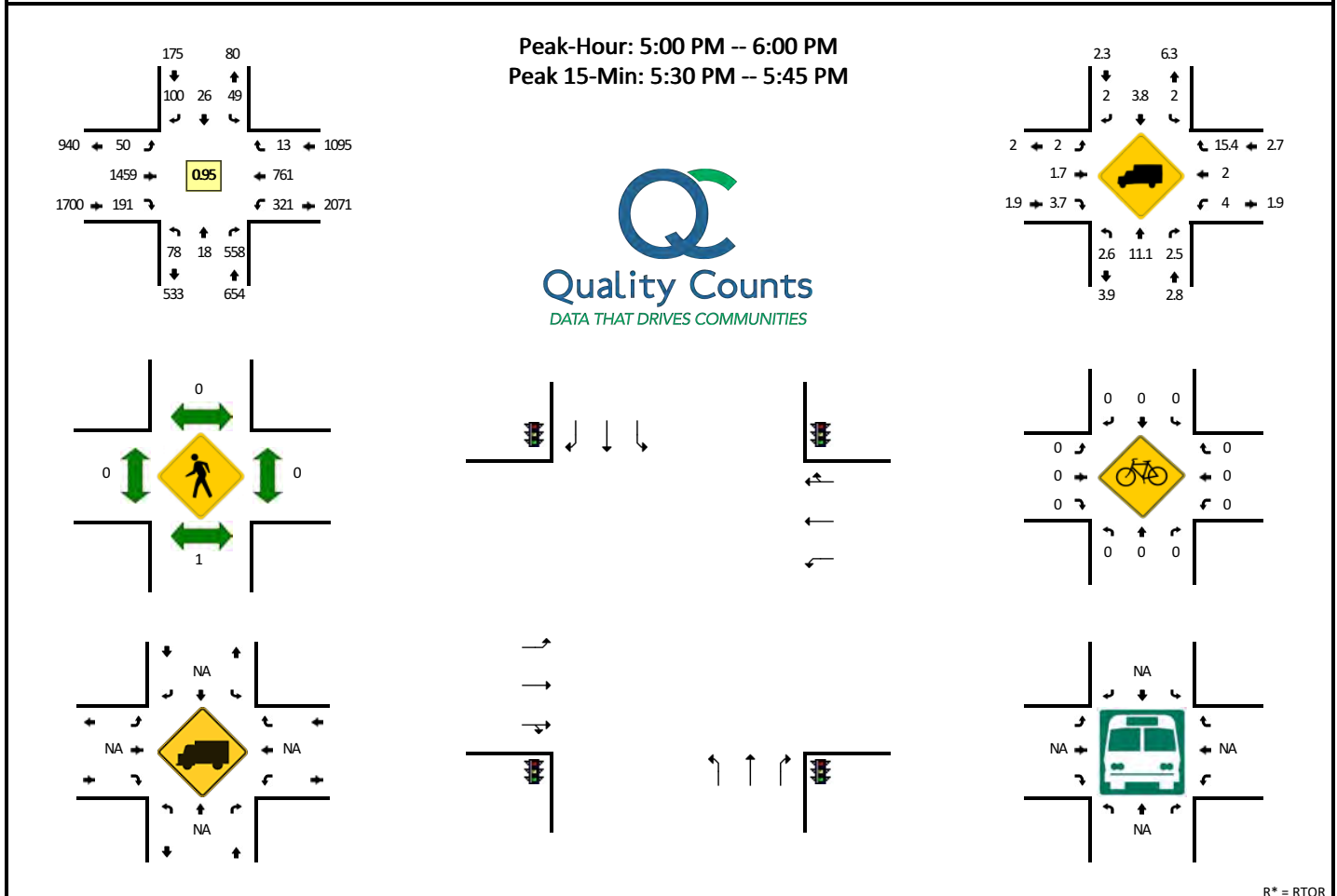
QC JOB #: 15005920
DATE: Thu, Jun 6 2019

[illegible]

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>) 1-877-580-2212

LOCATION: E Graves Ave/Halifax Crossing Blvd -- State Hwy 472
CITY/STATE: Deltona, FL

QC JOB #: 15005912
DATE: Thu, Jun 6 2019



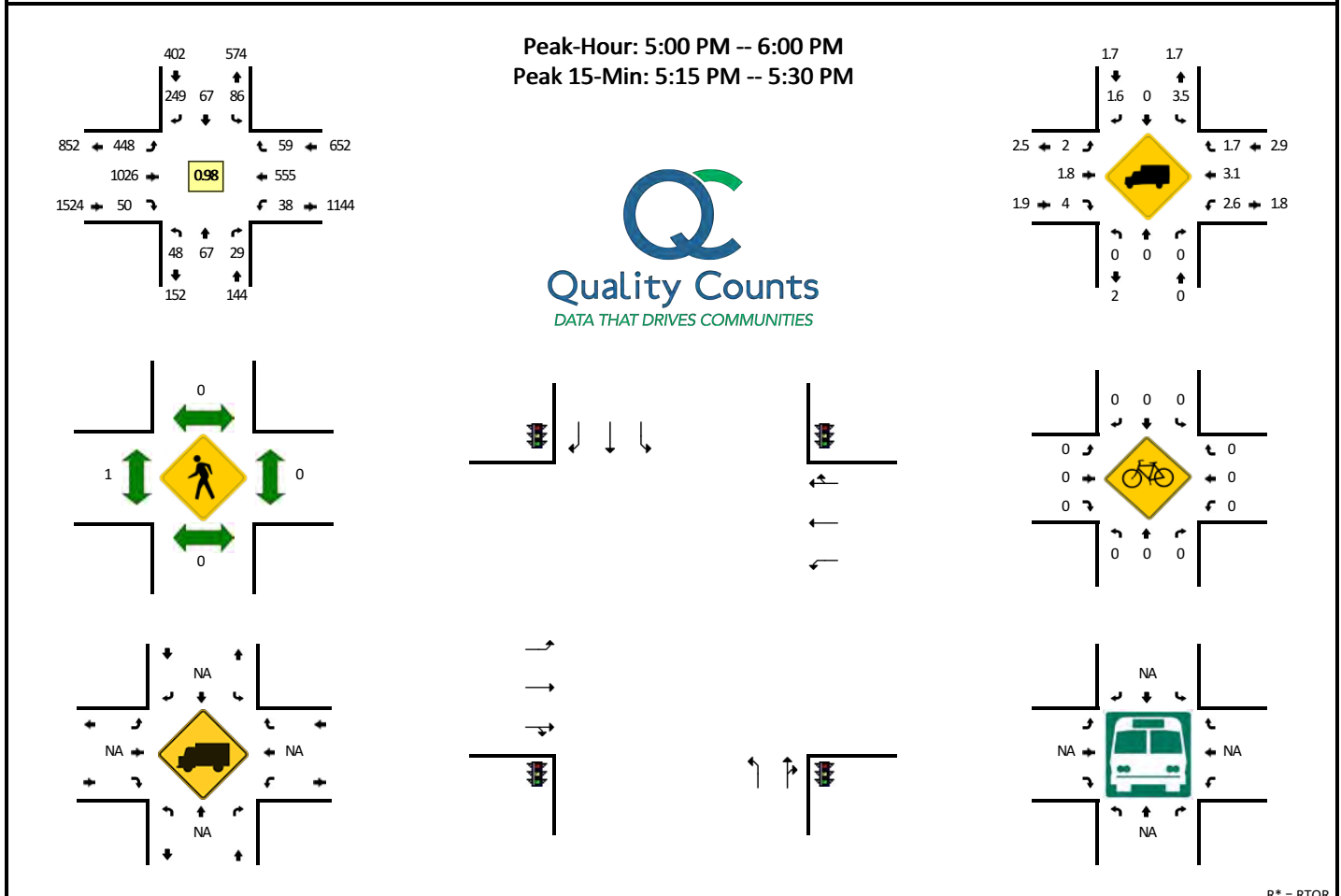
R* = RTOR

15-Min Count Period Beginning At	E Graves Ave/Halifax Crossing Blvd (Northbound)					E Graves Ave/Halifax Crossing Blvd (Southbound)					State Hwy 472 (Eastbound)					State Hwy 472 (Westbound)					Total	Hourly Totals
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
4:00 PM	29	6	129	0	0	4	3	1	0	12	10	337	28	3	2	91	168	5	0	0	828	
4:15 PM	20	7	125	0	0	12	11	3	0	17	14	317	44	1	1	75	160	4	0	1	812	
4:30 PM	26	4	120	0	0	9	4	5	0	11	8	282	43	3	0	69	163	1	2	0	750	
4:45 PM	16	2	129	0	0	8	3	5	0	8	16	321	35	1	3	84	142	0	0	0	773	3163
5:00 PM	18	7	154	0	0	16	4	2	0	12	6	341	47	0	2	79	183	4	0	0	875	3210
5:15 PM	19	2	134	0	0	9	8	10	0	34	12	381	59	1	0	73	183	3	2	0	930	3328
5:30 PM	18	4	142	0	0	11	5	4	0	22	15	380	50	0	0	81	214	3	3	0	952	3530
5:45 PM	23	5	128	0	0	13	9	1	0	15	16	357	30	0	3	83	181	3	0	0	867	3624
Peak 15-Min Flowrates	Northbound					Southbound					Eastbound					Westbound					Total	
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
All Vehicles	72	16	568	0	0	44	20	104	0	88	60	1520	200	0	0	324	856	12	12	0	3896	
Heavy Trucks	4	0	16			0	0	4			0	12	4			16	28	0			84	
Pedestrians		0					0					0					0				0	
Bicycles	0	0	0			0	0	0			0	0	0			0	0	0			0	
Railroad																						
Stopped Buses																						

Comments:

LOCATION: Catalina Blvd -- State Hwy 472
CITY/STATE: Deltona, FL

QC JOB #: 15005914
DATE: Tue, Jun 11 2019



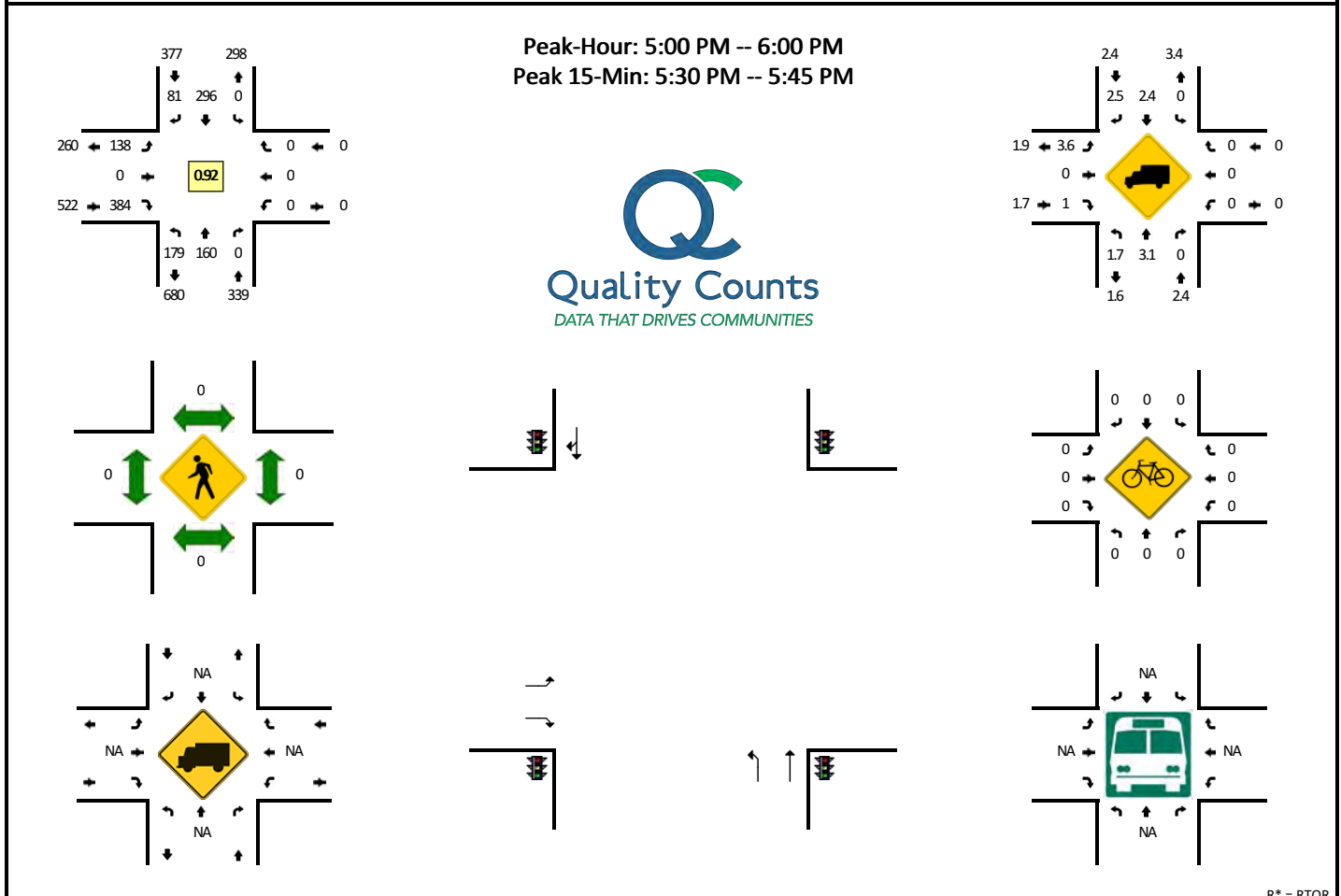
R* = RTOR

15-Min Count Period Beginning At	Catalina Blvd (Northbound)					Catalina Blvd (Southbound)					State Hwy 472 (Eastbound)					State Hwy 472 (Westbound)					Total	Hourly Totals
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
4:00 PM	8	20	4	0	1	22	9	13	0	26	80	178	15	0	0	9	122	16	0	0	523	
4:15 PM	9	13	4	0	2	23	13	18	0	39	94	248	16	0	3	6	114	14	0	0	616	
4:30 PM	15	9	2	0	0	14	15	14	0	40	120	204	15	0	0	4	118	11	0	1	582	
4:45 PM	13	13	3	0	0	20	20	25	0	31	101	229	11	0	0	12	146	16	0	0	640	2361
5:00 PM	7	17	3	0	0	15	15	19	0	35	101	258	16	0	0	7	144	20	2	0	659	2497
5:15 PM	10	14	5	0	5	34	20	18	0	36	119	262	12	0	0	8	137	16	0	0	696	2577
5:30 PM	16	18	5	0	1	14	16	23	0	47	120	260	9	0	0	9	143	6	0	0	687	2682
5:45 PM	15	18	8	0	2	23	16	28	0	43	108	246	13	0	0	11	131	17	1	0	680	2722
Peak 15-Min Flowrates	Northbound					Southbound					Eastbound					Westbound					Total	
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
All Vehicles	40	56	40	0	20	136	80	216	0	144	476	1048	48	0	0	32	548	64	0	0	2948	
Heavy Trucks	0	0	0			4	0	8			8	20	4			0	16	0			60	
Pedestrians																					4	
Bicycles	0	0	0			0	0	0			0	0	0			0	0	0			0	
Railroad																						
Stopped Buses																						

Comments:

LOCATION: Lake Helen Osteen Rd -- Catalina Blvd
CITY/STATE: Deltona, FL

QC JOB #: 15005916
DATE: Thu, Jun 6 2019



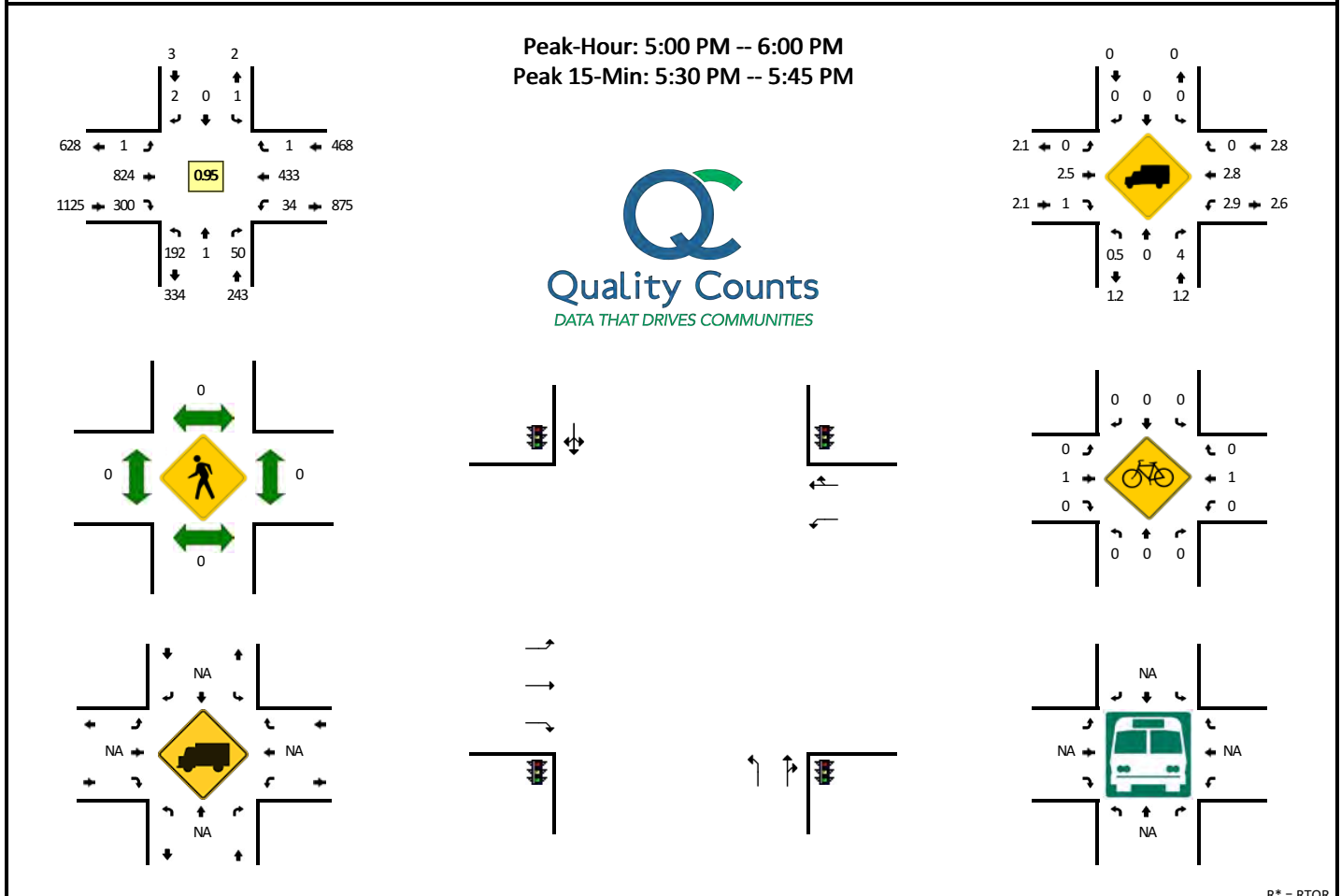
R* = RTOR

15-Min Count Period Beginning At	Lake Helen Osteen Rd (Northbound)					Lake Helen Osteen Rd (Southbound)					Catalina Blvd (Eastbound)					Catalina Blvd (Westbound)					Total	Hourly Totals
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
4:00 PM	42	16	0	0	0	0	55	14	0	4	39	0	38	0	50	0	0	0	0	0	258	
4:15 PM	39	34	0	0	0	0	49	8	0	3	37	0	39	0	40	0	0	0	0	0	249	
4:30 PM	48	31	0	0	0	0	62	12	0	3	34	0	22	0	47	0	0	0	0	0	259	
4:45 PM	44	20	0	0	0	0	61	19	0	6	34	0	35	0	58	0	0	0	0	0	277	1043
5:00 PM	39	31	0	0	0	0	60	20	0	4	31	0	34	0	45	0	0	0	0	0	264	1049
5:15 PM	54	47	0	0	0	0	87	17	0	3	43	0	34	0	48	0	0	0	0	0	333	1133
5:30 PM	46	39	0	0	0	0	92	19	0	5	32	0	62	0	43	0	0	0	0	0	338	1212
5:45 PM	40	43	0	0	0	0	57	9	0	4	32	0	52	0	66	0	0	0	0	0	303	1238
Peak 15-Min Flowrates	Northbound					Southbound					Eastbound					Westbound					Total	
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
All Vehicles	184	156	0	0	0	0	368	96	0	20	128	0	420	0	172	0	0	0	0	0	1544	
Heavy Trucks	0	4	0			0	8	0			0	0	0			0	0	0			12	
Pedestrians	0	0				0	0				0	0				0	0				0	
Bicycles	0	0	0			0	0	0			0	0	0			0	0	0			0	
Railroad																						
Stopped Buses																						

Comments:

LOCATION: Providence Blvd -- Howland Blvd
CITY/STATE: Deltona, FL

QC JOB #: 15005952
DATE: Thu, Jun 13 2019



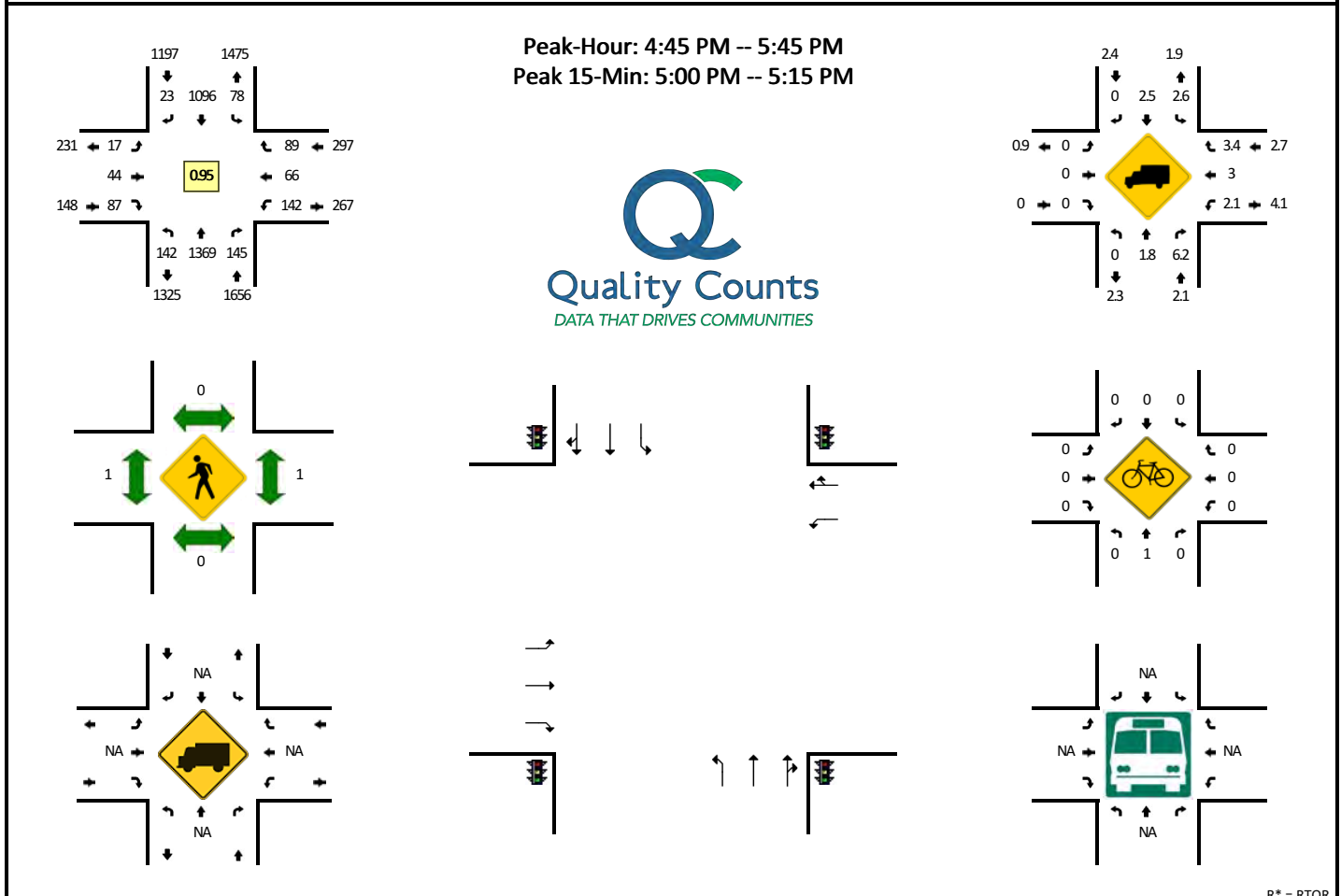
R* = RTOR

15-Min Count Period Beginning At	Providence Blvd (Northbound)					Providence Blvd (Southbound)					Howland Blvd (Eastbound)					Howland Blvd (Westbound)					Total	Hourly Totals
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
4:00 PM	42	1	3	0	5	0	1	0	0	0	0	168	54	0	4	11	112	0	0	0	401	
4:15 PM	55	0	5	0	4	0	0	0	0	0	2	184	69	1	2	9	104	0	0	0	435	
4:30 PM	48	0	4	0	9	0	0	0	0	1	0	171	56	0	2	8	113	0	0	0	412	
4:45 PM	51	0	1	0	2	0	0	0	0	0	0	179	66	0	9	3	111	0	0	0	422	1670
5:00 PM	61	0	6	0	7	0	0	0	0	0	0	217	63	0	4	7	95	0	0	0	460	1729
5:15 PM	35	0	8	0	6	1	0	0	0	0	0	210	64	0	8	11	114	0	0	0	457	1751
5:30 PM	39	1	5	0	3	0	0	0	0	0	0	220	86	1	2	8	117	1	0	0	483	1822
5:45 PM	57	0	6	0	9	0	0	0	0	2	0	177	71	0	2	8	107	0	0	0	439	1839
Peak 15-Min Flowrates	Northbound					Southbound					Eastbound					Westbound					Total	
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
All Vehicles	156	4	32	0	12	0	0	0	0	0	0	880	352	4	8	32	468	4	0	0	1952	
Heavy Trucks	0	0	4			0	0	0			0	32	0			0	20	0			56	
Pedestrians	0					0					0					0					0	
Bicycles	0	0	0			0	0	0			0	0	0			0	0	0			0	
Railroad																						
Stopped Buses																						

Comments:

LOCATION: US 92 -- W Rhode Island Ave
CITY/STATE: Orange City, FL

QC JOB #: 15005930
DATE: Thu, Jun 6 2019



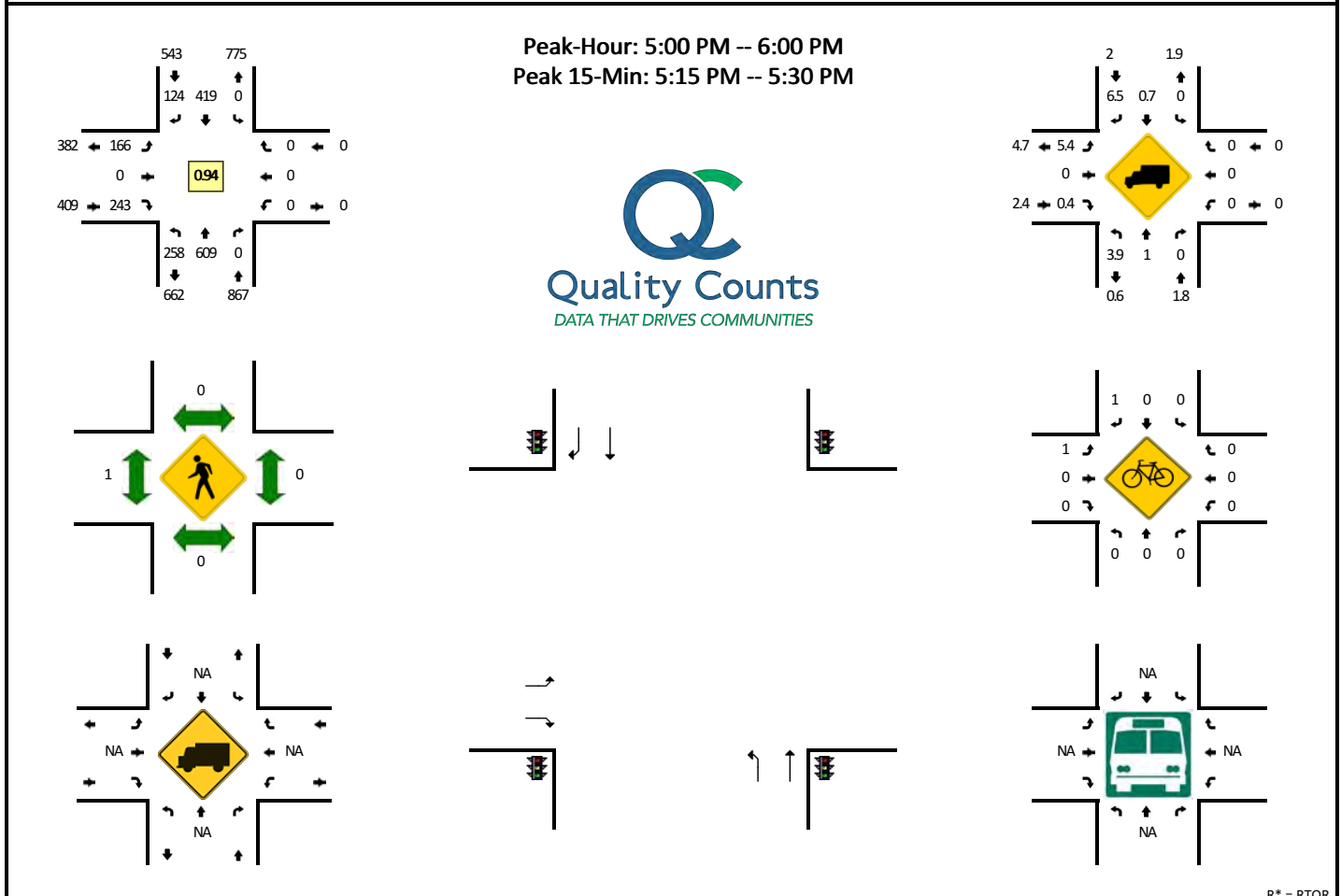
R* = RTOR

15-Min Count Period Beginning At	US 92 (Northbound)					US 92 (Southbound)					W Rhode Island Ave (Eastbound)					W Rhode Island Ave (Westbound)					Total	Hourly Totals
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
4:00 PM	37	276	29	0	3	17	227	2	0	0	10	9	10	0	15	43	11	12	0	9	710	
4:15 PM	33	293	35	0	0	18	251	10	0	0	10	6	4	0	19	30	17	11	0	8	745	
4:30 PM	32	298	26	0	0	14	229	2	0	0	12	19	10	0	26	29	12	9	0	9	727	
4:45 PM	33	325	23	0	0	14	279	6	0	1	7	12	4	0	13	38	15	8	0	10	788	2970
5:00 PM	34	373	39	0	1	20	288	4	0	0	4	8	3	0	23	32	16	20	0	7	872	3132
5:15 PM	41	322	42	0	0	27	262	5	0	2	0	12	2	0	16	43	15	21	0	3	813	3200
5:30 PM	34	349	40	0	0	17	267	5	0	0	6	12	4	0	22	29	20	16	0	4	825	3298
5:45 PM	35	283	40	0	0	19	261	3	0	0	4	7	1	0	14	39	19	19	0	1	745	3255
Peak 15-Min Flowrates	Northbound					Southbound					Eastbound					Westbound					Total	
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
All Vehicles	136	1492	160	0	4	80	1152	16	0	0	16	32	104	0	92	128	64	108	0	28	3612	
Heavy Trucks	0	36	8			4	28	0			0	0	0			8	0	4			88	
Pedestrians			0					0					0					0			0	
Bicycles	0	0	0			0	0	0			0	0	0			0	0	0			0	
Railroad																						
Stopped Buses																						

Comments:

LOCATION: Veterans Memorial Pkwy -- E Rhode Island Ave
CITY/STATE: Orange City, FL

QC JOB #: 15005928
DATE: Tue, Jun 11 2019



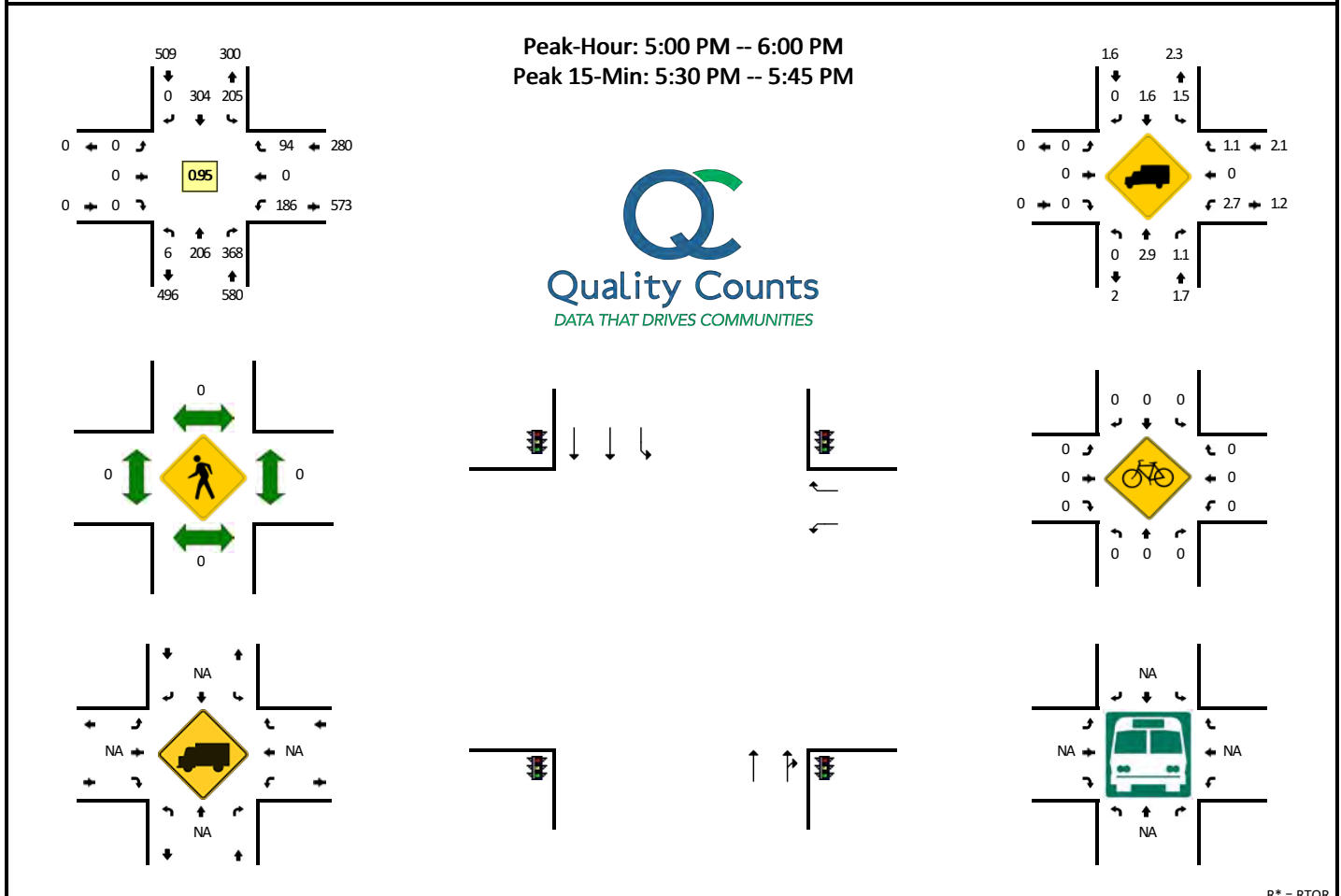
R* = RTOR

15-Min Count Period Beginning At	Veterans Memorial Pkwy (Northbound)					Veterans Memorial Pkwy (Southbound)					E Rhode Island Ave (Eastbound)					E Rhode Island Ave (Westbound)					Total	Hourly Totals
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
4:00 PM	51	118	0	0	0	0	104	28	0	12	43	0	21	0	31	0	0	0	0	0	408	
4:15 PM	52	135	0	0	0	0	93	27	0	12	28	0	20	0	35	0	0	0	0	0	402	
4:30 PM	68	140	0	0	0	0	116	17	0	6	36	0	32	0	36	0	0	0	0	0	451	
4:45 PM	57	153	0	0	0	0	93	20	0	14	23	0	21	0	28	0	0	0	0	0	409	1670
5:00 PM	61	164	0	0	0	0	101	19	0	14	58	0	25	0	31	0	0	0	0	0	473	1735
5:15 PM	75	161	0	0	0	0	104	18	0	20	36	0	33	0	35	0	0	0	0	0	482	1815
5:30 PM	63	138	0	0	0	0	104	19	0	11	38	0	32	0	45	0	0	0	0	0	450	1814
5:45 PM	59	146	0	0	0	0	110	17	0	6	34	0	12	0	30	0	0	0	0	0	414	1819
Peak 15-Min Flowrates	Northbound					Southbound					Eastbound					Westbound					Total	
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
All Vehicles	300	644	0	0	0	0	416	152	0	80	144	0	272	0	140	0	0	0	0	0	2148	
Heavy Trucks	12	4	0			0	12	12			0	0	0			0	0	0			40	
Pedestrians		0					0					0					0				0	
Bicycles	0	0	0			0	0	0			0	0	0			0	0	0			0	
Railroad																						
Stopped Buses																						

Comments:

LOCATION: N Normandy Blvd -- Elkcaml Blvd
CITY/STATE: Deltona, FL

QC JOB #: 15005944
DATE: Thu, Jun 6 2019



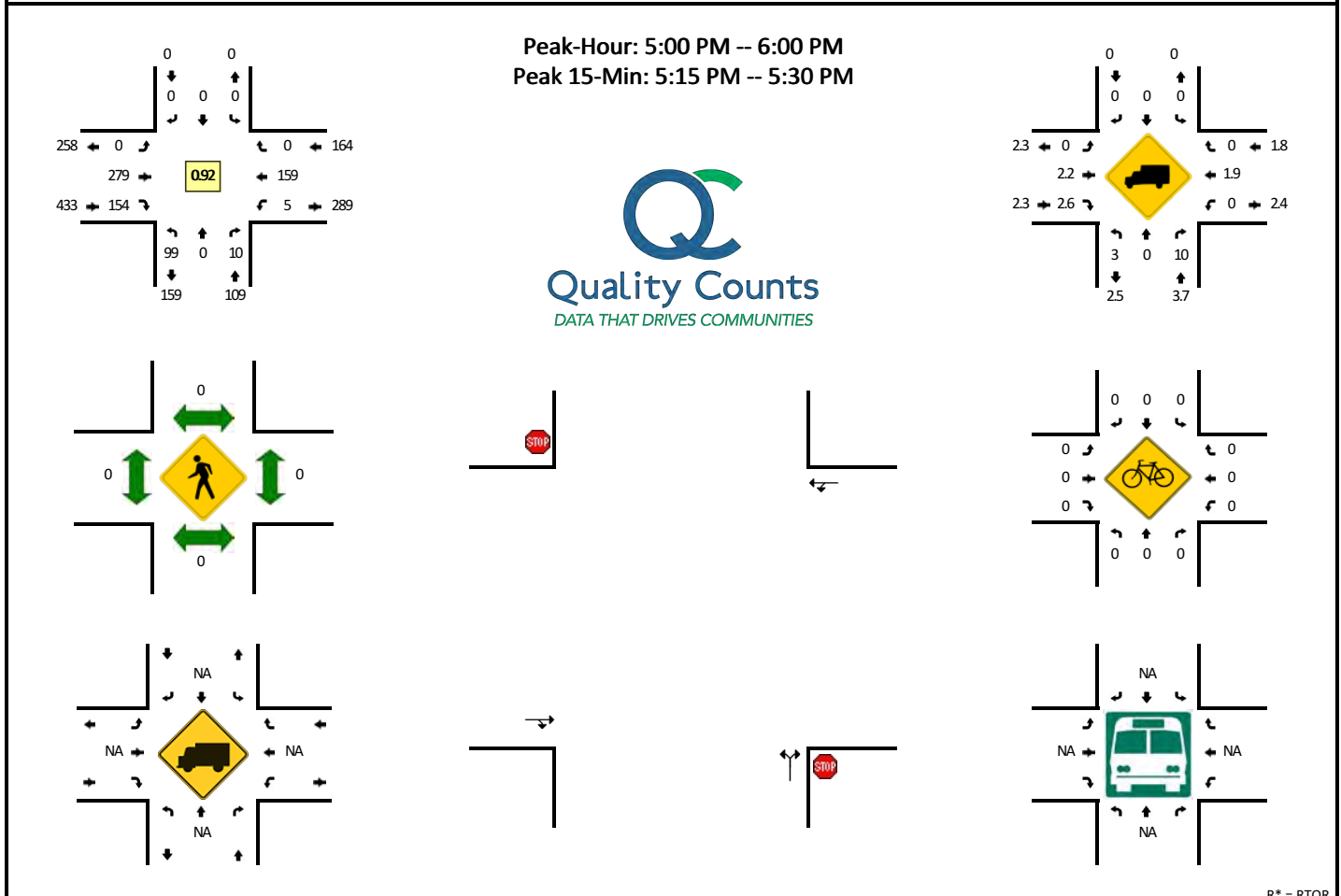
R* = RTOR

15-Min Count Period Beginning At	N Normandy Blvd (Northbound)					N Normandy Blvd (Southbound)					Elkcaml Blvd (Eastbound)					Elkcaml Blvd (Westbound)					Total	Hourly Totals
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
4:00 PM	0	52	53	0	30	31	62	0	1	0	0	0	0	0	0	26	0	9	0	10	274	
4:15 PM	0	41	56	0	33	39	52	0	0	0	0	0	0	0	0	42	0	3	0	11	277	
4:30 PM	0	46	46	0	20	40	62	0	0	0	0	0	0	0	0	44	0	6	0	11	275	
4:45 PM	0	41	43	0	39	40	66	0	0	0	0	0	0	0	0	36	0	15	0	9	289	1115
5:00 PM	0	47	53	0	45	46	41	0	0	0	0	0	0	0	0	50	0	16	0	8	306	1147
5:15 PM	0	41	59	1	33	55	84	0	0	0	0	0	0	0	0	56	0	10	0	16	355	1225
5:30 PM	0	61	61	3	33	60	91	0	0	0	0	0	0	0	0	35	0	6	0	12	362	1312
5:45 PM	0	57	51	2	33	44	88	0	0	0	0	0	0	0	0	45	0	13	0	13	346	1369
Peak 15-Min Flowrates	Northbound					Southbound					Eastbound					Westbound					Total	
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
All Vehicles	0	244	376	12	132	240	364	0	0	0	0	0	0	0	0	140	0	72	0	48	1628	
Heavy Trucks	0	12	0			0	8	0			0	0	0			0	0	0			20	
Pedestrians		0					0					0					0				0	
Bicycles	0	0	0			0	0	0			0	0	0			0	0	0			0	
Railroad																						
Stopped Buses																						

Comments:

LOCATION: Fort Smith Blvd -- Elkcaml Blvd
CITY/STATE: Deltona, FL

QC JOB #: 15005946
DATE: Thu, Jun 6 2019



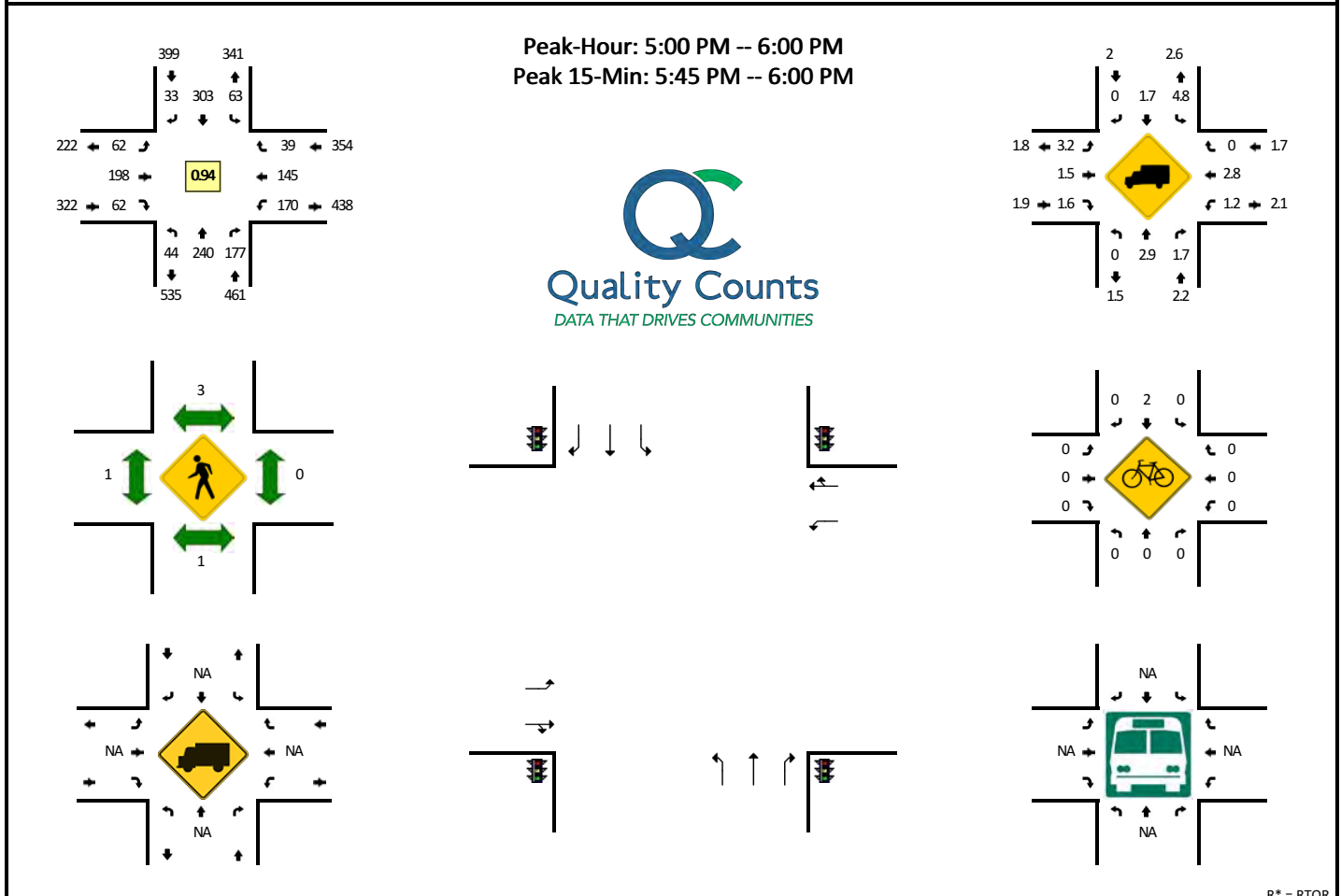
R* = RTOR

15-Min Count Period Beginning At	Fort Smith Blvd (Northbound)					Fort Smith Blvd (Southbound)					Elkcaml Blvd (Eastbound)					Elkcaml Blvd (Westbound)					Total	Hourly Totals
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
4:00 PM	18	0	1	0	0	0	0	0	0	0	0	64	28	0	0	3	25	0	0	0	139	
4:15 PM	17	0	2	0	0	0	0	0	0	0	0	62	24	0	0	2	34	0	0	0	141	
4:30 PM	19	0	3	0	0	0	0	0	0	0	0	67	37	0	0	3	39	0	0	0	168	
4:45 PM	24	0	0	0	0	0	0	0	0	0	0	65	34	0	0	3	38	0	0	0	164	612
5:00 PM	24	0	2	0	0	0	0	0	0	0	0	64	38	0	0	2	40	0	0	0	170	643
5:15 PM	25	0	2	0	0	0	0	0	0	0	0	79	37	0	0	1	48	0	0	0	192	694
5:30 PM	26	0	4	0	0	0	0	0	0	0	0	63	47	0	0	1	29	0	0	0	170	696
5:45 PM	24	0	2	0	0	0	0	0	0	0	0	73	32	0	0	1	42	0	0	0	174	706
Peak 15-Min Flowrates	Northbound					Southbound					Eastbound					Westbound					Total	
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
All Vehicles	100	0	8	0	0	0	0	0	0	0	0	316	148	0	0	4	192	0	0	0	768	
Heavy Trucks	0	0	0			0	0	0			0	12	0			0	4	0			16	
Pedestrians	0					0					0					0					0	
Bicycles	0	0	0			0	0	0			0	0	0			0	0	0			0	
Railroad																						
Stopped Buses																						

Comments:

LOCATION: Providence Blvd -- Elkcaml Blvd
CITY/STATE: Deltona, FL

QC JOB #: 15005948
DATE: Tue, Jun 11 2019



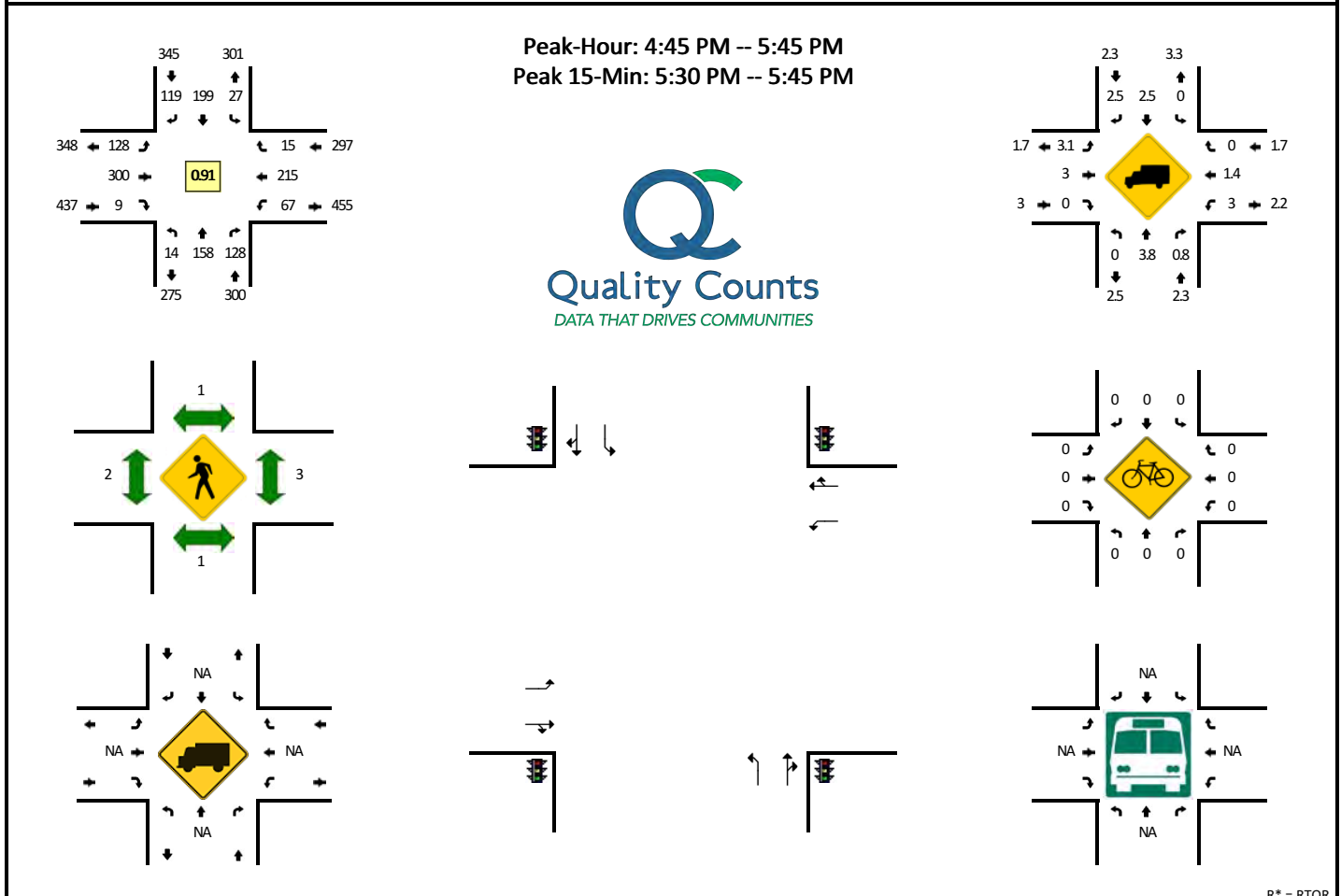
R* = RTOR

15-Min Count Period Beginning At	Providence Blvd (Northbound)					Providence Blvd (Southbound)					Elkcaml Blvd (Eastbound)					Elkcaml Blvd (Westbound)					Total	Hourly Totals
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
4:00 PM	11	58	27	0	22	14	68	2	0	1	7	37	8	0	3	45	20	7	0	2	332	
4:15 PM	11	53	19	0	20	11	65	6	0	5	6	50	10	0	2	28	24	5	0	3	318	
4:30 PM	10	44	20	0	15	11	73	3	0	7	11	43	8	0	4	55	33	5	0	2	344	
4:45 PM	9	59	26	0	21	16	53	6	0	4	9	47	9	0	2	43	25	11	0	1	341	1335
5:00 PM	13	57	27	0	22	16	83	5	0	9	15	43	10	0	5	41	32	8	0	4	390	1393
5:15 PM	12	60	20	0	20	13	73	4	0	3	11	59	14	0	1	39	36	2	0	1	368	1443
5:30 PM	10	58	17	0	20	13	65	1	0	7	12	55	11	0	3	46	37	14	0	1	370	1469
5:45 PM	9	65	30	0	21	21	82	2	0	2	24	41	15	0	3	44	40	8	0	1	408	1536
Peak 15-Min Flowrates	Northbound					Southbound					Eastbound					Westbound					Total	
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
All Vehicles	36	260	204	0	84	84	328	16	0	8	96	164	72	0	12	176	160	36	0	4	1740	
Heavy Trucks	0	16	4			8	4	0			4	8	0			0	8	0			52	
Pedestrians																					0	
Bicycles	0	0	0			0	0	0			0	0	0			0	0	0			0	
Railroad																						
Stopped Buses																						

Comments:

LOCATION: Lake Helen Osteen Rd -- Elkcaml Blvd
CITY/STATE: Volusia, FL

QC JOB #: 15012210
DATE: Wed, Jun 19 2019



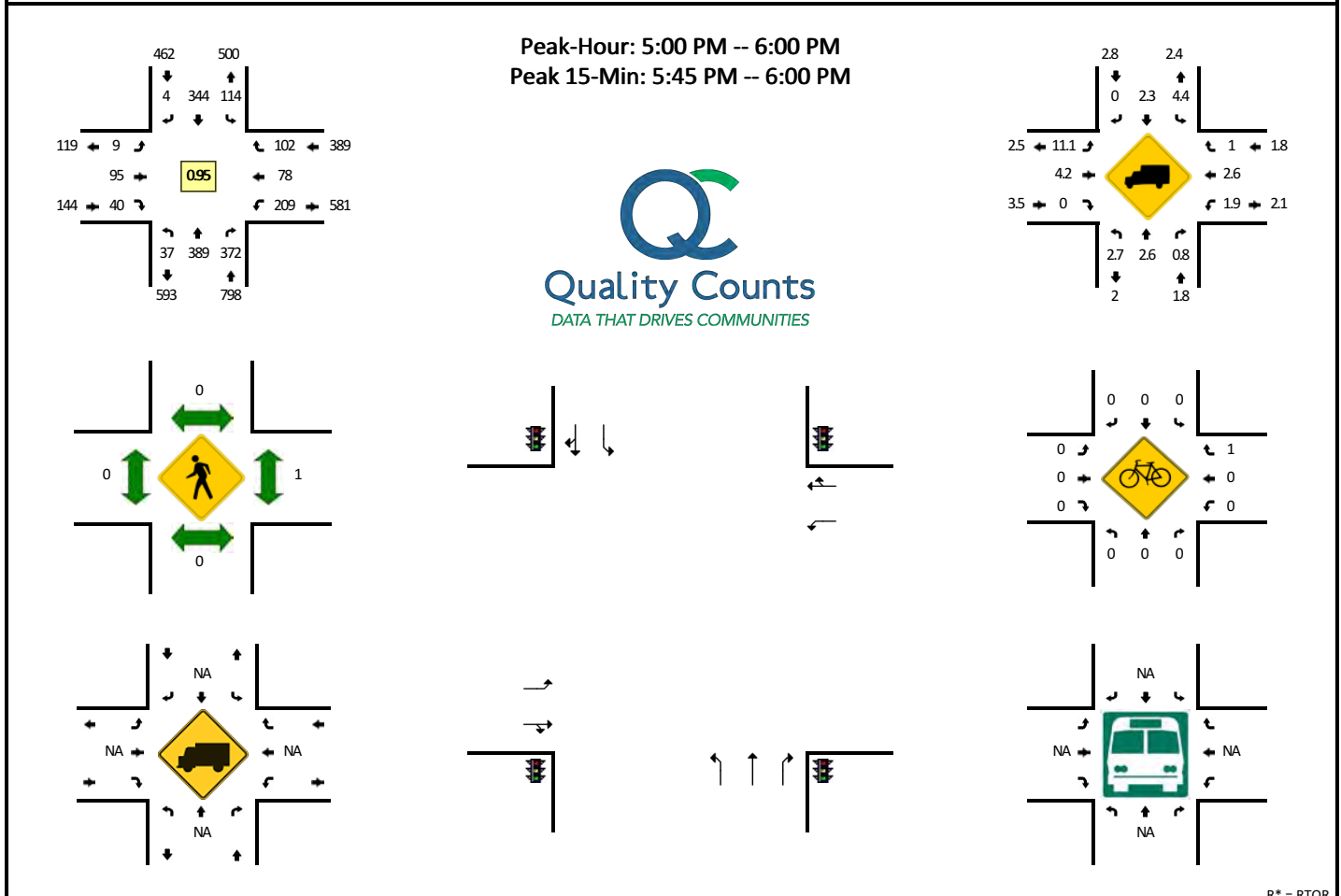
R* = RTOR

15-Min Count Period Beginning At	Lake Helen Osteen Rd (Northbound)					Lake Helen Osteen Rd (Southbound)					Elkcaml Blvd (Eastbound)					Elkcaml Blvd (Westbound)					Total	Hourly Totals
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
4:00 PM	3	51	26	0	9	2	39	16	0	8	28	89	3	0	0	13	42	1	0	2	332	
4:15 PM	3	39	20	0	13	5	39	22	0	10	16	68	3	0	2	18	59	3	0	0	320	
4:30 PM	4	40	19	0	12	5	40	16	0	8	35	72	5	0	0	16	43	4	0	0	319	
4:45 PM	5	34	26	0	7	9	51	18	0	12	38	64	1	0	0	15	46	1	0	3	330	1301
5:00 PM	2	31	23	0	12	7	45	20	0	5	27	74	1	0	0	18	45	0	0	1	311	1280
5:15 PM	2	45	27	0	6	4	50	26	0	5	30	75	0	0	0	23	61	4	0	0	358	1318
5:30 PM	5	48	19	0	8	7	53	22	0	11	33	87	7	0	0	11	63	6	0	0	380	1379
5:45 PM	6	52	24	0	11	4	46	13	0	7	24	71	4	0	2	12	45	6	0	1	328	1377
Peak 15-Min Flowrates	Northbound					Southbound					Eastbound					Westbound					Total	
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
All Vehicles	20	192	108	0	32	28	212	132	0	44	132	348	28	0	0	44	252	24	0	0	1596	
Heavy Trucks	0	0	0			0	0	8			4	16	0			0	0	0			28	
Pedestrians								4													4	
Bicycles	0	0	0			0	0	0			0	0	0			0	0	0			0	
Railroad																						
Stopped Buses																						

Comments:

LOCATION: Providence Blvd -- Fort Smith Blvd
CITY/STATE: Deltona, FL

QC JOB #: 15005950
DATE: Thu, Jun 6 2019



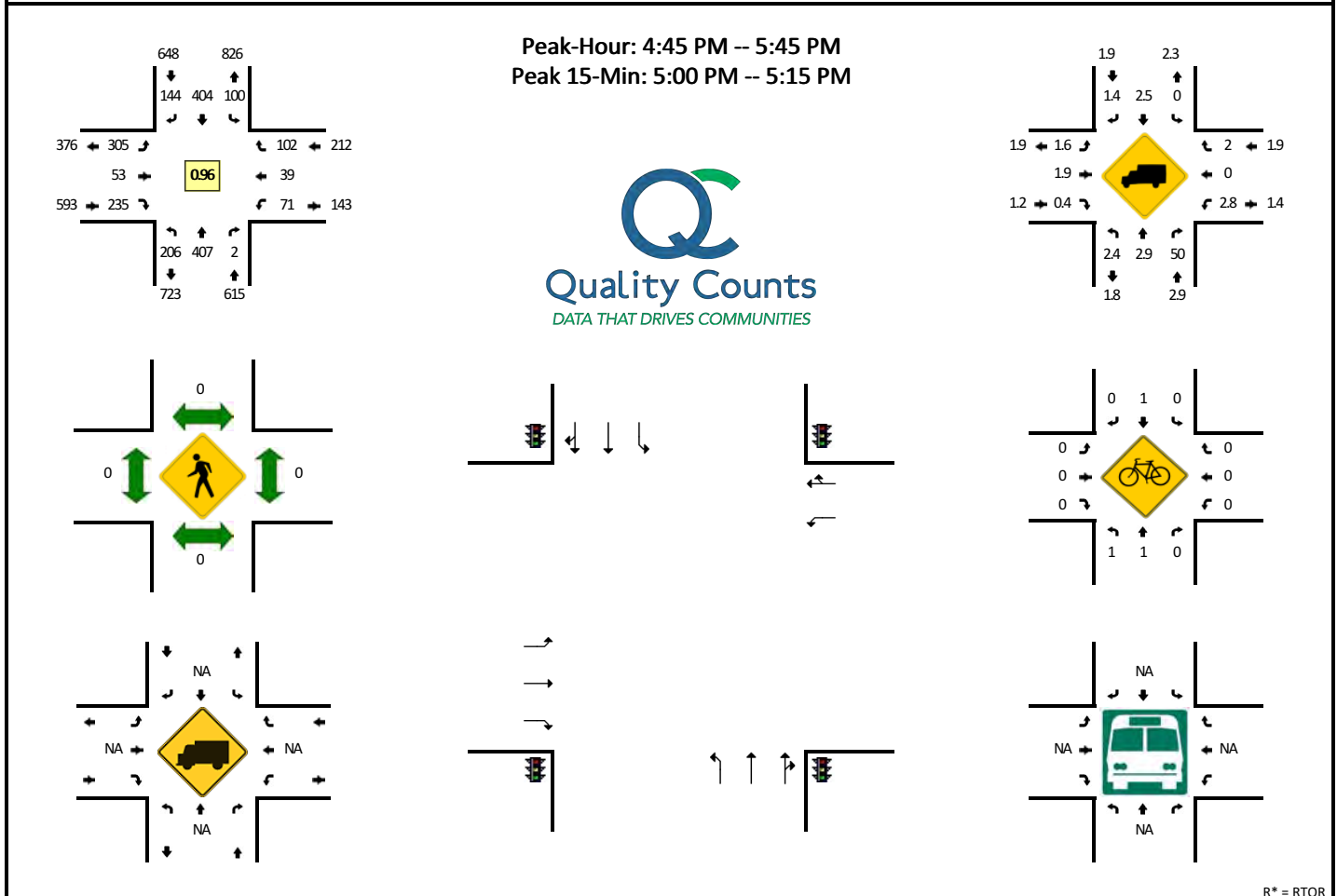
R* = RTOR

15-Min Count Period Beginning At	Providence Blvd (Northbound)					Providence Blvd (Southbound)					Fort Smith Blvd (Eastbound)					Fort Smith Blvd (Westbound)					Total	Hourly Totals
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
4:00 PM	5	82	54	0	14	20	79	0	0	0	1	23	5	0	2	45	13	8	0	1	352	
4:15 PM	4	84	45	0	18	12	72	2	0	0	1	15	1	0	4	40	17	7	0	8	330	
4:30 PM	3	76	47	0	29	19	89	0	0	0	1	24	3	0	6	48	16	7	0	10	378	
4:45 PM	11	92	40	0	25	24	83	1	0	0	2	20	3	0	2	39	23	12	0	7	384	1444
5:00 PM	12	92	48	0	31	34	77	2	0	0	3	22	7	0	4	47	13	14	0	7	413	1505
5:15 PM	5	87	79	0	23	27	76	0	0	0	0	28	6	0	3	49	23	22	0	10	438	1613
5:30 PM	8	89	73	0	30	34	85	2	0	0	4	27	9	0	1	60	22	21	0	4	469	1704
5:45 PM	12	121	58	0	30	19	106	0	0	0	2	18	7	0	3	53	20	13	0	11	473	1793
Peak 15-Min Flowrates	Northbound					Southbound					Eastbound					Westbound					Total	
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
All Vehicles	48	484	352	0	120	76	424	0	0	0	8	72	40	0	12	212	80	96	0	44	2068	
Heavy Trucks	4	28	8			8	4	0			0	4	0			8	4	0			68	
Pedestrians		0					0					0					0				0	
Bicycles	0	0	0			0	0	0			0	0	0			0	0	1			1	
Railroad																						
Stopped Buses																						

Comments:

LOCATION: Veterans Memorial Pkwy -- Harley Strickland Blvd
CITY/STATE: Orange City, FL

QC JOB #: 15005932
DATE: Thu, Jun 6 2019



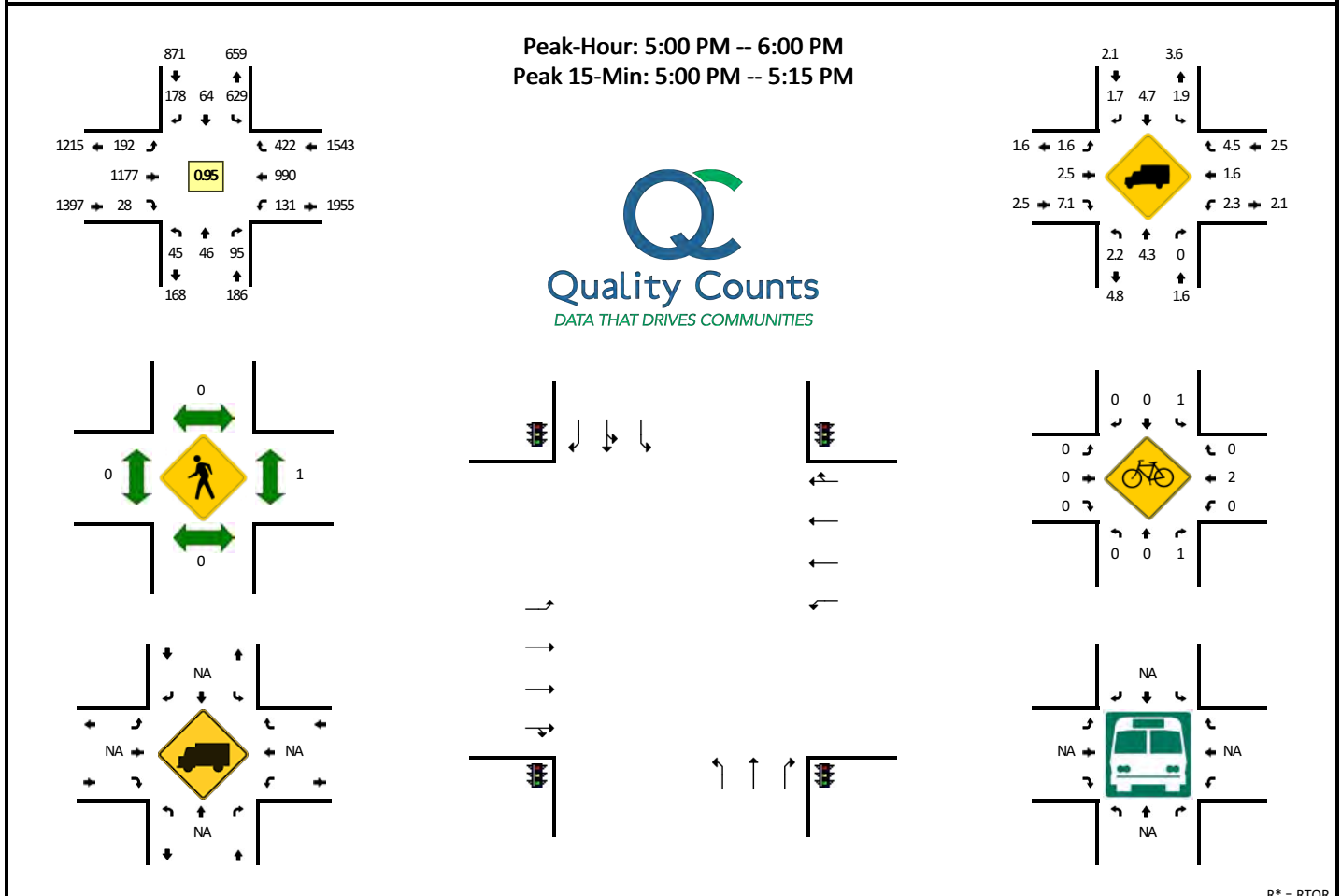
R* = RTOR

15-Min Count Period Beginning At	Veterans Memorial Pkwy (Northbound)					Veterans Memorial Pkwy (Southbound)					Harley Strickland Blvd (Eastbound)					Harley Strickland Blvd (Westbound)					Total	Hourly Totals
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
4:00 PM	45	86	1	4	0	24	82	33	1	13	65	21	20	0	39	24	17	23	0	10	508	
4:15 PM	34	94	0	4	0	13	81	31	3	14	56	17	25	0	25	10	15	14	0	9	445	
4:30 PM	57	55	0	2	0	17	84	29	4	2	80	22	36	0	39	21	13	20	0	10	491	
4:45 PM	59	90	1	4	0	17	90	30	3	5	78	17	35	0	25	22	10	17	0	8	511	1955
5:00 PM	47	114	1	2	0	21	104	25	2	8	82	14	35	0	26	19	11	14	0	13	538	1985
5:15 PM	39	106	0	5	0	21	111	25	6	9	73	13	31	0	29	15	10	29	0	2	524	2064
5:30 PM	48	97	0	2	0	29	99	35	1	7	72	9	27	0	27	15	8	17	0	2	495	2068
5:45 PM	37	103	0	2	0	13	98	31	1	4	61	10	7	0	47	18	10	10	0	17	469	2026
Peak 15-Min Flowrates	Northbound					Southbound					Eastbound					Westbound					Total	
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
All Vehicles	188	456	4	8	0	84	416	132	8	32	328	56	244	0	104	76	44	108	0	52	2340	
Heavy Trucks	8	28	4			0	8	0			4	4	0			4	0	0			60	
Pedestrians																					0	
Bicycles	0	1	0			0	1	0			0	0	0			0	0	0			2	
Railroad																						
Stopped Buses																						

Comments:

LOCATION: Veterans Memorial Pkwy -- Saxon Blvd
CITY/STATE: Orange City, FL

QC JOB #: 15005934
DATE: Thu, Jun 6 2019



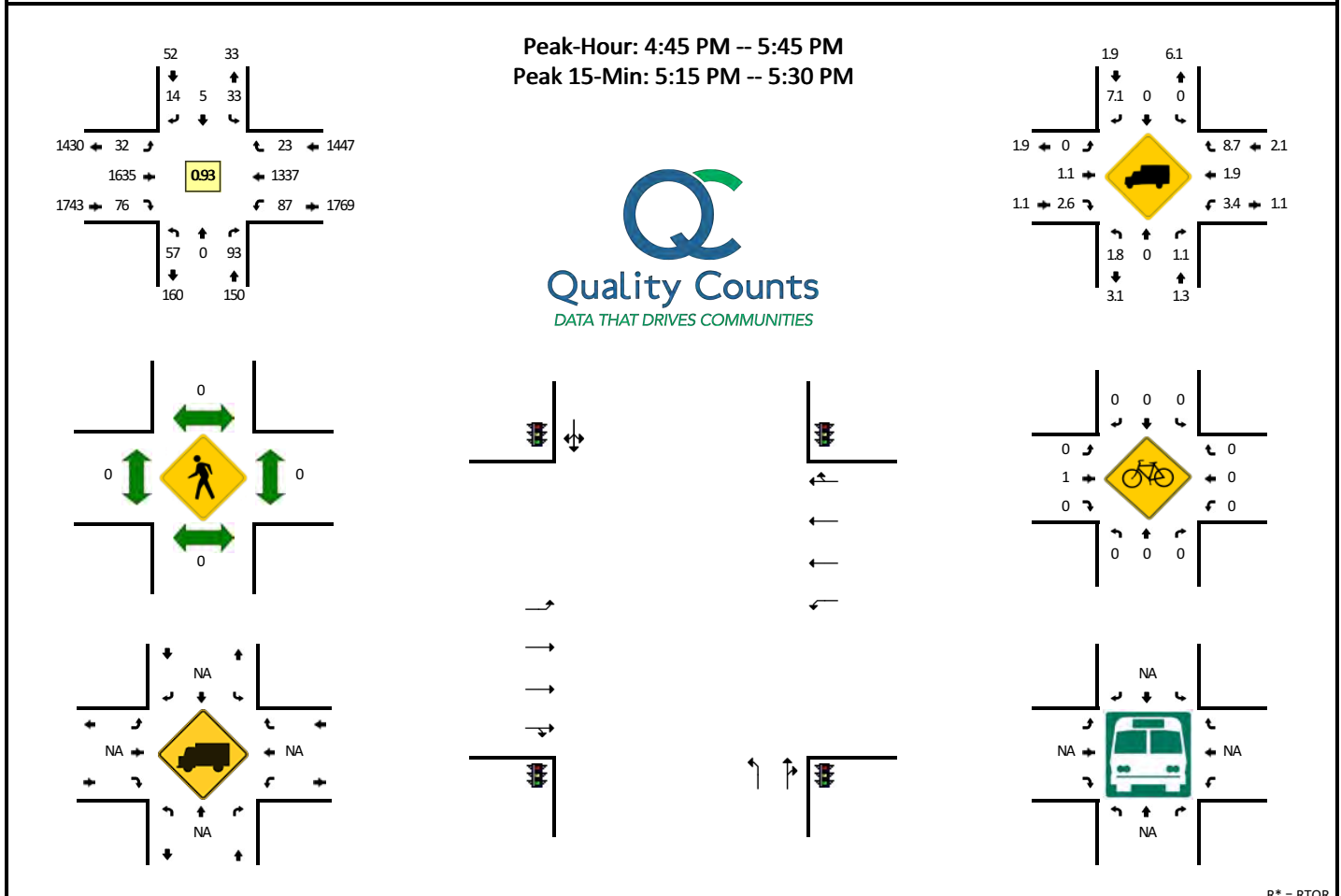
R* = RTOR

15-Min Count Period Beginning At	Veterans Memorial Pkwy (Northbound)					Veterans Memorial Pkwy (Southbound)					Saxon Blvd (Eastbound)					Saxon Blvd (Westbound)					Total	Hourly Totals
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
4:00 PM	5	15	1	0	16	124	12	20	0	33	46	256	1	0	3	18	211	101	15	0	877	
4:15 PM	15	6	7	0	10	150	15	23	0	19	36	258	6	0	2	15	242	92	13	0	909	
4:30 PM	7	10	5	0	11	170	9	16	0	25	47	269	2	0	3	11	218	97	8	0	908	
4:45 PM	9	18	5	0	11	127	17	27	1	32	44	232	7	2	1	18	186	105	8	0	850	3544
5:00 PM	7	14	14	0	11	164	14	24	0	15	52	333	6	1	3	13	244	126	16	0	1057	3724
5:15 PM	11	11	7	0	17	168	12	33	0	15	51	320	6	0	2	26	253	99	7	0	1038	3853
5:30 PM	19	14	15	0	10	143	22	15	0	23	38	272	6	1	1	19	259	108	10	0	975	3920
5:45 PM	8	7	2	0	19	153	16	36	1	17	49	252	3	0	1	18	234	89	22	0	927	3997
Peak 15-Min Flowrates	Northbound					Southbound					Eastbound					Westbound					Total	
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
All Vehicles	28	56	100	0	44	656	56	156	0	60	208	1332	36	4	12	52	976	504	64	0	4344	
Heavy Trucks	0	8	0			16	0	0			8	24	0			8	20	36			120	
Pedestrians																					0	
Bicycles	0	0	0			1	0	0			0	0	0			0	1	0			2	
Railroad																						
Stopped Buses																						

Comments:

LOCATION: FDOT Park/Ride -- Saxon Blvd
CITY/STATE: Volusia, FL

QC JOB #: 15012212
DATE: Wed, Jun 19 2019



R* = RTOR

15-Min Count Period Beginning At	FDOT Park/Ride (Northbound)					FDOT Park/Ride (Southbound)					Saxon Blvd (Eastbound)					Saxon Blvd (Westbound)					Total	Hourly Totals
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
4:00 PM	9	1	6	2	17	11	1	0	0	6	2	385	15	6	1	27	335	5	0	0	829	
4:15 PM	17	0	15	0	28	1	1	2	0	2	1	366	11	0	0	33	328	2	4	0	811	
4:30 PM	19	0	10	0	9	7	2	2	0	3	0	405	5	2	0	17	263	5	2	1	752	
4:45 PM	14	0	9	0	15	8	1	1	0	0	3	378	13	7	1	25	324	8	1	1	809	3201
5:00 PM	10	0	5	1	10	15	1	3	0	2	2	467	11	5	0	20	322	5	0	0	879	3251
5:15 PM	15	0	15	0	18	7	3	1	0	4	2	416	34	3	3	17	361	6	5	0	910	3350
5:30 PM	17	0	8	0	13	2	0	1	1	2	2	374	14	8	0	16	330	3	3	0	794	3392
5:45 PM	16	0	10	0	13	3	1	1	0	1	2	288	11	6	1	13	243	3	0	0	612	3195
Peak 15-Min Flowrates	Northbound					Southbound					Eastbound					Westbound					Total	
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
All Vehicles	60	0	132	0	72	28	12	20	0	16	8	1664	148	12	12	68	1444	24	20	0	3740	
Heavy Trucks	0	0	0			0	0	4			0	8	8			0	32	4			56	
Pedestrians																					0	
Bicycles	0	0	0			0	0	0			0	0	0			0	0	0			0	
Railroad																						
Stopped Buses																						

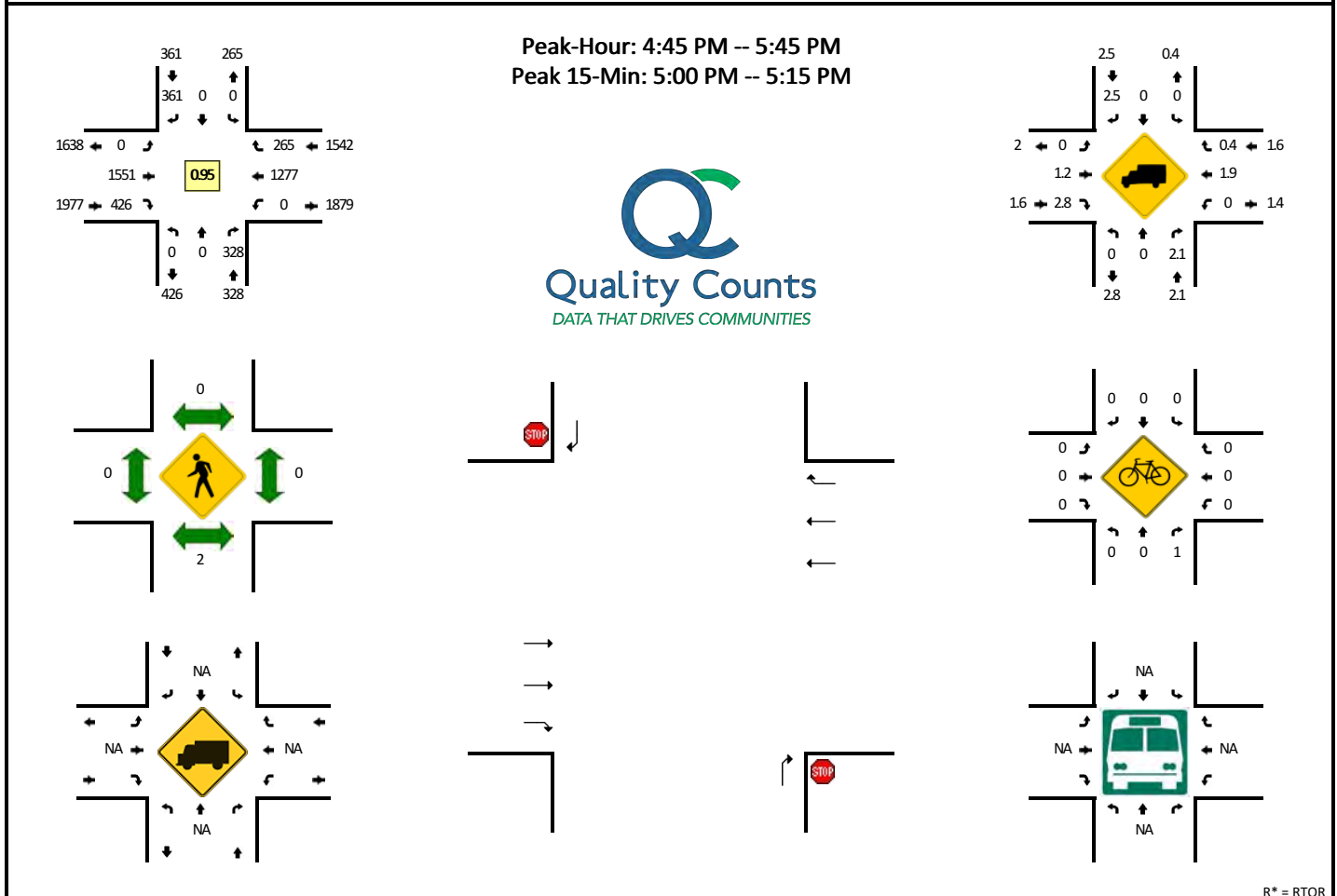
Comments:

Report generated on 6/21/2019 1:29 PM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>) 1-877-580-2212

LOCATION: I-4 SB Ramps -- Saxon Blvd
CITY/STATE: Orange City, FL

QC JOB #: 15005936
DATE: Tue, Jun 11 2019



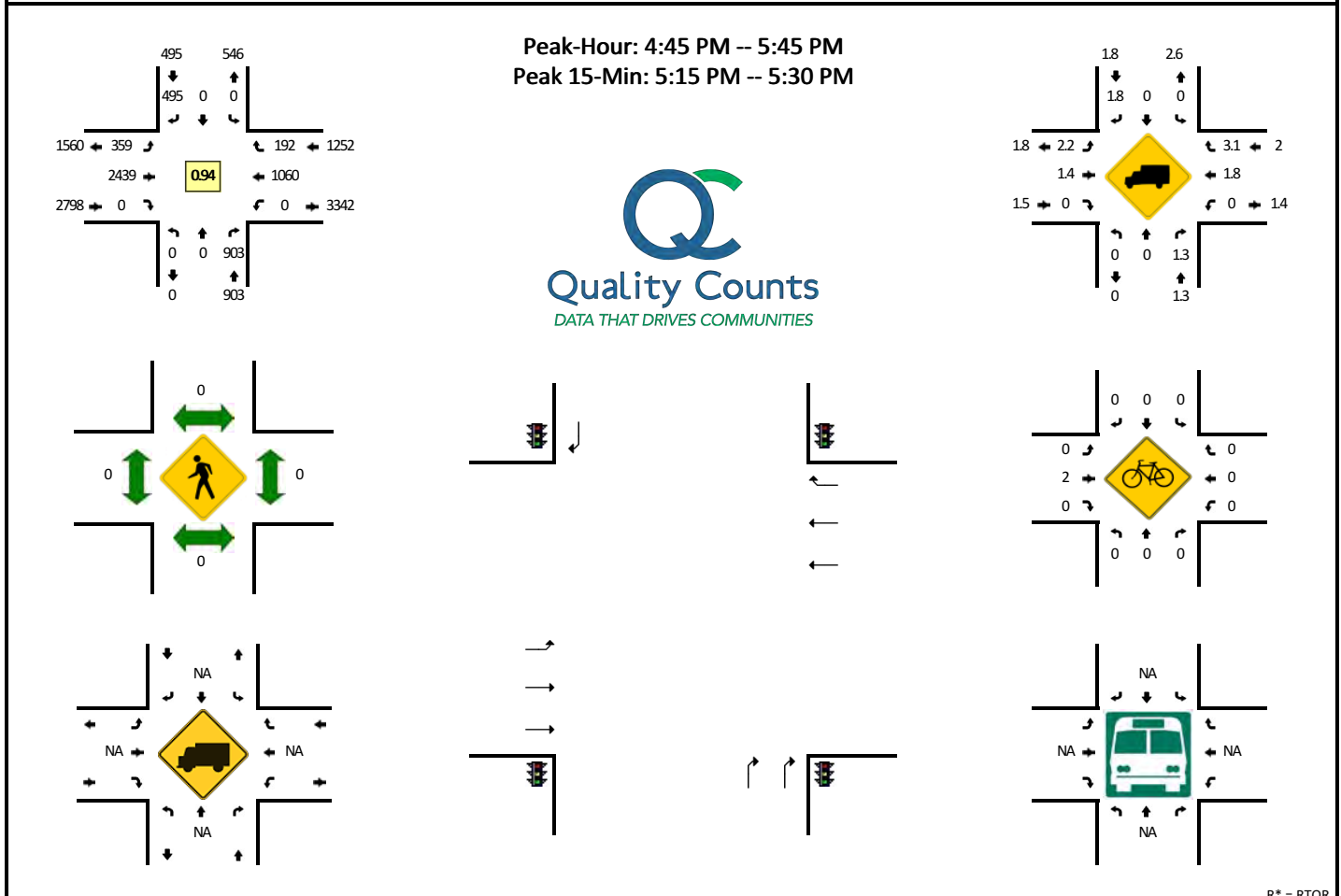
R* = RTOR

15-Min Count Period Beginning At	I-4 SB Ramps (Northbound)					I-4 SB Ramps (Southbound)					Saxon Blvd (Eastbound)					Saxon Blvd (Westbound)					Total	Hourly Totals
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
4:00 PM	0	0	52	0	0	0	0	69	0	0	0	364	106	0	0	0	290	67	0	0	948	
4:15 PM	0	0	54	0	0	0	0	78	0	0	0	338	91	0	0	0	299	71	0	0	931	
4:30 PM	0	0	63	0	0	0	0	82	0	0	0	358	95	0	0	0	340	72	0	0	1010	
4:45 PM	0	0	73	0	0	0	0	74	0	0	0	342	104	0	0	0	314	53	0	0	960	3849
5:00 PM	0	0	82	0	0	0	0	97	0	0	0	425	117	0	0	0	320	67	0	0	1108	4009
5:15 PM	0	0	91	0	0	0	0	92	0	0	0	390	101	0	0	0	333	73	0	0	1080	4158
5:30 PM	0	0	82	0	0	0	0	98	0	0	0	394	104	0	0	0	310	72	0	0	1060	4208
5:45 PM	0	0	85	0	0	0	0	93	0	0	0	321	79	0	0	0	307	56	0	0	941	4189
Peak 15-Min Flowrates	Northbound					Southbound					Eastbound					Westbound					Total	
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
All Vehicles	0	0	328	0	0	0	0	388	0	0	0	1700	468	0	0	0	1280	268	0	0	4432	
Heavy Trucks	0	0	20			0	0	16			0	12	20			0	20	0			88	
Pedestrians			0					0				0					0				0	
Bicycles	0	0	0			0	0	0			0	0	0			0	0	0			0	
Railroad																						
Stopped Buses																						

Comments:

LOCATION: I-4 NB Ramps -- Saxon Blvd
CITY/STATE: Deltona, FL

QC JOB #: 15005938
DATE: Thu, Jun 6 2019



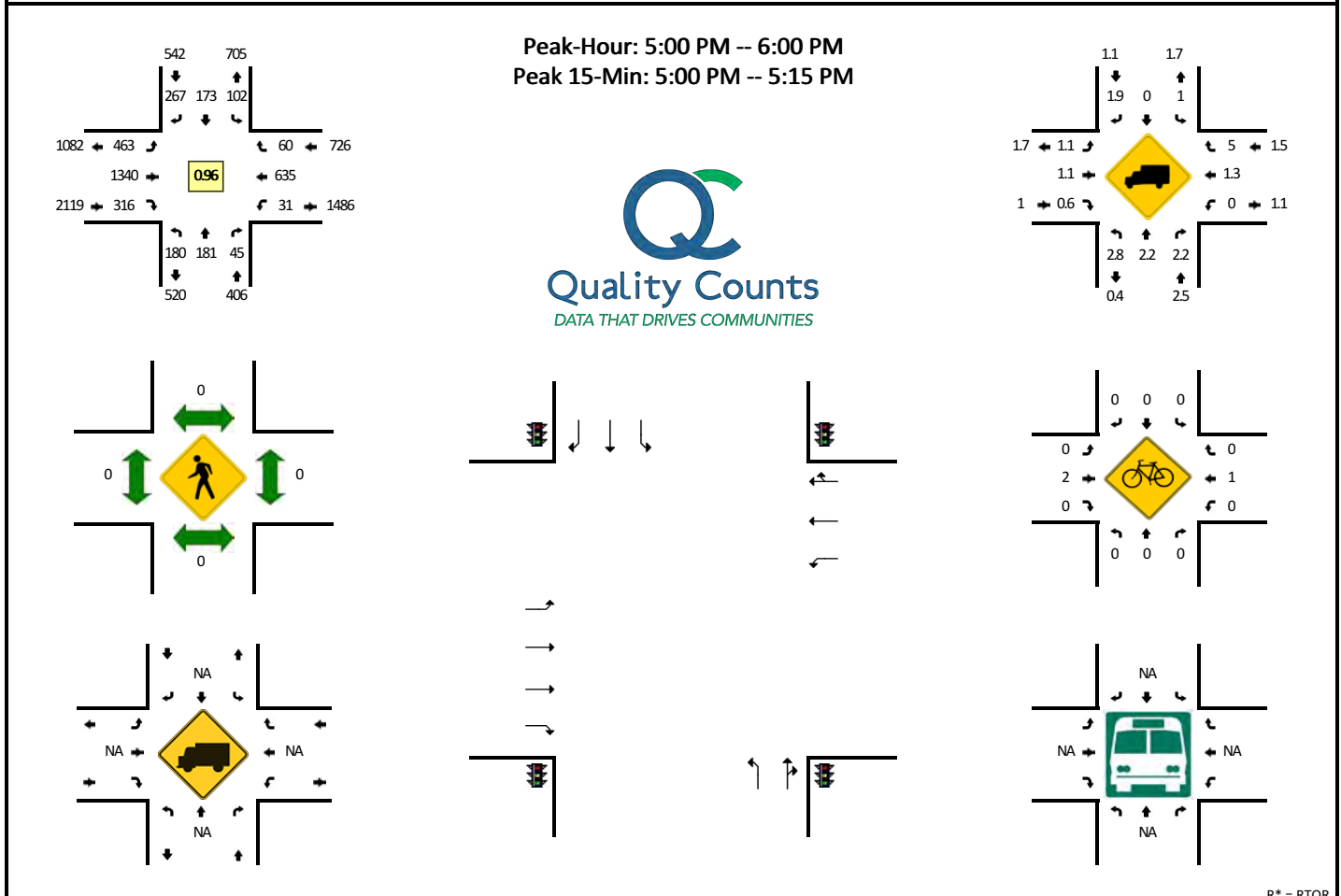
R* = RTOR

15-Min Count Period Beginning At	I-4 NB Ramps (Northbound)					I-4 NB Ramps (Southbound)					Saxon Blvd (Eastbound)					Saxon Blvd (Westbound)					Total	Hourly Totals
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
4:00 PM	0	0	173	0	0	0	0	102	0	0	69	488	0	0	0	0	231	39	0	6	1108	
4:15 PM	0	0	215	0	0	0	0	120	0	0	75	543	0	1	0	0	220	29	0	5	1208	
4:30 PM	0	0	140	0	0	0	0	87	0	0	73	515	0	1	0	0	248	47	0	0	1111	
4:45 PM	0	0	189	0	0	0	0	113	0	0	81	549	0	1	0	0	275	41	0	5	1254	4681
5:00 PM	0	0	236	0	0	0	0	128	0	0	92	612	0	2	0	0	273	42	0	6	1391	4964
5:15 PM	0	0	241	0	0	0	0	129	0	0	109	665	0	1	0	0	243	57	0	5	1450	5206
5:30 PM	0	0	237	0	0	0	0	125	0	0	72	613	0	1	0	0	269	35	0	1	1353	5448
5:45 PM	0	0	183	0	0	0	0	105	0	0	73	557	0	0	0	0	238	35	0	0	1191	5385
Peak 15-Min Flowrates	Northbound					Southbound					Eastbound					Westbound					Total	
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
All Vehicles	0	0	964	0	0	0	0	516	0	0	436	2660	0	4	0	0	972	248	0	20	5820	
Heavy Trucks	0	0	12			0	0	0			12	48	0			0	20	4			96	
Pedestrians			0					0				0				0	0				0	
Bicycles	0	0	0			0	0	0			0	1	0			0	0	0			1	
Railroad																						
Stopped Buses																						

Comments:

LOCATION: N Normandy Blvd -- Saxon Blvd
CITY/STATE: Deltona, FL

QC JOB #: 15005942
DATE: Tue, Jun 11 2019

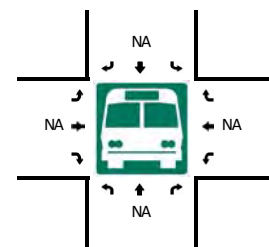
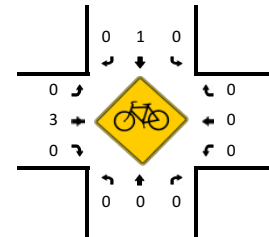
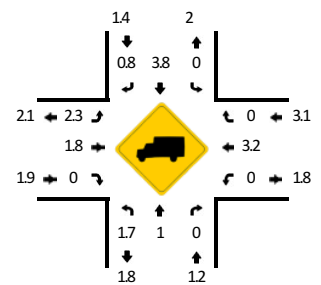


R* = RTOR

15-Min Count Period Beginning At	N Normandy Blvd (Northbound)					N Normandy Blvd (Southbound)					Saxon Blvd (Eastbound)					Saxon Blvd (Westbound)					Total	Hourly Totals
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
4:00 PM	35	30	8	0	2	15	26	22	0	31	84	254	54	0	10	4	173	16	0	0	764	
4:15 PM	45	39	6	0	0	17	34	33	0	22	103	278	53	0	16	8	177	8	0	0	839	
4:30 PM	42	29	8	0	0	18	37	50	0	29	120	287	48	0	9	7	158	17	0	0	859	
4:45 PM	55	32	8	0	2	21	46	23	0	21	94	319	57	0	8	5	170	12	0	0	873	3335
5:00 PM	46	47	11	0	1	22	41	37	1	32	115	347	70	0	17	9	181	10	0	0	987	3558
5:15 PM	42	50	8	0	1	23	49	53	0	21	113	329	70	0	12	8	171	10	0	0	960	3679
5:30 PM	48	36	10	0	3	31	41	31	0	32	110	349	64	0	15	6	144	21	0	1	942	3762
5:45 PM	44	48	7	0	4	25	42	34	0	27	125	315	55	0	13	8	139	15	0	3	904	3793
Peak 15-Min Flowrates	Northbound					Southbound					Eastbound					Westbound					Total	
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
All Vehicles	184	188	48	0	4	88	164	276	4	128	460	1388	348	0	68	36	724	40	0	0	4148	
Heavy Trucks	8	4	0			4	0	8			4	12	0			0	8	0			48	
Pedestrians		0					0					0					0				0	
Bicycles	0	0	0			0	0	0			0	0	0			0	1	0			1	
Railroad																						
Stopped Buses																						

Comments:

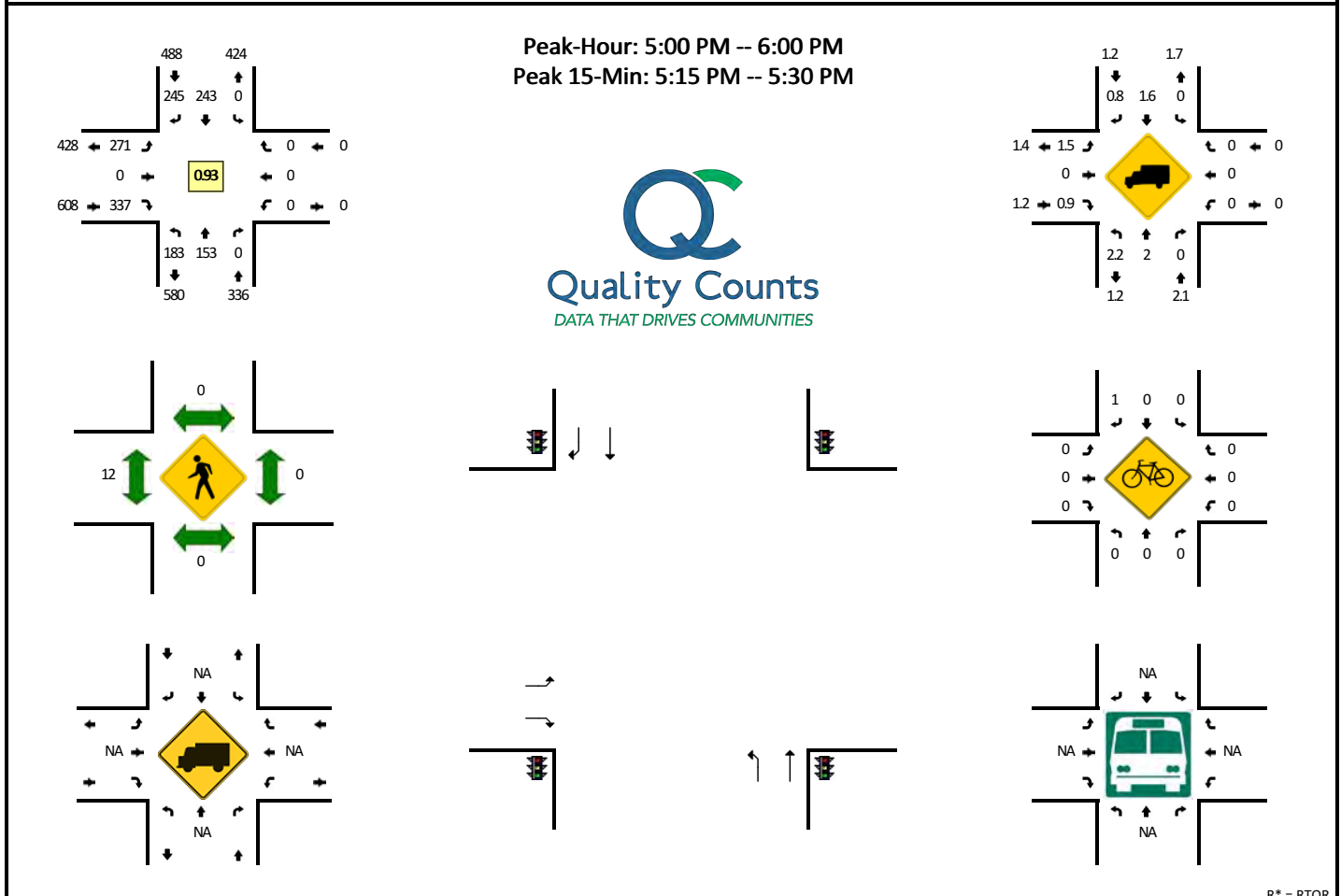
QC JOB #: 15005954
DATE: Thu, Jun 13 2019

[illegible]

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>) 1-877-580-2212

LOCATION: N Normandy Blvd -- Deltona Blvd
CITY/STATE: Deltona, FL

QC JOB #: 15005940
DATE: Thu, Jun 6 2019



R* = RTOR

15-Min Count Period Beginning At	N Normandy Blvd (Northbound)					N Normandy Blvd (Southbound)					Deltona Blvd (Eastbound)					Deltona Blvd (Westbound)					Total	Hourly Totals
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
4:00 PM	23	26	0	0	0	0	39	40	0	18	66	0	34	0	47	0	0	0	0	0	293	
4:15 PM	40	21	0	0	0	0	50	26	0	25	66	0	25	0	49	0	0	0	0	0	302	
4:30 PM	38	37	0	0	0	0	58	36	0	23	59	0	26	0	53	0	0	0	0	0	330	
4:45 PM	35	48	0	0	0	0	62	20	0	19	62	0	29	0	32	0	0	0	0	0	307	1232
5:00 PM	29	35	0	0	0	0	60	23	0	24	84	0	45	0	49	0	0	0	0	0	349	1288
5:15 PM	49	43	0	0	0	0	63	42	0	23	76	0	42	0	49	0	0	0	0	0	387	1373
5:30 PM	53	40	0	0	0	0	59	39	0	19	42	0	33	0	48	0	0	0	0	0	333	1376
5:45 PM	52	35	0	0	0	0	61	60	0	15	69	0	27	0	44	0	0	0	0	0	363	1432
Peak 15-Min Flowrates	Northbound					Southbound					Eastbound					Westbound					Total	
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
All Vehicles	196	172	0	0	0	0	252	260	0	92	304	0	364	0	196	0	0	0	0	0	1836	
Heavy Trucks	4	0	0			0	4	0			12	0	8			0	0	0			28	
Pedestrians		0					0					4					0				4	
Bicycles	0	0	0			0	0	1			0	0	0			0	0	0			1	
Railroad																						
Stopped Buses																						

Comments:

APPENDIX D: SIGNAL TIMING WORKSHEETS

COUNTY OF VOLUSIA TRAFFIC SIGNAL TIMING SHEET

LOCATION: CR 4101 & Orange Camp Road

DeLand

ISOLATED: ☒ X

DATE: 2/22/2018

SIGNAL #: 276

CO-ORD:

Design By: M. Tobin

System #: -

Controller Timing Chart

PHASE		1	2	3	4	5	6	7	8		
DIRECTION		NBL	SB	EBL	WB	SBL	NB	WBL	EB		
TURN TYPE		PERM/PROT	-	PERM/PROT	-	PERM/PROT	-	PERM/PROT	-		
MIN GREEN		5	17	5	7	5	17	5	7		
EXTENSION		3	4	3	4	3	4	3	4		
CLEARANCE		3.5	5.5	3.5	5.5	3.5	5.5	3.5	5.5		
ALL RED		3.0	2.0	3.0	2.0	3.0	2.0	3.0	2.0		
WALK		-	10	-	-	-	-	-	10		
FDW		-	20	-	-	-	-	-	20		
MAX 1		30	60	30	60	30	60	30	60		
MAX 2		-	-	-	-	-	-	-	-		
MAX 3		0	0	0	75	0	0	0	0		
ADJUST		0	0	0	10	0	0	0	0		
RECALL		-	MIN	-	-	-	MIN	-	-		
DETECTOR		NON-LOCK	NON-LOCK	NON-LOCK	NON-LOCK	NON-LOCK	NON-LOCK	NON-LOCK	NON-LOCK		
FLASH		-	YELLOW	-	RED	-	YELLOW	-	RED		
SET					2						
CLEAR					2						
BASE DAY		1	2	3	4	5	6	7	Crosswalk Length		
MON #1	TIME	00:01-00:00									
	PLAN	FREE							P2		
TUES#1	TIME	00:01-00:00									
	PLAN	FREE							70 Feet		
WED #1	TIME	00:01-00:00									
	PLAN	FREE							P4		
THU #1	TIME	00:01-00:00									
	PLAN	FREE							-		
FRI #1	TIME	00:01-00:00									
	PLAN	FREE							P6		
SAT #1	TIME	00:01-00:00									
	PLAN	FREE							-		
SUN #1	TIME	00:01-00:00									
	PLAN	FREE							P8		
CONTROLLER TYPE		CONDITION OF OVERHEAD			Poor		PROM NUMBER				58 Feet
3000E		OVERHEAD STREET NAMES			YES						
PHASES:		8Φ	ILLUMINATED STREET NAMES			NO		92R09		SIGNAL OWNER ⁴	
CABINET TYPE		V	PRE-EMPTION			NO		IP ADDRESS		County	
CABINET DATE		02/1993	PRE-EMPTION TYPE			N/A		-		LED	-

REMARKS:

1	2	3	4
5	6		8

COUNTY OF VOLUSIA TRAFFIC SIGNAL TIMING SHEET

LOCATION: SR 472 @ CR 4101 (MLK Beltway)

Orange City

FREE: ☐

DATE: 10/5/2018



SIGNAL #: 222

CO-ORD: ☒ X

Design By: Sean Castello

NETWORK #: OC/Deltona Area Network # 90

Controller Timing Chart

PHASE	1	2	3	4	5	6	7	8	
DIRECTION	EBL	WB	SB	NB	WBL	EB			
TURN TYPE	PROT	-	SPLIT LEAD	SPLIT LAG	PROT	-			
MIN GREEN	5	17	7	7	5	17			
EXTENSION	3	4	4	4	3	4			
YELLOW	5.5	5.5	5.6	5.5	5.5	5.5			
RED CLR	2.8	2.8	3.8	3.3	2.8	2.8			
WALK									
PED CLR									
MAX 1	25	60	35	35	35	60			
MAX 2									
MAX 3		-		-		-			
DYM MAX		90		35		90			
DYM STP		10		10		10			
RECALL		MIN		-		MIN			
DETECTOR	NON-LOCK	LOCK	NON-LOCK	NON-LOCK	NON-LOCK	LOCK			
FLASH	RED	YELLOW	RED	RED	RED	YELLOW			

COORDINATION TIMINGS

PATTERN	1	2	3	4	5	6	7	8	
CYCLE	150	130	150	-	-	-	-	-	
OFFSET	93	99	0	-	-	-	-	-	

PHASE	1	2	3	4	5	6	7	8	
PATTERN 1	19	57	37	37	19	57			
PATTERN 2	19	43	31	37	19	43			
PATTERN 3	19	59	35	37	20	58			
PATTERN 4	-	-	-	-	-	-	-	-	
PATTERN 5	-	-	-	-	-	-	-	-	
PATTERN 6	-	-	-	-	-	-	-	-	
PATTERN 7	-	-	-	-	-	-	-	-	

Controller IP	10.40.91.25	Switch IP	10.40.90.25	Camera IP	10.40.92.25
Controller Gateway	10.40.91.1	Switch Gateway	10.40.90.1	Camera Gateway	10.40.92.1

REMARKS: Pattern #1 2 1 4 3 Pat #2 1 2 3 4 Pat #3 1 2 4 3
Seq #4 5 6 Seq #5 6 5 Seq #7 6 5

COUNTY OF VOLUSIA TRAFFIC SIGNAL TIMING SHEET											
LOCATION: <u>SR 472 @ CR 4101 (MLK Beltway)</u>		<u>Orange City</u>		FREE: ☐	DATE: <u>10/5/2018</u>						
SIGNAL #: <u>222</u>		CO-ORD: ☒		Design By: <u>Sean Castello</u>							
NETWORK #: OC/Deltona Area Network # 90											
TIME OF DAY SCHEDULE											
BASE DAY		1	2	3	4	5	6	7	Crosswalk Length		
MON #1	TIME	06:30-09:00	09:00-16:00	16:00-18:15	18:15-00:00				P2		
	PATTERN	PATTERN #1	PATTERN #2	PATTERN #3	FREE						
TUES #1	TIME	06:30-09:00	09:00-16:00	16:00-18:15	18:15-00:00						
	PATTERN	PATTERN #1	PATTERN #2	PATTERN #3	FREE						
WED #1	TIME	06:30-09:00	09:00-16:00	16:00-18:15	18:15-00:00				P4		
	PATTERN	PATTERN #1	PATTERN #2	PATTERN #3	FREE						
THU #1	TIME	06:30-09:00	09:00-16:00	16:00-18:15	18:15-00:00						
	PATTERN	PATTERN #1	PATTERN #2	PATTERN #3	FREE						
FRI #1	TIME	06:30-09:00	09:00-16:00	16:00-18:15	18:15-00:00				P6		
	PATTERN	PATTERN #1	PATTERN #2	PATTERN #3	FREE						
SAT #2	TIME	00:00-00:00									
	PATTERN	FREE									
SUN #2	TIME	00:00-00:00							P8		
	PATTERN	FREE									
CONTROLLER TYPE		CONDITION OF OVERHEAD			GOOD		PROGRAM NUMBER				
Econolite ASC/3		OVERHEAD STREET NAMES			NO						
PHASES:	8Φ	ILLUMINATED STREET NAMES			YES		02.62.00		SIGNAL OWNER ⁴		
CABINET TYPE	V	PRE-EMPTION			YES		Controller IP Address		FDOT		
CABINET DATE	03/2008	PRE-EMPTION TYPE			INFRARED		10.40.91.25		LED	YES	
REMARKS:											
Seq #4 2 1 4 3 Seq #5 1 2 3 4 Seq #7 1 2 4 3 5 6 6 5 6 5											

COUNTY OF VOLUSIA TRAFFIC SIGNAL TIMING SHEET

LOCATION: Howland Blvd @ I 4 WB RAMP

Deltona

FREE: ☐

DATE: 10/5/2018



SIGNAL #: 358

CO-ORD: ☒ X

Design By: Sean Castello

NETWORK #: Deltona Area Network # 90

Controller Timing Chart

PHASE	1	2	3	4	5	6	7	8	
DIRECTION		WB			WBL	EB		SB	
TURN TYPE		-			PROT	-		-	
MIN GREEN		17			6	17		7	
EXTENSION		3			3	3		3	
YELLOW		5.1			5.1	5.1		5.1	
RED CLR		2.0			2.0	2.0		2.9	
WALK		7							
PED CLR		20							
MAX 1		40			25	40		25	
MAX 2									
MAX 3		-				-			
DYM MAX					60				
DYM STP					10				
RECALL		MIN				MIN			
DETECTOR		LOCK			LOCK	LOCK		NON-LOCK	
FLASH		YELLOW			RED	YELLOW		RED	

COORDINATION TIMINGS

PATTERN	1	2	3	4	5	6	7	8	
CYCLE	150	130	150	-	-	-	-	-	
OFFSET	138	11	38	-	-	-	-	-	

PHASE	1	2	3	4	5	6	7	8	
PATTERN 1		120	30		80	40		30	
PATTERN 2		101	29		43	58		29	
PATTERN 3		111	39		45	66		39	
PATTERN 4	-	-	-	-	-	-	-	-	
PATTERN 5	-	-	-	-	-	-	-	-	
PATTERN 6	-	-	-	-	-	-	-	-	
PATTERN 7	-	-	-	-	-	-	-	-	

Controller IP	10.40.91.24	Switch IP	10.40.90.24	Camera IP	
Controller Gateway	10.40.91.1	Switch Gateway	10.40.90.1	Camera Gateway	

REMARKS:

PATTERNS 2,3 FREE
SEQ #1

2 | 8
5 | 6

PATTERN 1
SEQ #5

2 | 8
6 | 5

COUNTY OF VOLUSIA TRAFFIC SIGNAL TIMING SHEET

LOCATION: Howland Blvd @ I 4 WB RAMP

Deltona

FREE: ☐

DATE: 10/5/2018

SIGNAL #: 358

CO-ORD: ☒ X

Design By: Sean Castello



NETWORK #: Deltona Area Network # 90

TIME OF DAY SCHEDULE

BASE DAY		1	2	3	4	5	6	7	Crosswalk Length
MON #1	TIME	06:30-09:00	09:00-16:00	16:00-18:15	18:15-00:00				P2
	PATTERN	PATTERN #1	PATTERN #2	PATTERN #3	FREE				
TUES #1	TIME	06:30-09:00	09:00-16:00	16:00-18:15	18:15-00:00				66
	PATTERN	PATTERN #1	PATTERN #2	PATTERN #3	FREE				
WED #1	TIME	06:30-09:00	09:00-16:00	16:00-18:15	18:15-00:00				P4
	PATTERN	PATTERN #1	PATTERN #2	PATTERN #3	FREE				
THU #1	TIME	06:30-09:00	09:00-16:00	16:00-18:15	18:15-00:00				
	PATTERN	PATTERN #1	PATTERN #2	PATTERN #3	FREE				
FRI #1	TIME	06:30-09:00	09:00-16:00	16:00-18:15	18:15-00:00				P6
	PATTERN	PATTERN #1	PATTERN #2	PATTERN #3	FREE				
SAT #2	TIME	00:00-00:00							
	PATTERN	FREE							
SUN #2	TIME	00:00-00:00							P8
	PATTERN	FREE							
CONTROLLER TYPE		CONDITION OF OVERHEAD		GOOD		PROGRAM NUMBER			
Econolite ASC/3		OVERHEAD STREET NAMES		NO					
PHASES:	8Φ	ILLUMINATED STREET NAMES		YES		02.62.00		SIGNAL OWNER ⁴	
CABINET TYPE	V	PRE-EMPTION		YES		Controller IP Address		FDOT	
CABINET DATE	03/2008	PRE-EMPTION TYPE		INFRARED		10.40.91.24		LED	YES

REMARKS:

PATTERNS 1, 2, FREE 2 8
SEQ #1 5 6

PATTERN 3 2 8
SEQ #5 6 5

COUNTY OF VOLUSIA TRAFFIC SIGNAL TIMING SHEET

LOCATION: Howland Blvd @ I 4 EB RAMP

Deltona

FREE: ☐

DATE: 10/5/2018



SIGNAL #: 359

CO-ORD: ☒ X

Design By: Sean Castello

NETWORK #: Deltona Area Network # 90

Controller Timing Chart

PHASE	1	2	3	4	5	6	7	8	
DIRECTION		WB		NB		EB			
TURN TYPE		-		SPLIT LEAD		-			
MIN GREEN		17		7		17			
EXTENSION		4		3		4			
YELLOW		5.5		4.8		5.5			
RED CLR		2.0		2.4		2.0			
WALK						0			
PED CLR									
MAX 1		40		25		60			
MAX 2									
MAX 3		-		-		-			
DYM MAX									
DYM STP									
RECALL		MIN		-		MIN			
DETECTOR		LOCK		NON-LOCK		LOCK			
FLASH		YELLOW		RED		YELLOW			

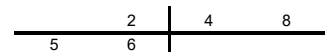
COORDINATION TIMINGS

PATTERN	1	2	3	4	5	6	7	8	
CYCLE	150	130	150	-	-	-	-	-	
OFFSET	74	84	73	-	-	-	-	-	

PHASE	1	2	3	4	5	6	7	8	
PATTERN 1		96		54		96		54	
PATTERN 2		72		58		72		58	
PATTERN 3		91		59		91		59	
PATTERN 4	-	-	-	-	-	-	-	-	
PATTERN 5	-	-	-	-	-	-	-	-	
PATTERN 6	-	-	-	-	-	-	-	-	
PATTERN 7	-	-	-	-	-	-	-	-	

Controller IP	10.40.91.26	Switch IP	10.40.90.26	Camera IP	
Controller Gateway	10.40.91.1	Switch Gateway	10.40.90.1	Camera Gateway	

REMARKS:



COUNTY OF VOLUSIA TRAFFIC SIGNAL TIMING SHEET

LOCATION: Howland Blvd @ I 4 EB RAMP
Deltona

FREE: ☐

DATE: 10/5/2018

SIGNAL #: 359

CO-ORD: ☒ X

Design By: Sean Castello



NETWORK #: Deltona Area Network # 90

TIME OF DAY SCHEDULE

BASE DAY		1	2	3	4	5	6	7	Crosswalk Length
MON #1	TIME	06:30-09:00	09:00-15:30	15:30-19:00	19:00-00:00				P2
	PATTERN	PATTERN #1	PATTERN #2	PATTERN #3	FREE				
TUES #1	TIME	06:30-09:00	09:00-15:30	15:30-19:00	19:00-00:00				86
	PATTERN	PATTERN #1	PATTERN #2	PATTERN #3	FREE				
WED #1	TIME	06:30-09:00	09:00-15:30	15:30-19:00	19:00-00:00				P4
	PATTERN	PATTERN #1	PATTERN #2	PATTERN #3	FREE				
THU #1	TIME	06:30-09:00	09:00-15:30	15:30-19:00	19:00-00:00				
	PATTERN	PATTERN #1	PATTERN #2	PATTERN #3	FREE				
FRI #1	TIME	06:30-09:00	09:00-15:30	15:30-19:00	19:00-00:00				P6
	PATTERN	PATTERN #1	PATTERN #2	PATTERN #3	FREE				
SAT #2	TIME	00:00-00:00							
	PATTERN	FREE							
SUN #2	TIME	00:00-00:00							P8
	PATTERN	FREE							
CONTROLLER TYPE		CONDITION OF OVERHEAD		GOOD		PROGRAM NUMBER			
Econolite ASC/3		OVERHEAD STREET NAMES		NO					
PHASES:	8Φ	ILLUMINATED STREET NAMES		YES		02.62.00		SIGNAL OWNER ⁴	
CABINET TYPE	V	PRE-EMPTION		YES		Controller IP Address		FDOT	
CABINET DATE	03/2008	PRE-EMPTION TYPE		INFRARED		10.40.91.26		LED	YES

REMARKS:

	2	4	8
5	6		

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION
Continuing Services Contract for Traffic Operations
Volusia County 2017
FM: 237988-1-32-11



US 17/92 at Graves Avenue (111) Prepared By: FDA Date: 11/1/2017
North-South Roadway US 17/92 East-West Roadway Graves Avenue

PHASE TIMES								
PHASE	1	2	3	4	5	6	7	8
DIRECTION		SB		WB	SBL	NB		EB
LEFT TURN		Perm		Prot	Prot/Perm	Perm		Prot
MIN GRN		15		10	5	15		10
GAP EXT		4.0		3.0	3.0	4.0		3.0
YEL CLR		4.5		3.8	4.4	4.5		3.4
RED CLR		2.8		2.1	2.8	2.8		2.3
MAX 1		50		30	20	50		20
MAX 2								
DYM MAX		90				90		
DYM STEP		10				10		
WALK		7		7		7		7
PED CLR		35		24		27		22
RECALL		MIN				MIN		
DETECTOR		LOCK		NON-LOCK	NON-LOCK	LOCK		NON-LOCK
FLASH		YELLOW		RED	RED	YELLOW		RED
SET								
CLEAR								

Weekday (Monday-Friday) Day 1	TIME BASE COORDINATION				COORDINATION PATTERN TABLES			
	Plan	Start	End	Pattern	Cycle Length	Offset	Coord Phase	Sequence
	Existing	0:00	6:00	11	Free			
	AM	6:00	9:00	1	150	24	2, 6	1
	Midday	9:00	13:30	2	130	12	2, 6	1
	PM	13:30	18:30	3	150	117	2, 6	1
	Evening	18:30	20:00	2	130	12	2, 6	1
	Existing	20:00	0:00	11	Free			
Weekend (Saturday) Day 2	TIME BASE COORDINATION				COORDINATION PATTERN TABLES			
	Plan	Start	End	Pattern	Cycle Length	Offset	Coord Phase	Sequence
	Existing	0:00	9:30	11	Free			
	Midday	9:30	20:00	2	130	12	2, 6	1
	Existing	20:00	0:00	11	Free			
Weekend (Sunday) Day 3	TIME BASE COORDINATION				COORDINATION PATTERN TABLES			
	Plan	Start	End	Pattern	Cycle Length	Offset	Coord Phase	Sequence
	Existing	0:00	10:00	11	Free			
	Midday	10:00	19:00	2	130	12	2, 6	1
	Existing	19:00	0:00	11	Free			

COORDINATION SPLIT TABLES								
Pattern 1								
Phase	1	2	3	4	5	6	7	8
Time (sec)		95		30	20	75		25
Recall								
Pattern 2								
Phase	1	2	3	4	5	6	7	8
Time (sec)		85		25	20	65		20
Recall								
Pattern 3								
Phase	1	2	3	4	5	6	7	8
Time (sec)		100		30	20	80		20
Recall								
CONTROLLER TYPE		CONDITION OF OVERHEAD		PROM NUMBER		SIGNAL OWNER		
PHASES:		OVERHEAD STREET NAMES						
CABINET TYPE		ILLUMINATED STREET NAMES						
CABINET DATE		PRE-EMPTION		IP ADDRESS		LED		
		PRE-EMPTION TYPE						

NOTES

1. Offset Reference: Yellow
2. Force-off: Fixed
3. Maximum Select: Inhibit Max
4. Use Ped Time: No
5. Omit phase 5 when phase 6 is active

2	4	8
5	6	

COUNTY OF VOLUSIA TRAFFIC SIGNAL TIMING SHEET

LOCATION: Graves Ave. @ Veterans Memorial Pkwy

Deltona

FREE:

☒

DATE: 2/15/2017



SIGNAL #: 350

CO-ORD:

Design By: M. Tobin

NETWORK #: Deltona Area Network # 90

Controller Timing Chart

PHASE	1	2	3	4	5	6	7	8	
DIRECTION	WBL	EB				WB		NB	
TURN TYPE	PERM/PROT	-				-		-	
MIN GREEN	7	11				11		7	
EXTENSION	3	4				4		3	
YELLOW	4.5	4.5				4.5		5.0	
RED CLR	2.5	2.5				2.5		2.0	
WALK		7						7	
PED CLR		27						16	
MAX 1	20	30				30		25	
MAX 2									
MAX 3		-				-			
DYM MAX	35								
DYM STP	10								
RECALL		MIN				MIN			
DETECTOR	NON-LOCK	LOCK				LOCK		NON-LOCK	
FLASH	-	YELLOW				YELLOW		RED	

COORDINATION TIMINGS

PATTERN	1	2	3	4	5	6	7	8	
CYCLE				-	-	-	-	-	
OFFSET				-	-	-	-	-	

PHASE	1	2	3	4	5	6	7	8	
PATTERN 1									
PATTERN 2									
PATTERN 3									
PATTERN 4	-	-	-	-	-	-	-	-	
PATTERN 5	-	-	-	-	-	-	-	-	
PATTERN 6	-	-	-	-	-	-	-	-	
PATTERN 7	-	-	-	-	-	-	-	-	

Controller IP		Switch IP		Camera IP	
Controller Gateway		Switch Gateway		Camera Gateway	

REMARKS:

2	4
5	6

COUNTY OF VOLUSIA TRAFFIC SIGNAL TIMING SHEET

LOCATION: Graves Avenue & CR 4101-Kentucky Av
Orange City

ISOLATED: ☒ X

DATE: 10/15/2018

SIGNAL #: 229

CO-ORD:

Design By: Sean Castello

System #: -

Controller Timing Chart

PHASE	1	2	3	4	5	6	7	8	
DIRECTION	-	EB	SB	NB	EBL	WB	-	-	
TURN TYPE	-	-	SPLIT LEAD	SPLIT LAG	PERM/PROT	-	-	-	
MIN GREEN		11	7	7	5	11			
EXTENSION		4	3	3	3	4			
CLEARANCE		5.0	5.0	4.0	4.0	5.0			
ALL RED		2.0	2.0	3.0	2.0	2.0			
WALK		-	-		-				
FDW		-	-		-				
MAX 1		50	50	20	20	50			
MAX 2		-	-	-	-	-			
MAX 3		-	-	-	60	-			
ADJUST		-	-	-	10	-			
RECALL		MIN	-	-	-	MIN			
DETECTOR		LOCK	NON-LOCK	NON-LOCK	NON-LOCK	LOCK			
FLASH		YELLOW	RED	RED	-	YELLOW			
SET		-	-	-		-			
CLEAR		-	-	-		-			
BASE DAY	1	2	3	4	5	6	7		
MON #1	TIME	00:01-00:00						Crosswalk Length	
	PLAN	FREE							
TUES#1	TIME	00:01-00:00						P2	
	PLAN	FREE							
WED #1	TIME	00:01-00:00						-	
	PLAN	FREE							
THU #1	TIME	00:01-00:00						P4	
	PLAN	FREE							
FRI #1	TIME	00:01-00:00						-	
	PLAN	FREE							
SAT #1	TIME	00:01-00:00						P6	
	PLAN	FREE							
SUN #1	TIME	00:01-00:00						-	
	PLAN	FREE							
CONTROLLER TYPE		CONDITION OF OVERHEAD			New - 2011		PROM NUMBER		P8
1880 EL		OVERHEAD STREET NAMES			YES				
PHASES:		8Φ	ILLUMINATED STREET NAMES			NO		SIGNAL OWNER ⁴	
CABINET TYPE		V	PRE-EMPTION			NO		IP ADDRESS	
CABINET DATE		2017	PRE-EMPTION TYPE			N/A		-	
							LED		YES

REMARKS:

2	3 & 6R
5 & 3R	4

COUNTY OF VOLUSIA TRAFFIC SIGNAL TIMING SHEET

LOCATION: Graves Ave. @ Normandy Blvd.
Deltona

FREE: ☒ X

DATE: 5/19/2017



SIGNAL #: 347

CO-ORD: ☐

Design By: M. Tobin

NETWORK #: Deltona Area Network # 90

Controller Timing Chart

PHASE	1	2	3	4	5	6	7	8	
DIRECTION		WB		NB	WBL	EB			
TURN TYPE		-		-	PERM/PROT	-			
MIN GREEN		12		7	5	12			
EXTENSION		4		3	3	4			
YELLOW		5.0		4.0	5.0	5.0			
RED CLR		2.0		2.0	2.0	2.0			
WALK						7			
PED CLR									
MAX 1		45		25	20	45			
MAX 2									
MAX 3		-		-		-			
DYM MAX		90				90			
DYM STP		10				10			
RECALL		MIN		-		MIN			
DETECTOR		LOCK		NON-LOCK	NON-LOCK	LOCK			
FLASH		YELLOW		RED	-	YELLOW			

COORDINATION TIMINGS

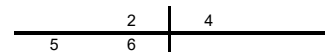
PATTERN	1	2	3	4	5	6	7	8	
CYCLE				-	-	-	-	-	
OFFSET				-	-	-	-	-	

PHASE	1	2	3	4	5	6	7	8	
PATTERN 1									
PATTERN 2									
PATTERN 3									
PATTERN 4	-	-	-	-	-	-	-	-	
PATTERN 5	-	-	-	-	-	-	-	-	
PATTERN 6	-	-	-	-	-	-	-	-	
PATTERN 7	-	-	-	-	-	-	-	-	

Controller IP	10.40.91.28	Switch IP	10.40.90.28	Camera IP	
Controller Gateway	10.40.91.1	Switch Gateway	10.40.90.1	Camera Gateway	

REMARKS:

Omit Phase 5 when Phase 6 is active



COUNTY OF VOLUSIA TRAFFIC SIGNAL TIMING SHEET

LOCATION: Howland Blvd @ Graves Ave.

Deltona

FREE: ☐

DATE: 10/5/2018



SIGNAL #: 360

CO-ORD: ☒ X

Design By: Sean Castello

NETWORK #: Deltona Area Network # 90

Controller Timing Chart

PHASE	1	2	3	4	5	6	7	8	
DIRECTION	EBL	WB	-	NB	WBL	EB	-	SB	
TURN TYPE	PERM/PROT	-	-	SPLIT LEAD	PERM/PROT	-	-	SPLIT LAG	
MIN GREEN	7	17		7	5	17		7	
EXTENSION	3	4		3	3	4		3	
YELLOW	5.0	5.5		5.0	5.0	5.5		5.0	
RED CLR	2.0	2.0		3.0	2.0	2.0		2.5	
WALK		9				7			
PED CLR		23							
MAX 1	20	60		30	30	60		20	
MAX 2									
MAX 3		-		-		-			
DYM MAX									
DYM STP									
RECALL		MIN		-		MIN			
DETECTOR	NON-LOCK	LOCK		NON-LOCK	NON-LOCK	LOCK		NON-LOCK	
FLASH	-	YELLOW		RED	-	YELLOW		RED	

COORDINATION TIMINGS

PATTERN	1	2	3	4	5	6	7	8	
CYCLE	150	130	150	-	-	-	-	-	
OFFSET	82	80	89	-	-	-	-	-	

PHASE	1	2	3	4	5	6	7	8	
PATTERN 1	25	79		30	54	40		16	
PATTERN 2	25	59		30	34	50		16	
PATTERN 3	14	104		18	34	76		14	
PATTERN 4	-	-	-	-	-	-	-	-	
PATTERN 5	-	-	-	-	-	-	-	-	
PATTERN 6	-	-	-	-	-	-	-	-	
PATTERN 7	-	-	-	-	-	-	-	-	

Controller IP	10.40.91.27	Switch IP	10.40.90.27	Camera IP	
Controller Gateway	10.40.91.1	Switch Gateway	10.40.90.1	Camera Gateway	

REMARKS:

Pattern #3, Sequence #2 by TOD

<u>Pattern #1 & 2</u>	1	2	4	8
	5	6		

<u>Pattern #3</u>	2	1	4	8
	5	6		

COUNTY OF VOLUSIA TRAFFIC SIGNAL TIMING SHEET

LOCATION: Howland Blvd @ Graves Ave.
Deltona

FREE: ☐

DATE: 10/5/2018

SIGNAL #: 360

CO-ORD: ☒ X

Design By: Sean Castello



NETWORK #: Deltona Area Network # 90

TIME OF DAY SCHEDULE

BASE DAY		1	2	3	4	5	6	7	Crosswalk Length		
MON #1	TIME	06:30-09:00	09:00-16:00	16:00-18:15	18:15-00:00						
	PATTERN	PATTERN #1	PATTERN #2	PATTERN #3	FREE				P2		
TUES #1	TIME	06:30-09:00	09:00-16:00	16:00-18:15	18:15-00:00						
	PATTERN	PATTERN #1	PATTERN #2	PATTERN #3	FREE				86		
WED #1	TIME	06:30-09:00	09:00-16:00	16:00-18:15	18:15-00:00						
	PATTERN	PATTERN #1	PATTERN #2	PATTERN #3	FREE				P4		
THU #1	TIME	06:30-09:00	09:00-16:00	16:00-18:15	18:15-00:00						
	PATTERN	PATTERN #1	PATTERN #2	PATTERN #3	FREE						
FRI #1	TIME	06:30-09:00	09:00-16:00	16:00-18:15	18:15-00:00						
	PATTERN	PATTERN #1	PATTERN #2	PATTERN #3	FREE				P6		
SAT #2	TIME	00:00-00:00									
	PATTERN	FREE									
SUN #2	TIME	00:00-00:00									
	PATTERN	FREE							P8		
CONTROLLER TYPE		CONDITION OF OVERHEAD			GOOD		PROGRAM NUMBER				
Econolite ASC/3		OVERHEAD STREET NAMES			NO						
PHASES:		8Φ	ILLUMINATED STREET NAMES			YES		02.62.00		SIGNAL OWNER	
CABINET TYPE		V	PRE-EMPTION			YES		Controller IP Address		County	
CABINET DATE		08/2000	PRE-EMPTION TYPE			INFRARED		10.40.91.27		LED	YES

REMARKS:

Pattern #3, Sequence #2 by TOD

<u>Pattern #1 & 2</u>	1	2	4	8	<u>Pattern #3</u>	2	1	4	8
	5	6				5	6		

COUNTY OF VOLUSIA TRAFFIC SIGNAL TIMING SHEET

LOCATION: Howland Blvd @ Catalina Blvd

Deltona

FREE: ☐

DATE: 2/8/2017



SIGNAL #: 250

CO-ORD: ☒ X

Design By: M. Tobin

NETWORK #: Deltona Area Network # 90

Controller Timing Chart

PHASE	1	2	3	4	5	6	7	8	
DIRECTION	EBL	WB	-	NB	WBL	EB	NBL	SB	
TURN TYPE	PERM/PROT	-	-	-	PERM/PROT	-	PERM/PROT	-	
MIN GREEN	5	11		7	5	11	5	7	
EXTENSION	3	4		3	3	4	3	4	
YELLOW	5.0	5.0		4.0	5.0	5.0	4.0	4.0	
RED CLR	3.5	3.5		3.0	3.5	3.5	3.0	3.0	
WALK		7		7		7		7	
PED CLR		23		23		23		23	
MAX 1	30	45		25	20	45	20	35	
MAX 2									
MAX 3		-		-		-		-	
DYM MAX		90						50	
DYM STP		10						10	
RECALL		MIN		-		MIN		-	
DETECTOR	NON-LOCK	LOCK		NON-LOCK	NON-LOCK	LOCK	NON-LOCK	NON-LOCK	
FLASH	-	YELLOW		RED	-	YELLOW	-	RED	

COORDINATION TIMINGS

PATTERN	1	2	3	4	5	6	7	8	
CYCLE	150	150	150	-	-	-	-	-	
OFFSET	0	0	0	-	-	-	-	-	

PHASE	1	2	3	4	5	6	7	8	
PATTERN 1	24	59		67	18	65	24	43	
PATTERN 2	31	59		60	20	65	25	40	
PATTERN 3	30	60		60	20	65	20	45	
PATTERN 4	-	-	-	-	-	-	-	-	
PATTERN 5	-	-	-	-	-	-	-	-	
PATTERN 6	-	-	-	-	-	-	-	-	
PATTERN 7	-	-	-	-	-	-	-	-	

Controller IP	10.40.91.32	Switch IP	10.40.90.32	Camera IP	
Controller Gateway	10.40.91.1	Switch Gateway	10.40.90.1	Camera Gateway	

REMARKS:

Phase #6 advanced loop bad. Temp. Removed dynamic max time for Phase #6

1	2	4
5	6	7

COUNTY OF VOLUSIA TRAFFIC SIGNAL TIMING SHEET

LOCATION: Howland Blvd @ Catalina Blvd
Deltona

FREE: ☐

DATE: 2/8/2017

SIGNAL #: 250

CO-ORD: ☒ X

Design By: M. Tobin



NETWORK #: Deltona Area Network # 90

TIME OF DAY SCHEDULE

BASE DAY		1	2	3	4	5	6	7	Crosswalk Length			
MON #1	TIME	06:30-00:00	09:00-14:30	14:30-19:00	19:00-00:00							
	PATTERN	PATTERN #1	FREE	PATTERN #3	FREE				P2			
TUES #1	TIME	06:30-00:00	09:00-14:30	14:30-19:00	19:00-00:00					80		
	PATTERN	PATTERN #1	FREE	PATTERN #3	FREE							
WED #1	TIME	06:30-00:00	09:00-14:30	14:30-19:00	19:00-00:00				P4			
	PATTERN	PATTERN #1	FREE	PATTERN #3	FREE							
THU #1	TIME	06:30-00:00	09:00-14:30	14:30-19:00	19:00-00:00				76			
	PATTERN	PATTERN #1	FREE	PATTERN #3	FREE							
FRI #1	TIME	06:30-00:00	09:00-14:30	14:30-19:00	19:00-00:00				P6			
	PATTERN	PATTERN #1	FREE	PATTERN #3	FREE							
SAT #2	TIME	00:00-00:00							78			
	PATTERN	FREE										
SUN #2	TIME	00:00-00:00							P8			
	PATTERN	FREE										
CONTROLLER TYPE		CONDITION OF OVERHEAD			GOOD		PROGRAM NUMBER					
Econolite ASC/3		OVERHEAD STREET NAMES			NO							
PHASES:		8Φ	ILLUMINATED STREET NAMES			YES		02.64.00		SIGNAL OWNER		
CABINET TYPE		IV	PRE-EMPTION			YES		Controller IP Address		County		
CABINET DATE			PRE-EMPTION TYPE			INFRARED		10.40.91.32		LED	YES	

REMARKS:

1	2	4
5	6	7 8

COUNTY OF VOLUSIA TRAFFIC SIGNAL TIMING SHEET

LOCATION: Lake Helen-Osteen Rd & Catalina Blvd
Deltona

ISOLATED: ☒ X

DATE: 3/2/2015

SIGNAL #: 400

CO-ORD: ☐

Design By: M. Tobin

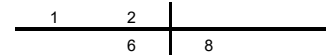
System #: -

Controller Timing Chart

PHASE	1	2	3	4	5	6	7	8	
DIRECTION	NBL	SB	-	-	-	NB	-	EB	
TURN TYPE	PERM/PROT	-	-	-	-	-	-	-	
MIN GREEN	5	15				15		5	
EXTENSION	5	5				5		5	
CLEARANCE	5.0	5.0				5.0		3.5	
ALL RED	2.5	2.5				2.5		3.0	
WALK	-	-				-		-	
FDW	-	-				-		-	
MAX 1	20	30				30		20	
MAX 2	-	-				-		-	
MAX 3	-	-				-		-	
ADJUST	-	-				-		-	
RECALL	-	MIN				MIN		-	
DETECTOR	NON-LOCK	LOCK				LOCK		NON-LOCK	
FLASH	-	YELLOW				YELLOW		RED	
SET	-	-				-		-	
CLEAR	-	-				-		-	
BASE DAY	1	2	3	4	5	6	7	Crosswalk Length	
MON #1	TIME 00:01-00:00								
	PLAN FREE								P2
TUES#1	TIME 00:01-00:00								-
	PLAN FREE								P4
WED #1	TIME 00:01-00:00								-
	PLAN FREE								P6
THU #1	TIME 00:01-00:00								-
	PLAN FREE								P8
FRI #1	TIME 00:01-00:00								-
	PLAN FREE								
SAT #2	TIME 00:01-00:00								
	PLAN FREE								
SUN #3	TIME 00:01-00:00								
	PLAN FREE								
CONTROLLER TYPE		CONDITION OF OVERHEAD			OK		PROM NUMBER		P8
3000E		OVERHEAD STREET NAMES			NO				-
PHASES:	4Φ	ILLUMINATED STREET NAMES			YES		8216A 3.7.3		SIGNAL OWNER ⁴
CABINET TYPE	V	PRE-EMPTION			NO		IP ADDRESS		County
CABINET DATE	09/2005	PRE-EMPTION TYPE			N/A		-		LED YES

REMARKS:

Omit PH 1 when PH 2 is active



COUNTY OF VOLUSIA TRAFFIC SIGNAL TIMING SHEET

LOCATION: Howland Blvd @ Providence Blvd

Deltona

FREE: ☐

DATE: 10/9/2018



SIGNAL #: 236

CO-ORD: ☒ X

Design By: M. Tobin

NETWORK #: Deltona Area Network # 90

Controller Timing Chart

PHASE	1	2	3	4	5	6	7	8	
DIRECTION	-	WB	-	NB	WBL	EB	NBL	SB	
TURN TYPE	-	-	-	-	PERM/PROT	-	PERM/PROT	-	
MIN GREEN		11		7	5	11	5	7	
EXTENSION		4		3	3	4	4	3	
YELLOW		5.0		4.5	5.0	5.0	4.5	4.5	
RED CLR		2.0		2.5	2.0	2.0	2.5	2.5	
WALK		7		7		7		7	
PED CLR		21		24		21		24	
MAX 1		60		20	20	60	35	20	
MAX 2									
MAX 3		-		-		-		-	
DYM MAX									
DYM STP									
RECALL		MIN		-		MIN		-	
DETECTOR		LOCK		NON-LOCK	NON-LOCK	LOCK	NON-LOCK	NON-LOCK	
FLASH		YELLOW		RED	-	YELLOW	-	RED	

COORDINATION TIMINGS

PATTERN	1	2	3	4	5	6	7	8	
CYCLE	150	150	150	-	-	-	-	-	
OFFSET	0	28	28	-	-	-	-	-	

PHASE	1	2	3	4	5	6	7	8	
PATTERN 1		100		50	20	85	25	20	
PATTERN 2		90		40	20	65	25	20	
PATTERN 3		110		40	20	85	25	20	
PATTERN 4	-	-	-	-	-	-	-	-	
PATTERN 5	-	-	-	-	-	-	-	-	
PATTERN 6	-	-	-	-	-	-	-	-	
PATTERN 7	-	-	-	-	-	-	-	-	

Controller IP	10.40.91.33	Switch IP	10.40.90.33	Camera IP	
Controller Gateway	10.40.91.1	Switch Gateway	10.40.90.1	Camera Gateway	

REMARKS:

1	2	4
5	6	7

COUNTY OF VOLUSIA TRAFFIC SIGNAL TIMING SHEET

LOCATION: Howland Blvd @ Providence Blvd
Deltona

FREE: ☐

DATE: 10/9/2018

SIGNAL #: 236

CO-ORD: ☒ X

Design By: M. Tobin



NETWORK #: Deltona Area Network # 90

TIME OF DAY SCHEDULE

BASE DAY		1	2	3	4	5	6	7	Crosswalk Length	
MON #1	TIME	06:30-00:00	09:00-14:30	14:30-16:00	16:00-18:15	18:15-00:00				
	PATTERN	PATTERN #1	FREE	PATTERN #2	PATTERN #3	FREE			P2	
TUES #1	TIME	06:30-00:00	09:00-14:30	14:30-16:00	16:00-18:15	18:15-00:00				
	PATTERN	PATTERN #1	FREE	PATTERN #2	PATTERN #3	FREE			60	
WED #1	TIME	06:30-00:00	09:00-14:30	14:30-16:00	16:00-18:15	18:15-00:00				
	PATTERN	PATTERN #1	FREE	PATTERN #2	PATTERN #3	FREE			P4	
THU #1	TIME	06:30-00:00	09:00-14:30	14:30-16:00	16:00-18:15	18:15-00:00				
	PATTERN	PATTERN #1	FREE	PATTERN #2	PATTERN #3	FREE			55	
FRI #1	TIME	06:30-00:00	09:00-14:30	14:30-16:00	16:00-18:15	18:15-00:00				
	PATTERN	PATTERN #1	FREE	PATTERN #2	PATTERN #3	FREE			P6	
SAT #2	TIME	00:00-00:00								
	PATTERN	FREE							71	
SUN #2	TIME	00:00-00:00								
	PATTERN	FREE							P8	
CONTROLLER TYPE		CONDITION OF OVERHEAD			GOOD		PROGRAM NUMBER			
Econolite ASC/3		OVERHEAD STREET NAMES			NO				82	
PHASES:	8Φ	ILLUMINATED STREET NAMES			YES		02.64.00			SIGNAL OWNER
CABINET TYPE	V	PRE-EMPTION			YES		Controller IP Address		County	
CABINET DATE	05/2000	PRE-EMPTION TYPE			INFRARED		10.40.91.33		LED	YES

REMARKS:

1	2	4
5	6	7 8

PHASE TIMES								
PHASE	1	2	3	4	5	6	7	8
DIRECTION	NBL	SB	EBL	WB	SBL	NB	WBL	EB
LEFT TURN	Prot/Perm	Perm	Prot/Perm	Perm	Prot/Perm	Perm	Prot/Perm	Perm
MIN GRN	5	15	5	10	5	15	5	10
GAP EXT	3.0	4.0	3.0	3.0	3.0	4.0	3.0	3.0
YEL CLR	4.9	4.9	4.0	4.0	4.8	4.9	4.0	4.0
RED CLR	2.2	2.2	2.9	2.9	2.0	2.2	2.7	2.9
MAX 1	20	50	20	40	20	50	20	40
MAX 2								
DYM MAX	35	90		60		90		60
DYM STEP	10	10		10		10		10
WALK		7		7		7		7
PED CLR		21		24		21		24
RECALL		MIN				MIN		
DETECTOR	NON-LOCK	LOCK	NON-LOCK	NON-LOCK	NON-LOCK	LOCK	NON-LOCK	NON-LOCK
FLASH		YELLOW		RED		YELLOW		RED
SET								
CLEAR								

COORDINATION SPLIT TABLES								
Pattern 1								
Phase	1	2	3	4	5	6	7	8
Time (sec)	32	60	18	40	20	72	18	40
Recall								
Pattern 2								
Phase	1	2	3	4	5	6	7	8
Time (sec)	20	60	25	25	20	60	25	25
Recall								
Pattern 3								
Phase	1	2	3	4	5	6	7	8
Time (sec)	28	67	25	30	20	75	25	30
Recall								
Pattern 4								
Phase	1	2	3	4	5	6	7	8
Time (sec)	28	57	25	40	20	65	25	40
Recall								

NOTES			
1. Offset Reference: Yellow			
2. Force-off: Fixed			
3. Maximum Select: Inhibit Max	1	2	3
4. Use Ped Time: No	5	6	7
5. Omit phase 1 when phase 2 is active			
6. Omit phase 5 when phase 6 is active			

COUNTY OF VOLUSIA TRAFFIC SIGNAL TIMING SHEET

LOCATION: Veterans Memorial Pkwy & Rhode Island Blvd
Orange City

ISOLATED: ☒ X

DATE: 7/14/2017

SIGNAL #: 375

CO-ORD: ☐

Design By: M. Tobin

System #: -

Controller Timing Chart

PHASE	1	2	3	4	5	OLA	7	8	
DIRECTION	NBL	SB	-	EB	-	NB	-	-	
TURN TYPE	PERM/PROT	-	-	-	-	-	-	-	
MIN GREEN	5	11		7		11			
EXTENSION	3	4		3		4			
CLEARANCE	5.5	5.5		3.5		5.5			
ALL RED	3.0	3.0		3.0		3.0			
WALK	-	7		7		7			
FDW	-	20		18		20			
MAX 1	15	35		20		35			
MAX 2	-	-		-		-			
MAX 3	-	60		-		-			
ADJUST	-	10		-		-			
RECALL	-	MIN		-		MIN			
DETECTOR	NON-LOCK	LOCK		NON-LOCK		LOCK			
FLASH	-	YELLOW		RED		YELLOW			
SET	-	1		-		-			
CLEAR	-	2		-		-			
BASE DAY	1	2	3	4	5	6	7	Crosswalk Length	
MON #1	TIME	00:00-00:00							P2
	PLAN	FREE							
TUES#1	TIME	00:00-00:00							70 Feet
	PLAN	FREE							
WED #1	TIME	00:00-00:00							P4
	PLAN	FREE							
THU #1	TIME	00:00-00:00							63 Feet
	PLAN	FREE							
FRI #1	TIME	00:00-00:00							P6
	PLAN	FREE							
SAT #2	TIME	00:00-00:00							-
	PLAN	FREE							
SUN #3	TIME	00:00-00:00							P8
	PLAN	FREE							
CONTROLLER TYPE		CONDITION OF OVERHEAD			Fair		PROM NUMBER		-
1880 EL		OVERHEAD STREET NAMES			NO				
PHASES:	4Φ	ILLUMINATED STREET NAMES			NO		92R09		SIGNAL OWNER ^A
CABINET TYPE	V	PRE-EMPTION			NO		IP ADDRESS		County
CABINET DATE	05/1998	PRE-EMPTION TYPE			N/A		-		LED YES

REMARKS:

1	2	4
OLA		

Switch IP.#	
Controller IP.#	-
Camera IP.#	



M. Tobin

DATE: 7/14/2017

LOCATION: ans Memorial Pkwy & Rhode Island

SIGNAL ID NO: 375 SYSTEM ID: -

SIGNAL ID NO: 375

SYSTEM ID:

SYSTEM ID:

CONTROLLER TIME CHART

CONTROLLER TIME CHART																TP#						XX	
MV/MNT	MIN	EXT	CLR	A.R.	WALK	FDW	MAX1	MAX2	MAX3	ADJUST	REC	DET	FL	SET	CLR	CO-ORDINATION							
																PLAN	C1/S1	C2/S1	C3/S1	C4/S1	C5/S1	C6/S1	
1	5	3	5.5	3	-	-	15	-	-	-	-	NL	-	-	-	PLAN	C1/S1	C2/S1	C3/S1	C4/S1	C5/S1	C6/S1	
2	11	4	5.5	3	7	20	35	-	60	10	MIN	L	Y	1	2	CYCLE							
3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	OFF 1							
4	7	3	3.5	3	7	18	20	-	-	-	-	NL	R	-	-	OFF 2							
5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	OFF 3							
6	11	4	5.5	3	7	20	35	-	-	-	MIN	L	Y	-	-	OFF 4							
7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	OFF 5							
8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	PERM	10%	10%	10%	10%	10%	10%	

PHASE SPLITS (seconds)

CY/SP	C1/S1	C2/S1	C3/S1	C4/S1	C5/S1	C6/S1		
PH 1	-	-	-	-	-	-		
PH 2	-	-	-	-	-	-		
PH 3	-	-	-	-	-	-		
PH 4	-	-	-	-	-	-		
PH 5	-	-	-	-	-	-		
PH 6	-	-	-	-	-	-		
PH 7	-	-	-	-	-	-		
PH 8	-	-	-	-	-	-		

1	2	4
OLA		

[illegible]

COUNTY OF VOLUSIA TRAFFIC SIGNAL TIMING SHEET

LOCATION: Normandy Blvd & Elkcam Blvd

Deltona

ISOLATED: ☒ X

DATE: 2/23/2015

SIGNAL #: 370

CO-ORD: ☐

Design By: M. Tobin

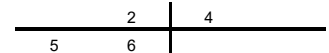
System #: -

Controller Timing Chart

PHASE	1	2	3	4	5	6	7	8	
DIRECTION	-	SB	-	WB	SBL	NB	-	-	
TURN TYPE	-	-	-	-	PERM/PROT	-	-	-	
MIN GREEN		12		5	5	12			
EXTENSION		3		3	3	3			
CLEARANCE		4.0		4.0	4.0	4.5			
ALL RED		2.5		2.5	2.5	2.5			
WALK		-		7	-	7			
FDW		-		20	-	12			
MAX 1		35		20	15	35			
MAX 2		-		-	-	-			
MAX 3		-		-	-	-			
ADJUST		-		-	-	-			
RECALL		MIN		-	-	MIN			
DETECTOR		LOCK		NON-LOCK	NON-LOCK	LOCK			
FLASH		YELLOW		RED	-	YELLOW			
SET		-		-	-	-			
CLEAR		-		-	-	-			
BASE DAY	1	2	3	4	5	6	7		
MON #1	TIME	00:01-00:00						Crosswalk Length	
	PLAN	FREE							
TUES#1	TIME	00:01-00:00						P2	
	PLAN	FREE							
WED #1	TIME	00:01-00:00						-	
	PLAN	FREE							
THU #1	TIME	00:01-00:00						P4	
	PLAN	FREE							
FRI #1	TIME	00:01-00:00						70 Feet	
	PLAN	FREE							
SAT #2	TIME	00:01-00:00						P6	
	PLAN	FREE							
SUN #3	TIME	00:01-00:00						41 Feet	
	PLAN	FREE							
CONTROLLER TYPE		CONDITION OF OVERHEAD			Good		PROM NUMBER		P8
3000E		OVERHEAD STREET NAMES			NO				
PHASES:	8Φ	ILLUMINATED STREET NAMES			YES		8216A 3.6.3		SIGNAL OWNER ⁴
CABINET TYPE	V	PRE-EMPTION			NO		IP ADDRESS		Deltona
CABINET DATE	07/2007	PRE-EMPTION TYPE			N/A		-		LED YES

REMARKS:

Omit PH 5 when PH 6 is Active



COUNTY OF VOLUSIA TRAFFIC SIGNAL TIMING SHEET

LOCATION: Elkcam Blvd & Providence Blvd

Deltona

ISOLATED: ☒ X

DATE: 1/13/2015

SIGNAL #: 235

CO-ORD:

Design By: M. Tobin

System #: -

Controller Timing Chart

PHASE		1	2	3	4	5	6	7	8		
DIRECTION		WBL	EB	NBL	SB	EBL	WB	SBL	NB		
TURN TYPE		PERM/PROT	-	PERM/PROT	-	PERM/PROT	-	PERM/PROT	-		
MIN GREEN		5	6	5	6	5	6	5	6		
EXTENSION		3	4	3	4	3	4	3	4		
CLEARANCE		4.5	4.5	4.0	4.5	4.5	4.5	4.5	4.0		
ALL RED		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		
WALK		-	10	-	10	-	10	-	10		
FDW		-	20	-	17	-	20	-	17		
MAX 1		15	30	20	35	15	30	20	35		
MAX 2		-	-	-	-	-	-	-	-		
MAX 3		-	-	-	-	-	-	-	-		
ADJUST		-	-	-	-	-	-	-	-		
RECALL		-	MIN	-	-	-	MIN	-	-		
DETECTOR		NON-LOCK	NON-LOCK	NON-LOCK	LOCK	NON-LOCK	NON-LOCK	NON-LOCK	LOCK		
FLASH		-	YELLOW	-	RED	-	YELLOW	-	RED		
SET		-	-	-	-	-	-	-	-		
CLEAR		-	-	-	-	-	-	-	-		
BASE DAY		1	2	3	4	5	6	7	Crosswalk Length		
MON #1	TIME	00:01-00:00									
	PLAN	FREE							P2		
TUES#1	TIME	00:01-00:00									
	PLAN	FREE							59 Feet		
WED #1	TIME	00:01-00:00									
	PLAN	FREE							P4		
THU #1	TIME	00:01-00:00									
	PLAN	FREE							53 Feet		
FRI #1	TIME	00:01-00:00									
	PLAN	FREE							P6		
SAT #2	TIME	00:01-00:00									
	PLAN	FREE							69 Feet		
SUN #3	TIME	00:01-00:00									
	PLAN	FREE							P8		
CONTROLLER TYPE		CONDITION OF OVERHEAD			Fair		PROM NUMBER				
3000E		OVERHEAD STREET NAMES			YES				59 Feet		
PHASES:		8Φ	ILLUMINATED STREET NAMES			NO		8216A 3.7.3		SIGNAL OWNER ⁴	
CABINET TYPE		V	PRE-EMPTION			NO		IP ADDRESS		County	
CABINET DATE		11/2000	PRE-EMPTION TYPE			N/A		-		LED	YES

REMARKS:

Speed Limit is 35 MPH

1	2	3	4
5	6	7	8

COUNTY OF VOLUSIA TRAFFIC SIGNAL TIMING SHEET

LOCATION: Elkcam Blvd & Lake Helen-Osteen Rd
Deltona

ISOLATED: ☒ X

DATE: 2/20/2015

SIGNAL #: 339

CO-ORD: ☐

Design By: M. Tobin

System #: -

Controller Timing Chart

PHASE		1	2	3	4	5	6	7	8		
DIRECTION		-	NB	-	EB	NBL	SB	-	WB		
TURN TYPE		-	-	-	-	-	-	-	-		
MIN GREEN			7		7	5	7		7		
EXTENSION			3		3	3	3		3		
CLEARANCE			4.5		4.0	4.0	4.0		4.0		
ALL RED			2.5		2.5	2.5	2.5		2.5		
WALK			7		7	-	7		7		
FDW			21		19	-	21		19		
MAX 1			25		20	20	25		20		
MAX 2			-		-	-	-		-		
MAX 3			-		-	-	-		-		
ADJUST			-		-	-	-		-		
RECALL			MIN		-	-	MIN		-		
DETECTOR			LOCK		NON-LOCK	NON-LOCK	LOCK		NON-LOCK		
FLASH			YELLOW		RED	-	YELLOW		RED		
SET			-		-	-	-		-		
CLEAR			-		-	-	-		-		
BASE DAY		1	2	3	4	5	6	7	Crosswalk Length		
MON #1	TIME	00:01-00:00							P2		
	PLAN	FREE									
TUES#1	TIME	00:01-00:00							67 Feet		
	PLAN	FREE									
WED #1	TIME	00:01-00:00							P4		
	PLAN	FREE									
THU #1	TIME	00:01-00:00							65 Feet		
	PLAN	FREE									
FRI #1	TIME	00:01-00:00							P6		
	PLAN	FREE									
SAT #2	TIME	00:01-00:00							72 Feet		
	PLAN	FREE									
SUN #3	TIME	00:01-00:00							P8		
	PLAN	FREE									
CONTROLLER TYPE		CONDITION OF OVERHEAD			OK		PROM NUMBER			P8	
1880 EL		OVERHEAD STREET NAMES			NO					66 Feet	
PHASES:		8Φ	ILLUMINATED STREET NAMES			YES		92R09		SIGNAL OWNER ^	
CABINET TYPE		V	PRE-EMPTION			NO		IP ADDRESS		County	
CABINET DATE		04/1999	PRE-EMPTION TYPE			N/A		-		LED	YES

REMARKS:

Omit PH 5 when PH 6 is Active

2	4
5	6

COUNTY OF VOLUSIA TRAFFIC SIGNAL TIMING SHEET

LOCATION: Providence Blvd & Ft. Smith Blvd
Deltona

ISOLATED: ☒ X

DATE: 8/21/2018

SIGNAL #: 316

CO-ORD:

Design By: M. Tobin

System #: -

Controller Timing Chart

PHASE		1	2	3	4	5	6	7	8	
DIRECTION		SBL	NB	-	EB	-	SB	-	WB	
TURN TYPE		PERM/PROT	-	-	-	-	-	-	-	
MIN GREEN		5	12		7		12		7	
EXTENSION		3	4		3		4		3	
CLEARANCE		4.5	4.0		4.0		4.5		4.0	
ALL RED		3.5	2.5		3.0		3.5		2.5	
WALK		-	7		7		7		7	
FDW		-	26		20		26		20	
MAX 1		20	35		30		35		30	
MAX 2		-	-		-		-		-	
MAX 3		25	60		40		60		40	
ADJUST		5	5		5		5		5	
RECALL		-	MIN		-		-		-	
DETECTOR		NON-LOCK	LOCK		NON-LOCK		LOCK		NON-LOCK	
FLASH		-	YELLOW		RED		YELLOW		RED	
SET		2	2		2		2		2	
CLEAR		2	2		2		2		2	
BASE DAY		1	2	3	4	5	6	7	Crosswalk Length	
MON #1	TIME	00:01-00:00							P2	
	PLAN	FREE								
TUES#1	TIME	00:01-00:00							82 Feet	
	PLAN	FREE								
WED #1	TIME	00:01-00:00							P4	
	PLAN	FREE								
THU #1	TIME	00:01-00:00							70 Feet	
	PLAN	FREE								
FRI #1	TIME	00:01-00:00							P6	
	PLAN	FREE								
SAT #2	TIME	00:01-00:00							88 Feet	
	PLAN	FREE								
SUN #3	TIME	00:01-00:00							P8	
	PLAN	FREE								
CONTROLLER TYPE			CONDITION OF OVERHEAD			Good		PROM NUMBER		
3000E			OVERHEAD STREET NAMES			NO				65 Feet
PHASES:		8Φ	ILLUMINATED STREET NAMES			YES		8216A 3.7.3		SIGNAL OWNER ⁴
CABINET TYPE		V	PRE-EMPTION			NO		IP ADDRESS		County
CABINET DATE		06/2000	PRE-EMPTION TYPE			N/A		10.77.8.54		LED -

REMARKS:

1	2	4
6	8	

COUNTY OF VOLUSIA TRAFFIC SIGNAL TIMING SHEET

LOCATION: Veterans Mem. Pkwy & Harley Strickland Blvd

Orange City

FREE:

DATE: 3/24/2017



SIGNAL #: 369

CO-ORD: ☒ X

Design By: M. Tobin

NETWORK #: Orange City Area Network # 70

Controller Timing Chart

PHASE	1	2	3	4	5	6	7 (act. WBL)	8	
DIRECTION	NBL	SB	EBL	WB	SBL	NB	NBL	EB	
TURN TYPE	PERM/PROT	-	PERM/PROT	-	PERM/PROT	-	PERM/PROT		
MIN GREEN	5	16	5	7	5	16	5	7	
EXTENSION	3	4	3	3	3	4	3	3	
YELLOW	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
RED CLR	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
WALK	-	7	-				-	7	
PED CLR	-	20	-				-	30	
MAX 1	35	35	25	25	20	35	20	25	
MAX 2	-	-	-				-		
MAX 3	-	-	-				-		
DYM MAX	-		-	35			-		
DYM STP	-		-	5			-		
RECALL	-	MIN				MIN			
DETECTOR	NON-LOCK	LOCK	NON-LOCK	NON-LOCK	NON-LOCK	LOCK	NON-LOCK	NON-LOCK	
FLASH	-	YELLOW	-	RED	-	YELLOW	-	RED	
			-				-		

COORDINATION TIMINGS

PATTERN	1	2	3	4	5	6	7	8	
CYCLE	130	140		-	-	-	-	-	
OFFSET	40	40		-	-	-	-	-	

PHASE	1	2	3	4	5	6	7	8	
PATTERN 1	30	40	25	35	20	50	20	40	
PATTERN 2	30	45	35	30	20	60	20	40	
PATTERN 3			-				-	-	
PATTERN 4	-	-	-	-	-	-	-	-	
PATTERN 5	-	-	-	-	-	-	-	-	
PATTERN 6	-	-	-	-	-	-	-	-	
PATTERN 7	-	-	-	-	-	-	-	-	

Controller IP	10.40.71.45	Switch IP	10.40.70.45	Camera IP	
Controller Gateway	10.40.71.1	Switch Gateway	10.40.70.1	Camera Gateway	

REMARKS:

1	2	3	4
5	6	7	8

COUNTY OF VOLUSIA TRAFFIC SIGNAL TIMING SHEET

LOCATION: Veterans Mem. Pkwy & Harley Strickland Blvd

Orange City

FREE:

☒

DATE: 3/24/2017

SIGNAL #: 424

CO-ORD:

Design By:

M. Tobin



NETWORK #: Orange City Area Network # 70

TIME OF DAY SCHEDULE

BASE DAY		1	2	3	4	5	6	7	Crosswalk Length		
MON #1	TIME	07:00-18:00	18:00-00:00								
	PATTERN	PATTERN #1	FREE						P2		
TUES #1	TIME	07:00-18:00	18:00-00:00							70 Feet	
	PATTERN	PATTERN #1	FREE								
WED #1	TIME	07:00-18:00	18:00-00:00						P4		
	PATTERN	PATTERN #1	FREE								
THU #1	TIME	07:00-18:00	18:00-00:00								
	PATTERN	PATTERN #1	FREE								
FRI #1	TIME	07:00-18:00	18:00-00:00						P6		
	PATTERN	PATTERN #1	FREE								
SAT #2	TIME	00:00-00:00									
	PATTERN	FREE									
SUN #2	TIME	00:00-00:00							P8		
	PATTERN	FREE									
CONTROLLER TYPE		CONDITION OF OVERHEAD			GOOD		PROGRAM NUMBER		104 Feet		
Econolite ASC/3		OVERHEAD STREET NAMES			NO						
PHASES:		8Φ	ILLUMINATED STREET NAMES			YES		02.64.00		SIGNAL OWNER	
CABINET TYPE		VI	PRE-EMPTION			NO		Controller IP Address		City	
CABINET DATE			PRE-EMPTION TYPE			N/A		10.40.71.45		LED	YES

REMARKS:

1	2	4	4
5	6	8	8

Saxon Boulevard - Signal System Retiming
Volusia County
Contract #: 17-SQ-27JD

Designed By:	JM
Date:	12/13/2018
Checked By:	RAA
Date:	12/13/2018

Section	79000003	Mile Post		Node	4
Sig ID	337	Controller	Econolite ASC/3-2100	System ID	
Maj. Street	Saxon Blvd	Orientation	E-W	SOP	9
Min. Street	Veteran's Memorial Pkwy	Orientation	N-S		

Pedestrians													
Movement # (Controller Phase Ø)	1	2	3	4	5	6	7	8	Notes				
Direction	EBL	WB	SB	NB	WBL	EB							
Speed Limit (mph)	45	45	40	30	45	45							
Vehicle Traversed Width	129	152	155	156	125	155							
Approach Grades	-0.7%	-0.4%	-0.9%	-0.5%	-0.4%	-0.7%							
Ped-X (curb to curb)		103	111	118		63							
Crossing Time		30	32	34		18							
Ped-X (button to curb)		16	16	9		9							
Ped-X (button to far curb)		119	127	127		72							
Crossing Time (to far curb)		34	37	37		21							
Controller Timings (seconds)													
Movement # (Controller Phase Ø)	1	2	3	4	5	6	7	8	Notes				
Direction	EBL	WB	SB	NB	WBL	EB							
Turn Type	Prot/Perm		Split	Split	Prot/Perm								
Min Green	5	12	7	7	5	12							
Ext	3.0	3.0	3.0	3.0	3.0	3.0							
Yellow Change Interval	4.8	4.8	4.5	3.7	4.8	4.8							
Red Clearance Interval	3.1	2.0	3.8	3.8	3.0	2.0							
Max I	20	40	25	20	20	40							
Max II	23	100	28	11	13	100							
Max III	19	100	36	11	13	100							
Walk		7	7	7		7							
Flashing Don't Walk		30	32	34		18							
Min Splits	13.0	44.0	48.0	49.0	13.0	32.0							
Detector Memory	Off	On	On	Off	Off	On							
Det. Cross Switch.	ON				ON								
Recall		Min				Min							
CNA													
Coord Phase		Yes				Yes							
Coordination Timings (seconds)													
Plan	Pattern	C-O-S	Splits								Cycle Length	Offset	Seq
AM	1		20	72	30	18	20	72	-	-	140	18	1
MIDDAY	2		30	45	48	27	20	55	-	-	150	86	1
PM	3		26	45	48	31	20	51	-	-	150	124	1

Notes

- Offset referenced to end of main street green
- Use Fixed Force-offs
- Use Inhibit Max termination during pattern 1
- Use Max II during pattern 2
- Use Max III during pattern 3
- Run MaxP and Rest in Walk on phases 2 & 6 during coordination

All Patterns			
Ring-1	1	2	3
Ring-2	5	6	

Saxon Boulevard - Signal System Retiming
Volusia County
Contract #: 17-SQ-27JD

Designed By:	JM
Date:	1/2/2019
Checked By:	RAA
Date:	1/2/2019

Section	79000003	Mile Post		Node	5
Sig ID	344	Controller	Econolite ASC/3-2100	System ID	
Maj. Street	Saxon Blvd	Orientation	E-W	SOP	7
Min. Street	Park & Ride	Orientation	N-S		



Pedestrians													
Movement # (Controller Phase Ø)	1	2	3	4	5	6	7	8	Notes				
Direction	EBL	WB		NB	WBL	EB		SB					
Speed Limit (mph)	45	45		25	45	45		25					
Vehicle Traversed Width	122	140		135	123	145		139					
Approach Grades	-0.8%	-0.9%		-0.6%	-0.9%	-0.8%		-10.2%					
Ped-X (curb to curb)		72		101		61		99					
Crossing Time		21		29		18		29					
Ped-X (button to curb)		10		6		10		11					
Ped-X (button to far curb)		82		107		71		110					
Crossing Time (to far curb)		24		31		21		32					
Controller Timings (seconds)													
Movement # (Controller Phase Ø)	1	2	3	4	5	6	7	8	Notes				
Direction	EBL	WB		NB	WBL	EB		SB					
Turn Type	Prot./Perm.				Prot./Perm.								
Min Green	5	11		7	5	11		7					
Ext	3.0	4.0		3.0	3.0	4.0		3.0					
Yellow Change Interval	4.8	4.9		4.2	4.9	4.9		4.2					
Red Clearance Interval	2.9	2.0		3.4	2.9	2.0		3.4					
Max I	20	40		20	20	40		20					
Max II	11	110		21	15	110		21					
Walk		7		7		7		7					
Flashing Don't Walk		21		29		18		29					
Min Splits	13.0	35.0		44.0	13.0	32.0		44.0					
Detector Memory	Off	On		Off	Off	On		Off					
Det. Cross Switch.	ON				ON								
Recall		Min				Min							
CNA													
Coord Phase		Yes				Yes							
Coordination Timings (seconds)													
Plan	Pattern	C-O-S	Splits								Cycle Length	Offset	Seq
AM	1		18	104	-	18	20	102	-	18	140	21	1
MIDDAY	2		20	110	-	20	20	110	-	20	150	96	1
PM	3		18	88	-	44	22	84	-	44	150	31	1

Notes

1. Offset referenced to end of main street green
2. Use Float Force-offs
3. Use Inhibit Max termination during coordination
4. Run MaxP and Rest in Walk on phases 2 & 6 during coordination
5. Run Max II and Fixed force offs during pattern 3

	All Patterns		
Ring-1	1	2	4
Ring-2	5	6	8

Saxon Boulevard - Signal System Retiming
Volusia County
Contract #: 17-SQ-27JD



Designed By:	JM
Date:	12/13/2018
Checked By:	RAA
Date:	12/13/2018

Section	79000003	Mile Post		Node	6 & 7
Sig ID	426	Controller	Econolite ASC/3-2100	System ID	
Maj. Street	Saxon Blvd	Orientation	E-W	SOP	10 Modified
Min. Street	I-4 EB On & Off Ramps	Orientation	N-S		

Pedestrians													
Movement # (Controller Phase Ø)	1	2	3	4	5	6	7	8	Notes				
	I-4 EB ON-RAMP			I-4 EB OFF-RAMP									
Direction	EBL	WB			NBR	EB							
Speed Limit (mph)	45	45			35	45							
Vehicle Traversed Width	100	98			92	160							
Approach Grades	-5.0%	-0.4%			0.0%	0.0%							
Ped-X (curb to curb)		28				51							
Crossing Time		8				15							
Ped-X (button to curb)		11				12							
Ped-X (button to far curb)		39				63							
Crossing Time (to far curb)		12				18							
Controller Timings (seconds)													
Movement # (Controller Phase Ø)	1	2	3	4	5	6	7	8	Notes				
Direction	EBL	WB			NBR	EB							
Turn Type	Prot				Prot								
Min Green	5	17			6	15							
Ext	3.0	3.0			3.0	3.0							
Yellow Change Interval	5.4	4.8			4.0	4.8							
Red Clearance Interval	2.3	2.0			2.0	2.0							
Max I	30	40			30	60							
Max II													
Walk		7				7							
Flashing Don't Walk		10				15							
Min Splits	13.0	24.0			12.0	29.0							
Detector Memory	Off	On			Off	On							
Det. Cross Switch.													
Recall		Min				Min							
CNA													
Coord Phase		Yes				Yes							
Coordination Timings (seconds)													
Plan	Pattern	C-O-S	Splits								Cycle Length	Offset	Seq
AM	1		35	105	-	-	22	118	-	-	140	104	1
MIDDAY	2		35	115	-	-	28	122	-	-	150	37	1
PM	3		50	100	-	-	57	93	-	-	150	26	1

Notes

- Offset referenced to end of main street green
- Saxon Blvd/I-4 WB On-Ramp & Saxon Blvd/I-4 EB Off-Ramp operate under one controller
- Use Float Force-offs
- Use Inhibit Max termination during coordination
- Run MaxP and Rest in Walk on phases 2 & 6 during coordination

	All Patterns	
Ring-1	1	2
Ring-2	5	6

Saxon Boulevard - Signal System Retiming
Volusia County
Contract #: 17-SQ-27JD

Designed By:	JM
Date:	12/13/2018
Checked By:	RAA
Date:	12/13/2018

Section	79000003	Mile Post		Node	9
Sig ID	157	Controller	Econolite ASC/3-2100	System ID	
Maj. Street	Saxon Blvd	Orientation	E-W	SOP	10
Min. Street	Normandy Blvd	Orientation	N-S		

Pedestrians													
Movement # (Controller Phase Ø)	1	2	3	4	5	6	7	8	Notes				
Direction	EBL	WB	SBL	NB	WBL	EB	NBL	SB					
Speed Limit (mph)	40	40	35	35	40	40	35	35					
Vehicle Traversed Width	133	147	114	138	133	147	118	135					
Approach Grades	0.2%	-4.6%	-7.3%	1.1%	-4.6%	0.2%	1.1%	-7.3%					
Ped-X (curb to curb)		103		79		66		84					
Crossing Time		30		23		19		24					
Ped-X (button to curb)		23		15		10		10					
Ped-X (button to far curb)		126		94		76		94					
Crossing Time (to far curb)		36		27		22		27					
Controller Timings (seconds)													
Movement # (Controller Phase Ø)	1	2	3	4	5	6	7	8	Notes				
Direction	EBL	WB	SBL	NB	WBL	EB	NBL	SB					
Turn Type	Prot./Perm.		Prot./Perm.		Prot./Perm.		Prot./Perm.						
Min Green	5	15	5	10	5	15	5	10					
Ext	3.0	4.0	3.0	4.0	3.0	4.0	3.0	4.0					
Yellow Change Interval	4.4	4.9	4.8	4.8	4.9	4.9	4.0	4.8					
Red Clearance Interval	3.2	2.0	2.7	2.1	3.2	2.0	2.8	2.1					
Max I	25	45	25	40	25	45	25	40					
Max II													
Walk		7		7		7		7					
Flashing Don't Walk		30		23		19		24					
Min Splits	13.0	44.0	13.0	37.0	14.0	33.0	12.0	38.0					
Detector Memory	Off	On	Off	Off	Off	On	Off	Off					
Det. Cross Switch.	ON		ON		ON		ON						
Recall		Min				Min							
CNA													
Coord Phase		Yes				Yes							
Coordination Timings (seconds)													
Plan	Pattern	C-O-S	Splits								Cycle Length	Offset	Seq
AM	1		21	69	18	32	18	72	27	23	140	48	1
MIDDAY	2		28	76	20	26	18	86	28	18	150	138	1
PM	3		38	62	18	32	18	82	25	25	150	95	1

Notes

- Offset referenced to end of main street green
- Use Fixed Force-offs
- Use Inhibit Max termination during coordination
- Run MaxP and Rest in Walk on phases 2 & 6 during coordination

All Patterns			
Ring-1	1	2	3
Ring-2	5	6	7
	4		8

COUNTY OF VOLUSIA TRAFFIC SIGNAL TIMING SHEET

LOCATION: Saxon Blvd & Tivoli Drive
Deltona

ISOLATED: ☒ X

DATE: 5/9/2019

SIGNAL #: 232

CO-ORD:

Design By: Sean Castello

System #: -

Controller Timing Chart

PHASE		1	2	3	4	5	6	7	8		
DIRECTION		-	EB	-	NB	EBL	WB	-	SB		
TURN TYPE		-	-	-	-	PERM/PROT	-	-	-		
MIN GREEN			11		5	5	11		5		
EXTENSION			4		3	3	4		3		
CLEARANCE			4.0		4.0	4.5	4.0		4.0		
ALL RED			2.5		2.5	2.5	2.5		2.5		
WALK			7		7 ADV	-	7		7 ADV		
FDW			16		20	-	16		20		
MAX 1			30		30	15	30		30		
MAX 2			-		-	-	-				
MAX 3			-		40	30	-		40		
ADJUST			-		5	5	-		5		
RECALL			MIN		-	-	MIN				
DETECTOR			LOCK		NON-LOCK	NON-LOCK	LOCK		NON-LOCK		
FLASH			YELLOW		RED	-	YELLOW		RED		
SET			-		2	2	-		2		
CLEAR			-		2	2	-		2		
BASE DAY		1	2	3	4	5	6	7	Crosswalk Length		
MON #1	TIME	00:01-00:00									
	PLAN	FREE							P2		
TUES#1	TIME	00:01-00:00									
	PLAN	FREE							55 Feet		
WED #1	TIME	00:01-00:00									
	PLAN	FREE							P4		
THU #1	TIME	00:01-00:00									
	PLAN	FREE							52 Feet		
FRI #1	TIME	00:01-00:00									
	PLAN	FREE							P6		
SAT #2	TIME	00:01-00:00									
	PLAN	FREE							53 Feet		
SUN #3	TIME	00:01-00:00									
	PLAN	FREE							P8		
CONTROLLER TYPE		CONDITION OF OVERHEAD			OK		PROM NUMBER				69 Feet
1880 EL		OVERHEAD STREET NAMES			NO						
PHASES:		8Φ	ILLUMINATED STREET NAMES			YES		92R09		SIGNAL OWNER ⁴	
CABINET TYPE		V	PRE-EMPTION			NO		IP ADDRESS		County	
CABINET DATE		10/2003	PRE-EMPTION TYPE			N/A		-		LED	-

REMARKS:

2	4
5	6
8	

Switch IP.# _____
Controller IP.# _____ - _____
Camera IP # _____

DESIGNED BY: Sean Castello

CITY: Deltona

SYSTEM ID: -

TP# XX

CO-ORDINATION																
PLAN	C1/S1	C2/S1	C3/S1	C4/S1	C5/S1	C6/S1										
1	-	-	-	-	-	-	-	-								
2	11	4	4	2.5	7	16	30	-								
3	-	-	-	-	-	-	-	-								
4	5	3	4	2.5	7 ADV	20	30	-								
5	5	3	4.5	2.5	-	-	15	-								
6	11	4	4	2.5	7	16	30	-								
7	-	-	-	-	-	-	-	-								
8	5	3	4	2.5	7 ADV	20	30	-								

PHASE OF LTO (seconds)							
CY/SP	C1/S1	C2/S1	C3/S1	C4/S1	C5/S1	C6/S1	
PH 1	-	-	-	-	-	-	
PH 2	-	-	-	-	-	-	
PH 3	-	-	-	-	-	-	
PH 4	-	-	-	-	-	-	
PH 5	-	-	-	-	-	-	
PH 6	-	-	-	-	-	-	
PH 7	-	-	-	-	-	-	
PH 8	-	-	-	-	-	-	

	2	4
5	6	8

[illegible]

COUNTY OF VOLUSIA TRAFFIC SIGNAL TIMING SHEET

LOCATION: N. Normandy Blvd & Deltona Blvd
Deltona

FREE: ☒ X

DATE: 2/9/2015

SIGNAL #: 283

CO-ORD: ☐

Design By: M. Tobin

System #: -

Controller Timing Chart

PHASE	1	2	3	4	5	6	7	8
DIRECTION	-	NB	-	EB	NBL	SB	-	-
TURN TYPE	-	-	-	-	PERM/PROT	-	-	-
MIN GREEN		10		4	3	10		
EXTENSION		3		2.5	2.5	3		
CLEARANCE		4.0		4.0	4.0	4.5		
ALL RED		2.5		2.0	2.5	2.5		
WALK		-		7	-	7		
FDW		-		18	-	21		
MAX 1		25		20	15	25		
MAX 2		-		-	-	-		
MAX 3		-		-	-	-		
ADJUST		-		-	-	-		
RECALL		MIN		-	-	MIN		
DETECTOR		LOCK		NON-LOCK	NON-LOCK	LOCK		
FLASH		YELLOW		RED	-	YELLOW		
SET		-		-	-	-		
CLEAR		-		-	-	-		
BASE DAY	1	2	3	4	5	6	7	
	TIME	00:00-00:00						Crosswalk Length
MON #1	PLAN	FREE						P2
TUES #1	TIME	00:00-00:00						-
	PLAN	FREE						
WED #1	TIME	00:00-00:00						P4
	PLAN	FREE						63 Feet
THU #1	TIME	00:00-00:00						P6
	PLAN	FREE						73 Feet
FRI #1	TIME	00:00-00:00						P8
	PLAN	FREE						-
SAT #2	TIME	00:00-00:00						
	PLAN	FREE						
SUN #3	TIME	00:00-00:00						
	PLAN	FREE						
CONTROLLER TYPE		CONDITION OF OVERHEAD			PROM NUMBER			
3000E		OVERHEAD STREET NAMES			YES			
PHASES:	8Φ	ILLUMINATED STREET NAMES			NO		SIGNAL OWNER ⁴	
CABINET TYPE	V	PRE-EMPTION			NO		IP ADDRESS	
CABINET DATE	-	PRE-EMPTION TYPE			N/A		LED	
							YES	

REMARKS:

2	4
5	6

Switch IP.#	
Controller IP.#	-
Camera IP.#	

DATE: 2/9/2015

SYSTEM ID:

Deltona

XX
TP#

M/M/N/T	MIN	EXT	CLR	A.R.	WALK	FDW	MAX1	MAX2	MAX3	ADJUST	REC	DET	FL	SET	CLR	CO-ORDINATION								
1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	PLAN	C1/S1	C2/S1	C3/S1	C4/S1	C5/S1	C6/S1	
2	10	3	4	2.5	-	-	25	-	-	-	MIN	L	Y	-	-	-	CYCLE							
3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	OFF 1							
4	4	2.5	4	2	7	18	20	-	-	-	-	NL	R	-	-	-	OFF 2							
5	3	2.5	4	2.5	-	-	15	-	-	-	-	NL	-	-	-	-	OFF 3							
6	10	3	4.5	2.5	7	21	25	-	-	-	MIN	L	Y	-	-	-	OFF 4							
7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	OFF 5							
8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	PERM	10%	10%	10%	10%	10%	10%	10%

TYPE OF UTI (30000002)	CY/SP	C1/S1	C2/S1	C3/S1	C4/S1	C5/S1	C6/S1
PH1	-	-	-	-	-	-	-
PH2	-	-	-	-	-	-	-
PH3	-	-	-	-	-	-	-
PH4	-	-	-	-	-	-	-
PH5	-	-	-	-	-	-	-
PH6	-	-	-	-	-	-	-
PH7	-	-	-	-	-	-	-
PH8	-	-	-	-	-	-	-

5	6	2	4

[illegible]

APPENDIX E: INTERSECTION VOLUME DEVELOPMENT WORKSHEETS

INTERSECTION VOLUME DEVELOPMENT
Dr. Martin Luther King Jr Boulevard @ Orange Camp Road
AM Peak Hour

Case	Dr. Martin Luther King Jr Boulevard Northbound			Dr. Martin Luther King Jr Boulevard Southbound			Orange Camp Road Eastbound			Orange Camp Road Westbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
6/6/19 Observed Volumes	110	297	35	242	183	39	29	379	58	29	243	145
Peak Season Factor	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05
2019 Peak Season Volumes	116	312	37	254	192	41	30	398	61	30	255	152
Growth Factor	1.03	1.03	1.03	1.02	1.02	1.02	1.09	1.09	1.09	1.09	1.09	1.09
2020 Peak Season Volumes	117	315	38	256	193	41	31	407	63	31	261	156
Vested Trips	97	213	36	88	93	14	18	237	63	52	324	193
2020 Non-Project Traffic	214	528	73	343	286	55	49	644	126	82	585	349
Project Assignment	2.0%	2.0%	1.0%	0.0%	2.0%	0.0%	0.0%	0.0%	2.0%	1.0%	0.0%	0.0%
	OUT	OUT	OUT	--	IN	--	--	--	IN	IN	--	--
Project Traffic (Net New Trips)	0	0	0	0	11	0	0	0	11	6	0	0
Total Build-Out Volumes	214	528	73	343	297	55	49	644	137	88	585	349

INTERSECTION VOLUME DEVELOPMENT
N. Kentucky Avenue @ SR 472
AM Peak Hour

Case	N. Kentucky Avenue Northbound			Dr. Martin Luther King Jr Boulevard Southbound			SR 472 Eastbound			SR 472 Westbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
6/6/19 Observed Volumes	129	133	46	135	166	30	24	841	71	87	964	227
Peak Season Factor	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05
2019 Peak Season Volumes	135	140	48	142	174	32	25	883	75	91	1,012	238
Growth Factor	1.03	1.03	1.03	1.05	1.05	1.05	1.02	1.02	1.02	1.04	1.04	1.04
2020 Peak Season Volumes	136	141	49	144	176	33	25	888	76	92	1,024	241
Vested Trips	148	106	21	80	178	18	1	47	123	17	44	10
2020 Non-Project Traffic	284	247	69	223	354	50	26	934	198	109	1,067	251
Truck Assignment	0.0%	0.0%	50.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	--	--	OUT	--	--	--	--	--	--	--	--	--
Project Traffic (Net New Trips)	0	0	2	0	0	0	0	0	0	0	0	0
Project Assignment	9.0%	6.0%	1.0%	0.0%	6.0%	0.0%	0.0%	0.0%	9.0%	1.0%	0.0%	0.0%
	OUT	OUT	OUT	--	IN	--	--	--	IN	IN	--	--
Project Traffic (Net New Trips)	0	0	0	0	34	0	0	0	51	6	0	0
Total Build-Out Volumes	284	247	71	223	388	50	26	934	249	115	1,067	251

INTERSECTION VOLUME DEVELOPMENT
I-4 WB Ramp @ SR 472
AM Peak Hour

Case	I-4 WB Ramp Northbound			I-4 WB Ramp Southbound			SR 472 Eastbound			SR 472 Westbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
6/6/19 Observed Volumes	0	0	0	119	0	122	0	340	713	781	1,106	0
Peak Season Factor	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05
2019 Peak Season Volumes	0	0	0	125	0	128	0	357	749	820	1,161	0
Growth Factor	1.02	1.02	1.02	1.03	1.03	1.03	1.04	1.04	1.04	1.04	1.04	1.04
2020 Peak Season Volumes	0	0	0	126	0	129	0	361	758	829	1,174	0
Vested Trips	0	0	0	123	0	98	0	31	35	81	34	0
2020 Non-Project Traffic	0	0	0	249	0	227	0	392	793	910	1,208	0
Truck Assignment	0.0%	0.0%	0.0%	0.0%	0.0%	50.0%	0.0%	0.0%	50.0%	0.0%	0.0%	0.0%
	--	--	--	--	--	IN	--	--	OUT	--	--	--
Project Traffic (Net New Trips)	0	0	0	0	0	1	0	0	2	0	0	0
Project Assignment	0.0%	0.0%	0.0%	3.0%	0.0%	1.0%	0.0%	1.0%	0.0%	4.0%	0.0%	0.0%
	--	--	--	IN	--	IN	--	OUT	--	OUT	--	--
Project Traffic (Net New Trips)	0	0	0	17	0	6	0	0	0	0	0	0
Total Build-Out Volumes	0	0	0	266	0	234	0	392	795	910	1,208	0

INTERSECTION VOLUME DEVELOPMENT

I-4 EB Ramp @ SR 472

AM Peak Hour

Case	I-4 EB Ramp Northbound			I-4 EB Ramp Southbound			SR 472 Eastbound			SR 472 Westbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
6/11/19 Observed Volumes	545	0	148	0	0	0	0	336	113	0	1,880	0
Peak Season Factor	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05
2019 Peak Season Volumes	572	0	155	0	0	0	0	353	119	0	1,974	0
Growth Factor	1.02	1.02	1.02	1.02	1.02	1.02	1.04	1.04	1.04	1.04	1.04	1.04
2020 Peak Season Volumes	575	0	156	0	0	0	0	357	121	0	1,996	0
Vested Trips	304	0	148	0	0	0	0	83	29	0	173	0
2020 Non-Project Traffic	879	0	304	0	0	0	0	440	149	0	2,169	0
Truck Assignment	0.0%	0.0%	50.0%	0.0%	0.0%	0.0%	0.0%	50.0%	0.0%	0.0%	50.0%	0.0%
	--	--	IN	--	--	--	--	IN	--	--	OUT	--
Project Traffic (Net New Trips)	0	0	0	0	0	0	0	1	0	0	1	0
Project Assignment	0.0%	0.0%	5.0%	0.0%	0.0%	0.0%	0.0%	3.0%	1.0%	0.0%	8.0%	0.0%
	--	--	IN	--	--	--	--	IN	OUT	--	OUT	--
Project Traffic (Net New Trips)	0	0	29	0	0	0	0	17	0	0	0	0
Total Build-Out Volumes	879	0	333	0	0	0	0	458	149	0	2,170	0

INTERSECTION VOLUME DEVELOPMENT
US 17/92 @ Graves Avenue
AM Peak Hour

Case	US 17/92 Northbound			US 17/92 Southbound			Graves Avenue Eastbound			Graves Avenue Westbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
6/19/19 Observed Volumes	6	729	56	60	953	8	21	27	30	107	29	88
Peak Season Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
2019 Peak Season Volumes	6	773	59	64	1,010	8	22	29	32	113	31	93
Growth Factor	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.06	1.06	1.06
2020 Peak Season Volumes	6	777	60	65	1,015	8	22	29	32	115	32	95
Vested Trips	0	28	2	1	11	0	2	15	2	0	14	0
2020 Non-Project Traffic	6	805	62	65	1,026	8	24	44	34	115	46	95
Project Assignment	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.0%	0.0%	0.0%	1.0%	0.0%
	--	--	--	--	--	--	--	IN	--	--	OUT	--
Project Traffic (Net New Trips)	0	0	0	0	0	0	0	6	0	0	0	0
Total Build-Out Volumes	6	805	62	65	1,026	8	24	50	34	115	46	95

INTERSECTION VOLUME DEVELOPMENT
Veterans Memorial Parkway @ Graves Avenue
AM Peak Hour

Case	Veterans Memorial Parkway Northbound			N/A Southbound			Graves Avenue Eastbound			Graves Avenue Westbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
6/6/19 Observed Volumes	28	0	199	0	0	0	0	163	31	494	218	0
Peak Season Factor	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05
2019 Peak Season Volumes	29	0	209	0	0	0	0	171	33	519	229	0
Growth Factor	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.03	1.03	1.03
2020 Peak Season Volumes	29	0	210	0	0	0	0	172	33	523	231	0
Vested Trips	22	0	277	0	0	0	0	50	2	288	113	0
2020 Non-Project Traffic	51	0	487	0	0	0	0	222	35	810	344	0
Project Assignment	0.0%	0.0%	9.0%	0.0%	0.0%	0.0%	0.0%	3.0%	0.0%	9.0%	3.0%	0.0%
	--	--	IN	--	--	--	--	IN	--	OUT	OUT	--
Project Traffic (Net New Trips)	0	0	51	0	0	0	0	17	0	0	0	0
Total Build-Out Volumes	51	0	538	0	0	0	0	239	35	810	344	0

INTERSECTION VOLUME DEVELOPMENT
N. Kentucky Avenue @ Graves Avenue
AM Peak Hour

Case	N. Kentucky Avenue Northbound			N. Kentucky Avenue Southbound			Graves Avenue Eastbound			Graves Avenue Westbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
6/6/19 Observed Volumes	16	11	5	65	6	286	117	226	5	7	430	158
Peak Season Factor	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05
2019 Peak Season Volumes	17	12	5	68	6	300	123	237	5	7	452	166
Growth Factor	1.02	1.02	1.02	1.03	1.03	1.03	1.03	1.03	1.03	1.04	1.04	1.04
2020 Peak Season Volumes	17	12	5	69	6	303	124	239	5	7	457	168
Vested Trips	0	0	0	220	1	37	77	308	3	4	405	316
2020 Non-Project Traffic	17	12	5	289	7	339	201	546	8	11	862	484
Truck Assignment	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	50.0%
	--	--	--	--	--	--	--	--	--	--	--	OUT
Project Traffic (Net New Trips)	0	0	0	0	0	0	0	0	0	0	0	2
Project Assignment	0.0%	0.0%	0.0%	16.0%	0.0%	0.0%	0.0%	12.0%	0.0%	0.0%	12.0%	16.0%
	--	--	--	IN	--	--	--	IN	--	--	OUT	OUT
Project Traffic (Net New Trips)	0	0	0	91	0	0	0	68	0	0	0	0
Total Build-Out Volumes	17	12	5	380	7	339	201	614	8	11	862	486

INTERSECTION VOLUME DEVELOPMENT
Normandy Boulevard @ Graves Avenue
AM Peak Hour

Case	Normandy Boulevard Northbound			N/A Southbound			Graves Avenue Eastbound			Graves Avenue Westbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
6/6/19 Observed Volumes	242	0	199	0	0	0	0	216	112	69	321	0
Peak Season Factor	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05
2019 Peak Season Volumes	254	0	209	0	0	0	0	227	118	72	337	0
Growth Factor	1.12	1.12	1.12	1.02	1.02	1.02	1.04	1.04	1.04	1.04	1.04	1.04
2020 Peak Season Volumes	284	0	233	0	0	0	0	237	123	75	351	0
Vested Trips	416	0	373	0	0	0	0	213	495	402	266	0
2020 Non-Project Traffic	700	0	606	0	0	0	0	450	618	477	617	0
Truck Assignment	50.0%	0.0%	50.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%
	OUT	--	OUT	--	--	--	--	--	--	IN	--	--
Project Traffic (Net New Trips)	2	0	1	0	0	0	0	0	0	1	0	0
Project Assignment	29.0%	0.0%	26.0%	0.0%	0.0%	0.0%	0.0%	0.0%	29.0%	26.0%	0.0%	0.0%
	OUT	--	OUT	--	--	--	--	--	IN	IN	--	--
Project Traffic (Net New Trips)	1	0	1	0	0	0	0	0	165	148	0	0
Total Build-Out Volumes	703	0	608	0	0	0	0	450	783	626	617	0

INTERSECTION VOLUME DEVELOPMENT
Howland Boulevard @ Graves Avenue
AM Peak Hour

Case	Howland Boulevard Northbound			SR 472 Southbound			Graves Avenue Eastbound			Graves Avenue Westbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
6/6/19 Observed Volumes	301	1,470	10	44	393	35	235	27	160	18	30	115
Peak Season Factor	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05
2019 Peak Season Volumes	316	1,544	11	46	413	37	247	28	168	19	32	121
Growth Factor	1.02	1.02	1.02	1.04	1.04	1.04	1.04	1.04	1.04	1.02	1.02	1.02
2020 Peak Season Volumes	318	1,552	11	47	418	38	250	29	170	19	32	122
Vested Trips	295	251	2	28	253	129	286	34	347	0	13	0
2020 Non-Project Traffic	613	1,802	13	75	670	166	535	62	517	19	45	122
Truck Assignment	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	50.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	--	--	--	--	--	IN	OUT	--	--	--	--	--
Project Traffic (Net New Trips)	0	0	0	0	0	1	1	0	0	0	0	0
Project Assignment	17.0%	0.0%	0.0%	0.0%	0.0%	8.0%	8.0%	1.0%	17.0%	0.0%	1.0%	0.0%
	IN	--	--	--	--	IN	OUT	OUT	OUT	--	IN	--
Project Traffic (Net New Trips)	97	0	0	0	0	46	0	0	1	0	6	0
Total Build-Out Volumes	710	1,802	13	75	670	213	536	62	518	19	51	122

INTERSECTION VOLUME DEVELOPMENT
Catalina Boulevard @ Howland Boulevard
AM Peak Hour

Case	Catalina Boulevard Northbound			Catalina Boulevard Southbound			Howland Boulevard Eastbound			Howland Boulevard Westbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
6/11/19 Observed Volumes	98	22	12	37	33	505	98	351	18	25	969	9
Peak Season Factor	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05
2019 Peak Season Volumes	103	23	13	39	35	530	103	369	19	26	1,017	9
Growth Factor	1.02	1.02	1.02	1.02	1.02	1.02	1.03	1.03	1.03	1.02	1.02	1.02
2020 Peak Season Volumes	104	23	13	39	35	533	104	372	19	26	1,022	9
Vested Trips	27	0	0	0	0	66	129	307	40	5	286	2
2020 Non-Project Traffic	131	23	13	39	35	599	233	678	59	31	1,308	11
Project Assignment	2.0%	0.0%	0.0%	0.0%	0.0%	5.0%	5.0%	7.0%	2.0%	0.0%	7.0%	0.0%
	IN	--	--	--	--	IN	OUT	OUT	OUT	--	IN	--
Project Traffic (Net New Trips)	11	0	0	0	0	29	0	0	0	0	40	0
Total Build-Out Volumes	142	23	13	39	35	628	233	678	59	31	1,348	11

INTERSECTION VOLUME DEVELOPMENT
Lake Helen-Osteen Road @ Catalina Boulevard
AM Peak Hour

Case	Lake Helen-Osteen Road Northbound			Lake Helen-Osteen Road Southbound			Catalina Boulevard Eastbound			N/A Westbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
6/6/19 Observed Volumes	367	252	0	0	78	150	32	0	69	0	0	0
Peak Season Factor	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05
2019 Peak Season Volumes	385	265	0	0	82	158	34	0	72	0	0	0
Growth Factor	1.06	1.06	1.06	1.02	1.02	1.02	1.02	1.02	1.02	1.00	1.00	1.00
2020 Peak Season Volumes	410	282	0	0	84	161	35	0	73	0	0	0
Vested Trips	40	0	0	0	0	13	14	0	43	0	0	0
2020 Non-Project Traffic	450	282	0	0	84	174	49	0	116	0	0	0
Project Assignment	3.0%	0.0%	0.0%	0.0%	0.0%	1.0%	1.0%	0.0%	3.0%	0.0%	0.0%	0.0%
	IN	--	--	--	--	IN	OUT	--	OUT	--	--	--
Project Traffic (Net New Trips)	17	0	0	0	0	6	0	0	0	0	0	0
Total Build-Out Volumes	467	282	0	0	84	180	49	0	116	0	0	0

INTERSECTION VOLUME DEVELOPMENT
Providence Boulevard @ Howland Boulevard
AM Peak Hour

Case	Providence Boulevard Northbound			Providence Boulevard Southbound			Howland Boulevard Eastbound			Howland Boulevard Westbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
6/13/19 Observed Volumes	217	0	18	1	0	2	0	283	178	26	673	0
Peak Season Factor	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05
2019 Peak Season Volumes	228	0	19	1	0	2	0	297	187	27	707	0
Growth Factor	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.04	1.04	1.04
2020 Peak Season Volumes	229	0	19	1	0	2	0	299	188	28	715	0
Vested Trips	37	0	3	0	0	0	0	224	77	4	190	0
2020 Non-Project Traffic	266	0	22	1	0	2	0	522	265	31	905	0
Project Assignment	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	7.0%	0.0%	0.0%	7.0%	0.0%
	--	--	--	--	--	--	--	OUT	--	--	IN	--
Project Traffic (Net New Trips)	0	0	0	0	0	0	0	0	0	0	40	0
Total Build-Out Volumes	266	0	22	1	0	2	0	522	265	31	945	0

INTERSECTION VOLUME DEVELOPMENT
US 17/92 @ Rhode Island Avenue
AM Peak Hour

Case	US 17/92 Northbound			US 17/92 Southbound			Rhode Island Avenue Eastbound			Rhode Island Avenue Westbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
6/6/19 Observed Volumes	123	722	61	61	973	40	24	31	160	128	83	56
Peak Season Factor	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05
2019 Peak Season Volumes	129	758	64	64	1,022	42	25	33	168	134	87	59
Growth Factor	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
2020 Peak Season Volumes	130	762	65	65	1,027	42	25	33	169	135	88	60
Vested Trips	5	28	29	15	27	1	11	27	72	40	21	19
2020 Non-Project Traffic	134	790	94	79	1,054	43	36	60	241	174	108	78
Project Assignment	0.0%	0.0%	2.0%	1.0%	0.0%	0.0%	0.0%	1.0%	0.0%	2.0%	1.0%	1.0%
	--	--	IN	IN	--	--	--	IN	--	OUT	OUT	OUT
Project Traffic (Net New Trips)	0	0	11	6	0	0	0	6	0	0	0	0
Total Build-Out Volumes	134	790	105	85	1,054	43	36	66	241	174	108	78

INTERSECTION VOLUME DEVELOPMENT
Veterans Memorial Parkway @ Rhode Island Avenue
AM Peak Hour

Case	Veterans Memorial Parkway Northbound			Veterans Memorial Parkway Southbound			Rhode Island Avenue Eastbound			N/A Westbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
6/11/19 Observed Volumes	163	162	0	0	465	198	91	0	149	0	0	0
Peak Season Factor	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05
2019 Peak Season Volumes	171	170	0	0	488	208	96	0	156	0	0	0
Growth Factor	1.05	1.05	1.05	1.02	1.02	1.02	1.02	1.02	1.02	1.00	1.00	1.00
2020 Peak Season Volumes	174	173	0	0	491	209	97	0	157	0	0	0
Vested Trips	160	186	0	0	155	140	88	0	14	0	0	0
2020 Non-Project Traffic	333	358	0	0	646	349	185	0	171	0	0	0
Project Assignment	0.0%	2.0%	0.0%	0.0%	2.0%	6.0%	6.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	--	IN	--	--	OUT	OUT	IN	--	--	--	--	--
Project Traffic (Net New Trips)	0	11	0	0	0	0	34	0	0	0	0	0
Total Build-Out Volumes	333	369	0	0	646	349	219	0	171	0	0	0

INTERSECTION VOLUME DEVELOPMENT
Normandy Boulevard @ Elkcarn Boulevard
AM Peak Hour

Case	Normandy Boulevard Northbound			Normandy Boulevard Southbound			Elkcarn Boulevard Eastbound			Elkcarn Boulevard Westbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
6/6/19 Observed Volumes	2	177	88	60	133	0	0	0	0	285	0	187
Peak Season Factor	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05
2019 Peak Season Volumes	2	186	92	63	140	0	0	0	0	299	0	196
Growth Factor	1.02	1.02	1.02	1.02	1.02	1.02	1.00	1.00	1.00	1.08	1.08	1.08
2020 Peak Season Volumes	2	190	94	64	143	0	0	0	0	324	0	213
Vested Trips	0	411	0	129	445	0	0	0	0	0	0	119
2020 Non-Project Traffic	2	601	94	193	588	0	0	0	0	324	0	332
Project Assignment	0.0%	31.0%	0.0%	9.0%	31.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	9.0%
	--	IN	--	OUT	OUT	--	--	--	--	--	--	IN
Project Traffic (Net New Trips)	0	177	0	0	1	0	0	0	0	0	0	51
Total Build-Out Volumes	2	778	94	193	589	0	0	0	0	324	0	383

INTERSECTION VOLUME DEVELOPMENT
Fort Smith Boulevard @ Elkcarn Boulevard
AM Peak Hour

Case	Fort Smith Boulevard Northbound			N/A Southbound			Elkcarn Boulevard Eastbound			Elkcarn Boulevard Westbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
6/6/19 Observed Volumes	118	0	5	0	0	0	0	92	51	7	230	0
Peak Season Factor	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05
2019 Peak Season Volumes	124	0	5	0	0	0	0	97	54	7	242	0
Growth Factor	1.02	1.02	1.02	1.00	1.00	1.00	1.08	1.08	1.08	1.05	1.05	1.05
2020 Peak Season Volumes	126	0	5	0	0	0	0	105	59	7	254	0
Vested Trips	53	0	0	0	0	0	0	43	57	0	40	0
2020 Non-Project Traffic	179	0	5	0	0	0	0	148	116	7	294	0
Project Assignment	4.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	3.0%	4.0%	0.0%	3.0%	0.0%
	IN	--	--	--	--	--	--	OUT	OUT	--	IN	--
Project Traffic (Net New Trips)	23	0	0	0	0	0	0	0	0	0	17	0
Total Build-Out Volumes	202	0	5	0	0	0	0	148	116	7	311	0

INTERSECTION VOLUME DEVELOPMENT
Providence Boulevard @ Elkcarn Boulevard
AM Peak Hour

Case	Providence Boulevard Northbound			Providence Boulevard Southbound			Elkcarn Boulevard Eastbound			Elkcarn Boulevard Westbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
6/11/19 Observed Volumes	18	241	89	36	171	26	41	72	18	117	143	69
Peak Season Factor	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05
2019 Peak Season Volumes	19	253	93	38	180	27	43	76	19	123	150	72
Growth Factor	1.02	1.02	1.02	1.02	1.02	1.02	1.05	1.05	1.05	1.02	1.02	1.02
2020 Peak Season Volumes	19	255	94	38	181	27	44	77	19	124	151	73
Vested Trips	15	26	10	6	29	17	14	0	14	0	0	0
2020 Non-Project Traffic	34	281	103	44	210	44	58	77	33	124	151	73
Project Assignment	1.0%	0.0%	0.0%	0.0%	0.0%	1.0%	1.0%	0.0%	1.0%	0.0%	0.0%	0.0%
	IN	--	--	--	--	IN	OUT	--	OUT	--	--	--
Project Traffic (Net New Trips)	6	0	0	0	0	6	0	0	0	0	0	0
Total Build-Out Volumes	40	281	103	44	210	50	58	77	33	124	151	73

INTERSECTION VOLUME DEVELOPMENT
Lake Helen Osteen Rd @ Elkcarn Boulevard
AM Peak Hour

Case	Lake Helen Osteen Rd Northbound			Lake Helen Osteen Rd Southbound			Elkcarn Boulevard Eastbound			Elkcarn Boulevard Westbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
6/19/19 Observed Volumes	19	144	38	5	159	59	64	81	12	92	226	17
Peak Season Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
2019 Peak Season Volumes	20	153	40	5	169	63	68	86	13	98	240	18
Growth Factor	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
2020 Peak Season Volumes	20	156	41	5	172	64	69	88	13	100	245	18
Vested Trips	0	0	0	0	0	0	0	14	0	0	13	0
2020 Non-Project Traffic	20	156	41	5	172	64	69	102	13	100	258	18
Project Assignment	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.0%	0.0%	0.0%	1.0%	0.0%
	--	--	--	--	--	--	--	OUT	--	--	IN	--
Project Traffic (Net New Trips)	0	0	0	0	0	0	0	0	0	0	6	0
Total Build-Out Volumes	20	156	41	5	172	64	69	102	13	100	264	18

INTERSECTION VOLUME DEVELOPMENT
Providence Boulevard @ Fort Smith Boulevard
AM Peak Hour

Case	Providence Boulevard Northbound			Providence Boulevard Southbound			Fort Smith Boulevard Eastbound			Fort Smith Boulevard Westbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
6/6/19 Observed Volumes	18	171	79	34	265	5	8	52	18	299	78	89
Peak Season Factor	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05
2019 Peak Season Volumes	19	180	83	36	278	5	8	55	19	314	82	93
Growth Factor	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
2020 Peak Season Volumes	19	181	84	36	280	5	8	56	19	316	83	94
Vested Trips	13	0	0	4	33	1	0	43	14	0	40	0
2020 Non-Project Traffic	32	181	84	40	313	6	8	99	33	316	123	94
Project Assignment	1.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	3.0%	1.0%	0.0%	3.0%	0.0%
	IN	--	--	--	--	--	--	OUT	OUT	--	IN	--
Project Traffic (Net New Trips)	6	0	0	0	0	0	0	0	0	0	17	0
Total Build-Out Volumes	38	181	84	40	313	6	8	99	33	316	140	94

INTERSECTION VOLUME DEVELOPMENT
Veterans Memorial Parkway @ Harley Strickland Boulevard
AM Peak Hour

Case	Veterans Memorial Parkway Northbound			Veterans Memorial Parkway Southbound			Harley Strickland Boulevard Eastbound			Harley Strickland Boulevard Westbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
6/6/19 Observed Volumes	119	233	4	51	322	175	68	20	68	34	29	35
Peak Season Factor	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05
2019 Peak Season Volumes	125	245	4	54	338	184	71	21	71	36	30	37
Growth Factor	1.02	1.02	1.02	1.05	1.05	1.05	1.02	1.02	1.02	1.00	1.00	1.00
2020 Peak Season Volumes	126	246	4	55	343	187	72	21	72	36	30	37
Vested Trips	36	13	0	17	106	57	15	4	42	0	0	0
2020 Non-Project Traffic	161	259	4	71	448	244	87	25	114	36	30	37
Project Assignment	2.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.0%	0.0%	0.0%	0.0%
	OUT	--	--	--	--	--	--	--	IN	--	--	--
Project Traffic (Net New Trips)	0	0	0	0	0	0	0	0	11	0	0	0
Total Build-Out Volumes	161	259	4	71	448	244	87	25	125	36	30	37

INTERSECTION VOLUME DEVELOPMENT
Veterans Memorial Parkway @ Saxon Boulevard
AM Peak Hour

Case	Veterans Memorial Parkway Northbound			Veterans Memorial Parkway Southbound			Saxon Boulevard Eastbound			Saxon Boulevard Westbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
6/6/19 Observed Volumes	46	49	63	241	41	127	115	542	11	106	999	369
Peak Season Factor	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05
2019 Peak Season Volumes	48	51	66	253	43	133	121	569	12	111	1,049	387
Growth Factor	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
2020 Peak Season Volumes	48	52	67	255	43	134	122	572	12	112	1,054	389
Vested Trips	0	0	0	39	2	6	3	94	0	14	220	79
2020 Non-Project Traffic	48	52	67	293	45	140	124	666	12	126	1,274	468
Project Assignment	0.0%	0.0%	0.0%	2.0%	0.0%	0.0%	0.0%	6.0%	0.0%	0.0%	6.0%	2.0%
	--	--	--	IN	--	--	--	IN	--	--	OUT	OUT
Project Traffic (Net New Trips)	0	0	0	11	0	0	0	34	0	0	0	0
Total Build-Out Volumes	48	52	67	304	45	140	124	700	12	126	1,274	468

INTERSECTION VOLUME DEVELOPMENT
 FDOT Park & Ride @ Saxon Boulevard
 AM Peak Hour

Case	FDOT Park & Ride Northbound			FDOT Park & Ride Southbound			Saxon Boulevard Eastbound			Saxon Boulevard Westbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
6/19/19 Observed Volumes	45	1	76	9	4	8	15	863	40	77	1,507	20
Peak Season Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
2019 Peak Season Volumes	48	1	81	10	4	8	16	915	42	82	1,597	21
Growth Factor	1.02	1.02	1.02	1.02	1.02	1.02	1.04	1.04	1.04	1.02	1.02	1.02
2020 Peak Season Volumes	48	1	82	10	4	8	16	924	43	83	1,605	21
Vested Trips	0	0	0	0	0	0	3	292	9	11	321	3
2020 Non-Project Traffic	48	1	82	10	4	8	19	1,216	51	93	1,926	24
Project Assignment	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	8.0%	0.0%	0.0%	8.0%	0.0%
	--	--	--	--	--	--	--	IN	--	--	OUT	--
Project Traffic (Net New Trips)	0	0	0	0	0	0	0	46	0	0	0	0
Total Build-Out Volumes	48	1	82	10	4	8	19	1,262	51	93	1,926	24

INTERSECTION VOLUME DEVELOPMENT
I-4 WB Ramp @ Saxon Boulevard
AM Peak Hour

Case	I-4 WB Ramp Northbound			I-4 WB Ramp Southbound			Saxon Boulevard Eastbound			Saxon Boulevard Westbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
6/11/19 Observed Volumes	0	0	286	0	0	454	0	555	270	0	1,567	516
Peak Season Factor	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05
2019 Peak Season Volumes	0	0	300	0	0	477	0	583	284	0	1,645	542
Growth Factor	1.02	1.02	1.02	1.02	1.02	1.02	1.04	1.04	1.04	1.04	1.04	1.04
2020 Peak Season Volumes	0	0	302	0	0	480	0	589	287	0	1,661	548
Vested Trips	0	0	413	0	0	386	0	253	72	0	280	83
2020 Non-Project Traffic	0	0	715	0	0	866	0	842	359	0	1,941	631
Project Assignment	0.0%	0.0%	2.0%	0.0%	0.0%	0.0%	0.0%	8.0%	0.0%	0.0%	8.0%	2.0%
	--	--	IN	--	--	--	--	IN	--	--	OUT	OUT
Project Traffic (Net New Trips)	0	0	11	0	0	0	0	46	0	0	0	0
Total Build-Out Volumes	0	0	726	0	0	866	0	888	359	0	1,941	631

INTERSECTION VOLUME DEVELOPMENT
I-4 EB Ramp @ Saxon Boulevard
AM Peak Hour

Case	I-4 EB Ramp Northbound			I-4 EB Ramp Southbound			Saxon Boulevard Eastbound			Saxon Boulevard Westbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
6/6/19 Observed Volumes	0	0	178	0	0	316	271	589	0	0	1,681	333
Peak Season Factor	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05
2019 Peak Season Volumes	0	0	187	0	0	332	285	618	0	0	1,765	350
Growth Factor	1.03	1.03	1.03	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
2020 Peak Season Volumes	0	0	189	0	0	334	287	621	0	0	1,774	352
Vested Trips	0	0	250	0	0	0	38	216	0	0	245	49
2020 Non-Project Traffic	0	0	439	0	0	334	325	837	0	0	2,019	401
Project Assignment	0.0%	0.0%	2.0%	0.0%	0.0%	0.0%	0.0%	10.0%	0.0%	0.0%	10.0%	2.0%
	--	--	IN	--	--	--	--	IN	--	--	OUT	OUT
Project Traffic (Net New Trips)	0	0	11	0	0	0	0	57	0	0	0	0
Total Build-Out Volumes	0	0	450	0	0	334	325	894	0	0	2,019	401

INTERSECTION VOLUME DEVELOPMENT
Normandy Boulevard @ Saxon Boulevard
AM Peak Hour

Case	Normandy Boulevard Northbound			Normandy Boulevard Southbound			Saxon Boulevard Eastbound			Saxon Boulevard Westbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
6/11/19 Observed Volumes	203	101	17	48	123	411	100	344	86	28	1,108	43
Peak Season Factor	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05
2019 Peak Season Volumes	213	106	18	50	129	432	105	361	90	29	1,163	45
Growth Factor	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
2020 Peak Season Volumes	214	107	18	51	130	434	106	363	91	29	1,169	45
Vested Trips	0	80	0	144	86	172	182	79	20	0	0	133
2020 Non-Project Traffic	214	187	18	195	216	606	287	442	110	29	1,169	178
Project Assignment	0.0%	6.0%	0.0%	10.0%	6.0%	12.0%	12.0%	0.0%	0.0%	0.0%	0.0%	10.0%
	--	IN	--	OUT	OUT	OUT	IN	--	--	--	--	IN
Project Traffic (Net New Trips)	0	34	0	0	0	0	68	0	0	0	0	57
Total Build-Out Volumes	214	221	18	195	216	606	355	442	110	29	1,169	235

INTERSECTION VOLUME DEVELOPMENT
Tivoli Drive @ Saxon Boulevard
AM Peak Hour

Case	Tivoli Drive Northbound			Tivoli Drive Southbound			Saxon Boulevard Eastbound			Saxon Boulevard Westbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
6/13/19 Observed Volumes	53	48	9	8	92	308	133	195	111	6	441	3
Peak Season Factor	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05
2019 Peak Season Volumes	56	50	9	8	97	323	140	205	117	6	463	3
Growth Factor	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
2020 Peak Season Volumes	57	51	9	8	99	329	143	209	119	6	472	3
Vested Trips	13	0	0	0	0	0	0	57	14	0	53	0
2020 Non-Project Traffic	70	51	9	8	99	329	143	266	133	6	525	3
Project Assignment	1.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	4.0%	1.0%	0.0%	4.0%	0.0%
	IN	--	--	--	--	--	--	OUT	OUT	--	IN	--
Project Traffic (Net New Trips)	6	0	0	0	0	0	0	0	0	0	23	0
Total Build-Out Volumes	76	51	9	8	99	329	143	266	133	6	548	3

INTERSECTION VOLUME DEVELOPMENT
Normandy Boulevard @ Deltona Boulevard
AM Peak Hour

Case	Normandy Boulevard Northbound			Normandy Boulevard Southbound			Deltona Boulevard Eastbound			N/A Westbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
6/6/19 Observed Volumes	258	136	0	0	54	202	128	0	67	0	0	0
Peak Season Factor	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05
2019 Peak Season Volumes	271	143	0	0	57	212	134	0	70	0	0	0
Growth Factor	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.00	1.00	1.00
2020 Peak Season Volumes	276	146	0	0	58	216	137	0	71	0	0	0
Vested Trips	0	27	0	0	29	43	40	0	0	0	0	0
2020 Non-Project Traffic	276	173	0	0	87	259	177	0	71	0	0	0
Project Assignment	0.0%	2.0%	0.0%	0.0%	2.0%	3.0%	3.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	--	IN	--	--	OUT	OUT	IN	--	--	--	--	--
Project Traffic (Net New Trips)	0	11	0	0	0	0	17	0	0	0	0	0
Total Build-Out Volumes	276	184	0	0	87	259	194	0	71	0	0	0

INTERSECTION VOLUME DEVELOPMENT
Normandy Boulevard @ Project Driveway 1
AM Peak Hour

Case	Normandy Boulevard Northbound			Normandy Boulevard Southbound			Project Driveway 1 Eastbound			N/A Westbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
1/0/00 Observed Volumes	0	441	0	0	181	0	0	0	0	0	0	0
Peak Season Factor	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05
2019 Peak Season Volumes	0	463	0	0	190	0	0	0	0	0	0	0
Growth Factor	1.12	1.12	1.12	1.12	1.12	1.12	1.00	1.00	1.00	1.00	1.00	1.00
2020 Peak Season Volumes	0	259	0	0	106	0	0	0	0	0	0	0
Vested Trips	0	718	0	0	663	0	0	0	0	0	0	0
2020 Non-Project Traffic	0	977	0	0	769	0	0	0	0	0	0	0
Truck Assignment	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	--	--	--	--	--	IN	OUT	--	--	--	--	--
Project Traffic (Net New Trips)	0	0	0	0	0	1	3	0	0	0	0	0
Project Assignment	0.0%	56.0%	0.0%	0.0%	56.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	--	OUT	--	--	IN	--	--	--	--	--	--	--
Project Traffic (Net New Trips)	0	2	0	0	319	0	0	0	0	0	0	0
Total Build-Out Volumes	0	979	0	0	1,088	1	3	0	0	0	0	0

INTERSECTION VOLUME DEVELOPMENT
Normandy Boulevard @ Project Driveway 2
AM Peak Hour

Case	Normandy Boulevard Northbound			Normandy Boulevard Southbound			Project Driveway 2 Eastbound			N/A Westbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
1/0/00 Observed Volumes	0	441	0	0	181	0	0	0	0	0	0	0
Peak Season Factor	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05
2019 Peak Season Volumes	0	463	0	0	190	0	0	0	0	0	0	0
Growth Factor	1.12	1.12	1.12	1.12	1.12	1.12	1.00	1.00	1.00	1.00	1.00	1.00
2020 Peak Season Volumes	0	259	0	0	106	0	0	0	0	0	0	0
Vested Trips	0	718	0	0	663	0	0	0	0	0	0	0
2020 Non-Project Traffic	0	977	0	0	769	0	0	0	0	0	0	0
Project Assignment	4.0%	11.0%	0.0%	0.0%	11.0%	45.0%	45.0%	0.0%	4.0%	0.0%	0.0%	0.0%
	IN	OUT	--	--	IN	IN	OUT	--	OUT	--	--	--
Project Traffic (Net New Trips)	23	0	0	0	63	257	1	0	0	0	0	0
Total Build-Out Volumes	23	977	0	0	832	257	1	0	0	0	0	0

INTERSECTION VOLUME DEVELOPMENT
Normandy Boulevard @ Project Driveway 3
AM Peak Hour

Case	Normandy Boulevard Northbound			Normandy Boulevard Southbound			Project Driveway 3 Eastbound			N/A Westbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
1/0/00 Observed Volumes	0	441	0	0	181	0	0	0	0	0	0	0
Peak Season Factor	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05
2019 Peak Season Volumes	0	463	0	0	190	0	0	0	0	0	0	0
Growth Factor	1.12	1.12	1.12	1.12	1.12	1.12	1.00	1.00	1.00	1.00	1.00	1.00
2020 Peak Season Volumes	0	259	0	0	106	0	0	0	0	0	0	0
Vested Trips	0	663	0	0	718	0	0	0	0	0	0	0
2020 Non-Project Traffic	0	922	0	0	824	0	0	0	0	0	0	0
Project Assignment	35.0%	4.0%	0.0%	0.0%	4.0%	11.0%	11.0%	0.0%	35.0%	0.0%	0.0%	0.0%
	IN	IN	--	--	OUT	IN	OUT	--	OUT	--	--	--
Project Traffic (Net New Trips)	200	23	0	0	0	63	0	0	1	0	0	0
Total Build-Out Volumes	200	945	0	0	824	63	0	0	1	0	0	0

INTERSECTION VOLUME DEVELOPMENT
Normandy Boulevard @ Project Driveway 4
AM Peak Hour

Case	Normandy Boulevard Northbound			Normandy Boulevard Southbound			Project Driveway 4 Eastbound			N/A Westbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
1/0/00 Observed Volumes	0	441	0	0	181	0	0	0	0	0	0	0
Peak Season Factor	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05
2019 Peak Season Volumes	0	463	0	0	190	0	0	0	0	0	0	0
Growth Factor	1.12	1.12	1.12	1.12	1.12	1.12	1.00	1.00	1.00	1.00	1.00	1.00
2020 Peak Season Volumes	0	259	0	0	106	0	0	0	0	0	0	0
Vested Trips	0	663	0	0	718	0	0	0	0	0	0	0
2020 Non-Project Traffic	0	922	0	0	824	0	0	0	0	0	0	0
Project Assignment	5.0%	39.0%	0.0%	0.0%	39.0%	0.0%	0.0%	0.0%	5.0%	0.0%	0.0%	0.0%
	IN	IN	--	--	OUT	--	--	--	OUT	--	--	--
Project Traffic (Net New Trips)	29	222	0	0	1	0	0	0	0	0	0	0
Total Build-Out Volumes	29	1,144	0	0	825	0	0	0	0	0	0	0

INTERSECTION VOLUME DEVELOPMENT
Dr. Martin Luther King Jr Boulevard @ Orange Camp Road
PM Peak Hour

Case	Dr. Martin Luther King Jr Boulevard Northbound			Dr. Martin Luther King Jr Boulevard Southbound			Orange Camp Road Eastbound			Orange Camp Road Westbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
6/6/19 Observed Volumes	176	314	27	228	362	61	45	325	91	40	461	166
Peak Season Factor	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05
2019 Peak Season Volumes	185	330	28	239	380	64	47	341	96	42	484	174
Growth Factor	1.03	1.03	1.03	1.02	1.02	1.02	1.09	1.09	1.09	1.09	1.09	1.09
2020 Peak Season Volumes	187	333	28	240	382	65	48	348	98	43	495	178
Vested Trips	122	195	28	59	121	16	29	206	85	46	384	138
2020 Non-Project Traffic	309	528	56	299	503	80	77	554	183	89	879	316
Project Assignment	2.0%	2.0%	1.0%	0.0%	2.0%	0.0%	0.0%	0.0%	2.0%	1.0%	0.0%	0.0%
	OUT	OUT	OUT	--	IN	--	--	--	IN	IN	--	--
Project Traffic (Net New Trips)	12	12	6	0	8	0	0	0	8	4	0	0
Total Build-Out Volumes	321	540	62	299	511	80	77	554	191	93	879	316

INTERSECTION VOLUME DEVELOPMENT
N. Kentucky Avenue @ SR 472
PM Peak Hour

Case	N. Kentucky Avenue Northbound			Dr. Martin Luther King Jr Boulevard Southbound			SR 472 Eastbound			SR 472 Westbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
6/6/19 Observed Volumes	76	221	36	216	243	34	54	990	195	136	922	306
Peak Season Factor	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05
2019 Peak Season Volumes	80	232	38	227	255	36	57	1,040	205	143	968	321
Growth Factor	1.03	1.03	1.03	1.05	1.05	1.05	1.02	1.02	1.02	1.04	1.04	1.04
2020 Peak Season Volumes	81	234	39	230	258	37	58	1,045	206	145	979	325
Vested Trips	139	117	19	85	176	13	2	42	127	19	39	13
2020 Non-Project Traffic	220	351	57	315	434	50	60	1,087	333	163	1,018	338
Truck Assignment	0.0%	0.0%	50.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	--	--	OUT	--	--	--	--	--	--	--	--	--
Project Traffic (Net New Trips)	0	0	6	0	0	0	0	0	0	0	0	0
Project Assignment	9.0%	6.0%	1.0%	0.0%	6.0%	0.0%	0.0%	0.0%	9.0%	1.0%	0.0%	0.0%
	OUT	OUT	OUT	--	IN	--	--	--	IN	IN	--	--
Project Traffic (Net New Trips)	54	36	6	0	25	0	0	0	37	4	0	0
Total Build-Out Volumes	274	387	69	315	459	50	60	1,087	370	167	1,018	338

INTERSECTION VOLUME DEVELOPMENT
I-4 WB Ramp @ SR 472
PM Peak Hour

Case	I-4 WB Ramp Northbound			I-4 WB Ramp Southbound			SR 472 Eastbound			SR 472 Westbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
6/6/19 Observed Volumes	0	0	0	315	0	254	0	660	605	323	1,104	0
Peak Season Factor	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05
2019 Peak Season Volumes	0	0	0	331	0	267	0	693	635	339	1,159	0
Growth Factor	1.02	1.02	1.02	1.03	1.03	1.03	1.04	1.04	1.04	1.04	1.04	1.04
2020 Peak Season Volumes	0	0	0	334	0	269	0	701	642	343	1,172	0
Vested Trips	0	0	0	133	0	88	0	41	25	70	45	0
2020 Non-Project Traffic	0	0	0	467	0	357	0	742	667	413	1,217	0
Truck Assignment	0.0%	0.0%	0.0%	0.0%	0.0%	50.0%	0.0%	0.0%	50.0%	0.0%	0.0%	0.0%
	--	--	--	--	--	IN	--	--	OUT	--	--	--
Project Traffic (Net New Trips)	0	0	0	0	0	8	0	0	6	0	0	0
Project Assignment	0.0%	0.0%	0.0%	3.0%	0.0%	1.0%	0.0%	1.0%	0.0%	4.0%	0.0%	0.0%
	--	--	--	IN	--	IN	--	OUT	--	OUT	--	--
Project Traffic (Net New Trips)	0	0	0	12	0	4	0	6	0	24	0	0
Total Build-Out Volumes	0	0	0	479	0	369	0	748	673	437	1,217	0

INTERSECTION VOLUME DEVELOPMENT

I-4 EB Ramp @ SR 472

PM Peak Hour

Case	I-4 EB Ramp Northbound			I-4 EB Ramp Southbound			SR 472 Eastbound			SR 472 Westbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
6/11/19 Observed Volumes	728	0	778	0	0	0	0	927	70	0	870	0
Peak Season Factor	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05
2019 Peak Season Volumes	764	0	817	0	0	0	0	973	74	0	914	0
Growth Factor	1.02	1.02	1.02	1.02	1.02	1.02	1.04	1.04	1.04	1.04	1.04	1.04
2020 Peak Season Volumes	768	0	821	0	0	0	0	984	75	0	924	0
Vested Trips	187	0	265	0	0	0	0	94	18	0	173	0
2020 Non-Project Traffic	955	0	1,086	0	0	0	0	1,078	93	0	1,097	0
Truck Assignment	0.0%	0.0%	50.0%	0.0%	0.0%	0.0%	0.0%	50.0%	0.0%	0.0%	50.0%	0.0%
	--	--	IN	--	--	--	--	IN	--	--	OUT	--
Project Traffic (Net New Trips)	0	0	7	0	0	0	0	8	0	0	5	0
Project Assignment	0.0%	0.0%	5.0%	0.0%	0.0%	0.0%	0.0%	3.0%	1.0%	0.0%	8.0%	0.0%
	--	--	IN	--	--	--	--	IN	OUT	--	OUT	--
Project Traffic (Net New Trips)	0	0	21	0	0	0	0	12	6	0	48	0
Total Build-Out Volumes	955	0	1,114	0	0	0	0	1,098	99	0	1,150	0

INTERSECTION VOLUME DEVELOPMENT
US 17/92 @ Graves Avenue
PM Peak Hour

Case	US 17/92 Northbound			US 17/92 Southbound			Graves Avenue Eastbound			Graves Avenue Westbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
6/19/19 Observed Volumes	13	1,141	110	99	971	36	24	31	17	109	55	121
Peak Season Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
2019 Peak Season Volumes	14	1,209	117	105	1,029	38	25	33	18	116	58	128
Growth Factor	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.06	1.06	1.06
2020 Peak Season Volumes	14	1,215	118	106	1,034	38	25	33	18	118	59	130
Vested Trips	0	27	3	1	10	0	2	16	1	0	14	0
2020 Non-Project Traffic	14	1,242	120	107	1,044	38	27	49	19	118	73	130
Project Assignment	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.0%	0.0%	0.0%	1.0%	0.0%
	--	--	--	--	--	--	--	IN	--	--	OUT	--
Project Traffic (Net New Trips)	0	0	0	0	0	0	0	4	0	0	6	0
Total Build-Out Volumes	14	1,242	120	107	1,044	38	27	53	19	118	79	130

INTERSECTION VOLUME DEVELOPMENT
Veterans Memorial Parkway @ Graves Avenue
PM Peak Hour

Case	Veterans Memorial Parkway Northbound			N/A Southbound			Graves Avenue Eastbound			Graves Avenue Westbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
6/6/19 Observed Volumes	51	0	623	0	0	0	0	253	41	426	289	0
Peak Season Factor	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05
2019 Peak Season Volumes	54	0	654	0	0	0	0	266	43	447	303	0
Growth Factor	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.03	1.03	1.03
2020 Peak Season Volumes	55	0	658	0	0	0	0	268	43	450	305	0
Vested Trips	14	0	285	0	0	0	0	50	2	265	136	0
2020 Non-Project Traffic	68	0	943	0	0	0	0	318	45	715	441	0
Project Assignment	0.0%	0.0%	9.0%	0.0%	0.0%	0.0%	0.0%	3.0%	0.0%	9.0%	3.0%	0.0%
	--	--	IN	--	--	--	--	IN	--	OUT	OUT	--
Project Traffic (Net New Trips)	0	0	37	0	0	0	0	12	0	54	18	0
Total Build-Out Volumes	68	0	980	0	0	0	0	330	45	769	459	0

INTERSECTION VOLUME DEVELOPMENT
N. Kentucky Avenue @ Graves Avenue
PM Peak Hour

Case	N. Kentucky Avenue Northbound			N. Kentucky Avenue Southbound			Graves Avenue Eastbound			Graves Avenue Westbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
6/6/19 Observed Volumes	14	9	16	256	17	296	225	640	18	17	398	110
Peak Season Factor	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05
2019 Peak Season Volumes	15	9	17	269	18	311	236	672	19	18	418	116
Growth Factor	1.02	1.02	1.02	1.03	1.03	1.03	1.03	1.03	1.03	1.04	1.04	1.04
2020 Peak Season Volumes	15	9	17	272	18	314	238	677	19	18	423	117
Vested Trips	0	0	0	233	1	24	58	325	5	10	417	298
2020 Non-Project Traffic	15	9	17	504	19	337	296	1,001	24	28	839	415
Truck Assignment	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	50.0%
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Project Traffic (Net New Trips)	0	0	0	0	0	0	0	0	0	0	0	6
Project Assignment	0.0%	0.0%	0.0%	16.0%	0.0%	0.0%	0.0%	12.0%	0.0%	0.0%	12.0%	16.0%
	--	--	--	IN	--	--	--	IN	--	--	OUT	OUT
Project Traffic (Net New Trips)	0	0	0	66	0	0	0	50	0	0	72	96
Total Build-Out Volumes	15	9	17	570	19	337	296	1,051	24	28	911	517

INTERSECTION VOLUME DEVELOPMENT
Normandy Boulevard @ Graves Avenue
PM Peak Hour

Case	Normandy Boulevard Northbound			N/A Southbound			Graves Avenue Eastbound			Graves Avenue Westbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
6/6/19 Observed Volumes	154	0	154	0	0	0	0	500	369	181	358	0
Peak Season Factor	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05
2019 Peak Season Volumes	162	0	162	0	0	0	0	525	387	190	376	0
Growth Factor	1.12	1.12	1.12	1.02	1.02	1.02	1.04	1.04	1.04	1.04	1.04	1.04
2020 Peak Season Volumes	181	0	181	0	0	0	0	548	404	198	392	0
Vested Trips	416	0	373	0	0	0	0	186	522	453	215	0
2020 Non-Project Traffic	597	0	554	0	0	0	0	734	926	651	607	0
Truck Assignment	50.0%	0.0%	50.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%
	OUT	--	OUT	--	--	--	--	--	--	IN	--	--
Project Traffic (Net New Trips)	6	0	5	0	0	0	0	0	0	15	0	0
Project Assignment	29.0%	0.0%	26.0%	0.0%	0.0%	0.0%	0.0%	0.0%	29.0%	26.0%	0.0%	0.0%
	OUT	--	OUT	--	--	--	--	--	IN	IN	--	--
Project Traffic (Net New Trips)	175	0	157	0	0	0	0	0	120	108	0	0
Total Build-Out Volumes	778	0	716	0	0	0	0	734	1,046	774	607	0

INTERSECTION VOLUME DEVELOPMENT
Howland Boulevard @ Graves Avenue
PM Peak Hour

Case	Howland Boulevard Northbound			SR 472 Southbound			Graves Avenue Eastbound			Graves Avenue Westbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
6/6/19 Observed Volumes	321	761	13	50	1,459	191	78	18	558	49	26	100
Peak Season Factor	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05
2019 Peak Season Volumes	337	799	14	53	1,532	201	82	19	586	51	27	105
Growth Factor	1.02	1.02	1.02	1.04	1.04	1.04	1.04	1.04	1.04	1.02	1.02	1.02
2020 Peak Season Volumes	339	803	14	54	1,549	203	83	19	593	52	27	106
Vested Trips	333	211	4	9	260	140	145	22	501	0	13	0
2020 Non-Project Traffic	671	1,014	18	62	1,809	343	228	41	1,093	52	40	106
Truck Assignment	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	50.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	--	--	--	--	--	IN	OUT	--	--	--	--	--
Project Traffic (Net New Trips)	0	0	0	0	0	15	5	0	0	0	0	0
Project Assignment	17.0%	0.0%	0.0%	0.0%	0.0%	8.0%	8.0%	1.0%	17.0%	0.0%	1.0%	0.0%
	IN	--	--	--	--	IN	OUT	OUT	OUT	--	IN	--
Project Traffic (Net New Trips)	70	0	0	0	0	33	48	6	103	0	4	0
Total Build-Out Volumes	741	1,014	18	62	1,809	391	281	47	1,196	52	44	106

INTERSECTION VOLUME DEVELOPMENT
Catalina Boulevard @ Howland Boulevard
PM Peak Hour

Case	Catalina Boulevard Northbound			Catalina Boulevard Southbound			Howland Boulevard Eastbound			Howland Boulevard Westbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
6/11/19 Observed Volumes	48	67	29	86	67	249	448	1,026	50	38	555	59
Peak Season Factor	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05
2019 Peak Season Volumes	50	70	30	90	70	261	470	1,077	53	40	583	62
Growth Factor	1.02	1.02	1.02	1.02	1.02	1.02	1.03	1.03	1.03	1.02	1.02	1.02
2020 Peak Season Volumes	51	71	30	91	71	263	474	1,085	54	40	586	63
Vested Trips	27	0	0	0	0	66	153	285	38	12	263	18
2020 Non-Project Traffic	78	71	30	91	71	329	626	1,370	91	52	849	81
Project Assignment	2.0%	0.0%	0.0%	0.0%	0.0%	5.0%	5.0%	7.0%	2.0%	0.0%	7.0%	0.0%
	IN	--	--	--	--	IN	OUT	OUT	OUT	--	IN	--
Project Traffic (Net New Trips)	8	0	0	0	0	21	30	42	12	0	29	0
Total Build-Out Volumes	86	71	30	91	71	350	656	1,412	103	52	878	81

INTERSECTION VOLUME DEVELOPMENT
Lake Helen-Osteen Road @ Catalina Boulevard
PM Peak Hour

Case	Lake Helen-Osteen Road Northbound			Lake Helen-Osteen Road Southbound			Catalina Boulevard Eastbound			N/A Westbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
6/6/19 Observed Volumes	179	160	0	0	296	81	138	0	384	0	0	0
Peak Season Factor	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05
2019 Peak Season Volumes	188	168	0	0	311	85	145	0	403	0	0	0
Growth Factor	1.06	1.06	1.06	1.02	1.02	1.02	1.02	1.02	1.02	1.00	1.00	1.00
2020 Peak Season Volumes	200	179	0	0	317	87	148	0	411	0	0	0
Vested Trips	40	0	0	0	0	13	14	0	43	0	0	0
2020 Non-Project Traffic	240	179	0	0	317	100	162	0	454	0	0	0
Project Assignment	3.0%	0.0%	0.0%	0.0%	0.0%	1.0%	1.0%	0.0%	3.0%	0.0%	0.0%	0.0%
	IN	--	--	--	--	IN	OUT	--	OUT	--	--	--
Project Traffic (Net New Trips)	12	0	0	0	0	4	6	0	18	0	0	0
Total Build-Out Volumes	252	179	0	0	317	104	168	0	472	0	0	0

INTERSECTION VOLUME DEVELOPMENT
Providence Boulevard @ Howland Boulevard
PM Peak Hour

Case	Providence Boulevard Northbound			Providence Boulevard Southbound			Howland Boulevard Eastbound			Howland Boulevard Westbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
6/13/19 Observed Volumes	192	1	50	1	0	2	1	824	300	34	433	1
Peak Season Factor	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05
2019 Peak Season Volumes	202	1	53	1	0	2	1	865	315	36	455	1
Growth Factor	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.04	1.04	1.04
2020 Peak Season Volumes	203	1	54	1	0	2	1	870	317	37	460	1
Vested Trips	32	0	8	0	0	0	0	247	53	7	186	0
2020 Non-Project Traffic	235	1	62	1	0	2	1	1,117	370	44	646	1
Project Assignment	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	7.0%	0.0%	0.0%	7.0%	0.0%
	--	--	--	--	--	--	--	OUT	--	--	IN	--
Project Traffic (Net New Trips)	0	0	0	0	0	0	0	42	0	0	29	0
Total Build-Out Volumes	235	1	62	1	0	2	1	1,159	370	44	675	1

INTERSECTION VOLUME DEVELOPMENT
US 17/92 @ Rhode Island Avenue
PM Peak Hour

Case	US 17/92 Northbound			US 17/92 Southbound			Rhode Island Avenue Eastbound			Rhode Island Avenue Westbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
6/6/19 Observed Volumes	142	1,369	145	78	1,096	23	17	44	87	142	66	89
Peak Season Factor	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05
2019 Peak Season Volumes	149	1,437	152	82	1,151	24	18	46	91	149	69	93
Growth Factor	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
2020 Peak Season Volumes	150	1,444	153	83	1,157	24	18	46	92	150	70	94
Vested Trips	3	29	30	15	27	1	11	42	57	40	19	21
2020 Non-Project Traffic	153	1,473	183	97	1,184	25	29	88	149	189	88	114
Project Assignment	0.0%	0.0%	2.0%	1.0%	0.0%	0.0%	0.0%	1.0%	0.0%	2.0%	1.0%	1.0%
	--	--	IN	IN	--	--	--	IN	--	OUT	OUT	OUT
Project Traffic (Net New Trips)	0	0	8	4	0	0	0	4	0	12	6	6
Total Build-Out Volumes	153	1,473	191	101	1,184	25	29	92	149	201	94	120

INTERSECTION VOLUME DEVELOPMENT
Veterans Memorial Parkway @ Rhode Island Avenue
PM Peak Hour

Case	Veterans Memorial Parkway Northbound			Veterans Memorial Parkway Southbound			Rhode Island Avenue Eastbound			N/A Westbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
6/11/19 Observed Volumes	258	609	0	0	419	124	166	0	243	0	0	0
Peak Season Factor	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05
2019 Peak Season Volumes	271	639	0	0	440	130	174	0	255	0	0	0
Growth Factor	1.05	1.05	1.05	1.02	1.02	1.02	1.02	1.02	1.02	1.00	1.00	1.00
2020 Peak Season Volumes	275	648	0	0	442	131	175	0	257	0	0	0
Vested Trips	95	251	0	0	168	127	89	0	13	0	0	0
2020 Non-Project Traffic	369	898	0	0	610	258	264	0	270	0	0	0
Project Assignment	0.0%	2.0%	0.0%	0.0%	2.0%	6.0%	6.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	--	IN	--	--	OUT	OUT	IN	--	--	--	--	--
Project Traffic (Net New Trips)	0	8	0	0	12	36	25	0	0	0	0	0
Total Build-Out Volumes	369	906	0	0	622	294	289	0	270	0	0	0

INTERSECTION VOLUME DEVELOPMENT
Normandy Boulevard @ Elkcarn Boulevard
PM Peak Hour

Case	Normandy Boulevard Northbound			Normandy Boulevard Southbound			Elkcarn Boulevard Eastbound			Elkcarn Boulevard Westbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
6/6/19 Observed Volumes	6	206	368	205	304	0	0	0	0	186	0	94
Peak Season Factor	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05
2019 Peak Season Volumes	6	216	386	215	319	0	0	0	0	195	0	99
Growth Factor	1.02	1.02	1.02	1.02	1.02	1.02	1.00	1.00	1.00	1.08	1.08	1.08
2020 Peak Season Volumes	6	220	394	219	325	0	0	0	0	211	0	107
Vested Trips	0	411	0	129	445	0	0	0	0	0	0	119
2020 Non-Project Traffic	6	631	394	348	770	0	0	0	0	211	0	226
Project Assignment	0.0%	31.0%	0.0%	9.0%	31.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	9.0%
	--	IN	--	OUT	OUT	--	--	--	--	--	--	IN
Project Traffic (Net New Trips)	0	128	0	54	187	0	0	0	0	0	0	37
Total Build-Out Volumes	6	759	394	402	957	0	0	0	0	211	0	263

INTERSECTION VOLUME DEVELOPMENT
Fort Smith Boulevard @ Elkcarn Boulevard
PM Peak Hour

Case	Fort Smith Boulevard Northbound			N/A Southbound			Elkcarn Boulevard Eastbound			Elkcarn Boulevard Westbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
6/6/19 Observed Volumes	99	0	10	0	0	0	0	279	154	5	159	0
Peak Season Factor	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05
2019 Peak Season Volumes	104	0	11	0	0	0	0	293	162	5	167	0
Growth Factor	1.02	1.02	1.02	1.00	1.00	1.00	1.08	1.08	1.08	1.05	1.05	1.05
2020 Peak Season Volumes	106	0	11	0	0	0	0	318	176	5	175	0
Vested Trips	53	0	0	0	0	0	0	43	57	0	40	0
2020 Non-Project Traffic	159	0	11	0	0	0	0	361	233	5	215	0
Project Assignment	4.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	3.0%	4.0%	0.0%	3.0%	0.0%
	IN	--	--	--	--	--	--	OUT	OUT	--	IN	--
Project Traffic (Net New Trips)	17	0	0	0	0	0	0	18	24	0	12	0
Total Build-Out Volumes	176	0	11	0	0	0	0	379	257	5	227	0

INTERSECTION VOLUME DEVELOPMENT
Providence Boulevard @ Elkcarn Boulevard
PM Peak Hour

Case	Providence Boulevard Northbound			Providence Boulevard Southbound			Elkcarn Boulevard Eastbound			Elkcarn Boulevard Westbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
6/11/19 Observed Volumes	44	240	177	63	303	33	62	198	62	170	145	39
Peak Season Factor	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05
2019 Peak Season Volumes	46	252	186	66	318	35	65	208	65	179	152	41
Growth Factor	1.02	1.02	1.02	1.02	1.02	1.02	1.05	1.05	1.05	1.02	1.02	1.02
2020 Peak Season Volumes	46	254	187	67	320	35	66	211	66	180	153	41
Vested Trips	17	20	15	6	30	16	14	0	14	0	0	0
2020 Non-Project Traffic	63	273	202	73	350	51	80	211	80	180	153	41
Project Assignment	1.0%	0.0%	0.0%	0.0%	0.0%	1.0%	1.0%	0.0%	1.0%	0.0%	0.0%	0.0%
	IN	--	--	--	--	IN	OUT	--	OUT	--	--	--
Project Traffic (Net New Trips)	4	0	0	0	0	4	6	0	6	0	0	0
Total Build-Out Volumes	67	273	202	73	350	55	86	211	86	180	153	41

INTERSECTION VOLUME DEVELOPMENT
Lake Helen Osteen Rd @ Elkcarn Boulevard
PM Peak Hour

Case	Lake Helen Osteen Rd Northbound			Lake Helen Osteen Rd Southbound			Elkcarn Boulevard Eastbound			Elkcarn Boulevard Westbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
6/19/19 Observed Volumes	14	158	128	27	199	119	128	300	9	67	215	15
Peak Season Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
2019 Peak Season Volumes	15	167	136	29	211	126	136	318	10	71	228	16
Growth Factor	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
2020 Peak Season Volumes	15	170	139	30	215	129	139	324	10	72	233	16
Vested Trips	0	0	0	0	0	0	0	14	0	0	13	0
2020 Non-Project Traffic	15	170	139	30	215	129	139	338	10	72	246	16
Project Assignment	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.0%	0.0%	0.0%	1.0%	0.0%
	--	--	--	--	--	--	--	OUT	--	--	IN	--
Project Traffic (Net New Trips)	0	0	0	0	0	0	0	6	0	0	4	0
Total Build-Out Volumes	15	170	139	30	215	129	139	344	10	72	250	16

INTERSECTION VOLUME DEVELOPMENT
Providence Boulevard @ Fort Smith Boulevard
PM Peak Hour

Case	Providence Boulevard Northbound			Providence Boulevard Southbound			Fort Smith Boulevard Eastbound			Fort Smith Boulevard Westbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
6/6/19 Observed Volumes	37	389	372	114	344	4	9	95	40	209	78	102
Peak Season Factor	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05
2019 Peak Season Volumes	39	408	391	120	361	4	9	100	42	219	82	107
Growth Factor	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
2020 Peak Season Volumes	39	410	393	121	363	4	9	101	42	220	83	108
Vested Trips	13	0	0	9	28	0	0	43	14	0	40	0
2020 Non-Project Traffic	52	410	393	130	391	4	9	144	56	220	123	108
Project Assignment	1.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	3.0%	1.0%	0.0%	3.0%	0.0%
	IN	--	--	--	--	--	--	OUT	OUT	--	IN	--
Project Traffic (Net New Trips)	4	0	0	0	0	0	0	18	6	0	12	0
Total Build-Out Volumes	56	410	393	130	391	4	9	162	62	220	135	108

INTERSECTION VOLUME DEVELOPMENT
Veterans Memorial Parkway @ Harley Strickland Boulevard
PM Peak Hour

Case	Veterans Memorial Parkway Northbound			Veterans Memorial Parkway Southbound			Harley Strickland Boulevard Eastbound			Harley Strickland Boulevard Westbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
6/6/19 Observed Volumes	206	407	2	100	404	144	305	53	235	71	39	102
Peak Season Factor	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05
2019 Peak Season Volumes	216	427	2	105	424	151	320	56	247	75	41	107
Growth Factor	1.02	1.02	1.02	1.05	1.05	1.05	1.02	1.02	1.02	1.00	1.00	1.00
2020 Peak Season Volumes	217	429	2	107	430	153	322	57	248	75	41	107
Vested Trips	36	13	0	28	112	40	18	3	41	0	0	0
2020 Non-Project Traffic	253	442	2	134	542	193	340	60	289	75	41	107
Project Assignment	2.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.0%	0.0%	0.0%	0.0%
	OUT	--	--	--	--	--	--	--	IN	--	--	--
Project Traffic (Net New Trips)	12	0	0	0	0	0	0	0	8	0	0	0
Total Build-Out Volumes	265	442	2	134	542	193	340	60	297	75	41	107

INTERSECTION VOLUME DEVELOPMENT
Veterans Memorial Parkway @ Saxon Boulevard
PM Peak Hour

Case	Veterans Memorial Parkway Northbound			Veterans Memorial Parkway Southbound			Saxon Boulevard Eastbound			Saxon Boulevard Westbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
6/6/19 Observed Volumes	45	46	95	629	64	178	192	1,177	28	131	990	422
Peak Season Factor	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05
2019 Peak Season Volumes	47	48	100	660	67	187	202	1,236	29	138	1,040	443
Growth Factor	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
2020 Peak Season Volumes	47	48	101	664	68	188	203	1,242	29	139	1,045	445
Vested Trips	0	0	0	41	1	4	2	94	0	17	213	83
2020 Non-Project Traffic	47	48	101	705	69	192	205	1,336	29	155	1,258	528
Project Assignment	0.0%	0.0%	0.0%	2.0%	0.0%	0.0%	0.0%	6.0%	0.0%	0.0%	6.0%	2.0%
	--	--	--	IN	--	--	--	IN	--	--	OUT	OUT
Project Traffic (Net New Trips)	0	0	0	8	0	0	0	25	0	0	36	12
Total Build-Out Volumes	47	48	101	713	69	192	205	1,361	29	155	1,294	540

INTERSECTION VOLUME DEVELOPMENT
 FDOT Park & Ride @ Saxon Boulevard
 PM Peak Hour

Case	FDOT Park & Ride Northbound			FDOT Park & Ride Southbound			Saxon Boulevard Eastbound			Saxon Boulevard Westbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
6/19/19 Observed Volumes	57	0	93	33	5	14	32	1,635	76	87	1,337	23
Peak Season Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
2019 Peak Season Volumes	60	0	99	35	5	15	34	1,733	81	92	1,417	24
Growth Factor	1.02	1.02	1.02	1.02	1.02	1.02	1.04	1.04	1.04	1.02	1.02	1.02
2020 Peak Season Volumes	61	0	100	35	5	15	35	1,750	82	93	1,424	24
Vested Trips	0	0	0	0	0	0	4	292	9	13	317	3
2020 Non-Project Traffic	61	0	100	35	5	15	38	2,042	91	106	1,741	27
Project Assignment	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	8.0%	0.0%	0.0%	8.0%	0.0%
	--	--	--	--	--	--	--	IN	--	--	OUT	--
Project Traffic (Net New Trips)	0	0	0	0	0	0	0	33	0	0	48	0
Total Build-Out Volumes	61	0	100	35	5	15	38	2,075	91	106	1,789	27

INTERSECTION VOLUME DEVELOPMENT
I-4 WB Ramp @ Saxon Boulevard
PM Peak Hour

Case	I-4 WB Ramp Northbound			I-4 WB Ramp Southbound			Saxon Boulevard Eastbound			Saxon Boulevard Westbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
6/11/19 Observed Volumes	0	0	328	0	0	361	0	1,551	426	0	1,277	265
Peak Season Factor	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05
2019 Peak Season Volumes	0	0	344	0	0	379	0	1,629	447	0	1,341	278
Growth Factor	1.02	1.02	1.02	1.02	1.02	1.02	1.04	1.04	1.04	1.04	1.04	1.04
2020 Peak Season Volumes	0	0	346	0	0	381	0	1,645	452	0	1,354	281
Vested Trips	0	0	413	0	0	386	0	278	47	0	296	67
2020 Non-Project Traffic	0	0	759	0	0	767	0	1,923	499	0	1,650	347
Project Assignment	0.0%	0.0%	2.0%	0.0%	0.0%	0.0%	0.0%	8.0%	0.0%	0.0%	8.0%	2.0%
	--	--	IN	--	--	--	--	IN	--	--	OUT	OUT
Project Traffic (Net New Trips)	0	0	8	0	0	0	0	33	0	0	48	12
Total Build-Out Volumes	0	0	767	0	0	767	0	1,956	499	0	1,698	359

INTERSECTION VOLUME DEVELOPMENT
I-4 EB Ramp @ Saxon Boulevard
PM Peak Hour

Case	I-4 EB Ramp Northbound			I-4 EB Ramp Southbound			Saxon Boulevard Eastbound			Saxon Boulevard Westbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
6/6/19 Observed Volumes	0	0	903	0	0	495	359	2,439	0	0	1,060	192
Peak Season Factor	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05
2019 Peak Season Volumes	0	0	948	0	0	520	377	2,561	0	0	1,113	202
Growth Factor	1.03	1.03	1.03	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
2020 Peak Season Volumes	0	0	955	0	0	523	379	2,574	0	0	1,119	203
Vested Trips	0	0	250	0	0	0	16	238	0	0	246	48
2020 Non-Project Traffic	0	0	1,205	0	0	523	395	2,812	0	0	1,365	251
Project Assignment	0.0%	0.0%	2.0%	0.0%	0.0%	0.0%	0.0%	10.0%	0.0%	0.0%	10.0%	2.0%
	--	--	IN	--	--	--	--	IN	--	--	OUT	OUT
Project Traffic (Net New Trips)	0	0	8	0	0	0	0	41	0	0	60	12
Total Build-Out Volumes	0	0	1,213	0	0	523	395	2,853	0	0	1,425	263

INTERSECTION VOLUME DEVELOPMENT
Normandy Boulevard @ Saxon Boulevard
PM Peak Hour

Case	Normandy Boulevard Northbound			Normandy Boulevard Southbound			Saxon Boulevard Eastbound			Saxon Boulevard Westbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
6/11/19 Observed Volumes	180	181	45	102	173	267	463	1,340	316	31	635	60
Peak Season Factor	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05
2019 Peak Season Volumes	189	190	47	107	182	280	486	1,407	332	33	667	63
Growth Factor	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
2020 Peak Season Volumes	190	191	47	108	183	282	489	1,414	334	33	671	64
Vested Trips	0	80	0	144	86	172	185	77	18	0	0	133
2020 Non-Project Traffic	190	271	47	252	269	454	674	1,491	352	33	671	197
Project Assignment	0.0%	6.0%	0.0%	10.0%	6.0%	12.0%	12.0%	0.0%	0.0%	0.0%	0.0%	10.0%
	--	IN	--	OUT	OUT	OUT	IN	--	--	--	--	IN
Project Traffic (Net New Trips)	0	25	0	60	36	72	50	0	0	0	0	41
Total Build-Out Volumes	190	296	47	312	305	526	724	1,491	352	33	671	238

INTERSECTION VOLUME DEVELOPMENT
Tivoli Drive @ Saxon Boulevard
PM Peak Hour

Case	Tivoli Drive Northbound			Tivoli Drive Southbound			Saxon Boulevard Eastbound			Saxon Boulevard Westbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
6/13/19 Observed Volumes	60	103	8	5	80	266	438	491	79	6	308	13
Peak Season Factor	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05
2019 Peak Season Volumes	63	108	8	5	84	279	460	516	83	6	323	14
Growth Factor	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
2020 Peak Season Volumes	64	110	8	5	86	285	469	526	85	6	329	14
Vested Trips	13	0	0	0	0	0	0	57	14	0	53	0
2020 Non-Project Traffic	77	110	8	5	86	285	469	583	99	6	382	14
Project Assignment	1.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	4.0%	1.0%	0.0%	4.0%	0.0%
	IN	--	--	--	--	--	--	OUT	OUT	--	IN	--
Project Traffic (Net New Trips)	4	0	0	0	0	0	0	24	6	0	17	0
Total Build-Out Volumes	81	110	8	5	86	285	469	607	105	6	399	14

INTERSECTION VOLUME DEVELOPMENT
Normandy Boulevard @ Deltona Boulevard
PM Peak Hour

Case	Normandy Boulevard Northbound			Normandy Boulevard Southbound			Deltona Boulevard Eastbound			N/A Westbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
6/6/19 Observed Volumes	183	153	0	0	243	245	271	0	337	0	0	0
Peak Season Factor	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05
2019 Peak Season Volumes	192	161	0	0	255	257	285	0	354	0	0	0
Growth Factor	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.00	1.00	1.00
2020 Peak Season Volumes	196	164	0	0	260	262	291	0	361	0	0	0
Vested Trips	0	27	0	0	29	43	40	0	0	0	0	0
2020 Non-Project Traffic	196	191	0	0	289	305	331	0	361	0	0	0
Project Assignment	0.0%	2.0%	0.0%	0.0%	2.0%	3.0%	3.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	--	IN	--	--	OUT	OUT	IN	--	--	--	--	--
Project Traffic (Net New Trips)	0	8	0	0	12	18	12	0	0	0	0	0
Total Build-Out Volumes	196	199	0	0	301	323	343	0	361	0	0	0

INTERSECTION VOLUME DEVELOPMENT
Normandy Boulevard @ Project Driveway 1
PM Peak Hour

Case	Normandy Boulevard Northbound			Normandy Boulevard Southbound			Project Driveway 1 Eastbound			N/A Westbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
1/0/00 Observed Volumes	0	308	0	0	550	0	0	0	0	0	0	0
Peak Season Factor	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05
2019 Peak Season Volumes	0	323	0	0	578	0	0	0	0	0	0	0
Growth Factor	1.12	1.12	1.12	1.12	1.12	1.12	1.00	1.00	1.00	1.00	1.00	1.00
2020 Peak Season Volumes	0	181	0	0	323	0	0	0	0	0	0	0
Vested Trips	0	718	0	0	663	0	0	0	0	0	0	0
2020 Non-Project Traffic	0	899	0	0	986	0	0	0	0	0	0	0
Truck Assignment	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	--	--	--	--	--	IN	OUT	--	--	--	--	--
Project Traffic (Net New Trips)	0	0	0	0	0	15	11	0	0	0	0	0
Project Assignment	0.0%	56.0%	0.0%	0.0%	56.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	--	OUT	--	--	IN	--	--	--	--	--	--	--
Project Traffic (Net New Trips)	0	338	0	0	232	0	0	0	0	0	0	0
Total Build-Out Volumes	0	1,237	0	0	1,218	15	11	0	0	0	0	0

INTERSECTION VOLUME DEVELOPMENT
Normandy Boulevard @ Project Driveway 2
PM Peak Hour

Case	Normandy Boulevard Northbound			Normandy Boulevard Southbound			Project Driveway 2 Eastbound			N/A Westbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
1/0/00 Observed Volumes	0	308	0	0	550	0	0	0	0	0	0	0
Peak Season Factor	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05
2019 Peak Season Volumes	0	323	0	0	578	0	0	0	0	0	0	0
Growth Factor	1.12	1.12	1.12	1.12	1.12	1.12	1.00	1.00	1.00	1.00	1.00	1.00
2020 Peak Season Volumes	0	181	0	0	323	0	0	0	0	0	0	0
Vested Trips	0	718	0	0	663	0	0	0	0	0	0	0
2020 Non-Project Traffic	0	899	0	0	986	0	0	0	0	0	0	0
Project Assignment	9.0%	11.0%	0.0%	0.0%	11.0%	45.0%	45.0%	0.0%	9.0%	0.0%	0.0%	0.0%
	IN	OUT	--	--	IN	IN	OUT	--	OUT	--	--	--
Project Traffic (Net New Trips)	37	66	0	0	46	186	271	0	54	0	0	0
Total Build-Out Volumes	37	965	0	0	1,032	186	271	0	54	0	0	0

INTERSECTION VOLUME DEVELOPMENT
Normandy Boulevard @ Project Driveway 3
PM Peak Hour

Case	Normandy Boulevard Northbound			Normandy Boulevard Southbound			Project Driveway 3 Eastbound			N/A Westbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
1/0/00 Observed Volumes	0	308	0	0	550	0	0	0	0	0	0	0
Peak Season Factor	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05
2019 Peak Season Volumes	0	323	0	0	578	0	0	0	0	0	0	0
Growth Factor	1.12	1.12	1.12	1.12	1.12	1.12	1.00	1.00	1.00	1.00	1.00	1.00
2020 Peak Season Volumes	0	181	0	0	323	0	0	0	0	0	0	0
Vested Trips	0	663	0	0	718	0	0	0	0	0	0	0
2020 Non-Project Traffic	0	844	0	0	1,041	0	0	0	0	0	0	0
Project Assignment	35.0%	4.0%	0.0%	0.0%	4.0%	11.0%	11.0%	0.0%	35.0%	0.0%	0.0%	0.0%
	IN	IN	--	--	OUT	IN	OUT	--	OUT	--	--	--
Project Traffic (Net New Trips)	145	17	0	0	24	46	66	0	211	0	0	0
Total Build-Out Volumes	145	861	0	0	1,065	46	66	0	211	0	0	0

INTERSECTION VOLUME DEVELOPMENT
Normandy Boulevard @ Project Driveway 4
PM Peak Hour

Case	Normandy Boulevard Northbound			Normandy Boulevard Southbound			Project Driveway 4 Eastbound			N/A Westbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
1/0/00 Observed Volumes	0	308	0	0	550	0	0	0	0	0	0	0
Peak Season Factor	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05
2019 Peak Season Volumes	0	323	0	0	578	0	0	0	0	0	0	0
Growth Factor	1.12	1.12	1.12	1.12	1.12	1.12	1.00	1.00	1.00	1.00	1.00	1.00
2020 Peak Season Volumes	0	181	0	0	323	0	0	0	0	0	0	0
Vested Trips	0	663	0	0	718	0	0	0	0	0	0	0
2020 Non-Project Traffic	0	844	0	0	1,041	0	0	0	0	0	0	0
Project Assignment	5.0%	39.0%	0.0%	0.0%	39.0%	0.0%	0.0%	0.0%	5.0%	0.0%	0.0%	0.0%
	IN	IN	--	--	OUT	--	--	--	OUT	--	--	--
Project Traffic (Net New Trips)	21	161	0	0	235	0	0	0	30	0	0	0
Total Build-Out Volumes	21	1,005	0	0	1,276	0	0	0	30	0	0	0

APPENDIX F: COMMITTED TRANSPORTATION INFORMATION

IFZ3-1 **Howland Blvd Widening** **Non-SIS**



Work Summary: ADD LANES & RECONSTRUCT

From: Providence Blvd

To: Elkcarn Blvd

Lead Agency: Volusia County

Length: 2.170 miles

Phase	Fund Source	2018/19	2019/20	2020/21	2021/22	2022/23	Total
CST	BOND	1,950,000	0	0	0	0	1,950,000
CST	LOGT	7,900,000	1,000,000	0	0	0	8,900,000
Total		9,850,000	1,000,000	0	0	0	10,850,000

Prior Cost < 2018/19: 3,250,000

Future Cost > 2022/23: 0

Total Project Cost: 14,100,000

Project Description: Howland Boulevard widening from 2 lanes to 4 lanes between Providence Boulevard and Elkcarn Boulevard.

4409201

Tivoli Dr at Providence & at Saxon Blvd Intersection Improvements Non-SIS



Work Summary: ADD TURN LANE(S) **From:** at Providence Blvd
To: at Saxon Blvd
Lead Agency: City of Deltona **Length:** 0.943 mile

Phase	Fund Source	2018/19	2019/20	2020/21	2021/22	2022/23	Total
CEI	LF	198,375	0	0	0	0	198,375
CST	LF	197,185	0	0	0	0	197,185
PE	SU	5,000	0	0	0	0	5,000
CEI	SU	5,000	0	0	0	0	5,000
CST	SU	1,125,315	0	0	0	0	1,125,315
Total		1,530,875	0	0	0	0	1,530,875

Prior Cost < 2018/19: 158,700

Future Cost > 2022/23: 0

Total Project Cost: 1,689,575

Project Description: The improvement for the Tivoli Dr. and Providence Blvd. intersection extends to the west about 1,050 feet to the April Dr. entrance to Tivoli Dr. The improvement to this intersection would include a right turn lane and an expanded multi-purpose straight/left turn lane onto Providence Blvd. The Tivoli Dr./Saxon Blvd. intersection is proposed to be improved 1,110 feet to the east to the entrance of Baton Dr. The intersection work needed includes a right turn lane onto Saxon and a left turn lane enhanced with greater storage. (Reference 2040 Long Range Transportation Plan, page 63 and table 31 on pg 72.)



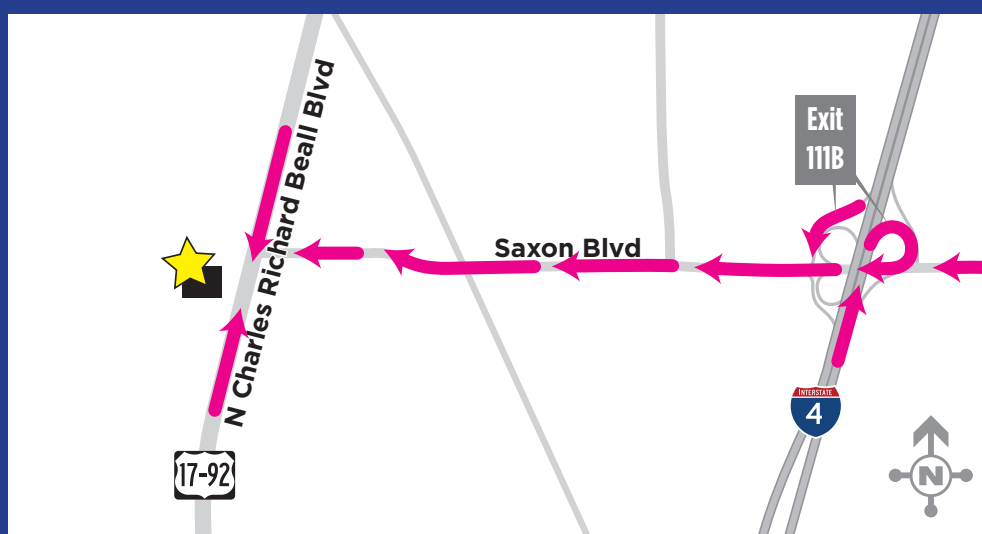
PUBLIC INFORMATION MEETING

Wednesday, February 7, 2018

5:00 p.m. – 8:00 p.m.

Gateway Center for the Arts

800 N. U.S. Highway 17-92, DeBary, FL



Learn about improvements planned at the eastbound Interstate 4 (I-4) exit ramp to Saxon Boulevard (Exit 111A). The project will improve operations by realigning the exit ramp, adding a traffic signal at the end of the ramp, and adding a third lane on eastbound Saxon Boulevard between the ramp and the intersection of Finland Drive. These new features will provide easier access for motorists, who are exiting eastbound I-4 onto eastbound Saxon Boulevard, to reach the left turn lane at the Finland Drive intersection. Approximately 4 miles of Interstate 4 will be milled and resurfaced from west of Saxon Boulevard to east of State Road 472.

For more information, visit: fdot.tips/Saxon

Persons with disabilities who require accommodations under the Americans with Disabilities Act or persons who require translation services (free of charge) should contact Todd Helton, Project Manager, by phone at 386-943-5207, or via email at Todd.Helton@dot.state.fl.us. If you are hearing or speech impaired, please contact us by using the Florida Relay Service, 1-800-955-8771 (TDD) or 1-800-955-8770 (Voice).

Public participation is solicited without regard to race, color, national origin, age, sex, religion, disability or family status. Persons wishing to express their concerns relative to FDOT compliance with Title VI may do so by contacting Jennifer Smith, FDOT District Five Title VI Coordinator at Jennifer.Smith2@dot.state.fl.us.



Interstate 4 (I-4) Milling and Resurfacing

I-4 from west of Saxon Boulevard to east of State Road (S.R.) 472

Volusia County

Financial Project ID: 438038-1-52-01

Project Description

This project calls for the milling and resurfacing of nearly 5 miles of Interstate 4 (I-4) from west of Saxon Boulevard to east of State Road (S.R.) 472 in Volusia County, including the ramps and shoulders at the Saxon Boulevard and S.R. 472 interchanges.

Other improvements are replacement of existing curb cut ramps, resetting guardrail, correcting shoulder deterioration at the interchanges, placement of rumble strips and pavement markings.

The project is being completed with another project to improve the Saxon Boulevard interchange. More information about that project is included on the reverse side of this page.

At a Glance

Contractor:

P&S Paving, Inc.

Total Cost:

\$8 million

Project Start:

Early June

Estimated Completion:

Early 2020

Lane Closures and Work Schedule

This project will require lane closures and detours. Lane closures along I-4 are permitted Sunday through Friday from 8 p.m. to 6 a.m. on westbound lanes and from 8:30 p.m. to 6:30 a.m. on eastbound lanes. Drivers can also expect at least one weekend detour involving the I-4 eastbound off ramp at Saxon Boulevard. Lane closures on Saxon Boulevard are possible between 11 p.m. and 5:30 a.m.

Electronic message boards and other signage will be used to help alert motorists to upcoming closures. Updates can also be found on our Central Florida website www.cflroads.com.

What to Expect During Construction

Residents whose homes are located close to I-4 may notice some increased nighttime noise and possibly some vibration during paving operations.

For more information, please contact

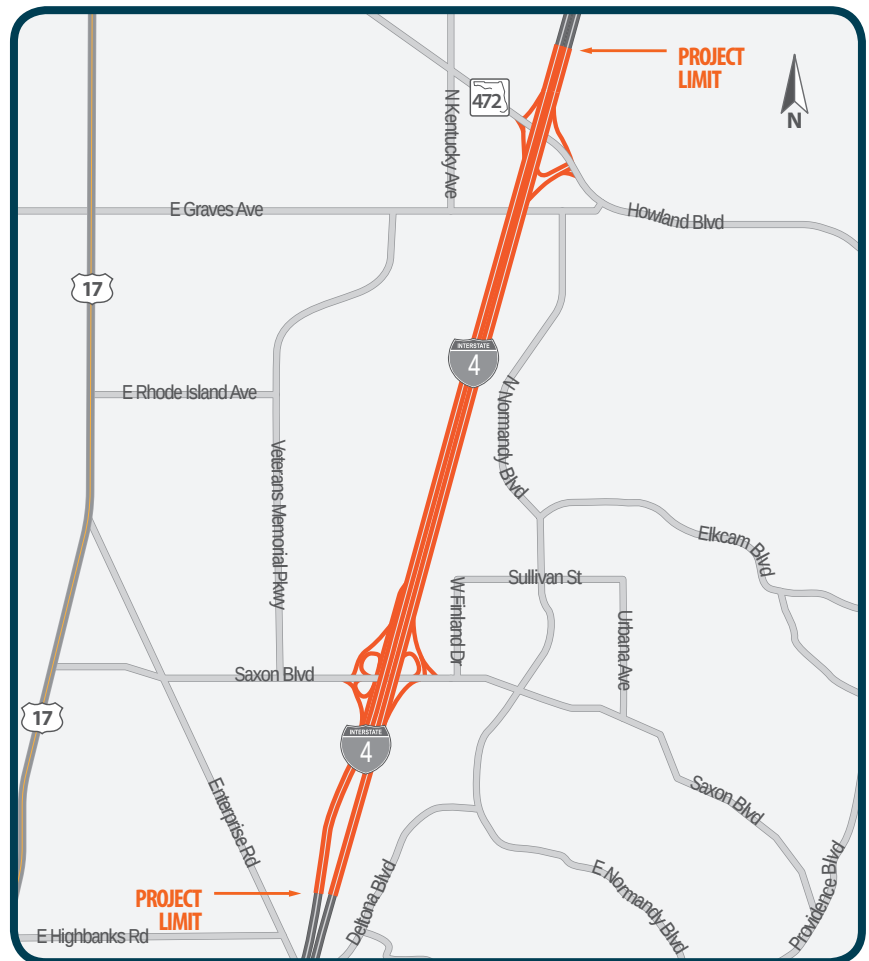
Carolyn Fitzwilliam,

Public Information Coordinator

(386) 740-3566

or

carolyn.fitzwilliam@dot.state.fl.us



Your source for information on state roadway projects in Central Florida is just a "click" away!



Interchange Improvements

Interstate 4 (I-4) at Saxon Boulevard

Volusia County

Financial Project ID: 441070-1-52-01

Project Description

This project is designed to improve operations at the Saxon Boulevard interchange with I-4. The work involves realignment of the I-4 eastbound off ramp to Saxon Boulevard, addition of a traffic signal, and widening of eastbound Saxon Boulevard to add a new third lane between the ramp and Finland Drive. These new features will provide safer access for motorists who are exiting eastbound I-4 onto eastbound Saxon Boulevard to reach the left turn lane at the Finland Drive intersection.

The project also includes minor drainage improvements, sidewalk reconstruction, signing and pavement markings, and other safety improvements.

This project is being completed with a project to mill and resurface I-4 from west of Saxon Boulevard to east of S.R. 472. More information on that project is included on the reverse side of this page.

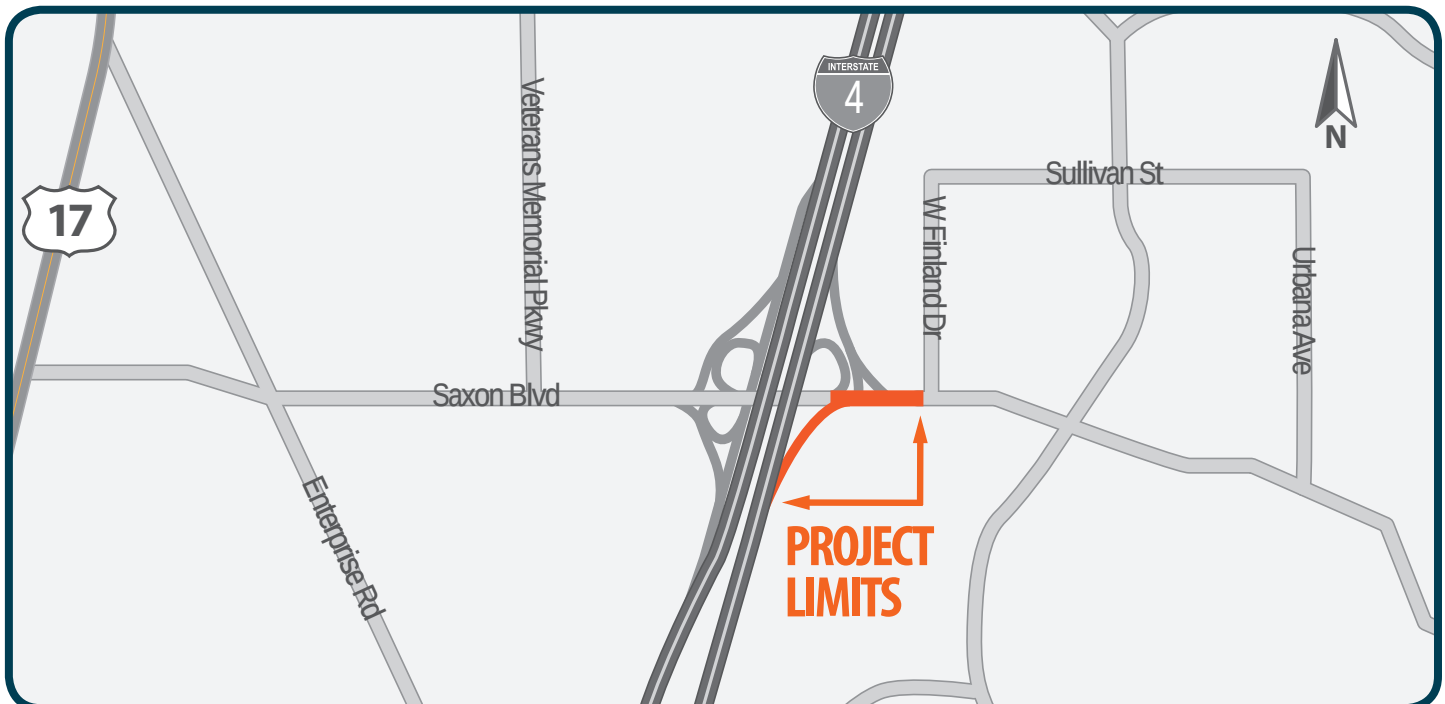
Lane Closures and Work Schedule

This project will require lane closures and detours. Lane closures along I-4 are permitted Sunday through Friday from 8 p.m. to 6 a.m. on westbound lanes and from 8:30 p.m. to 6:30 a.m. on eastbound lanes. Drivers can also expect lane closures on Saxon Boulevard between 11 p.m. and 5:30 a.m., as well as at least one weekend detour for the closure of the I-4 eastbound off ramp at Saxon Boulevard.

Electronic message boards and other signage will be used to help alert motorists to upcoming closures. Updates can also be found on our Central Florida website www.cflroads.com.

Pedestrian and Bicycle Safety

Temporary sidewalk closures are expected at the Saxon Boulevard interchange to accommodate construction of the new curb ramps. During this work, pedestrians and bicyclists will be directed around the work zone using the sidewalk on the opposite side of the road. Please do not walk or ride through active work areas.



Prepared by and returned to:
City of Deltona, City Clerk
2345 Providence Blvd.
Deltona, FL 32725

City of Deltona
Staff Drafted
DEVELOPMENT AGREEMENT
Deltona Village BPUD

For property located in the Areawide DRI at 2160 Normandy Boulevard

THIS DEVELOPMENT AGREEMENT ("Agreement") entered into and made as of the 15th day of February, 2010, by and between the **CITY OF DELTONA, FLORIDA** (hereinafter referred to as the "**City**"), and Deltona Retail Holdings, LLC, a Florida limited liability company and Eleanor J. DeMarsh, as Trustee of the Eleanor J. DeMarsh Revocable Trust dated May 20, 1992 as Restated on March 21, 1994 (hereinafter referred to as the "**Owner/Developer**").

W I T N E S S E T H

WHEREAS, the Owner/Developer warrants that it or an entity on whose behalf it is authorized to act hereunder holds legal title to the property described in Paragraph 2 below and that the holders of any and all liens and encumbrances affecting such property will subordinate their interests to this Agreement; and

WHEREAS, the Owner/Developer desires to facilitate the orderly development of the subject property, in compliance with the laws and regulations of the City and of other governmental authorities, and the Owner/Developer desires to ensure that its development is compatible with other properties in the area; and

WHEREAS, it is the purpose of this Agreement to clearly set forth the understanding and agreement of the parties concerning the matters contained herein; and

WHEREAS, the Owner/Developer has sought the City's approval for plans to develop the subject property, and the City Commission of the City of Deltona, Florida, has approved a Business Planned Unit Development ("**BPUD**") on February 15, 2010, with an Overall Development Plan/Master Development Plan ("**ODP/MDP**") subject to the covenants, restrictions, and easements contained herein, and in the Business Planned Unit Development rezoning ordinance, Ordinance No. 21-2009, and further subject to all other applicable requirements of law.

1 into one or more lots prior to commencement of development and as a condition for Final Site Plan
2 approval.

3 **C. Platting.** Subdivision of any Lot or Outparcel shown on the approved Plat that
4 creates a maximum of four (4) new conforming Lots or Parcels shall be considered a minor
5 amendment, and shall be approved by City staff as an administrative subdivision and does not
6 require an amendment to the BPUD, ODP/MDP, the Plat or approval of the City Commission.
7 Any further subdivisions of any Lot or Outparcel shall be a major amendment, and shall be
8 approved only after City Commission's approval as may be required by law in effect at the time
9 the amendment application is submitted to the City. Combination of any whole platted Lots
10 and/or Outparcels with one or more other whole platted Lots and/or Outparcels shall be
11 considered a minor amendment.

12 The submission of a sketch plan and ODP/MDP plan prior to the application for approval
13 of a Subdivision Preliminary Plat Development Order as required by the Code of Ordinances of
14 the City is satisfied by the approval of the ODP/MDP, and the City shall not require the
15 submission of any additional sketch plan nor overall development plan as a part of the Plat
16 approval process.

17 A final site plan application may be accepted and reviewed concurrently with the
18 preliminary plat application if such final site plan application shall provide all information and
19 analyses that is determined by the City staff to be necessary to show consistency and
20 coordination with the proposed preliminary plat, and any public and common improvements that
21 are planned, or approved, or funded, or under construction, or required in connection with the
22 preliminary plat, including the future phases of development.

23
24 **5. PHASING.** The Owner/Developer may choose to develop the Subject Property in
25 multiple phases or sub-phases in any order the Owner/Developer desires. Stormwater
26 calculations for the build out of each phase or sub-phase of the development shall be provided
27 with the Preliminary Plat application, along with the design and construction details of all
28 commonly or publicly owned or maintained stormwater facilities.

1
2 **6. PERMITTED USES.**

3 **A. Permitted Land Uses.**

4 The permitted land uses and their customary incidental and subordinate accessory uses on
5 the Subject Property shall be as described in the BPUD Ordinance No. 21-2009 or if not
6 specifically stated in said Ordinance, such similar uses as approved by the Development Services
7 Director.

8 **7. SITE DEVELOPMENT STANDARDS.**

9 **A. Site Development Standards shall be as set forth in the ODP/MDP and this**
10 **Agreement.** Any non-substantial or minor amendments or modifications to the
11 ODP/MDP, as such is determined by the Planning and Development Services Director, who
12 may request a review by the DRC, may be approved by the Planning and Development
13 Services Director.

14 **B. Building Architecture.**

15 Building architecture shall conform to design guidelines as approved by the Director of
16 Planning and Development Services.

17 **C. Impact Fees.**

18 The City acknowledges that the parties hereto reasonably expect any and all applications
19 for Final Site Plan review for any phase or sub-phases of this Project to be submitted within the
20 period in which the City has adopted a legal moratorium on the imposition of or obligation to
21 pay any impact fees or mobility fees or similar or like fees. It is anticipated by all parties to
22 this Agreement that no impact fees or mobility fees or any other similar or like fees or
23 obligations shall be required by the City for the development of the Subject Property. The
24 Owner/Developer shall be entitled to the benefit of the City moratorium so long as an
25 application for a building permit has been submitted by the expiration date of the moratorium
26 and the application is diligently pursued.

27
28 **D. Miscellaneous.**

- 29 a. The parties recognize that additional Police and Sheriff Department
30 services shall be required for the theatre and the Subject Property. The

1 City hereby acknowledges the availability of such services and agrees to
2 provide such services to the Subject Property that are consistent with or
3 similar to services provided throughout the City.

- 4 b. The City acknowledges that the proposed alignment of Graves Avenue
5 is no longer the preferred roadway network. The City acknowledges
6 that the ODP/MDP contains the preferred alignment for the roadway
7 network within and bordering the Subject Property.

8 **8. NATURAL RESOURCE PROTECTION**

9 A. **Wetlands** - There are no known wetlands on the Subject Property. The
10 City Commission acknowledges no payment shall be due of any funds, whether a fee, charge, or
11 otherwise, to the City and/or the City's Environmental Improvements Trust Fund, pursuant to
12 City Resolution No. 2006-13, or any other applicable ordinance, resolution or rule.

13 B. **Endangered Wildlife**: - The Owner/Developer has submitted a report
14 indicating that no scrub jays inhabit the site. The Owner/Developer shall submit a gopher tortoise
15 study for each Lot as part of the final site plan approval process and if applicable, secure the
16 appropriate permits from the applicable agencies.

17 C. **Archeological Assessment**. The Owner/Developer has complied with the
18 standard permitting condition of the Division of Historical Resources regarding fortuitous finds or
19 unexpected discoveries during ground disturbing activities on the property. The Division of Historical
20 Resources letter dated September 15, 2005, DHR No. [REDACTED] indicates no significant
21 archeological or historical sites or structures are within the Subject Property, and further examination
22 of the surrounding region suggests that a low potential for the identification of archaeological
23 resources in that area exists.

24 D. **Open Space Requirements**. The City acknowledges that due to
25 hurricanes and other damage, and in accordance with the proper permits, the Subject Property
26 was cleared of debris and dead trees and there were no trees on the site that could be preserved.
27 Accordingly, the City shall not require tree preservation, except for the impervious area,
28 landscaping and buffer specifically provided herein.

1 **9. SITE ACCESS.**

2 A. **Rhode Island Extension Right of Way:** The Owner/Developer shall
3 dedicate 80' of right of way along a portion of the eastern boundary of the Property upon the City's
4 issuance of a Preliminary Plat Development Order and a Certificate of Capacity. This 80' right of
5 way shall be utilized for the future construction of a segment of Rhode Island Extension. In the
6 event the City/County does not construct the Rhode Island Extension within ten years from the date
7 hereof, that portion of the 80' right of way that has not been constructed shall revert back to the
8 Owner/Developer without further notice or hearing. At the option of the Owner/Developer, the
9 City/County may retain the 80' right of way upon either i) the conveyance or transfer to the
10 Owner/Developer or its assigns, of any and all development rights as to that portion of the property;
11 or ii) the City/County shall pay Owner/Developer a fair market value for the fee simple rights to the
12 subject property which may be paid by the granting of impact fee credits or mobility credits or such
13 similar or like credits which may be transferred to third parties for development within five miles of
14 the Subject Property and the City/County shall facilitate the sale, transfer or assignment of said
15 credits to third parties for such valuable consideration as determined by Owner/Developer. In the
16 event the Owner/Developer elects to make any improvements beyond those required for the
17 development of the Subject Property by Owner/Developer, the City/County shall grant to
18 Owner/Developer such impact fee credits or mobility credits or such similar or like credits as is
19 available pursuant to Florida Statutes and City Code of Ordinances for such additional
20 improvements.

21 B. **Cross Access:** The Owner/Developer shall provide cross access and easements
22 as may be necessary for real property surrounded by the Subject Property that is owned by third
23 parties that are not parties to this Agreement ("surrounded parcel"), and include cross access
24 implementation measures in the Preliminary Plat, Final Plat, and Final Site Plans submitted to the
25 City for its review and approval. If and when the Owner/Developer acquires from said third party a
26 surrounded parcel, then that easement to the surrounded parcel will no longer be required, and if the
27 easement was created it may be eliminated by the Owner/Developer. Said submittals shall not be
28 deemed to be complete until reasonable cross access provisions meeting sound engineering
29 standards have been included on the submitted plans. If such surrounded parcels are provided
30 access within the internal access system, the City shall require the third party owners of the

1 surrounded parcel(s) to pay their pro rata share of expenses related to the common area
2 improvements and maintenance expenses within the BPUD.

3 C. **Mass Transit:** Owner/Developer shall provide land for a bus shelter or
4 bus-stop adjacent to the Subject Property in a location reasonably acceptable to
5 Owner/Developer and which does not negatively impact the value of the Subject Property or
6 unreasonably interfere with the use of the Subject Property and Owner/Developer's plan for
7 development of the Subject Property. Any voluntary contributions of land by Owner/Developer
8 for mass transit facilities or parking area shall be in exchange for i) an equivalent development
9 entitlement; or ii) the reduction or elimination of an equivalent fee imposed by the City or
10 County.

11 D. **Traffic Mitigation:** The applicant has completed a Traffic Impact Analysis
12 ("TIA") which identified traffic impacts and necessary mitigation measures for the approval of this
13 BPUD. The traffic mitigation and fair share payments pursuant to Sections 163.3180(11) and
14 163.3180(16), *Florida Statutes* are set forth in paragraphs 10 and 11 hereinbelow. The
15 methodology utilized for the TIA is consistent with the methodology adopted by the Deltona
16 Activity Center DRI. The City acknowledges that due to the poor economic conditions which exist
17 in retail development industry, the TIA phase completion dates shall be extended to coincide with
18 the recovery of the national economy.

19 **10. FAIR SHARE OF COSTS OF ROADWAY IMPROVEMENTS.**

20 The overall project is a commercial project planned to consist of up to 900,000 square
21 feet of commercial retail uses on the Subject Property and on adjacent property controlled by the
22 Owner/Developer, subject to final site plan approvals by the City.

23 The Owner/Developer submitted a Traffic Impact Analysis (dated December 2009)
24 ("TIA") prepared for the City of Deltona for the first 96,000 square feet of development within
25 the Subject Project. The Owner/Developer submitted a TIA (dated December 2009) prepared for
26 the County of Volusia for an additional 804,000 square feet of development within the Subject
27 Project and on adjacent property controlled by the Owner/Developer. The TIA phases, which
28 refer to thresholds of developable square footage, do not equate to the lot arrangement phases
29 reflected in this Agreement and the ODP/MDP. The two (2) TIA reports submitted to the
30 County and City take into account all phases or sub-phases of development on the Subject

Property and adjacent property controlled by Owner/Developer. The TIA includes all phases of the Subject Property and an exhibit depicting such phases is attached hereto as **Exhibit B**, which is incorporated herein by this reference.

Based upon the TIA reports, the Owner/Developer shall pay to the County or to the City as the collecting agent for the County, a fair share assessment amount prior to the issuance of building permits by the City. Payment may be in the forms authorized pursuant to Sections 163.3180(11) and 163.3180(16), *Florida Statutes*. The total fair share assessment amount due by phase is stipulated below and shall not exceed the amounts below:

	<u>Square Feet</u>	<u>Mitigation</u>
City TIA Phase	96,000	0
County TIA Phase I	301,000	\$125,000
County TIA Phase II	269,000	\$803,605
County TIA Phase III (Build Out)	<u>234,000</u>	<u>\$984,122</u>
Cumulative Total	<u>900,000</u>	<u>\$1,912,727</u>

Prior to the construction of any improvements within the County TIA Phase III, the City shall put all fair-share contributions and impact fee payments into an escrow account. The phases outlined above are defined based upon the Trip Reservations enumerated in Paragraph 11 of this Agreement. In the event that the Owner/Developer chooses to further subdivide the phases outlined above into additional sub-phases, the fair share assessment due will be calculated based on the pro-rata share of net new p.m. peak hour external trips being allocated to that specific sub-phase versus the net new p.m. peak hour external trips allocated to the entire phase of development.

Prior to the issuance of a building permit for any development within County TIA Phase III and subject to the execution of an impact fee credit agreement with the County, the Owner/Developer shall design and construct the following improvements:

1 a. 2nd northwest-bound left-turn lane at the Howland Boulevard/Graves Avenue
2 intersection;

3 b. 2nd westbound travel lane on Graves Avenue from Howland Boulevard to the
4 westernmost driveway of the development on the north side of Graves Avenue located
5 approximately 400 feet east of the I-95 overpass;

6 c. extension of the eastbound right-turn lane on Graves Avenue such that the lane begins
7 immediately east of an existing driveway on the south side of Graves Avenue at a location
8 approximately 250 feet east of the I-95 overpass;

9 d. a 265-foot (including a 50-foot taper) westbound left-turn lane on Graves Avenue into
10 the site at a location approximately 600 feet east of Normandy Boulevard.

11
12 The Owner/Developer and County shall enter into an impact fee credit agreement which
13 shall provide that all eligible costs associated with improvements set forth in paragraphs a, b, and
14 c above shall be entitled to impact fee credit against Volusia County Road Impact Fees at the
15 time the contributions are made to the County. The costs of improvements set forth in
16 paragraphs a, b, and c above for which the Owner/Developer shall be responsible shall be limited
17 to \$1,912,727 or such lesser mitigation costs as are required by the County. The impact fee
18 credit agreement shall establish the process the Owner/Developer and County must follow
19 relative to the County/City transferring of monies from the escrow account back to the
20 Owner/Developer to allow the Owner/Developer to proceed with the design and construction of
21 such improvements set forth in a, b, and c above. The County and the Owner/Developer shall
22 also enter into an agreement to relocate the County owned retention pond and to convey or
23 transfer certain surplus properties.

24
25 If the City or County modifies its Code of Ordinances with respect to the Concurrency
26 Management System (CMS) subsequent to the execution of this Agreement, or if a change in
27 circumstances such that the method or manner of payment of the total fair share assessment
28 outlined above, does not represent the method most beneficial to the Owner/Developer for
29 mitigation of transportation impacts, at the request of the Owner/Developer the City or County
30 may pursue such other method or methods so long as the rights and obligations granted herein to

1 the Owner/Developer are not adversely impacted and remain unchanged and the costs to the
2 Owner/Developer do not increase. Furthermore, should the City's CMS be eliminated or
3 otherwise negated subsequent to the execution of this Agreement, such as, but not limited to,
4 action of the Florida Legislature, the Owner/Developer (at Owner/Developer's option) may
5 waive or be released from the requirement to pay the total fair share assessments by phase,
6 subphase or otherwise, as outlined above. No such waiver or release shall eliminate the
7 Owner/Developer's Impact Fee Credits for fair share assessments already paid. Should the City
8 or County change to a mobility fee or similar form of transportation concurrency system, the
9 Owner/Developer, at Owner/Developer's option, may opt to apply its fair share assessment
10 contributions and related impact fee credits towards such fees. It is the intent of this paragraph to
11 allow the Owner/Developer to benefit from any legislative changes that reduce the financial
12 obligations for mitigation or fees of any nature or kind for transportation concurrency and to
13 limit the financial exposure of the Owner/Developer to that which is stated in this Agreement.
14

15 **11. TRIP RESERVATIONS.**

16 The Subject Property is planned as a part of the Phase I of the Interstate 4/SR 472
17 Areawide DRI, theretofore, the trip generation rate utilized for the project, as approved by the
18 City and County, was based on the approved total trip generation for Phase I of the DRI. The
19 Subject Property gross trip generation rate was based on the gross trip generation rate for the
20 retail component of Phase I of the DRI. The gross P.M. peak hour trip generation rate for Phase
21 I of the DRI was calculated as the approved gross P.M. peak hour trips for the Phase I retail uses
22 of the DRI (4,830 P.M. peak hour trips) divided by the retail square footage approved in Phase I
23 of the DRI (2,200 ksf) (4,830 P.M. peak hour trips divided by 2,200 ksf equals 2.1955 gross p.m.
24 peak hour trips per ksf). The gross daily trip generation rate for Phase I of the DRI was
25 calculated as the total daily trip generation for the retail uses for Phase I of the DRI (49,745 daily
26 trips) divided by the retail square footage approved in Phase I of the DRI (2,200 ksf) (49,745
27 daily trips divided by 2,200 ksf equals 22.6114 gross daily trips per ksf). Once the gross trip
28 generation rates for Phase I of the DRI were calculated, the gross trip generation for the project
29 was calculated by multiplying the gross trip generation rates for Phase I of the DRI by the
30 project's square footage by phase.

By its approval and execution of this Agreement, the City hereby agrees to issue and vest to the Owner/Developer the following net new external daily trip reservations by phase, and the net new p.m. peak hour external trip reservations by phase within the Interstate 4/SR 472 Areawide DRI:

CUMULATIVE PHASING

	<u>Square Feet</u>	<u>Net New External Trip Ends</u>	
		<u>P.M. Peak Hour</u>	<u>Daily</u>
City TIA Phase	96,000	122	1,900
County TIA Phase I	301,000	381	5,956
County TIA Phase II	570,000	723	11,278
County TIA Phase III (Build Out)	804,000	1,019	15,908
Combined City and County			
City TIA Phase	96,000	122	1,900
County TIA Phase I	397,000	503	7,856
County TIA Phase II	666,000	845	13,178
County TIA Phase III (Build Out)	900,000	1,141	17,808

BY PHASE

	<u>Square Feet</u>	<u>Net New External Trip Ends</u>	
		<u>P.M. Peak Hour</u>	<u>Daily</u>
City TIA Phase	96,000	122	1,900
County TIA Phase I	301,000	381	5,956
County TIA Phase II	269,000	342	5,322
County TIA Phase III (Build Out)	234,000	296	4,630
Total County	804,000	1,019	15,908

Combined City and County

City TIA Phase	96,000	122	1,900

County TIA Phase I	301,000	381	5,956
County TIA Phase II	269,000	342	5,322
County TIA Phase III (Build Out)	<u>234,000</u>	<u>296</u>	<u>4,630</u>
Total Combined City and County	<u>900,000</u>	<u>1,141</u>	<u>17,808</u>

The Subject Property is planned as a part of the Interstate 4/SR 472 Areawide DRI, therefore the land uses are subject to the DRI Development Equivalency Matrix. The Interstate 4/State Road 472 Activity Center DRI Development Equivalency Matrix, as obtained from the City of DeLand DRI Development Order (Resolution 2003-28), which is included in **Exhibit C**, attached hereto and incorporated by this reference. The Development Equivalency Matrix is based on the trip generation rates for the DRI, therefore utilization of the Matrix by the Applicant will not require additional traffic studies by City or County. No trip reservations hereunder shall expire if Owner/Developer submits a final site plan application for any portion of the development within the City TIA Phase I (as described above) on or before January 30, 2015 and a final site plan application for any portion of the development of County TIA Phase I on or before December 30, 2020, and Owner/Developer has paid the fair share assessment or impact/mobility fees required by the City and County for the development of such phases or sub-phases. In such an event, the Owner/Developer shall be entitled to retain all trips reserved as stated herein for all other phases or sub-phases. Upon the submittal by the Owner/Developer of any final site plans for development within the Subject Property that causes the cumulative total floor area to exceed 600,000 square feet of floor area , the Owner/Developer shall be required to seek approval for any portion of development that exceeds 600,000 square feet of floor area prior to obtaining final approval of such final site plan from the City of up to a total of 900,000 square feet in accordance with the Owner/Developer 's approved TIA, if otherwise required.

12. UTILITIES.

A. Sanitary Sewer. Owner/Developer shall install underground sanitary sewer utilities as are required to provide service to the Subject Property at Owner/Developer's cost and expense. Provided however, the City/County shall provide a sanitary sewer connection at or near the Subject Property at the City's/County's cost.

1 **B. Water.** Owner/Developer shall install underground water utilities as are
2 required to provide service to Subject Property at Owner/Developer's cost and expense.
3 Provided however, the City/County shall provide a connection for water at or near the
4 Subject Property at the City's/County's cost.

5 **C. Irrigation:** If available at the boundary of the Subject Property or any
6 Lot or phase within the Subject Property, the Subject Property shall use the following
7 sources for non-potable water, in order of priority, for surface irrigation of common and
8 private areas of the Subject Property.

9 a. Treated wastewater made available to the Subject Property by the City/County;

10 b. Surface water stored on-the Subject Property in surface water storage ponds;
11 and

12 c. If no other source is available, private irrigation wells, or potable water shall
13 be permitted.

14 d. In the event the Owner/Developer is required to construct and install any
15 water or sewer lines for the benefit of other third parties in connection with the
16 development of the Subject Property, Owner/Developer shall receive
17 reimbursement from the City/County for any other users of such facilities as such
18 users are required to connect into said system.

19 **13. STORMWATER MANAGEMENT**

20 Stormwater management and design for the Subject Property shall comply with City,
21 State and Federal requirements. The Subject Property shall have a master stormwater
22 management system in compliance with closed basin standards.

23 **14. OBLIGATIONS.** Should the Owner/Developer fail to undertake and complete its
24 obligations as described in this Agreement to the City's specifications, the City shall give the
25 Owner/Developer thirty (30) days' written notice to commence and ninety (90) days thereafter
26 to complete said required obligation (provided, however, that if any such obligation takes longer
27 than ninety (90) days to complete, in the exercise of reasonable due diligence, such time
28 permitted shall be extended by such additional time may be required if Owner/Developer
29 commences the obligation within the ninety (90) day period and thereafter prosecutes it to
30 completion with due diligence). If the Owner/Developer fails to complete the obligations within

1 such period, the City, without further notice to the Owner/Developer or its successors in interest,
2 may, without prejudice to any other rights or remedies it may have, perform such obligations.
3 Further, the City is hereby authorized to assess the actual and verified cost of completing such
4 obligations against the Subject Property. The lien of such assessments shall be superior to all
5 others, and all existing lienholders and mortgagees, by their execution of the subordination or
6 joinder documents, agree to subordinate their liens or mortgages to the City's said liens or
7 assessments.

8 **15. ENFORCEMENT.** In the event that enforcement of this Agreement by the City
9 becomes necessary, and the City is successful in such enforcement, the Owner/Developer shall
10 be responsible for all costs and expenses, including attorneys' fees whether or not litigation is
11 necessary and if necessary, both at trial and on appeal, incurred in enforcing or ensuring
12 compliance with the terms and conditions of this Agreement which costs, expenses and fees shall
13 also be a lien upon the Subject Property superior to all others. In the event that enforcement of
14 this Agreement by the Owner/Developer becomes necessary, and the Owner/Developer is
15 successful in such enforcement, the City shall be responsible for all costs and expenses,
16 including attorneys' fees whether or not litigation is necessary and if necessary, both at trial and
17 on appeal, incurred in enforcing or ensuring compliance with the terms and conditions of this
18 Agreement.

19 **16. COMPLIANCE.** The Owner/Developer agrees that it, will abide by the provisions
20 of this BPUD Agreement, ODP/MDP, the City's Comprehensive Plan, and the City's Land
21 Development Code, including the site plan regulations of the City which are incorporated herein
22 by reference. The City may, without prejudice to any other legal or equitable right or remedy it
23 may have, withhold permits, certificates of occupancy or approvals, should the Owner/Developer
24 fail to comply with the terms of this Agreement.

25 **17. UTILITY EASEMENTS.** The Owner/Developer shall provide to the City, prior to
26 the City's approval of the Final Plat and Final Site Plans, such easements and other legal
27 documentation, in form mutually acceptable to the City Attorney and the Owner/Developer, as
28 the City may deem reasonably necessary or appropriate for the installation and maintenance of
29 the utility and other services necessary to service the Subject Property, including but not limited
30 to, sewer, potable water, and reclaimed water services, electric, cable, fire protection and

telecommunications. The Owner/Developer shall also provide access and utility easements to all parcels of property owned by a third party and located within the boundaries of the Subject Property. Such easements shall not unreasonably impede or impair the use of the Subject Property by the Owner/Developer or interfere with the Owner/Developer's plan of development.

18. NOTICES. Where notice is herein required to be given, it shall be by certified mail return receipt requested, hand delivery or overnight courier. Said notice shall be sent to the following, as applicable, and shall be deemed to be given and received if by hand delivery, and otherwise on the date of delivery or of first attempted delivery if delivery is impossible or refused.

OWNER/DEVELOPER'S REPRESENTATIVES:

**Deltona Retail Holdings, LLC
c/o Frank DeMarsh
EPIC Theatres, Inc.
P.O. Box 2076
DeLand, Florida 32721-2076
Phone: 386-736-6830
Fax: 386-738-2596
email: fd@epictheatres.com**

**With a Copy to:
Kim C. Booker, Attorney at Law
Booker & Associates, P.A.
1019 Town Center Drive, Suite 201
Orange City, Florida 32763
Telephone 386-774-6552**

**With a Copy to:
LENDERS:
Comerica Bank
Attn.: David Sass
101 North Main Street
Suite 200 MC 9403
Ann Arbor, Michigan 48104
Telephone 734-930-2442**

CITY'S REPRESENTATIVE:

**City Clerk and Planning & Development Services Director
2345 Providence Boulevard
Deltona, Florida, 32725
Telephone 386-878-8600, Fax 386-878-8601**

1 Should any party identified above change or should any party elect to add an additional person or
2 entity to receive notices hereunder, it shall be said party's obligation to notify the remaining
3 parties of the change or addition in a fashion as is required for notices herein.

4 **19. CAPTIONS.** The captions used herein are for convenience only and shall not be
5 relied upon in construing this Agreement.

6 **20. FORCE MAJURE.** Notwithstanding anything contained in this Agreement, each
7 party shall be excused from performing any obligation under this Agreement and any delay in
8 the performance of any obligation under this Agreement shall be excused, if, but only for as long
9 as, the performance of the obligation is prevented, delayed or otherwise hindered by acts of God,
10 fire, earthquake, floods, explosion, actions or the elements, war, riots, mob violence, Inability to
11 procure or a general shortage of labor, equipment, facilities, materials or supplies in the open
12 market, failure of transportation, strikes, lockouts, actions of labor unions, condemnation, court
13 orders, laws or orders of governmental or military authorities or any other cause, whether similar
14 or dissimilar to the foregoing, not within the control of such party (other than lack of or inability
15 to procure monies to fulfill its commitments and obligations under the Agreement).

16 Notwithstanding any specific references in certain provisions of this Agreement to this
17 Section 20, the absence of such specific reference in any other provision shall not be deemed to
18 diminish the general applicability of this Section 20.

19 **21. BINDING EFFECT.** This Agreement shall run with the land, shall be binding upon
20 and inure to the benefit of the Owner/Developer and its assigns and successors in interest and the
21 City and its assigns and successors in interest. The Owner/Developer agrees to pay the cost of
22 recording this document in the Public Records of Volusia County, Florida. This Agreement does
23 not, and is not intended to, prevent or impede the City from exercising its legislative authority as
24 the same may affect the Subject Property.

25 **22. SEVERABILITY.** If any part of this Agreement is found invalid or unenforceable
26 in any court, such invalidity or unenforceability shall not affect the other parts of this Agreement,
27 if the rights and obligations of the parties contained herein are not materially prejudiced and if
28 the intentions of the parties can be affected. To that end, this Agreement is declared severable.

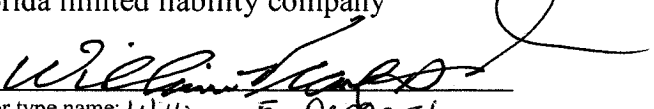
1 IN WITNESS WHEREOF, the Owner/Developer and the City have executed this
2 Agreement as of the day and year first above written.

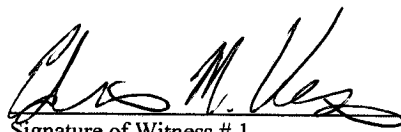
3 SIGNED, SEALED AND DELIVERED
4 IN THE PRESENCE OF:

5 
6
7
8
9 Signature of Witness # 1
10 Eduardo M. Vega
11 Print or type name

12
13 Christine M. Morris
14 Signature of Witness #2
15 Christine M. Morris
16 Print or type name
17

DELTONA RETAIL HOLDINGS, LLC
a Florida limited liability company

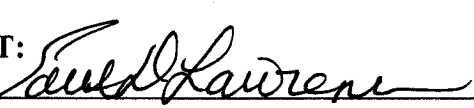
BY: 
Print or type name: William F. Demarsh

18
19
20
21 
22
23 Signature of Witness # 1
24 Eduardo M. Vega
25 Print or type name
26

27
28 Christine M. Morris
29 Signature of Witness #2
30 Christine M. Morris
31 Print or type name
32

ELEANOR J. DEMARSH, AS TRUSTEE OF
THE ELEANOR J. DEMARSH REVOCABLE
TRUST DATED MAY 20, 1992, AS RESTATED
MARCH 21, 1994

BY: 
Print or type name: Eleanor Demarsh

33
34 ATTEST: 
35
36 Signature

37 Edith D. Lawrence
38 Print or type name

39 AS: Member

40 Mailing Address: P.O. Box 2076
41 Deland, FL 32721-2076
42
43
44

1 STATE OF FLORIDA

2 COUNTY OF Volusia

3 The foregoing instrument was acknowledged before me this 23rd day of March
4 2010, by William Frank DeMarsh and _____,
5 respectively, of Deltina Retail Holdings LLC, who is/are personally known to me or who
6 has/have produced _____ as identification and who did
7 not (did) take an oath.

8 Christine M. Morris
9 Signature
10 (Notary Stamp) Christine M. Morris
11 Print or type name
12



17 STATE OF FLORIDA

18 COUNTY OF Volusia

19 The foregoing instrument was acknowledged before me this 23rd day of March
20 2010, by Eleanor J. DeMarsh, as Trustee of the Eleanor J. DeMarsh Revocable Trust dated May
21 20, 1992, as Restated March 21, 1994, who is personally known to me or who has produced _____
22 _____ as identification and who did not (did) take an oath.

23 Christine M. Morris
24 Signature
25 (Notary Stamp) Christine M. Morris
26 Print or type name



ACCEPTED FOR THE CITY OF DELTONA

By:

Dennis Mulder, Mayor

Date: 5-14-10

Mailing Address:

City of Deltona

2345 Providence Boulevard

Deltona, Florida, 32725

STATE OF FLORIDA

COUNTY OF VOLUSIA

The foregoing instrument was acknowledged before me this 14th day of May
2010, by Dennis Mulder as Mayor of the City of Deltona, Florida, who is personally known to
me and acknowledges executing the same freely and voluntarily under authority vested in him.



Jean W. Oertli.
Signature of Notary
JEAN W. OERTLI
Print or type name

This instrument approved by:

James Fowler, Acting City Attorney

**as to form and legality for use and reliance by the
City of Deltona.**

This instrument prepared by:

City of Deltona

Department of Development Services

2345 Providence Boulevard

Deltona, Florida 32725

SUBORDINATION AGREEMENT

THIS SUBORDINATION AGREEMENT made this _____ day of _____
20__, by _____ whose address is _____,
referred to as "Mortgagee."

WITNESSETH:

The Mortgagee of the property described in the foregoing Developer's Agreement which
property is owned by _____, does hereby agree to subordinate all its interests
and rights contained in the property to the foregoing Developer's Agreement which property is
owned by _____ entered into by _____ as
Owner/Developer and the CITY OF DELTONA. This Subordination Agreement shall bind all
successors, assigns, and representatives of the Mortgagee.

SIGNED, SEALED AND DELIVERED

IN THE PRESENCE OF:

MORTGAGEE:

BY: _____

Signature _____
Print or type name

Signature of Witness # 1

Print or type name

Signature of Witness #2

Print or type name

ATTEST:

Signature

Print or type name

AS: _____

Mailing Address: _____

1 **STATE OF FLORIDA**

2 **COUNTY OF _____**

3 The foregoing instrument was acknowledged before me this ____ day of _____

4 20____, by _____ and _____,

5 and _____, respectively, of _____, who

6 are personally known to me or who have produced _____ as

7 identification and who did (did not) take an oath.

8 _____
9 Signature _____

10 _____
11 Print or type name

12 (Notary Stamp)

SUBORDINATION AGREEMENT

THIS SUBORDINATION AGREEMENT made this 12th day of March
2010, by Comerica Bank whose address is _____,
referred to as "Mortgagee."

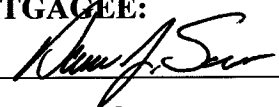
WITNESSETH:

The Mortgagee of the property described in the foregoing Developer's Agreement
which property is owned by Deltona Retail Holdings, LLC, does hereby agree to
subordinate all its interests and rights contained in the property to the foregoing
Developer's Agreement which property is owned by Deltona Retail Holdings, LLC
entered into by Deltona Retail Holdings, LLC as Owner/Developer and the CITY OF
DELTONA. This Subordination Agreement shall bind all successors, assigns, and
representatives of the Mortgagee.

SIGNED, SEALED AND DELIVERED

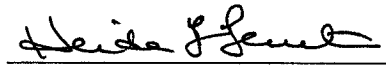
IN THE PRESENCE OF:

MORTGAGEE:

BY: 

Signature DAVID J. SADOS
Print or type name


Signature of Witness # 1
MARY ANN ERICK
Print or type name


Signature of Witness #2
Heidi L. Lewiston
Print or type name

ATTEST:

Signature

Print or type name

AS: _____

Mailing Address: _____

STATE OF MICHIGAN

COUNTY OF Washtenaw

The foregoing instrument was acknowledged before me this 12th day of March
2010, by David S. Sass, Sr Vice President respectively, of Comerica
Bank, who is personally known to me or who has produced
_____ as identification and who did (did not) take an oath.

Signature _____
Print or type name _____

(Notary Stamp)

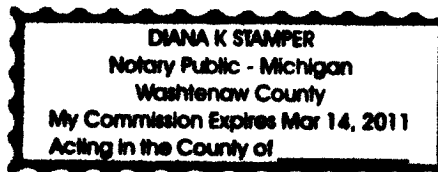


EXHIBIT "A"

LEGAL DESCRIPTION:

LEGAL DESCRIPTION: OVERALL (WRITTEN)

A parcel of land lying in and being a part of the NE $\frac{1}{4}$ of Section 7, Township 18 South, Range 31 East, Volusia County, Florida, lying East of the Easterly Right of Way of Normandy Boulevard, as now established, and South of the Southerly Right of Way of Howland Boulevard, as now established, being more particularly described as follows: Commencing at the Southwest corner of said NE $\frac{1}{4}$, run thence S $89^{\circ}47'13''$ E along the South line of said NE $\frac{1}{4}$ a distance of 526.96 feet to a point lying on said Easterly Right of Way and the Point of Beginning. Run thence N $00^{\circ}10'55''$ W along said Right of Way a distance of 169.22 feet to a point of curve, concave to the Northwest, having a radius of 1959.86 feet and a delta of $11^{\circ}35'31''$ with a chord bearing and distance of N $05^{\circ}29'05''$ E, 395.84 feet, run thence Northeasterly along said curve and Right of Way an arc distance of 396.51 feet; run thence N $00^{\circ}18'41''$ W continuing along said Right of Way a distance of 765.22 feet to a point on the North line of the SW $\frac{1}{4}$ of the NE $\frac{1}{4}$ of said Section 7; run thence N $00^{\circ}19'01''$ W continuing along said Right of Way and entering into the NW $\frac{1}{4}$ of the NE $\frac{1}{4}$ of said Section 7 a distance of 815.24 feet; run thence S $89^{\circ}32'05''$ E along said Right of Way a distance of 20.00 feet; run thence N $00^{\circ}19'01''$ W along said Right of Way a distance of 413.27 feet to aforesaid Southerly Right of Way of Howland Boulevard; run thence S $89^{\circ}28'24''$ E along said Southerly Right of Way a distance of 74.70 feet; run thence N $00^{\circ}20'22''$ W along said Right of Way a distance of 22.62 feet; run thence S $85^{\circ}04'51''$ E along said Southerly Right of Way a distance of 135.25 feet; run thence S $00^{\circ}21'46''$ E along said Right of Way a distance of 12.25 feet; run thence S $89^{\circ}28'24''$ E along said Right of Way a distance of 1841.57 feet to the East line of said NE $\frac{1}{4}$; run thence S $00^{\circ}37'22''$ E along said East line a distance of 2545.72 feet to the Southeast corner of said NE $\frac{1}{4}$; run thence N $89^{\circ}47'13''$ W along the South line of said NE $\frac{1}{4}$ a distance of 2124.49 feet to the Point of Beginning. Being subject to any Easements and Rights of Way of Record.

AND

A parcel of land lying in and being a part of the NE $\frac{1}{4}$ of Section 7, Township 18 South, Range 31 East, Volusia County, Florida, lying West of the Westerly Right of Way of Normandy Boulevard, as now established, and South of the Southerly Right of Way of Howland Boulevard, as now established, being more particularly described as follows: Beginning at the Southwest corner of said NE $\frac{1}{4}$, run thence N $00^{\circ}14'38''$ W along the West line of said NE $\frac{1}{4}$ a distance of 2560.14 feet to a point on said Southerly Right of Way of Howland Boulevard; run thence S $89^{\circ}28'24''$ E along said Right of Way a distance of 464.02 feet to a point on said Westerly Right of Way of Normandy Boulevard; run thence S $00^{\circ}19'01''$ E along said Westerly Right of Way a distance of 1228.82 feet to a point on the South line of the NW $\frac{1}{4}$ of the NE $\frac{1}{4}$ of said Section 7; run thence S $00^{\circ}18'41''$ E continuing along said Right of Way and entering into the SW $\frac{1}{4}$ of the NE $\frac{1}{4}$ of said Section 7 a distance of 604.50 feet; run thence N $89^{\circ}40'16''$ W along said Right of Way a distance of 15.00 feet; run thence S $00^{\circ}18'41''$ E continuing along said Right of Way a distance of 387.24 feet; run thence S $89^{\circ}43'50''$ E along said Right of Way a distance of 1.32 feet to a point on a curve, concave to the Northwest, having a radius of 1859.86 feet and a delta of $08^{\circ}41'21''$, with a chord bearing and distance of S $10^{\circ}59'15''$ W, 281.79 feet; run thence Southwesterly along said curve and Right of Way an arc distance of 282.06 feet; run thence S $28^{\circ}57'24''$ W continuing along said Right of Way a distance of 68.76 feet to the South line of said NE

¼; run thence N 89°47'13" W a distance along said South line a distance of 364.80 feet to the Point of Beginning. Being subject to any Easements and Rights of Way of Record.

LEGAL DESCRIPTION: EXCEPTION "A" (WRITTEN)

Lots 10 through 19, inclusive, Block 8, Davis Park, Second Addition to Orange City, Florida, a subdivision according to map in Map Book 6, Page 175, Public Records of Volusia County, Florida and that part of the W ½ of Persimmon Street lying East of and contiguous thereto, all being more particularly described as follows: Commencing at the Northeast corner of the NE ¼ of Section 7, Township 18 South, Range 31 East, Volusia County, Florida, run thence S 00°37'22" E along the East line of said NE ¼ a distance of 1172.73 feet; run thence N 89°37'03" W a distance of 495.38 feet to the Point of Beginning. Continue thence N 89°37'03" W a distance of 165.12 feet; run thence N 00°31'40" W a distance of 251.05 feet; run thence S 89°35'12" E a distance of 165.02 feet; run thence S 00°33'05" E a distance of 250.96 feet to the Point of Beginning. Being subject to any Easements and Rights of Way of Record.

LEGAL DESCRIPTION: EXCEPTION "B" (WRITTEN)

Lots 12 through 15, inclusive, Block 11, Davis Park, Sixteenth Addition to Orange City, Florida, a subdivision according to map in Map Book 7, Page 68, Public Records of Volusia County, Florida and that part of Florida Avenue lying South of and contiguous thereto, and that part of the E ½ of Clara Street Lying West of and contiguous thereto, all being more particularly described as follows: Commencing at the Southwest corner of the NE ¼ of Section 7, Township 18 South, Range 31 East, Volusia County, Florida, run thence S 89°47'13" E along the South line of said NE ¼ a distance of 828.50 feet to the Point of Beginning. Run thence N 00°21'19" W a distance of 160.68 feet; run thence S 89°45'07" E a distance of 165.64 feet; run thence S 00°22'41" E a distance of 160.64 feet to said South line of the NE ¼; run thence N 89°47'13" W along said South line a distance of 165.70 feet to the Point of Beginning. Being subject to any Easements and Rights of Way of Record.

LEGAL DESCRIPTION: EXCEPTION "C" (WRITTEN)

Lots 16 through 19, inclusive, Block 7, Davis Park, Sixteenth Addition to Orange City, Florida, a subdivision according to map in Map Book 7, Page 68, Public Records of Volusia County, Florida and that part of the E ½ of Araminta Street lying West of and contiguous thereto, all being more particularly described as follows: Commencing at the Southwest corner of the NE ¼ of Section 7, Township 18 South, Range 31 East, Volusia County, Florida, run thence N 00°14'38" W along the West line of said NE ¼ a distance of 437.94 feet; run thence S 89°43'25" E a distance of 165.53 feet to the Point of Beginning. Run thence N 00°16'01" W a distance of 100.80 feet; run thence S 89°42'47" E a distance of 165.49 feet; run thence S 00°17'23" E a distance of 100.77 feet; run thence N 89°43'25" W a distance of 165.53 feet to the Point of Beginning. Being subject to any Easements and Rights of Way of Record.

LEGAL DESCRIPTION: EXCEPTION "D" (WRITTEN)

Lots 18 and 19, Block 1, Davis Park, Sixteenth Addition to Orange City, Florida, a subdivision according to map in Map Book 7, Page 68, Public Records of Volusia County, Florida and that part of the E ½ of Crystal Street lying West of and contiguous thereto, all being more particularly described as follows: Commencing at the Southeast corner of the SW ¼ of the NE ¼ of Section 7, Township 18 South, Range 31 East, Volusia County, Florida, run thence N 00°25'56" W along the East line of said SW ¼ of the NE ¼ a distance of 848.99 feet to the Point of Beginning. Run thence N 89°41'13" W a distance of 165.45 feet; run thence N 00°24'02" W a distance of 50.29 feet; run thence S 89°40'47" E a distance of 165.42 feet to the East line of said SW ¼ of the NW 1/4; run thence S 00°25'56" E along said East line a distance of 50.27 feet to the Point of Beginning. Being subject to any Easements and Rights of Way of Record.

LEGAL DESCRIPTION: EXCEPTION "E" (WRITTEN)

Lots 1 through 46, inclusive, Block 3, Davis Park, Sixteenth Addition to Orange City, Florida, a subdivision according to map in Map Book 7, Page 68, Public Records of Volusia County, Florida and that part of the N ½ of Alabama Avenue lying South of and contiguous thereto and that part of the W ½ of Clara Street lying East of and contiguous thereto and that part of an un-named alley lying South of Lots 1 through 9, and contiguous thereto, all lying East of the Easterly Right of Way of Normandy Boulevard, as now established, and all being more particularly described as follows: Commencing at the Southwest corner of the NE ¼ of Section 7, Township 18 South, Range 31 East, Volusia County, Florida, run thence N 00°14'38" W along the West line of said NE ¼ a distance of 664.83 feet; run thence S 89°41'52" E a distance of 566.54 feet to the aforesaid Easterly Right of Way of Normandy Boulevard; run thence N 00°18'41" W along said Right of Way a distance of 30.00 feet to the Point of Beginning. Continue thence N 00°18'41" W a distance of 634.16 feet; run thence S 89°37'50" E a distance of 260.16 feet; run thence S 00°21'23" E a distance of 633.86 feet; run thence N 89°41'52" W a distance of 260.66 feet to the Point of Beginning. Being subject to any Easements and Rights of Way of Record.

LEGAL DESCRIPTION: EXCEPTION "F" (WRITTEN)

Lot 24, Block 4, Davis Park, Sixteenth Addition to Orange City, Florida, a subdivision according to map in Map Book 7, Page 68, Public Records of Volusia County, Florida, lying West of the Westerly Right of Way of Normandy Boulevard, as now established, and being more particularly described as follows: Commencing at the Southwest corner of the NE $\frac{1}{4}$ of Section 7, Township 18 South, Range 31 East, Volusia County, Florida, run thence N $00^{\circ}14'38''$ W along the West line of said NE $\frac{1}{4}$ a distance of 825.63 feet; run thence S $89^{\circ}41'27''$ E a distance of 330.91 feet to the Point of Beginning. Run thence N $00^{\circ}17'23''$ W a distance of 25.19 feet; run thence S $89^{\circ}41'11''$ E a distance of 135.44 feet to the aforesaid Westerly Right of Way of Normandy Boulevard; run thence S $00^{\circ}18'41''$ E along said Right of Way a distance of 25.18 feet; run thence N $89^{\circ}41'27''$ W a distance of 135.45 feet to the Point of Beginning. Being subject to any Easements and Rights of Way of Record.

LEGAL DESCRIPTION: EXCEPTION "G" (WRITTEN)

Lots 11 through 20, inclusive, Block 4, Davis Park, Sixteenth Addition to Orange City, Florida, a subdivision according to map in Map Book 7, Page 68, Public Records of Volusia County, Florida, and that part of the S $\frac{1}{2}$ of an un-named alley lying North of and contiguous thereto, all lying West of the Westerly Right of Way of Normandy Boulevard, as now established, and all being more particularly described as follows: Commencing at the Southwest corner of the NE $\frac{1}{4}$ of Section 7, Township 18 South, Range 31 East, Volusia County, Florida, run thence N $00^{\circ}14'38''$ W along the West line of said NE $\frac{1}{4}$ a distance of 926.48 feet; run thence S $89^{\circ}40'25''$ E a distance of 330.83 feet to the Point of Beginning. Run thence N $00^{\circ}17'23''$ W a distance of 259.40 feet; run thence S $89^{\circ}38'37''$ E a distance of 135.31 feet to the aforesaid Westerly Right of Way of Normandy Boulevard; run thence S $00^{\circ}18'41''$ E along said Right of Way a distance of 259.33 feet; run thence N $89^{\circ}40'25''$ W a distance of 135.41 feet to the Point of Beginning. Being subject to any Easements and Rights of Way of Record.

LEGAL DESCRIPTION: EXCEPTION "H" (WRITTEN)

Lots 16 and 17, Block 6, Davis Park, First Addition to Orange City, Florida, a subdivision according to map in Map Book 6, Page 167, Public Records of Volusia County, Florida, lying West of the Westerly Right of Way of Normandy Boulevard as now established, and being more particularly described as follows: Commencing at the Northwest corner of the NE $\frac{1}{4}$ of Section 7, Township 18 South, Range 31 East, run thence S $00^{\circ}14'38''$ E along the West line of said NE $\frac{1}{4}$ a distance of 1081.75 feet; run thence S $89^{\circ}36'17''$ E a distance of 330.19 feet to the Point of Beginning. Continue thence S $89^{\circ}36'17''$ E a distance of 135.08 feet to the aforesaid Westerly Right of Way of Normandy Boulevard; run thence S $00^{\circ}19'01''$ E along said Right of Way a distance of 50.84 feet; run thence N $89^{\circ}36'40''$ W a distance of 135.10 feet; run thence N $00^{\circ}17'39''$ W a distance of 50.86 feet to the Point of Beginning. Being subject to any Easement or Rights of Way of Record.

LEGAL DESCRIPTION: EXCEPTION "I" (WRITTEN)

Lots 20, 21 and 22, Block 4, Davis Park, First Addition to Orange City, Florida, a subdivision according to map in Map Book 6, Page 167, Public Records of Volusia County, Florida, and that part of Araminta Street lying West of and contiguous thereto, all being more particularly described as follows: Commencing at the Northwest corner of the NE $\frac{1}{4}$ of Section 7, Township 18 South, Range 31 East, Volusia County, Florida, run thence S $00^{\circ}14'38''$ E along the West line of said NE $\frac{1}{4}$ a distance of 513.90 feet; run thence S $89^{\circ}32'05''$ E a distance of 164.83 feet to the Point of Beginning. Run thence N $00^{\circ}16'16''$ W a distance of 75.64 feet; run thence S $89^{\circ}31'26''$ E a distance of 164.83 feet; run thence S $00^{\circ}17'39''$ E a distance of 75.62 feet; run thence N $89^{\circ}32'05''$ W a distance of 164.86 feet to the Point of Beginning. Being subject to any Easements and Rights of Way of Record.

LEGAL DESCRIPTION: EXCEPTION "J" (WRITTEN)

Lot 6, Block 3, Davis Park, Second Addition to Orange City, Florida, a subdivision according to map in Map Book 6, Page 175, Public Records of Volusia County, Florida, and that part of the N $\frac{1}{2}$ of an unnamed driveway lying South of and contiguous thereto, all lying South of the Southerly Right of Way of Howland Boulevard, as now established, and being more particularly described as follows: Commencing at the Northeast corner of the NE $\frac{1}{4}$ of Section 7, Township 18 South, Range 31 East, Volusia County, Florida, run thence S $00^{\circ}37'22''$ E along the East line of said NE $\frac{1}{4}$ a distance of 100.00 feet to a point on said Southerly Right of Way of Howland Boulevard; run thence N $89^{\circ}28'24''$ W along said Southerly Right of Way a distance of 658.75 feet to the Point of Beginning. Run thence S $00^{\circ}34'31''$ E a distance of 102.85 feet; run thence N $89^{\circ}28'43''$ W a distance of 24.95 feet; run thence N $00^{\circ}34'14''$ W a distance of 102.85 feet to the aforesaid Southerly Right of Way; run thence S $89^{\circ}28'24''$ E along said Right of Way a distance of 24.95 feet to the Point of Beginning. Being subject to any Easements of Record.

LEGAL DESCRIPTION: EXCEPTION "K" (WRITTEN)

Block 4, Davis Park, Second Addition to Orange City, Florida, a subdivision according to map in Map Book 6, Page 175, Public Records of Volusia County, Florida, and that part of the E $\frac{1}{2}$ of Grape Street lying West of and contiguous thereto, and the W $\frac{1}{2}$ of Orange Street lying East of and contiguous thereof and the N $\frac{1}{2}$ of Tennessee Avenue lying South of and contiguous thereto and that certain unnamed alley lying South of Lots 1 through 10, and contiguous thereto, all lying South of the Southerly Right of Way of Howland Boulevard, as now established, and being more particularly described as follows: Commencing at the Northeast corner of the NE $\frac{1}{4}$ of section 7, Township 18 South, Range 31 East, Volusia County, Florida, run thence S $00^{\circ}37'22''$ E along the East line of said NE $\frac{1}{4}$ a distance of 100.00 feet to a point on said Southerly Right of Way of Howland Boulevard; run thence N $89^{\circ}28'24''$ W along said Southerly Right of Way a distance of 823.43 feet to the Point of Beginning; run thence S $00^{\circ}30'15''$ E a distance of 567.57 feet; run thence N $89^{\circ}33'07''$ W a distance of 329.83 feet; run thence N $00^{\circ}27'24''$ W a distance of 568.02 feet to the aforesaid Southerly Right of Way; run thence S $89^{\circ}28'24''$ E along said Right of Way a distance of 329.37 feet to the Point of Beginning. Being subject to any Easement of Record.

LEGAL DESCRIPTION: EXCEPTION "L" (WRITTEN)

Lots 6 through 10, inclusive, Block 3, Davis Park, First Addition to Orange City, Florida, a subdivision according to map in Map Book 6, Page 167, Public Records of Volusia County, Florida, and that part of the N $\frac{1}{2}$ of an un-named driveway lying South of and contiguous thereto, all lying South of the Southerly Right of Way of Howland Boulevard, as now established and East of the Easterly Right of Way of Normandy Boulevard, as now established and being more particularly described as follows: Commencing at the Northwest corner of the NE $\frac{1}{4}$ of Section 7, Township 18 South, Range 31 East, Volusia County, Florida, run thence S 89°28'24" E along the North line of said NE $\frac{1}{4}$ a distance of 583.89 feet; run thence S 00°19'01" E a distance of 100.00 feet to the Point of Beginning lying on said Southerly Right of Way of Howland Boulevard; run thence S 89°28'24" E along said Right of Way a distance of 74.70 feet; run thence S 00°20'22" E a distance of 103.49 feet; run thence N 89°29'34" W a distance of 74.74 feet to said Easterly Right of Way of Normandy Boulevard; run thence N 00°19'01" W along said Easterly Right of Way a distance of 103.51 feet to the Point of Beginning. Being subject to any Easements and Rights of Way of Record.

LEGAL DESCRIPTION: EXCEPTION "M" (WRITTEN)

Lots 15, and 16, inclusive, Block 3, Davis Park, First Addition to Orange City, Florida, a subdivision according to map in Map Book 6, Page 167, Public Records of Volusia County, Florida, lying East of the Easterly Right of Way of Normandy Boulevard as now established and being more particularly described as follows: Commencing at the Northwest corner of the NE $\frac{1}{4}$ of Section 7, Township 18 South, Range 31 East, Volusia County, Florida, run thence S 89°28'24" E along the North line of said NE $\frac{1}{4}$ a distance of 583.89 feet; run thence S 00°19'01" E a distance of 100.00 feet to a point lying on the Southerly Right of Way of Howland Boulevard, as now established, said point also lying on said Easterly Right of Way of Normandy Boulevard; run thence S 00°19'01" E along said Easterly Right of Way a distance of 211.75 feet to the Point of Beginning. Run thence S 89°30'10" E a distance of 74.78 feet; run thence S 00°20'24" E a distance of 50.37 feet; run thence N 89°30'38" W a distance of 74.80 feet to aforesaid Easterly Right of Way; run thence N 00°19'01" W along said Right of Way a distance of 50.38 feet to the Point of Beginning. Being subject to any Easements and Rights of Way of Record.

LEGAL DESCRIPTION: EXCEPTION "N" (WRITTEN)

Lots 19, and 20, inclusive, Block 3, Davis Park, First Addition to Orange City, Florida, a subdivision according to map in Map Book 6, Page 167, Public Records of Volusia County, Florida, lying East of the Easterly Right of Way of Normandy Boulevard as now established and being more particularly described as follows: Commencing at the Northwest corner of the NE $\frac{1}{4}$ of Section 7, Township 18 South, Range 31 East, Volusia County, Florida, run thence S $89^{\circ}28'24''$ E along the North line of said NE $\frac{1}{4}$ a distance of 583.89 feet; run thence S $00^{\circ}19'01''$ E a distance of 100.00 feet to a point lying on the Southerly Right of Way of Howland Boulevard, as now established, said point also lying on said Easterly Right of Way of Normandy Boulevard; run thence S $00^{\circ}19'01''$ E along said Easterly Right of Way a distance of 312.51 feet to the Point of Beginning. Run thence S $89^{\circ}31'06''$ E a distance of 74.82 feet; run thence S $00^{\circ}20'24''$ E a distance of 50.37 feet; run thence N $89^{\circ}31'35''$ W a distance of 74.84 feet to aforesaid Easterly Right of Way; run thence N $00^{\circ}19'01''$ W along said Right of Way a distance of 50.38 feet to the Point of Beginning. Being subject to any Easements and Rights of Way of Record.

LEGAL DESCRIPTION: EXCEPTION "O" (WRITTEN)

Lots 23 through 34, inclusive, Block 3, Davis Park, First Addition to Orange City, Florida, a subdivision according to map in Map Book 6, Page 167, Public Records of Volusia County, Florida, and that part of the W $\frac{1}{2}$ of Clara Street lying East of and contiguous thereto and the N $\frac{1}{2}$ of Tennessee Avenue lying South of and contiguous thereto, all lying East of the Easterly Right of Way of Normandy Boulevard as now established and being more particularly described as follows: Commencing at the Northwest corner of the NE $\frac{1}{4}$ of Section 7, Township 18 South, Range 31 East, Volusia County, Florida, run thence S $89^{\circ}28'24''$ E along the North line of said NE $\frac{1}{4}$ a distance of 583.89 feet; run thence S $00^{\circ}19'01''$ E a distance of 100.00 feet to a point lying on the Southerly Right of Way of Howland Boulevard, as now established, said point also lying on said Easterly Right of Way of Normandy Boulevard; run thence S $00^{\circ}19'01''$ E along said Easterly Right of Way a distance of 413.27 feet to the Point of Beginning. Run thence S $89^{\circ}32'05''$ E a distance of 74.86 feet; run thence N $00^{\circ}20'24''$ E a distance of 50.37 feet; run thence S $89^{\circ}31'35''$ E a distance of 164.84 feet; run thence S $00^{\circ}21'46''$ E a distance of 202.15 feet; run thence S $89^{\circ}33'07''$ W a distance of 259.82 feet to the aforesaid Easterly Right of Way of Normandy Boulevard; run thence N $00^{\circ}19'01''$ W along said Right of Way a distance of 155.95 feet; run thence S $89^{\circ}32'05''$ E continuing along said Right of Way a distance of 20.00 feet to the Point of Beginning. Being subject to any Easements and Rights of Way of Record.

LEGAL DESCRIPTION: EXCEPTION "P" (WRITTEN)

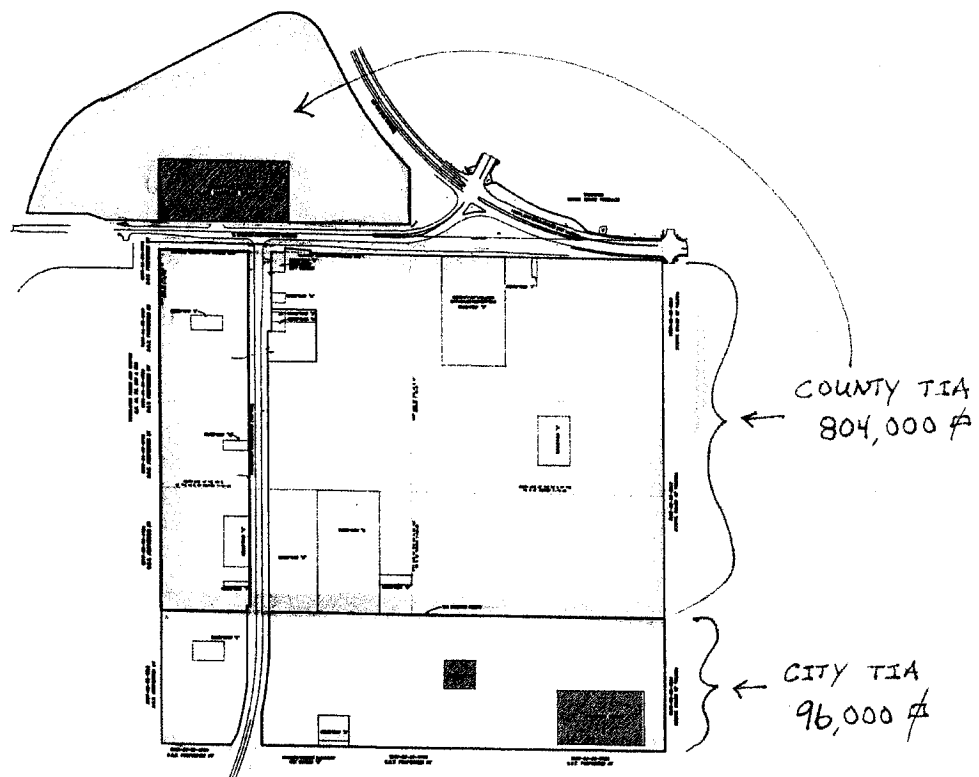
A parcel of land lying in and being a part of Blocks 8, 9 and 10 and Mangoe Street, Persimmon Street and Florida Avenue, Davis Park, Fourth Addition to Orange City, Florida, a subdivision according to map in Map Book 6, Page 222, Public Records of Volusia County, Florida, being more particularly described as follows: Commencing at the Southeast corner of said Davis Park, Fourth Addition said point also being the Southeast corner of the SE $\frac{1}{4}$ of the NE $\frac{1}{4}$ of Section 7, Township 18 South, Range 31 East, Volusia County, Florida, run thence N 89°47'13" W along the Southerly boundary of said Fourth Addition also being the South line of said SE $\frac{1}{4}$ of the NE $\frac{1}{4}$ a distance of 110.00 feet; run thence N 00°36'47" W a distance of 30.00 feet to a point on the centerline of said Florida Avenue and the Point of Beginning. Run thence N 89°47'13" W along said centerline a distance of 460.00 feet; run thence N 00°36'47" W a distance of 280.00 feet; run thence S 89°47'00" E a distance of 460.00 feet; run thence S 00°36'47" E a distance of 280.00 feet to the Point of Beginning. Being subject to any Easement and Rights of Way of Record.

LEGAL DESCRIPTION: EXCEPTION "Q" (WRITTEN)

Lots 35 through 40, inclusive, Block 7, Davis Park, Fourth Addition to Orange City, Florida, a subdivision according to map in Map Book 6, Page 222, Public Records of Volusia County, Florida, and the East $\frac{1}{2}$ of Grape Street lying West of and contiguous thereto and being more particularly described as follows: Commencing at the Southeast corner of the NE $\frac{1}{4}$ of Section 7, Township 18 South, Range 31 East, Volusia County, Florida, run thence N 89°47'13" W along the South line of said NE $\frac{1}{4}$ a distance of 994.38 feet; run thence N 00°28'48" W a distance of 311.16 feet to the Point of Beginning; run thence N 89°45'11" W a distance of 165.60 feet; run thence N 00°27'23" W a distance of 150.75 feet; run thence S 89°44'09" E a distance of 165.54 feet; run thence S 00°28'48" E a distance of 150.70 feet to the Point of Beginning. Being subject to any Easements and Rights of Way of Record.

LEGAL DESCRIPTION: EXCEPTION "R" (WRITTEN)

Lots 1 through 46, inclusive, Block 2, Davis Park, Sixteenth Addition to Orange City, Florida, a subdivision according to map in Map Book 7, Page 68, Public Records of Volusia County, Florida, and the East $\frac{1}{2}$ of Clara Street lying West of and contiguous thereto and the North $\frac{1}{2}$ of Alabama Avenue lying South of and contiguous thereto and the West $\frac{1}{2}$ of Crystal Street lying East of and contiguous thereto and that certain alley lying South of Lots 1 through 10, and contiguous thereto and being more particularly described as follows: Commencing at the Northeast corner of the SW $\frac{1}{4}$ of the NE $\frac{1}{4}$ of Section 7, Township 18 South, Range 31 East, Volusia County, Florida, run thence S 89°37'50" W along the North line of said SW $\frac{1}{4}$ of the NE $\frac{1}{4}$ a distance of 165.19 feet to the Point of Beginning; run thence S 00°24'02" E a distance of 633.48 feet; run thence N 89°41'52" W a distance of 330.86 feet; run thence N 00°21'23" W a distance of 633.86 feet to said North line; run thence S 89°37'50" E along said North line a distance of 330.38 feet to the Point of Beginning. Being subject to any Easements and Rights of Way of Record.



"B"

to mean land uses which generate five percent (5%) of the external daily trips allocated to the respective local government during this time frame. Infrastructure shall include, but not limited to, the construction of roads, water and sewer utilities, and stormwater management systems.

9. This development order shall comply with the requirements of the Volusia Growth Management Commission as articulated in their resolution No. 95-06 dated May 24, 1995, as such requirements may be amended and in effect from time to time.

Development Equivalency Matrix

10. The City may approve an increase or decrease of a particular land use within the approved development program identified on Exhibit B by using a conversion table, attached as Exhibit C, which is based on equivalent peak hour directional trip ends. Use of the matrix may increase or decrease the total amount of each land use by no more than the amount allowed for in the substantial deviation criteria identified in Chapter 380.06(19)(b) 1-14, Florida Statutes, unless the Development Order is amended to accommodate such a change. Greater changes than those discussed above, considered cumulatively, shall be subject to normal Development Order amendment processes. Any time the matrix is used, DCA, ECFRPC, and the FDOT must be provided notice of the proposal at least 30 days in advance of the change. Use of the matrix will be reported on an individual and cumulative basis and Project Impacts documented in the biennial report. The change notice shall show that there are not additional impacts to schools, affordable housing or other public facilities. Any future Notice of Proposed Change (NOPC) shall incorporate any changes due to the use of the matrix.

Archeological Resources

11. Prior to initiating project related land clearing or ground disturbing activities within the project area, a systematic professional archaeological and historical survey shall be conducted for that area to locate and assess the significance of archaeological and historic properties present. The resultant survey report shall be consistent with Rule 9J2-043, F.A.C. and shall conform to the specifications set forth in Chapter 1A-46, FAC and shall be forwarded to the Florida Department of State, Division of Historical Resources (DHR). All correspondence with DHR regarding the survey and findings will be copied to the DCA, and the local government of jurisdiction, City of DeLand.
12. Project construction personnel shall be notified, through posted advisories or other methods, of the potential for artifact discoveries on the site and to report suspected findings to the project manager. In the event of discovery of artifacts of historic or archaeological significance during project construction, the developer shall stop construction at the site of discovery and notify the local government of jurisdiction and the Division of Historic Resources (DHR) of the Florida Department of State. From the date of notification, construction shall be suspended within a 100-foot radius of the site of discovery for a period of up to 120 days to allow evaluation of the site. The developer shall provide proper protection of the discovery, to the satisfaction of the DHR consistent with Rule 9J-2.043, F.A.C.

" C "

Interstate 4/State Road 472 Activity Center DRI
 Development Equivalency Matrix

Change To	Change From >	Light Industrial (KSF)	Office (KSF)	Retail (KSF)	Multi Family (Unit)	Single Family (Unit)	Hotel (Room)	PM Peak Hour External Outbound Trip Rate per Unit of Land Use*
Light Industrial (KSF)	N/A		1.170	1.394	6.341	3.264	4.010	1.005 per 1 KSF Light Industrial
Office (KSF)	0.855	N/A		1.191	5.420	2.790	3.428	0.889 per 1 KSF Office
Retail (KSF)	0.717	0.839	N/A		4.549	2.342	2.877	0.721 per 1 KSF Retail
Multi Family (Unit)	0.158	0.184	0.220	N/A		0.515	0.632	0.158 per 1 Unit Multi Family
Single Family (Unit)	0.308	0.358	0.427	1.943	N/A		1.229	0.308 per 1 Unit Single Family
Hotel (Room)	0.249	0.292	0.348	1.581	0.814	N/A		0.251 per 1 Room Hotel

* Land use exchanges based on net external PM peak hour outbound project traffic
 Trip rates derived from Table 21-6 per DRI Second Sufficiency Response - December 2002
 Industrial, Office & Retail trip rates are averaged from multiple phase external trip totals (refer to Tab 21-6)

Example Exchanges:

To Add 10 KSF Retail by Reducing Office Space:
 $10 \text{ KSF Retail} \times 0.839 \text{ KSF Office} = 8.39315$; Reduce Office by 8.39 KSF

To Add 25 KSF Office by Reducing Hotel Rooms:
 $25 \text{ KSF} \times 3.428 \text{ Rooms/KSF} = 85.694 \text{ Rooms}$; Reduce Hotel Rooms by 86 Rooms

SENT BY: CITY OF DELAND

3867405771;

OCT-27-04 10:57AM;

EXHIBIT C
 PAGE 25/25

"C"

DEVELOPMENT AGREEMENT

THIS AGREEMENT entered into and made as of the 15th day of September 2014, by and between the **CITY OF DELTONA, FLORIDA**, (hereinafter referred to as the "City"), and TRAFALGAR HOLDINGS, LLC (hereinafter referred to as the "Owner/Developer").

WITNESSETH

↑
WHEREAS, the Owner/Developer warrants that it holds legal title to the property described in Paragraph 2 below and that the holders of any and all liens and encumbrances affecting such property will subordinate their interests to this Agreement; and

WHEREAS, the Owner/Developer desires to facilitate the orderly development of the subject property, in compliance with the laws and regulations of the City and of other governmental authorities, and the Owner/Developer desires to ensure that its development is compatible with other properties in the area and planned traffic patterns; and

WHEREAS, it is the purpose of this Agreement to clearly set forth the understanding and agreement of the parties concerning the matters contained herein; and

WHEREAS, the Owner/Developer has sought the City's approval for plans to develop its property, and the City Commission of the City of Deltona has approved a Master Development Plan ("MDP") contemporaneously with the approval of this Agreement, subject to the covenants and restrictions offered by the Owner/Developer and contained herein. A copy of the MDP is attached hereto as Exhibit "B".

NOW THEREFORE, in consideration of the mutual covenants and agreements contained herein, and other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the parties hereto agree as follows:

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City of Deltona, City Clerk
2345 Providence Blvd.
Deltona, FL 32725

1. **Incorporation.** The recitals herein contained are true and correct and are incorporated herein by reference.

2. **Ownership.** The Owner/Developer represents that it is the present owner of the following described property (hereinafter referred to as the "Subject Property"):

See legal description attached hereto as Exhibit "A"

3. **Title Opinion/Certification.** The Owner/Developer will provide to the City, in advance of the City's execution of this Agreement, a title opinion of an attorney licensed in the State of Florida, or a certification by an abstractor or title company authorized to do business in the State of Florida, showing marketable title to the Subject Property to be in the name of the Owner/Developer and showing all liens, mortgages, and other encumbrances not satisfied or released of record.

4. **Subordination/Joinder.** Unless otherwise agreed to by the City, all liens, mortgages, and other encumbrances not satisfied or released of record, must be subordinated to the terms of this Agreement or the lienholder must join in this Agreement. It shall be the responsibility of the Owner/Developer to promptly obtain the said subordination or joinder, in form and substance acceptable to the City Attorney, prior to the City's execution of the Agreement.

5. **Internal Roadway Improvements.** The road(s) depicted on the MDP attached hereto shall be dedicated to the public through the platting process. The City of Deltona shall not be required to accept such roadways, and any related infrastructure, until such time as construction of the roads have been completed and the City of Deltona determines that the construction was completed in conformity with all applicable regulations. In addition, the Owner/Developer shall provide a temporary ingress/egress easement to the parcel of property which is surrounded by the Subject Property but which is not owned by the Owner/Developer and which is otherwise not subject

to this Agreement. The temporary ingress/egress easement shall expire upon Owner/Developer providing alternative access to an improved public street.

6. Development Conditions.

1. Minimum lot area: 0.50 acres
2. Minimum lot width: 100 ft.
3. Minimum building setbacks:
 - a. Front yard: 35 ft.
 - b. Rear yard: 10 ft. / 40 ft. if abutting residential
 - c. Side yard: 10 ft. / 40 ft. if abutting residential
 - d. Yards for buildings over 75 ft.: 100 ft. adjacent to residential areas and half the height of building for side yards abutting other uses
4. Maximum density/intensity: 20 units per acre/0.55 FAR
5. Maximum building coverage: 35%
6. Maximum impervious surface over entire site: 75%
7. Maximum building height (excluding towers and antennae): 100 ft. for Lot 12 depicted on the Master Development Plan; 75 ft. all other lots.
8. Landscape buffer requirements: Consistent with Section 110-808; however a 40 ft. landscape buffer will be afforded to abutting residential areas. The subject 40 ft. landscape buffer shall consist of undisturbed, natural, scrub-type vegetation including, but not limited to, an over-story of long leaf and/or sand pine; a mid-story of sand live oak, myrtle oak,

etc.; and an understory of saw palmetto, rusty lyonia, scrub palm, etc., that currently exists naturally on-site. The protection and affordance of a 40-ft. wide native vegetation landscape buffer is subject to any fire protection actions taken by the State of Florida Division of Forestry (DOF) or fire safety agency.

9. Minimum building separation: 10 ft. or comply with Development Condition 3(d); as applicable.
10. Project open space requirements for residential development, inclusive of retention pond buffers and green space: 25% of the site proposed for residential type development (i.e. living facilities).
11. Off-street parking requirements: Consistent with Section 110-828 and Section 110-829, excluding subsection "K" of Section 110-829 of the City Code, as it may be amended from time to time.
13. Signage: Consistent with Chapter 102 of the City Code, as it may be amended from time to time.

7. **Architectural Controls.** A common architectural theme shall be established by harmoniously coordinating the general appearance of all buildings and accessory structures and should, to the extent practicable, be designed consistent with the City of Deltona's Urban Design Pattern Book and Urban Design Master Plan, as it may be updated from time to time, to provide visual compatibility and functional continuity with other adjacent developments within the Activity Center. For purposes herein, general appearance includes, but is not limited to, exterior wall finishes, construction materials, roof styles, slopes, architectural details and ornamentation. The

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following general requirements shall apply to development on the Subject Property:

- a. All structures shall complement one another and shall convey a sense of quality and permanence.
- b. Exterior walls facing public rights-of-way shall be constructed of finished materials such as stucco, natural brick or stone, finished concrete, wood, or concrete fiberboard, or other similar material on all sides.
- c. All amenities, accessory structures, and signage shall be consistent with the overall theme of the project.
- d. All drive-through canopies shall be compatible with the architectural design of the principle structure.
- e. All service areas and mechanical equipment visible from public rights-of-way (ground or roof) including, but not limited to, air conditioning condensers, heating units, electric meters, satellite dishes, irrigation pumps, ice machines and dispensers, outdoor vending machines, and propane tanks, displays and refilling areas and other mechanicals, shall be screened using architectural features consistent with the structure, or landscaping of sufficient density and maturity at planting to provide opaque screening.
- f. Loading docks shall be located away from the street and screened from public view.

Architectural elevations shall be submitted with a Final Site Plan application for each lot and the Development Review Committee (DRC) shall determine compliance before issuing a Development Order.

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8. **Environmental and Tree Preservation.** The property contains habitat that may be suitable for scrub jays and gopher tortoises. As part of the site plan review process, the property shall be surveyed to determine the presence and/or population density of jays and tortoises. If tortoises are found to inhabit a development area then the removal and location shall be required in lieu of a 'take' consistent with all permitting requirements. If scrub jays are noted on site, then any modification of that habitat shall be permitted consistent with the requirements of the U.S. Fish and Wildlife Service. Tree protection shall be in accordance with Chapter 98 of the City Code as it may be amended from time to time. Tree protection areas and habitat protection set aside land may coincide with buffer yards and other open space acreage. All stormwater shall be managed by stormwater systems (which may include common systems and systems servicing a single parcel) that are permitted by the City, the St. Johns River Water Management District, etc. Irrigation shall comply with the requirements of the utility servicing the project and applicable permitting agencies. However, the use of potable water for irrigation shall be prohibited. Owner/Developer shall install appropriate reuse irrigation lines/infrastructure, including stub-outs, throughout the project as development occurs. Upon reclaimed water lines being available at the intersection of Graves Ave. and Howland Blvd. with sufficient capacity to service the development, Owner/Developer shall connect to the reclaimed water source and irrigation by means other than reclaimed water shall be discontinued.

9. **Permitted Uses.** The uses permitted on the Subject Property are those uses set forth in the use list attached hereto as Exhibit "C". Consistent with the City Future Land Use Map, more intensive permitted uses (business and medical) shall be located towards the Interstate 4/Howland Blvd. corridors in 'Area A'. 'Area A' shall be described as follows: All of the south half

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of Government Lot 7 east of I-4; the west 850 feet of Davis Park 5th Addition, except lots 1-5 Block 3 Davis Park 5th Addition and less and except the north 60' of the west 134.50' of the east 660' of Davis Park 5th Addition, AKA non-vacated 60' Walter Av right of way extending from the northwest corner of Lot 1 Block 3 to the northeast corner of Lot 1 Block 3 Davis Park 5th Addition; less and except the north 125.98' of the south 1,271.05' of the west 60' of the east 530' of Davis Park 5th Addition, AKA non-vacated 60' Persimmon St. right of way extending from the northeast corner of Lot 1 Block 3 to the southeast corner of Lot 5 Block 3 Davis Park 5th Addition; and Lots 40, 41, 46, 47, 48, 55, 56, and 63, all lying north and east of Howland Blvd./SR 472 and I-4, Yourlando Farms and Groves, less and except the Graves Av. right of way; and lots 24 – 37 Block 3 Davis Park 3rd Addition, including vacated portion of the 60' Illinois Av. right of way extending between the southwest corner of Lot 24 and the southeast corner of Lot 24 Block 3, Davis Park 3rd Addition, including the vacated portion of the 60' Orange St. right of way extending between the northwest corner of Lot 37 Block 3, Davis Park 3rd Addition to the Graves Av. right of way; All of Block 4, Davis Park 3rd Addition, including the vacated portion of the 60' Wisconsin Av extending from the northeast corner of Lot 1, Block 4, Davis Park 3rd Addition to the northwest corner of Lot 46, Block 4, Davis Park 3rd Addition, including the vacated 60' Illinois Av from the southwest corner of Lot 24 to the Graves Av. right of way; and Lots 1 and 4 – 23 Block 5 Davis Park 3rd Addition, including the Grape St. right of way from the Graves Av. right of way south to the Howland Blvd./SR 472 right of way, and including the Illinois right of way from the southeast corner of lot 23 Block 5, Davis Park 3rd Addition to the Howland Blvd./SR 472 right of way; and Lots 1 – 12 and Lots 35 – 46 Block 8, Davis Park 3rd Addition. Less and except the Graves Av right of way. Lots 1-3 lying North and East of Howland Blvd./ SR 472, Davis Park 3rd Addition and Lots 1-4 and Lots 46-42 lying North of

Howland Blvd./SR 472 less and except Graves Avenue right of way. All located in Section 6, Township 18 South, Range 31 East.

Less intensive uses (living facilities and office) shall be sited in the eastern sections of the property referred to as 'Area B'. 'Area B' will be described as follows: All of the south half of Government Lot 8, AKA Lots 32 – 39 Yourlando Farms and Groves; and the east 455' of Davis Park 5th Addition, AKA all of Blocks 1, 2, 9, and 10 and vacated 60' Mangoe St. right of way and the vacated 60' Walter Av. right of way between the northwest corner of Lot 48, Block 2 and the northeast corner of Lot 1 Block 1 Davis Park 5th Addition; and all of the 60' Wamber Av. right of way between the northwest corner of Lot 48, Block 9 and the northeast corner of Lot 1, Block 10, Davis Park 5th Addition. All located in Section 6, Township 18 South, Range 31 East.

10. **Property Owners Association.** The charter and by-laws of any property owners association which will be formed for the Subject Property and any deed restrictions related thereto, shall be furnished to the City of Deltona and recorded before a Certificate of Occupancy is issued for the first development project on land covered by this BPUD Development Agreement. The property owner association shall, at minimum be responsible for maintaining the common open space. The Owner/Developer shall be responsible for establishing the POA and recording said information in the Public Records of Volusia County, Florida. Also, the Owner/Developer shall bear and pay all costs for recording all of the aforementioned documents.

The City of Deltona will have no responsibility for the enforcement of said agreements or deed restrictions entered into between owners or occupiers of the Subject Property.

11. **Enforcement.** In the event that enforcement of this Agreement by the City becomes necessary, the City reserves the right to issue development orders only upon full compliance with the

terms of this agreement.

12. **Compliance.** The Owner/Developer agrees that it, and its successors and assigns, will abide by the provisions of this Agreement, the City's Comprehensive Plan, and the City's Land Development Code, including but not limited to, the site plan regulations of the City as amended from time to time, which are incorporated herein by reference and such subsequent amendments hereto as may be applicable. Further, all required improvements, including landscaping, shall be continuously maintained by the Owner/Developer, or its successors and assigns, in accordance with the City's Land Development Code. The City may, without prejudice to any other legal or equitable right or remedy it may have, withhold permits, certificates of occupancy or approvals, etc. should the Owner/Developer fail to comply with the terms of this Agreement.

13. **Utility Easements.** The Owner/Developer shall provide to the City or the County, as applicable, such easements and other legal documentation, in form mutually acceptable to the City/County Attorney and the Owner/Developer, as the City/County may deem reasonably necessary or appropriate for the installation and maintenance of the utility and other services, including but not limited to, sewer, potable water, and reclaimed water services, electric, cable, fire protection and telecommunications.

14. **Concurrency and Vested Rights.** The Owner/Developer acknowledges and agrees that prior to the issuance of any building permit(s) for the Subject Property, the Owner/Developer must have received and be in the possession of a valid and unexpired Certificate of Capacity. The Certificate of Capacity verifies the reservation of infrastructure capacity sufficient to permit development pursuant to the approved site plan for the Subject Property without causing a reduction in the levels of service adopted in the City's Comprehensive Plan. The Certificate of Capacity shall

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be effective for a term as defined in the Land Development Code. Except as specifically provided herein, neither this Development Agreement nor the site plan approved shall create or result in a vested right or rights to develop the Subject Property without a current and valid Certificate of Capacity.

15. Transportation. Traffic generated from the overall project is hereby capped at 17,415 total daily trips, of which no more than 5,400 total daily trips shall be generated from Lot 12 as depicted on the Master Development Plan (trip generation rates shall be determined utilizing the Institute of Traffic Engineers (ITE) Trip Generation Manual 9th Edition.) The overall trip cap of 17,415 and the 5,400 total daily trip allocation of Lot 12 shall limit land use intensity/density notwithstanding the 0.55 FAR intensity/20 units per acre allowance within a two (2) phase project. Traffic generated from Phase I of the Development shall not exceed 13,567 total daily trips of which daily trips from Lot 12 as depicted on the Master Development Plan shall not exceed 5,400 total daily trips. A schedule of trip entitlements controlled by the Institute of Transportation Engineers Trip Generation Manual, 9th Edition, shall be maintained by the City in a concurrency management system and the Owner/Developer and/or individual developments shall be responsible for paying for peer review to verify trip generation characteristics from individual developments. As used herein "ADT" following a number shall mean the number of average annual daily trips being generated by the Project.

Phase I and Phase II of the Project is vested for Traffic Concurrency for the total daily trips set forth herein above. Phase I and Phase II adversely impacts Graves Ave from Kentucky to Howland. Based upon the TIA reports, the Owner/Developer shall pay to the County or, as per the County, perform improvements of equivalent value to the applicable segment of Graves Av., a fair

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share assessment amount as contemplated by Florida Statutes 163.3180 to mitigate for the adverse traffic impacts as follows:

Upon consumption of 6,500 ADT in the Project	\$ 606,540.98
Upon consumption of 15,500 ADT in the Project	<u>\$ 792,071.16</u>
Cumulative Total	\$1,398,612.14

The payments/equivalent improvements are authorized upon the consumption of the Average Daily Trips referenced in the above three lines. If the above thresholds are tripped, and the above referenced payments/equivalent improvements are not made in full, no site plan development orders or building permits shall be issued until the respective proportionate fair share contributions are made.

Public transportation and other multimodal methods shall be accommodated consistent with the City's Codes of Ordinances. The transportation elements of this agreement, including the daily trip end limitation set forth herein, the amount of trip ends generated per project, etc. shall be submitted as development review material to be analyzed in the site plan review process regardless if a project is projected to generate less than 1,000 daily trip ends per day.

Finally, the intersection of SR 472-Howland Blvd./Graves Ave. will need to be improved in a timely and uniform manner. The following improvements are required of the Owner/Developer to accomplish as per the specific traffic thresholds articulated below:

- 1) **SR 472 at the SR 472/Graves Av. intersection eastbound direction: Install dual left turn lanes, 24 feet in width, with 200 feet of storage and 100 feet of transition when the cumulative development program reaches 8,664 ADT or when the project development program generates 200 peak hour left turn movements at the intersection.**

- 2) Howland Blvd. at the Howland Blvd. /Graves Av. intersection westbound direction: Install one right turn lane, 12 feet in width, storage and transition to be symmetrical with the left turn lane from Howland Blvd. to Graves Av. when the cumulative development program reaches 4,237 ADT or when the project development program generates 75 peak hour right turn movements at the intersection.
- 3) Graves Av. at the Graves Av. /Howland Blvd. intersection southbound direction: install dual left turn lanes, 24 feet in width, with 200 feet of storage and 100 feet of transition when the cumulative development program reaches 13,567 ADT or when the development program generates 200 peak hour left turn movements at the intersection.
- 4) Graves Av. at the Graves Av. /Howland Blvd. intersection, southbound direction, is currently designed and constructed with a right turn lane, a through lane and a left turn lane. The right turn lane and through lane shall be maintained even after the improvements illustrated in subsection 3 above are accomplished.

Owner/Developer and County may enter into an impact fee credit agreement which may provide that all eligible cost associated with the improvements set forth in subparagraphs 1, 2 and 3 above as well as the proportionate fair share payments shall be entitled to impact fee credits against Volusia County Road Impact Fees at the time the improvements are made or the contributions are paid. Owner/Developer shall not be entitled to any credits against the City of Deltona Road or other Impact Fees.

16. Access. Access to the property, internal and external, shall comply with City Codes. No access to the property from Howland Blvd. /SR 472 shall be allowed westward of the Graves Ave./Howland Blvd. intersection in keeping with the Interstate 4 limited access right of way.

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In addition, there shall be one (1) emergency vehicular access point provided to the residential neighborhood at Tealwood Terrace right of way that is a stabilized base to support at minimum 32 tons and is no more than 20 feet wide. To encourage multi-model transportation the Owner/Developer shall construct bicycle/pedestrian access to the Timbercrest and Arbor Ridge neighborhoods at east property line of the Development. The bicycle/pedestrian accesses shall be constructed before any site plan approvals are issued within the east 800' of the Development property.

17. **Notices.** Where notice is herein required to be given, it shall be by certified mail return receipt requested, addressee only, hand delivery or couriered. Said notice shall be sent to the following, as applicable:

OWNER/DEVELOPER'S REPRESENTATIVES:

William E. Barfield, PA
225 South Westmont Avenue, Suite 2040
Altamonte Springs, Florida 32714

CITY'S REPRESENTATIVES:

Joyce Raftery, CMC, City Clerk
City of Deltona
2345 Providence Boulevard
Deltona, Florida 32725

Gretchen R. H. (Becky) Vose, Esq., City Attorney
City of Deltona
2345 Providence Boulevard
Deltona, Florida 32725

Should any party identified above change, it shall be said party's obligation to notify the remaining parties of the change in a fashion as is required for notices herein. It shall be the Owner/Developer's obligation to identify its lender(s) to all parties in a fashion as is required for

notices herein.

18. **Captions.** The captions used herein are for convenience only and shall not be relied upon in construing this Agreement.

19. **Binding Effect.** This Agreement shall run with the land, shall be binding upon and inure to the benefit of the Owner/Developer and its assigns and successors in interest, and the City and its assigns and successors in interest. The Owner/Developer agrees to pay the cost of recording this document in the Public Records of Volusia County, Florida, and shall reimburse the City for the preparation of this Agreement in such amount to be determined by the City. This Agreement does not, and is not intended to, prevent or impede the City from exercising its legislative authority as the same may affect the Subject Property.

20. **Severability.** If any part of this Development Agreement is found invalid or unenforceable in any court, such invalidity or unenforceability shall not affect the other parts of this Development Agreement, if the rights and obligations of the parties contained herein are not materially prejudiced and if the intentions of the parties can be affected. To that end, this Development Agreement is declared severable.

Remainder of this page intentionally left blank.

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IN WITNESS WHEREOF, the Owner/Developer and the City have executed this Agreement as of the day and year first above written.

OWNER/DEVELOPER
TRAFALGAR HOLDINGS, LLC.



Signature of Witness #1

William E. Babbitt

Print or type name



Signature of Witness #2

LISA SHULTZ

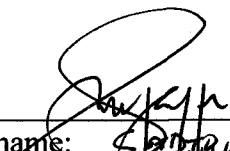
Print or type name

STATE OF Florida
COUNTY OF Seminole

The foregoing instrument was acknowledged before me this 20 day of November, 2014, by Salvatore Saffar, of TRAFALGAR HOLDINGS, LLC, who is personally known to me or who has/have produced _____ as identification and who did not (did) take an oath.

(NOTARY SEAL)



By: 

Printed name: Salvatore Saffar

Title: MANAGING MEMBER



Signature of Notary

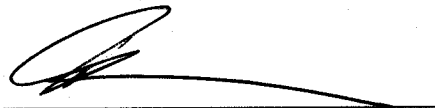
Print or type name: LISA SHULTZ

Print or Type Name

SUBORDINATION/JOINDER

Centennial Bank, an Arkansas banking corporation, as successor in interest to Old Southern Bank by virtue of an Assignment of Security Instruments and Other Loan Documents executed by the FDIC as receiver of Old Southern Bank, recorded in Official Record Book 6988, Page 3923, Public Records of Volusia County, Florida, hereby subordinates its interests to the terms of this Agreement and join in this Agreement.

CENTENIAL BANK, AN ARKANSAS BANKING CORPORATION



Signature of Witness #1

Cy Norma
Print or type name



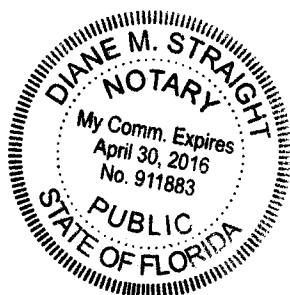
Signature of Witness #2

Michael L. Lapp
Print or type name

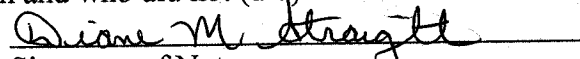
STATE OF Florida
COUNTY OF Orange

The foregoing instrument was acknowledged before me this 21 day of November, 2014, by David A. Felker, SVP, of CENTENIAL BANK, an Arkansas Banking Corporation, who is personally known to me or who has/have produced _____ as identification and who did not (did) take an oath.

(NOTARY SEAL)



By: 
Printed name: DAVID FELKER
Title: SENIOR VICE PRESIDENT


Signature of Notary

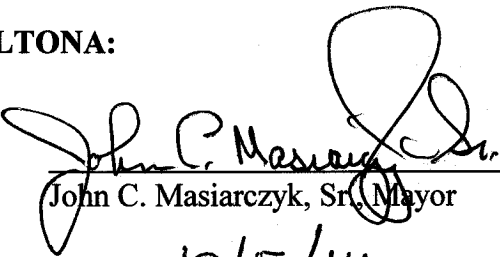
Print or type name: _____

Diane M. Straight
Print or Type Name

ACCEPTED FOR THE CITY OF DELTONA:

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City of Deltona, City Clerk
2345 Providence Blvd.
Deltona, FL 32725

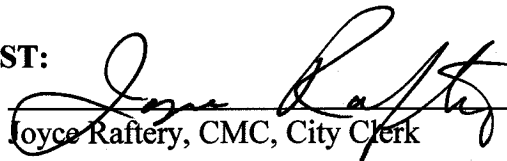
By:


John C. Masiarczyk, Sr., Mayor

Date:

12/5/14

ATTEST:


Joyce Raftery, CMC, City Clerk

Date

12/5/14

Mailing Address:

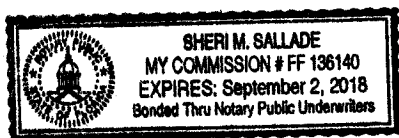
City of Deltona
2345 Providence Boulevard
Deltona, Florida, 32725

Prepared by and returned to:
City of Deltona, City Clerk
2345 Providence Blvd.
Deltona, FL 32725

STATE OF FLORIDA

COUNTY OF Volusia

The foregoing instrument was acknowledged before me this 5 day of December, 2014, by John C. Masiarczyk, Sr., Mayor, and Joyce Raftery, CMC, City Clerk, who are personally known to me and acknowledge executing the same freely and voluntarily under authority vested in them and that the seal affixed thereto is the true and corporate seal of the City of Deltona, Florida.



(NOTARY SEAL)

Sheri M. Sallade
Signature of Notary

Print or type name

Approved as to form and legality for use and
reliance by the City of Deltona, Florida

Gretchen R.H. Vose
GRETCHEN R.H. VOSE, City Attorney

This instrument approved by:

Gretchen R. H. Vose, City Attorney
as to form and legality for use and
reliance by the City of Deltona.

This instrument prepared by:

City of Deltona
Department of Planning & Development Services
2345 Providence Boulevard
Deltona, Florida 32725

Prepared by and returned to:
City of Deltona, City Clerk
2345 Providence Blvd.
Deltona, FL 32725

EXHIBIT "A"

LEGAL DESCRIPTION

COMMENCING AT THE NORTHEAST CORNER OF GOVERNMENT LOT 8, SECTION 6, TOWNSHIP 18 SOUTH, RANGE 31 EAST, VOLUSIA COUNTY, FLORIDA; THENCE RUN SOUTH 00°18'12" WEST, ALONG THE EAST LINE OF SAID GOVERNMENT LOT 8, FOR A DISTANCE OF 1323.00 FEET TO A POINT ON THE NORTH LINE OF THE SOUTH ½ OF SAID GOVERNMENT LOT 8 AND THE POINT OF BEGINNING; THENCE CONTINUE SOUTH 00°18'12" WEST, ALONG SAID EAST LINE OF GOVERNMENT LOT 8, FOR A DISTANCE OF 1323.00 FEET TO A POINT ON THE SOUTHEAST CORNER OF THE SOUTH HALF OF SAID GOVERNMENT LOT 8, SAID POINT ALSO BEING THE NORTHEAST CORNER OF GOVERNMENT LOT 9 AND SAID POINT ALSO BEING THE NORTHEAST CORNER OF DAVIS PARK FIFTH ADDITION, AS RECORDED IN MAP BOOK 18, PAGE 147 OF THE PUBLIC RECORDS OF VOLUSIA COUNTY, FLORIDA; THENCE RUN SOUTH 00°18'23" EAST, ALONG THE EASTERLY LINE OF SAID DAVIS PARK FIFTH ADDITION, ALSO BEING THE WESTERLY LINE OF TIMBERCREST, AS RECORDED IN MAP BOOK 43, PAGES 178 THROUGH 179 OF THE AFORESAID PUBLIC RECORDS OF VOLUSIA COUNTY, FOR A DISTANCE OF 1331.05 FEET TO THE SOUTHEAST CORNER OF LOT 24, BLOCK 10 OF SAID DAVIS PARK FIFTH ADDITION, SAID POINT ALSO BEING ON THE NORTHERLY RIGHT OF WAY LINE OF WISCONSIN AVENUE, A 60.00 FOOT WIDE RIGHT OF WAY ACCORDING TO THE PLAT OF DAVIS PARK THIRD ADDITION AS RECORDED IN MAP BOOK 18, PAGE 117 OF THE PUBLIC RECORDS OF VOLUSIA COUNTY, FLORIDA; THENCE DEPARTING THE EASTERLY LINE OF BLOCK 10, DAVIS PARK FIFTH ADDITION AND SAID WESTERLY LINE OF TIMBERCREST, RUN NORTH 89°33'17" WEST, ALONG SAID NORTHERLY RIGHT OF WAY LINE, FOR A DISTANCE OF 852.84 FEET TO THE SOUTHEAST CORNER OF LOT 24, BLOCK 7, DAVIS PARK FIFTH ADDITION; THENCE DEPARTING SAID NORTHERLY RIGHT OF WAY LINE, RUN SOUTH 00°17'38" EAST FOR A DISTANCE OF 301.64 FEET TO THE SOUTHEAST CORNER OF LOT 9, BLOCK 4 OF SAID DAVIS PARK THIRD ADDITION; THENCE RUN SOUTH 89°30'54" EAST, ALONG THE SOUTHERLY LINE OF LOT 38, BLOCK 3 OF SAID DAVIS PARK THIRD ADDITION, AND ITS WESTERLY PROJECTION, FOR A DISTANCE OF 194.58 FEET TO THE SOUTHEAST CORNER OF SAID LOT 38, BLOCK 3; THENCE RUN SOUTH 00°17'47" EAST, ALONG THE EASTERLY LINE OF LOTS 24 THROUGH 37 OF SAID BLOCK 3 AND ITS SOUTHERLY PROJECTION, FOR A DISTANCE OF 412.60 FEET TO THE NORTHWEST CORNER OF LOT 1, BLOCK 8 OF SAID DAVIS PARK THIRD ADDITION; THENCE RUN SOUTH 89°27'21" EAST ALONG THE NORTH LINE OF SAID LOT 1, BLOCK 8, FOR A DISTANCE OF 134.60 FEET TO THE NORTHEAST CORNER OF LOT 1 OF SAID BLOCK 8; THENCE RUN SOUTH 00°17'56" EAST, ALONG THE EAST LINE OF SAID BLOCK 8, DAVIS PARK THIRD ADDITION, FOR A DISTANCE OF 312.41 FEET TO THE SOUTHEAST CORNER OF LOT 12 OF SAID BLOCK 8; THENCE RUN NORTH 89°24'16" WEST, ALONG THE SOUTHERLY LINE OF LOT 12 AND 35 OF SAID BLOCK 8, FOR A DISTANCE OF 269.24 FEET TO THE SOUTHWEST CORNER OF SAID LOT 35, BLOCK 8; THENCE RUN NORTH 00°17'38" WEST, ALONG THE WESTERLY LINE OF SAID BLOCK 8, FOR A DISTANCE OF 201.40 FEET TO THE SOUTHWEST CORNER OF LOT 43 OF SAID BLOCK 8; THENCE RUN NORTH 89°26'18" WEST, ALONG THE SOUTHERLY LINE OF LOT 4, BLOCK 7 OF SAID DAVIS PARK THIRD ADDITION, AND ITS EASTERLY PROJECTION, FOR A DISTANCE OF 194.61 FEET TO THE NORTHEAST CORNER OF LOT 42 OF SAID BLOCK 7; THENCE RUN SOUTH 00°17'29" EAST, ALONG THE EASTERLY LINE OF LOT 42 OF SAID BLOCK 7, FOR A DISTANCE OF 25.16 FEET TO THE SOUTHEAST CORNER OF SAID LOT 42, BLOCK 7; THENCE RUN NORTH 89°26'01" WEST, ALONG

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THE SOUTHERLY LINE OF SAID LOT 42, BLOCK 7, FOR A DISTANCE OF 134.61 FEET TO THE WESTERLY LINE OF SAID BLOCK 7 AND A POINT THE NORTHEASTERLY RIGHT OF WAY LINE OF HOWLAND ROAD, ALSO KNOWN AS STATE ROAD NUMBER 472; THENCE RUN NORTH 54°43'27" WEST ALONG SAID NORTHEASTERLY RIGHT OF WAY LINE, 73.75 FEET TO THE EASTERLY LINE OF BLOCK 6; THENCE RUN NORTH 00°17'20" WEST ALONG SAID EASTERLY LINE OF BLOCK 6, 93.79 FEET TO THE NORTHEAST CORNER OF LOT 1 OF SAID BLOCK 6; THENCE RUN NORTH 89°27'21" WEST ALONG THE NORTH LINE OF SAID LOT 1, BLOCK 6, 84.74 FEET TO A POINT THE NORTHEASTERLY RIGHT OF WAY LINE OF SAID HOWLAND ROAD, ALSO KNOWN AS STATE ROAD NUMBER 472, SAID POINT ALSO BEING A POINT ON A CURVE, CONCAVE NORTHEASTERLY, HAVING A RADIUS OF 1537.02 FEET, A CHORD BEARING OF NORTH 33°57'14" WEST, AND A CHORD DISTANCE OF 304.43 FEET; THENCE RUN NORTHWESTERLY ALONG THE ARC OF SAID CURVE, AND SAID NORTHEASTERLY RIGHT OF WAY LINE, THROUGH A CENTRAL ANGLE OF 11°22'01" FOR AN ARC DISTANCE OF 304.93 FEET TO A POINT OF TANGENCY; THENCE RUN NORTH 28°16'13" WEST, ALONG SAID NORTHEASTERLY RIGHT OF WAY LINE, FOR A DISTANCE OF 150.00 FEET; THENCE RUN NORTH 25°06'50" WEST, ALONG SAID NORTHEASTERLY RIGHT OF WAY LINE, FOR A DISTANCE OF 272.40 FEET; THENCE RUN NORTH 28°16'13" WEST, ALONG SAID NORTHEASTERLY RIGHT OF WAY LINE; FOR A DISTANCE OF 150.00 FEET TO THE POINT OF CURVATURE OF A CURVE, CONCAVE SOUTHWESTERLY, HAVING A RADIUS OF 2979.79 FEET, A CHORD BEARING OF NORTH 32°58'36" WEST, AND A CHORD DISTANCE OF 488.95 FEET; THENCE RUN NORTHWESTERLY ALONG THE ARC OF SAID CURVE, AND SAID NORTHEASTERLY RIGHT OF WAY LINE, THROUGH A CENTRAL ANGLE OF 09°24'44" FOR AN ARC DISTANCE OF 489.50 FEET TO A POINT OF TANGENCY; THENCE RUN NORTH 00°16'34" WEST, ALONG SAID NORTHEASTERLY RIGHT OF WAY LINE, FOR A DISTANCE OF 227.27 FEET; THENCE RUN NORTH 89°44'55" WEST, ALONG SAID NORTHEASTERLY RIGHT OF WAY LINE, FOR A DISTANCE OF 125.57 FEET; THENCE RUN NORTH 35°11'02" WEST, ALONG SAID NORTHEASTERLY RIGHT OF WAY LINE, FOR A DISTANCE OF 575.90 FEET TO THE POINT OF CURVATURE OF A CURVE, CONCAVE EASTERLY, HAVING A RADIUS OF 607.00 FEET, A CHORD BEARING OF NORTH 09°43'14" WEST, AND A CHORD DISTANCE OF 521.94 FEET; THENCE RUN NORTHERLY ALONG THE ARC OF SAID CURVE, AND SAID NORTHEASTERLY RIGHT OF WAY LINE, THROUGH A CENTRAL ANGLE OF 50°55'36" FOR AN ARC DISTANCE OF 539.53 FEET TO A POINT OF TANGENCY, SAID POINT ALSO BEING A POINT ON THE EASTERLY RIGHT OF WAY LINE OF INTERSTATE 4, ALSO KNOWN AS STATE ROAD NUMBER 400; THENCE RUN NORTH 15°44'27" EAST, ALONG SAID EASTERLY RIGHT OF WAY LINE, FOR A DISTANCE OF 1019.63 FEET TO A POINT ON THE AFORESAID NORTH LINE OF THE SOUTH ½ OF GOVERNMENT LOT 7; THENCE DEPARTING SAID EASTERLY RIGHT OF WAY LINE, RUN SOUTH 89°43'54" EAST, ALONG SAID NORTH LINE, A DISTANCE OF 2226.87 FEET TO THE POINT OF BEGINNING.

LESS AND EXCEPT

A PORTION OF DAVIS PARK FIFTH ADDITION, ACCORDING TO THE PLAT THEREOF AS RECORDED IN MAP BOOK 18, PAGE 147 OF THE PUBLIC RECORDS OF VOLUSIA COUNTY, FLORIDA, BEING DESCRIBED AS FOLLOWS:

BEGIN AT THE NORTHEAST CORNER OF LOT 1, BLOCK 3 OF DAVIS PARK FIFTH ADDITION; THENCE RUN SOUTH 89°45'12" EAST, A DISTANCE OF 60.00 FEET TO THE NORTHWEST CORNER OF LOT 48, BLOCK 2 SAID DAVIS PARK FIFTH ADDITION; THENCE RUN SOUTH

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00°17'56" EAST ALONG THE EAST RIGHT OF WAY LINE OF PERSIMMON STREET, A DISTANCE OF 125.98 FEET TO THE SOUTHWEST CORNER OF LOT 44, BLOCK 2 SAID DAVIS PARK FIFTH ADDITION; THENCE RUN NORTH 89°43'58" WEST, A DISTANCE OF 194.51 FEET TO THE SOUTHWEST CORNER OF LOT 5, BLOCK 3 SAID DAVIS PARK FIFTH ADDITION; THENCE RUN NORTH 00°17'47" WEST ALONG THE WEST LINE OF LOTS 1 THROUGH 5, BLOCK 3 SAID DAVIS PARK FIFTH ADDITION AND THE NORTHERLY EXTENSION THEREOF, A DISTANCE OF 185.92 FEET TO A POINT ON THE NORTHERLY RIGHT OF WAY LINE OF WALTER AVENUE; THENCE RUN SOUTH 89°45'12" EAST ALONG SAID NORTHERLY RIGHT OF WAY LINE, A DISTANCE OF 134.50 FEET; THENCE DEPARTING SAID NORTHERLY RIGHT OF WAY LINE RUN SOUTH 00°17'56" EAST, A DISTANCE OF 60.00 FEET TO THE POINT OF BEGINNING.

LESS AND EXCEPT (GRAVES AVENUE)

A TRACT OF LAND LYING IN SECTION 6, TOWNSHIP 18 SOUTH, RANGE 31 EAST BEING DESCRIBED AS FOLLOWS:

BEGIN AT THE SOUTHWEST CORNER OF LOT 43, BLOCK 8, DAVIS PARK THIRD ADDITION ACCORDING TO THE PLAT THEREOF AS RECORDED IN MAP BOOK 18, PAGE 117 OF THE PUBLIC RECORDS OF VOLUSIA COUNTY, FLORIDA; THENCE RUN NORTH 89°26'18" WEST, 123.84 FEET; THENCE RUN NORTH 15°43'35" EAST, 52.14 FEET; THENCE RUN NORTH 09°31'41" EAST, 25.48 FEET; THENCE RUN NORTH 18°58'06" WEST, 37.37 FEET; THENCE RUN NORTH 02°56'41" WEST, 60.11 FEET; THENCE RUN NORTH 40°48'48" EAST, 19.41 FEET; THENCE RUN NORTHWESTERLY, ALONG A NON-TANGENT CURVE HAVING A RADIUS OF 359.00 FEET, A CENTRAL ANGLE OF 35°42'36", AN ARC LENGTH OF 223.75 FEET, A CHORD LENGTH OF 220.15 FEET, AND A CHORD BEARING OF NORTH 28°00'00" WEST TO A POINT OF TANGENCY; THENCE RUN NORTH 45°51'18" WEST, 559.12 FEET; THENCE RUN NORTH 44°08'42" EAST, 100.00 FEET; THENCE RUN SOUTH 45°51'18" EAST, 559.12 FEET; TO THE POINT OF CURVATURE OF A CURVE CONCAVE SOUTHWESTERLY, THENCE RUN SOUTHEAST, ALONG SAID CURVE, HAVING A RADIUS OF 459.00 FEET, A CENTRAL ANGLE OF 12°55'58", AN ARC LENGTH OF 103.61 FEET, A CHORD LENGTH OF 103.39 FEET, AND A CHORD BEARING OF SOUTH 39°23'19" EAST; THENCE RUN SOUTH 89°29'23" EAST, 11.09 FEET; THENCE RUN NORTHEASTERLY, ALONG A NON-TANGENT CURVE HAVING A RADIUS OF 220.00 FEET, A CENTRAL ANGLE OF 09°39'46", AN ARC LENGTH OF 37.10 FEET, A CHORD LENGTH OF 37.06 FEET, AND A CHORD BEARING OF NORTH 04°35'13" EAST; THENCE RUN NORTH 89°42'22" EAST, 59.97 FEET; THENCE RUN SOUTH 00°17'38" EAST, 409.98 FEET TO THE POINT OF BEGINNING.

CONTAINING 6,441,632.14 SQUARE FEET, OR 147.87 ACRES, MORE OR LESS.

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MASTER DEVELOPMENT PLAN

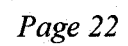


EXHIBIT "C"

LIST OF PERMITTED USES

Permitted Uses for Area A:

1. Adult family-care home.
2. Antique shops.
3. Art, dance, modeling, and music schools.
4. Artist studios.
5. Assisted living facility.
6. Automobile body and repair shops associated with car dealerships.
7. Automobile new parts, equipment and accessories; sales only.
8. Automobile rental agencies associated with car dealerships.
9. Automobile sales, new and used.
10. Automobile service stations, type A and C; permitted only on building sites with not less than 150 feet frontage on all abutting streets.
11. Bakeries, retail (including preparation of products for sale on the premises).
12. Banks and other financial businesses.
13. Barber and beauty shop.
14. Bicycle stores.
15. Bowling alleys.
16. Bus stations.
17. Catering services.
18. Cigar stores.
19. Confectionery and ice cream stores.
20. Conservatories.
21. Convenience stores.
22. Cultural, historical, and art centers and museums.
23. Day care centers.
24. Dental offices, clinics, and laboratories.

25. Diagnostic imaging centers.
26. Drug and sundry stores.
27. Dry cleaning establishments.
28. Electronic sales.
29. Essential utility services.
30. Excavations only for stormwater retention ponds, subject to applicable permitting requirements.
31. Exempt excavations.
32. Fire stations.
33. Florist shops.
34. Funeral homes.
35. Furniture stores.
36. General, professional, and business offices.
37. Grocery stores.
38. Hardware stores (retail only).
39. Hospitals (shall be limited to Lot 12 on the MDP).
40. Houses of worship ancillary to primary uses.
41. Interior decorating, costuming, draperies.
42. Jewelry stores, watch repairs.
43. Libraries.
44. Medical offices and clinics.
45. Motels and hotels.
46. Non-profit membership and charitable organizations.
47. Paint stores.
48. Pest exterminators.
49. Pet stores.
50. Photograph galleries.
51. Physical fitness centers.
52. Police and sheriff stations.

53. Printing and engraving, including photo-stating and publishing.
54. Professional or trade schools related to permitted uses.
55. Publicly owned parks and recreational areas.
56. Radio and television broadcasting stations (Related towers or antennae must be consistent with Chapter 82 of the City Code).
57. Restaurants, types A and B.
58. Retail sales and services.
59. Schools, parochial or private.
60. Surgery centers.
61. Tailor shops.
62. Taxicab stands.
63. Theaters.
64. Travel agencies.
65. Utility offices.
66. Veterinary clinics without outside kennels, runs, etc.
67. Silviculture/Forestry: The property may be used for silviculture/forestry utilizing best management practices as prescribed by the State of Florida. However, the use of the property for silviculture/forestry will be allowed for a period of five years. At the end of five years, the City shall readdress the silviculture/forestry use of the property. The owner/developer will be responsible for formally requesting the City Commission review the silviculture/forestry use six months (April 15, 2019) before the end of the five year period (September 15, 2019). Failure of the owner/developer to request the City to review the silviculture/forestry use shall result in the property not being eligible for silviculture/forestry as a permitted use. As part of the City Commission five year review, the owner/developer, at minimum, shall be responsible for submitting a detailed timber/land management plan (same plan submitted to

the Volusia County Property Appraiser's Office); proof that the timber operation is ongoing, including financial documentation; and other data as deemed appropriate.

Permitted Uses for Area B:

- 1) Adult family-care home.
- 2) Art, dance, modeling and music schools.
- 3) Artist studio.
- 4) Assisted Living Facilities.
- 5) Bakeries (retail only).
- 6) Barber and beauty shops.
- 7) Bicycle stores.
- 8) Cigar stores.
- 9) Coffee shops.
- 10) Convenience stores.
- 11) Confectionary and ice cream stores.
- 12) Day care center.
- 13) Dental offices, clinics and laboratories.
- 14) Diagnostic and imaging centers.
- 15) Electronic shops
- 16) Essential utilities.
- 17) Excavation only for stormwater retention ponds subject to applicable permitting requirements.
- 18) Exempt excavations.
- 19) Florist shops.
- 20) Funeral Homes, without cremation activities.
- 21) General, professional and business office.
- 22) Jewelry stores.
- 23) Medical offices and clinics.

- 24) Non-profit membership and charitable organizations.
- 25) Physical fitness center.
- 26) Publically owned parks and recreation areas.
- 27) Restaurants, type A.
- 28) Schools parochial/private.
- 29) Taxicab stands.
- 30) Travel agencies.
- 31) Utility office.
- 32) Veterinary clinics without outside kennels, runs, etc.
- 33) Silviculture/Forestry: The property may be used for silviculture/forestry utilizing best management practices as prescribed by the State of Florida. However, the use of the property for silviculture/forestry will be allowed for a period of five years. At the end of five years, the City shall readdress the silviculture/forestry use of the property. The owner/developer will be responsible for formally requesting the City Commission review the silviculture/forestry use six months (April 15, 2019) before the end of the five year period (September 15, 2019). Failure of the owner/developer to request the City to review the silviculture/forestry use shall result in the property not being eligible for silviculture/forestry as a permitted use. As part of the City Commission five year review, the owner/developer, at minimum, shall be responsible for submitting a detailed timber/land management plan (same plan submitted to the Volusia County Property Appraiser's Office); proof that the timber operation is ongoing, including financial documentation; and other data as deemed appropriate.

Table 22 – Candidate Project Needs Scoring Matrix (As Approved by LRTP Subcommittee Meeting (6-12-15))

Project	Limits	2040 V/C Ratio	Facility	Safety	Emergency	Intermodal	Truck	Transit	Pedestrian	Bike	Land Use	Activity Center	Social	Regional	Total	Ranking
LPGA - widen to 3 lanes	Nova Road to US 1	5	8	10	10	0	10	10	5	8	0	0	10	0	76	1
Howland Blvd - widen to 4 lanes	Providence Blvd to Elkcaml Dr	10	8	10	0	0	10	10	5	8	0	0	10	0	71	2
Providence Blvd widen to 4 lanes	Debary/Doyle Rd to Elkcaml Rd	5	8	8	0	0	10	10	0	8	0	0	10	0	59	3
North Entrance DeLand Airport - Industrial Park	Industrial Dr to SR 11	0	0	0	0	10	10	0	10	8	0	10	10	0	58	4
Old Kings Rd - widen to 4 lanes	Town Center Blvd to Palm Coast Pkwy	0	8	10	0	0	0	0	10	8	10	10	0	0	56	5
Beresford Ave Extension	Blue Lake Rd to SR 44	5	4	8	0	0	10	0	10	8	0	10	0	0	55	6
Palm Coast Pkwy - widen to 6 lanes	SR 5 (US 1) to Belle Terre Pkwy	5	8	8	10	0	0	0	5	8	0	0	10	0	54	7
Fort Smith Blvd widen to 3 lanes	Elkcaml Dr to Providence Blvd	0	4	10	0	0	0	10	10	8	0	0	10	0	52	8
Saxon Blvd - widen to 4 lanes	Tivoli Dr to Providence Blvd	5	8	10	0	0	10	0	0	8	0	0	10	0	51	9
Normandy - widen to 4 lanes	Firwood Dr to Howland Blvd	5	4	0	0	0	0	0	10	0	10	10	10	0	49	10
Tivoli Dr widen to 3 lanes	Saxon Blvd to Providence Blvd	0	4	10	0	0	0	10	5	8	0	0	10	0	47	11
Old Kings Rd South - widen to 4 lanes	SR 100 to Old Dixie Hwy	0	8	0	0	0	10	0	10	8	0	10	0	0	46	12
Hand Ave Extension	Williamson Blvd to Tymber Creek Rd ext	5	4	8	0	0	10	0	10	8	0	0	0	0	45	13
Elkcaml Blvd - widen to 3 lanes	Normandy Blvd to Fort Smith Blvd	0	4	8	0	0	0	10	5	8	0	0	10	0	45	13
Park Ave Extension	To Restoration Development (1.84 mi)	0	4	0	0	0	10	0	10	8	0	10	0	0	42	15
Hand Ave - widen to 4 lanes	Williamson Blvd to Nova Rd	5	4	0	0	0	10	10	10	0	0	0	0	0	39	16
Deltona Blvd - widen to 4 lanes	Doyle Rd to Enterprise Rd	5	4	10	0	0	0	0	0	8	0	0	10	0	37	17
Matanzas Woods Pkwy (east) - widen to 4 lanes	NB I-95 ramps to Old Kings Rd extension	5	8	0	0	0	0	0	5	8	0	0	10	0	36	18
Old Mission Road - widen to 3 lanes	Park Ave to Josephine St	0	4	0	0	0	10	0	10	8	0	0	0	0	32	19
Courtland Blvd widen to 3 lanes	Fort Smith Blvd to Howland Blvd	0	4	8	0	0	0	0	0	8	0	0	10	0	30	20
Tymber Creek Rd - widen to 4 lanes	Peruvian Lane to Airport Rd	0	4	0	0	0	10	0	5	8	0	0	0	0	27	21

Table 28 – 2040 LRTP SIS Cost Feasible Projects List (State/Federal Funding)

Map No.	Facility	From	To	Source	ROW Cost ¹	CST Cost ¹	Project Cost ¹	2019-2020 ²		2021-2025 ²		2026-2030 ²		2031-2040 ²		Y.O.E. Project Cost Total ²	
					(PDC)	(PDC)	(PDC)	ROW	CST	ROW	CST	ROW	CST	ROW	CST		
1	I-4 widen to 10 Lanes (I-4 Beyond the Ultimate) ³	Seminole County	SR 472	SIS	\$46.36	\$372.07	\$418.43					\$71.39	\$572.99			\$644.38	
2	SR 472 widen from 4 to 6 lanes ³	Graves Ave	Kentucky/MLK Blvd	SIS		\$40.48 ⁴	\$40.48						\$62.34			\$62.34	
3	Saxon Blvd Ramp/Roadway ³	I-4	Normandy Blvd	SIS		\$35.38 ⁴	\$35.38						\$54.49			\$54.49	
4	Rhode Island Extension ³	Veterans Memorial	Normandy Blvd	SIS		\$34.87 ⁴	\$34.87						\$53.70			\$53.70	
5	SR 15 (US 17) widen to 4 lanes	Ponce De Leon Blvd	SR 40	SIS		\$39.40	\$39.40								\$77.62	\$77.62	
6	SR 40 - widen to 6 lanes	Williamson Blvd	Breakaway Trails	SIS	\$7.43	\$22.99	\$30.42							\$14.64	\$45.29	\$59.93	
7	SR 40 - widen to 4 lanes	Cone Rd	SR 11	SIS	\$2.30	\$41.50	\$43.80							\$4.39	\$79.27	\$83.66	
8	SR 40 - widen to 4 lanes	SR 11	SR 15 (US 17)	SIS	\$7.50	\$30.40	\$37.90							\$14.33	\$58.06	\$72.39	
9	SR 100 - widen to 6 lanes	Old Kings Rd	Belle Terre Parkway	SIS	\$3.17	\$31.70	\$34.87							\$6.05	\$60.55	\$66.60	
10	I-95 Interchange (Farmton Interchange) ⁵	At Maytown Rd		SIS													
11	I-95/LPGA Blvd Interchange Modifications	Williamson Blvd	Tymber Creek Ext.	SIS		\$20.00	\$20.00								\$32.50	\$32.50	
12	I-95/Pioneer Trail New Interchange	At Pioneer Trail		SIS		\$18.50	\$18.50								\$30.06	\$30.06	
Notes: ¹ In millions; shown in present day costs (PDC)/"constant" 2013, 2014 or 2015 dollars (Added projects 11 & 12 are in 2017 dollars) ² In millions; inflated to year of expenditure (YOE) dollars per Revenue Forecast Handbook ³ Part of the I-4 Beyond the Ultimate Project ⁴ Cost estimates were sourced from the FDOT SR 400 (I-4) PD&E Study, Preliminary Engineering Report for I-4 Beyond the Ultimate, Segment 4 (December 2014) ⁵ Developer Funded - \$12.9 million (informational purposes) Amendment 1: Per Resolution 2019-01, the 2040 LRTP was amended by the River to Sea TPO Board on January 23, 2019, moving two projects from the Unfunded Needs List (Table 32) to the SIS Cost-Feasible Projects List (above)								\$754.05	\$0.00	\$0.00	\$0.00	\$0.00	\$71.39	\$743.51	\$39.41	\$383.35	
								Total By Period	\$0.00		\$0.00		\$814.91		\$422.76		\$1,237.67

Table 29 – 2040 LRTP Other Arterial Cost Feasible Projects List (State/Federal Funding)

MAP No.	Facility	From	To	Source	PD&E/PE Cost ¹ (PDC)	ROW Cost ¹ (PDC)	CST Cost ¹ (PDC)	Project Cost ¹ (PDC)	2019-2020 ²			2021-2025 ²			2026-2030 ²			2031-2040 ²			Y.O.E. Project Cost Total ²
									PE/PDE	ROW	CST	PE/PDE	ROW	CST	PE/PDE	ROW	CST	PE/PDE	ROW	CST	
11	SR 483 – Clyde Morris Blvd – widening to 6 lane	Beville Road	US 92	Other Arterial			\$30.60	\$30.60						\$38.86							\$38.86
12	Old Kings Rd – widen from 2 to 4 lanes	Palm Coast Parkway	Forest Grove Dr	Other Arterial			\$14.85	\$14.85			\$17.37										\$17.37
13	SR 44 – Miscellaneous upgrades to improve access to DeLand SunRail	SR 15A	DeLand SunRail Station	Other Arterial		\$1.74	\$17.36	\$19.10		\$1.98				\$22.05							\$24.03
14	US 92 – widen from 4 to 6 lanes	I-4 EB Ramps	CR 415 (Tomoka Farms Rd)	Other Arterial			\$25.43	\$25.43									\$40.43				\$40.43
15	Old Kings Rd – extension roadway (Phase II)	Matanzas Woods Pkwy	Old Kings Rd	Other Arterial			\$5.00	\$5.00						\$6.35							\$6.35
16	Commerce Pkwy Connector Road – new 2 lane roadway	SR 100	SR 5 (US 1)	Other Arterial			\$4.07	\$4.07						\$4.48							\$4.48
17	Matanzas Woods Pkwy (west) – widen to 4 lanes	SR 5 (US 1)	Southbound I-95 ramps	Other Arterial		\$0.18	\$13.95	\$14.13		\$0.21				\$18.27							\$18.48
18	SR 600/SR 15 (US 17/92) - emerging SIS	SR 472	SR 15A (Taylor Rd)	Other Arterial		\$3.00	\$27.00	\$30.00								\$4.50				\$51.57	\$56.07
19	LPGA Blvd – widen to 3 lanes	Nova Rd	SR 5 (US 1)	Other Arterial		\$3.50	\$9.00	\$12.50								\$5.25	\$13.50				\$18.75
20	Howland Blvd – widen to 4 lanes	Providence Blvd	Elkcam Blvd	Other Arterial		\$2.50	\$11.82	\$14.32								\$3.75	\$17.73				\$21.48
21	North Entrance DeLand Airport (Industrial Park)	Industrial Dr	SR 11	Other Arterial			\$0.97	\$0.97									\$1.46				\$1.46
6	SR 40 – widen to 6 lanes	Williamson Blvd	Breakaway Trails	Other Arterial		\$7.43	\$22.99	\$30.42											\$14.64	\$45.29	\$59.93
9	SR 100 – widen to 6 lanes	Old Kings Rd	Belle Terre Parkway	Other Arterial		\$3.17	\$31.70	\$34.87											\$6.05	\$60.55	\$66.60
22	SR 442 – extend roadway (Edgewater or Deltona)	SR 442	SR 415 (alignment not set)	Other Arterial	\$10.00			\$10.00										\$19.10			\$19.10
On System Projects						\$246.26			\$0.00	\$2.19	\$17.37	\$0.00	\$0.00	\$90.01	\$0.00	\$13.50	\$73.11	\$19.10	\$20.69	\$157.41	
Off System Projects						Total By Period			\$19.56			\$90.01			\$86.61			\$197.20			\$393.38
						2040 Revenue Forecast			\$22.80			\$101.90			\$96.30			\$210.80			\$431.80
						Local Corridor Initiatives			\$3.24			\$11.89			\$9.69			\$13.60			\$38.42

¹ In millions; shown in present day costs (PDC)/"constant" 2013, 2014 or 2015 dollars

² In millions; inflated to year of expenditure (YOE) dollars per Revenue Forecast Handbook

Note: Project costs do not includes phases previously completed

Note: The first three (3) years of the Cost Feasible Plan includes FY 2016, 2017 & 2018. Projects in these years are already programmed in the adopted Transportation Improvement Program (TIP) and are represented by the Existing Plus Committed set of projects shown in Appendix M.



Table 30 – Local (Volusia County) Projects¹

Map Number	Project	Limits	Capital Cost (in millions)
1	Tymber Creek Rd - widening to 4 lanes	Peruvian Ln to Airport Rd	\$8.0
2	Tymber Creek Rd - extend as 2 lane road	South of SR 40 to LPGA Blvd	\$15.5
3	Dunn Ave - widening to 4 lanes	Williamson Blvd to Clyde Morris Blvd	\$15.0
4	Williamson Blvd - widening to 4 lanes	LPGA Blvd to Hand Ave	\$13.5
5	Williamson Blvd - widening to 4 lanes	SR 400/Beville Rd to Summertree Rd	\$30.6
6	Josephine St - widening to 4 lanes	Old Mission Rd to Tatum St	\$4.5
7	Pioneer Trail - widening to 4 lanes	Airport Rd to I-95	\$12.5
8	I-95 & Pioneer Trail Interchange	Williamson Blvd to Turnbull Bay Rd	\$22.0
9	Park Ave - adding bi-directional turn lanes & paved shoulder	Old Mission Rd to Massey Ranch Rd	\$3.9
10	W. Volusia Beltway (Kentucky Ave) - widening to 4 lanes and realign facility	SR 472 to Harley Strickland	\$24.2
11	Doyle Rd - widening to 4 lanes	Providence Blvd to Saxon Blvd	\$11.1
12	Westside Pkwy - extend road	French Ave to Rhode Island Ave	\$7.8
13	Howland Blvd - widening to 4 lanes	Providence Blvd to Elkcam Blvd	\$13.0
14	Rhode Island Extension with I-4 overpass - extend as 2 lane road	Veterans Memorial Pkwy to Normandy Blvd	\$15.5
15	W. Volusia Beltway (Kepler Rd) - widening to 4 lanes	US 92 to Beresford Ave Extension	\$21.1
16	W. Volusia Beltway (Dr. MLK Jr) - widening to 4 lanes	Taylor Rd to Orange Camp Rd	\$6.2
17	Beresford Ave - extend road	Blue Lake Ave to SR 44	\$10.8
18	Old New York Ave - safety & paved shoulders	SR 44 to DeLand SunRail Station	\$4.0

¹ List provided by Volusia County staff

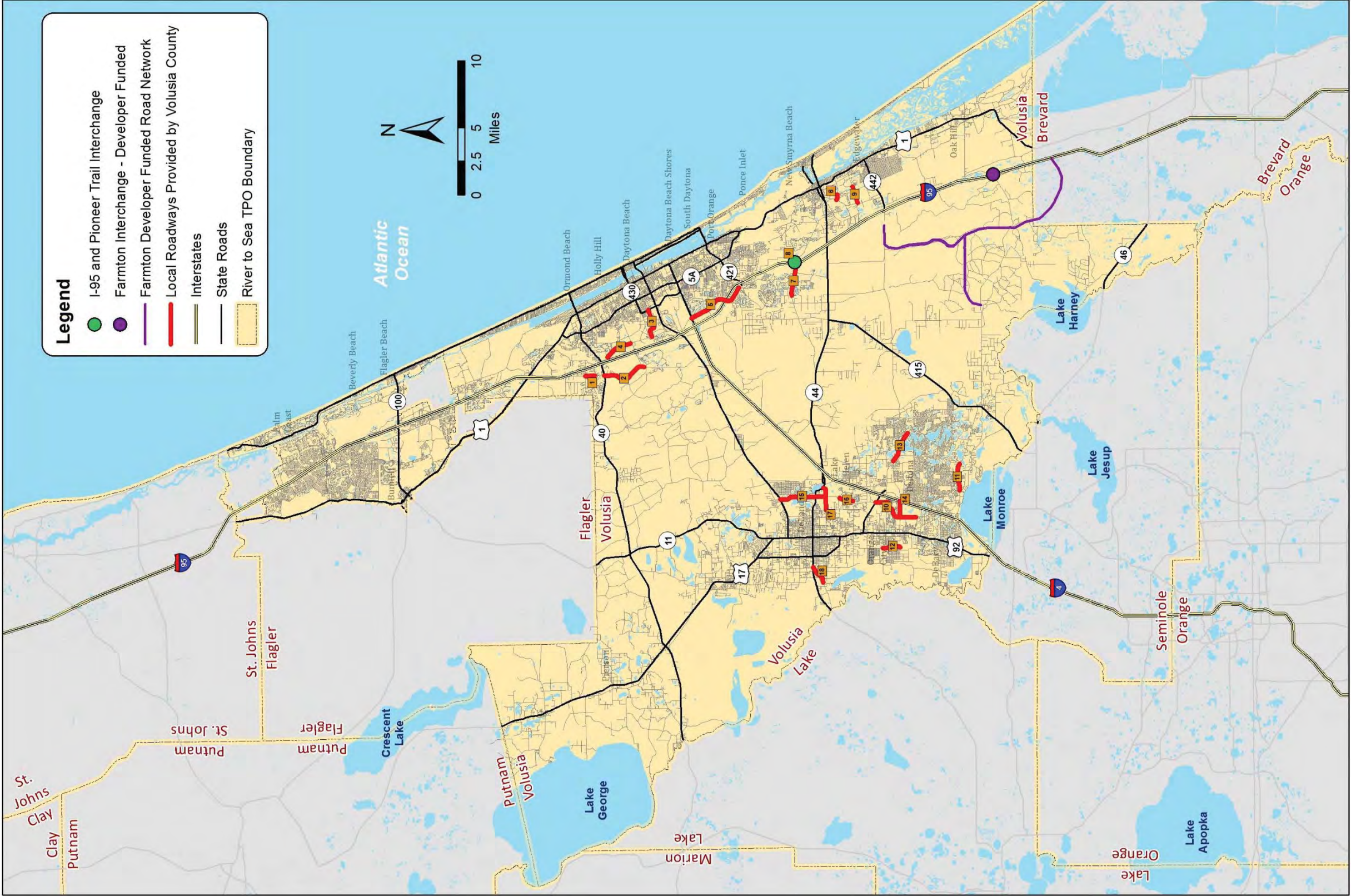


Figure 6 – Volusia County Local Road Projects

APPENDIX G: VESTED TRAFFIC INFORMATION

Orange City Concurrency Management System database

Roadway	Segment	2016 peak hour by VCTE*	Peak Hour Capacity	2016 ADT by VCTE	ADT Capacity	2020 Parc Hill	Sparkman Ridge 153 SFR (74 phase 1)	Target Outparcel	SWAC Phase IA Trips	WVRC- 106 MF units	FL Hospital tower expansion	Blue Springs Ridge-148 SFR	Total Vested Trips	Lastest Peak Hour plus Vested trips	V/C with Vested trips	V/C without Vested Trips
STATE ROADS																
I-4	Seminole to Dirksen		10060	110000	93000											
I-4	Dirksen to Saxon	n/a	10060	108000	9300	120	31		69	3		10	220			
I-4	Saxon to SR 472	7468	10060			50	0		57	3			110	7578	0.75	0.74
I-4	SR 472 to Orange Camp	5690	10060			50			46				96	5786	0.58	0.57
I-4	Orange Camp to SR 44	5259	10060			0							0	5259	0.52	0.52
US 17-92	SR 472 to New York	2403	3580	29000	39800				34							
US 17-92	new york to graves	2396	3580	29500	39800				23							
US 17-92	graves to Rhode island	2459	3580	31000	39800				23			37				
US 17-92	Rhode island to Enterprise	2554	3580	31500	39800				11			59				
US 17-92	enterprise to saxon	1786	3580	21000	39800							30				
US 17-92	saxon to DeBary Plantation	2584	3580	30500	37900											
SR 472	17/92- VMP	1846	5900	24000	65600				80							
SR 472	VMP to I-4	2409	3580	29000	39800				103							
SR 472	CR4101/MLK to I-4											13				
COUNTY ROADS																
Graves	17/92 to leavitt	556	1330	6390	14740				11							
Graves	leavitt to VMP	679	1020	7970	13640				23							
Graves Ave	VMP to Kentucky Ave	1644	1620	19180	17900	75	9		46	3	15	27	130	1774	1.10	1.01
Graves Ave	Kentucky to Howland	1294	1620	15310	17900				92				92	1386	0.86	0.80
Enterprise	17/92 to harley	1614	2740	21370	30420				11			30				
Enterprise	Harley to Saxon	1786	3410	23900	37970			35	23			30				
Enterprise	Saxon to Highbanks	1739	3410	20510	37970				34			22				
Highbanks	17/92 to Enterprise											1				
Orange Camp	17/92 to Princeton											3				
W. French Av	State park to city limits															
W. French Av	City limits to 17-92			4,870	13,640											
Rhode Island	Westside to Sparkman	1011	1330	6810	14740		57					86				
Rhode Island	Sparkman to Carpenter	271	1330	3260	14740		112					81				
Rhode Island	Carpenter to 17/92	559	1330	7340	14740		112					81				
Rhode Island	VMP to Normandy	0		0	13640											
Rhode Island	17/92 to VMP											44				
W. Holly	Twin Lakes to 17/92	173	987									59				
saxon	westside to 17/92	2295	4280	14580	30420											
saxon	17/92 to Enterprise	3043	4280	31620	47560				23							
saxon	Enterprise to VMP	3001	3410	40360	47560				34							
Saxon Blvd	VMP to FDOT Park n Ride	3001	3410	39570	37970	242			57	14			299	3300	0.97	0.88
Saxon Blvd	Park n Ride to I-4	3222	3410	39790	37970	237	37		57	14			7	331	3553	1.04
Saxon Blvd	I-4 to Finland												4			
Saxon Blvd	Finland to Normandy											3				
Kentucky	SR 472 to Graves	984	1540	10670	17050				92							
VMP	Graves Ave to Rhode Island	1339	1620	16430	17900	98	3		103	4	24	37	204	1543	0.95	0.83
VMP	Rhode Island to Harley Strickl	1625	1540	20170	17050	469	22		92	4	30	7	583	2208	1.43	1.06
VMP	Harley to Saxon	965	3410	13150	37970					15	25					
CITY ROADS																
		2017 Peak Hour	Peak Hour Capacity	2017 ADT	ADT Capacity											
Harley Strickl	Enterprise to VMP	1,268	1,540	13,540	17,050			16		24	29					
Rhode Island	17/92 to VMP		1230		13640				69							
Leavitt	French to Graves															
Leavitt	Graves to Ohio															
Leavitt	Ohio to Rhode Island															
Wisconsin	17/92 to leavitt															
Sparkman	Blue Springs to Rhode Island											4				
W. Blue Sprin	Sparkman to 17/92															

Critical VC ratio is greater than 1.10. Near Critical VC ratio is 0.90 <= 1.10

APPENDIX H: SYNCHRO OUTPUT

H1: AM Peak Hour Existing Traffic Conditions

Lanes, Volumes, Timings
1: Dr Martin Luther King Jr Beltway & Orange Camp Rd

2019 Existing Conditions
Timing Plan: AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	398	61	30	255	152	116	312	37	254	192	41
Future Volume (vph)	30	398	61	30	255	152	116	312	37	254	192	41
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
Heavy Vehicles (%)	5%	5%	5%	4%	4%	4%	4%	4%	4%	3%	3%	3%
Adj. Flow (vph)	32	419	64	32	268	160	122	328	39	267	202	43
Shared Lane Traffic (%)												
Lane Group Flow (vph)	32	483	0	32	428	0	122	328	39	267	202	43
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8			4			6		6	2		2
Detector Phase	3	8		7	4		1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	7.0		5.0	17.0	17.0	5.0	17.0	17.0
Minimum Split (s)	11.5	14.5		11.5	14.5		11.5	24.5	24.5	11.5	24.5	24.5
Total Split (s)	30.0	60.0		30.0	60.0		30.0	60.0	60.0	30.0	60.0	60.0
Total Split (%)	16.7%	33.3%		16.7%	33.3%		16.7%	33.3%	33.3%	16.7%	33.3%	33.3%
Yellow Time (s)	3.5	5.5		3.5	5.5		3.5	5.5	5.5	3.5	5.5	5.5
All-Red Time (s)	3.0	2.0		3.0	2.0		3.0	2.0	2.0	3.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	7.5		6.5	7.5		6.5	7.5	7.5	6.5	7.5	7.5
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None		None	None		None	Min	Min	None	Min	Min
v/c Ratio	0.12	0.80		0.14	0.71		0.28	0.76	0.09	0.63	0.35	0.08
Control Delay	24.0	51.3		24.2	45.0		25.0	59.8	0.4	30.9	38.4	0.3
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.0	51.3		24.2	45.0		25.0	59.8	0.4	30.9	38.4	0.3
Queue Length 50th (ft)	16	383		16	316		63	279	0	152	139	0
Queue Length 95th (ft)	41	597		41	503		111	410	0	236	229	0
Internal Link Dist (ft)		536			746			5808			524	
Turn Bay Length (ft)	385			550			340		375	335		380
Base Capacity (vph)	456	769		431	757		609	790	732	461	798	738
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.63		0.07	0.57		0.20	0.42	0.05	0.58	0.25	0.06

Intersection Summary

Cycle Length: 180

Actuated Cycle Length: 128.4

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Splits and Phases: 1: Dr Martin Luther King Jr Beltway & Orange Camp Rd

 Ø1	 Ø2	 Ø3	 Ø4
30 s	60 s	30 s	60 s
 Ø5	 Ø6	 Ø7	 Ø8
30 s	60 s	30 s	60 s

HCM 6th Signalized Intersection Summary
1: Dr Martin Luther King Jr Beltway & Orange Camp Rd

2019 Existing Conditions
Timing Plan: AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	398	61	30	255	152	116	312	37	254	192	41
Future Volume (veh/h)	30	398	61	30	255	152	116	312	37	254	192	41
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1826	1826	1826	1841	1841	1841	1841	1841	1841	1856	1856	1856
Adj Flow Rate, veh/h	32	419	57	32	268	142	122	328	26	267	202	32
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, %	5	5	5	4	4	4	4	4	4	3	3	3
Cap, veh/h	225	494	67	188	355	188	428	404	343	372	528	447
Arrive On Green	0.03	0.31	0.31	0.03	0.31	0.31	0.07	0.22	0.22	0.14	0.28	0.28
Sat Flow, veh/h	1739	1573	214	1753	1133	600	1753	1841	1560	1767	1856	1572
Grp Volume(v), veh/h	32	0	476	32	0	410	122	328	26	267	202	32
Grp Sat Flow(s),veh/h/ln	1739	0	1787	1753	0	1733	1753	1841	1560	1767	1856	1572
Q Serve(g_s), s	1.2	0.0	23.4	1.1	0.0	20.0	5.0	15.9	1.2	10.5	8.2	1.4
Cycle Q Clear(g_c), s	1.2	0.0	23.4	1.1	0.0	20.0	5.0	15.9	1.2	10.5	8.2	1.4
Prop In Lane	1.00		0.12	1.00		0.35	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	225	0	561	188	0	544	428	404	343	372	528	447
V/C Ratio(X)	0.14	0.00	0.85	0.17	0.00	0.75	0.29	0.81	0.08	0.72	0.38	0.07
Avail Cap(c_a), veh/h	608	0	999	574	0	969	738	1029	872	570	1038	879
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.8	0.0	30.1	23.6	0.0	29.0	25.2	34.8	29.1	23.8	27.0	24.5
Incr Delay (d2), s/veh	0.3	0.0	5.1	0.4	0.0	3.0	0.4	5.5	0.1	2.6	0.7	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.0	10.0	0.5	0.0	8.0	1.9	7.1	0.5	4.1	3.4	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.1	0.0	35.3	24.0	0.0	32.0	25.6	40.3	29.2	26.4	27.6	24.6
LnGrp LOS	C	A	D	C	A	C	C	D	C	C	C	C
Approach Vol, veh/h	508			442			476			501		
Approach Delay, s/veh	34.5			31.4			35.9			26.8		
Approach LOS	C			C			D			C		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	13.4	34.2	9.3	37.0	19.5	28.1	9.3	37.0				
Change Period (Y+Rc), s	6.5	7.5	6.5	7.5	6.5	7.5	6.5	7.5				
Max Green Setting (Gmax), s	23.5	52.5	23.5	52.5	23.5	52.5	23.5	52.5				
Max Q Clear Time (g_c+I1), s	7.0	10.2	3.2	22.0	12.5	17.9	3.1	25.4				
Green Ext Time (p_c), s	0.2	1.7	0.0	3.6	0.5	2.7	0.0	4.1				
Intersection Summary												
HCM 6th Ctrl Delay	32.1											
HCM 6th LOS	C											

Lanes, Volumes, Timings
2: N Kentucky Ave/Dr. Martin Luther King Jr Beltway & SR 472

2019 Existing Conditions
Timing Plan: AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	883	75	91	1012	238	135	140	48	142	174	32
Future Volume (vph)	25	883	75	91	1012	238	135	140	48	142	174	32
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	8%	8%	8%	5%	5%	5%	4%	4%	4%	4%	4%	4%
Adj. Flow (vph)	28	1003	85	103	1150	270	153	159	55	161	198	36
Shared Lane Traffic (%)												
Lane Group Flow (vph)	28	1003	85	103	1150	270	0	312	55	161	198	36
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Split	NA	Perm	Split	NA	Perm
Protected Phases	1	6		5	2		4	4		8	8	
Permitted Phases			6			2			4			8
Detector Phase	1	6	6	5	2	2	4	4	4	8	8	8
Switch Phase												
Minimum Initial (s)	5.0	17.0	17.0	5.0	17.0	17.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	13.3	25.3	25.3	13.3	25.3	25.3	15.8	15.8	15.8	16.4	16.4	16.4
Total Split (s)	19.0	57.0	57.0	19.0	57.0	57.0	37.0	37.0	37.0	37.0	37.0	37.0
Total Split (%)	12.7%	38.0%	38.0%	12.7%	38.0%	38.0%	24.7%	24.7%	24.7%	24.7%	24.7%	24.7%
Yellow Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.6	5.6	5.6
All-Red Time (s)	2.8	2.8	2.8	2.8	2.8	2.8	3.3	3.3	3.3	3.8	3.8	3.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	8.3	8.3	8.3	8.3	8.3	8.3		8.8	8.8	9.4	9.4	9.4
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes						
Recall Mode	None	Min	Min	None	C-Min	C-Min	None	None	None	None	None	None
v/c Ratio	0.29	0.86	0.13	0.72	0.81	0.34		0.94	0.12	0.63	0.73	0.09
Control Delay	73.9	54.2	0.4	94.0	39.0	5.4		96.4	0.5	70.4	76.7	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Delay	73.9	54.2	0.4	94.0	39.0	5.4		96.4	0.5	70.4	76.7	0.4
Queue Length 50th (ft)	26	498	0	90	586	22		304	0	150	188	0
Queue Length 95th (ft)	60	#602	0	#206	#735	51		#471	0	215	261	0
Internal Link Dist (ft)		884			2846			4140			2874	
Turn Bay Length (ft)	400		395	425		400			485	350		350
Base Capacity (vph)	119	1173	635	144	1422	794		335	477	319	336	467
Starvation Cap Reductn	0	0	0	0	0	0		0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0		0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0		0	0	0	0	0
Reduced v/c Ratio	0.24	0.86	0.13	0.72	0.81	0.34		0.93	0.12	0.50	0.59	0.08

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 93 (62%), Referenced to phase 2:WBT, Start of Yellow

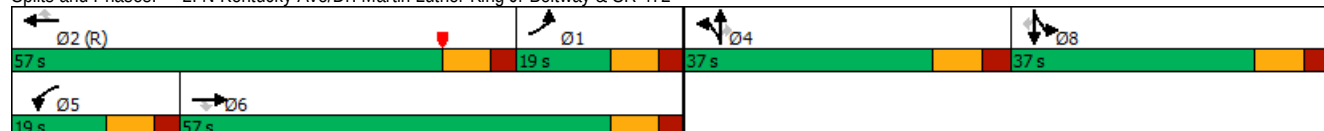
Natural Cycle: 110

Control Type: Actuated-Coordinated

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

Queue shown is maximum after two cycles.

Splits and Phases: 2: N Kentucky Ave/Dr. Martin Luther King Jr Beltway & SR 472



HCM 6th Signalized Intersection Summary
2: N Kentucky Ave/Dr. Martin Luther King Jr Beltway & SR 472

2019 Existing Conditions
Timing Plan: AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	883	75	91	1012	238	135	140	48	142	174	32
Future Volume (veh/h)	25	883	75	91	1012	238	135	140	48	142	174	32
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1781	1781	1781	1826	1826	1826	1841	1841	1841	1841	1841	1841
Adj Flow Rate, veh/h	28	1003	55	103	1150	161	153	159	0	161	198	0
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	8	8	8	5	5	5	4	4	4	4	4	4
Cap, veh/h	221	1298	579	124	1126	502	163	170		224	235	
Arrive On Green	0.13	0.38	0.38	0.02	0.11	0.11	0.19	0.19	0.00	0.13	0.13	0.00
Sat Flow, veh/h	1697	3385	1510	1739	3469	1547	881	916	1560	1753	1841	1560
Grp Volume(v), veh/h	28	1003	55	103	1150	161	312	0	0	161	198	0
Grp Sat Flow(s), veh/h/ln	1697	1692	1510	1739	1735	1547	1797	0	1560	1753	1841	1560
Q Serve(g_s), s	2.2	38.9	3.5	8.8	48.7	14.4	25.7	0.0	0.0	13.2	15.8	0.0
Cycle Q Clear(g_c), s	2.2	38.9	3.5	8.8	48.7	14.4	25.7	0.0	0.0	13.2	15.8	0.0
Prop In Lane	1.00		1.00	1.00		1.00	0.49		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	221	1298	579	124	1126	502	333	0		224	235	
V/C Ratio(X)	0.13	0.77	0.10	0.83	1.02	0.32	0.94	0.00		0.72	0.84	
Avail Cap(c_a), veh/h	221	1298	579	124	1126	502	338	0		323	339	
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.88	0.88	0.88	0.95	0.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	57.7	40.5	29.6	72.3	67.0	51.7	60.2	0.0	0.0	62.8	63.9	0.0
Incr Delay (d2), s/veh	0.3	3.1	0.1	32.2	30.6	1.5	32.1	0.0	0.0	6.0	14.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	16.0	1.3	5.1	27.4	6.2	14.4	0.0	0.0	6.1	8.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	58.0	43.7	29.7	104.6	97.5	53.1	92.3	0.0	0.0	68.8	78.2	0.0
LnGrp LOS	E	D	C	F	F	D	F	A		E	E	
Approach Vol, veh/h	1086			1414			312			359		
Approach Delay, s/veh	43.3			93.0			92.3			74.0		
Approach LOS	D			F			F			E		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	27.8	57.0		36.6	19.0	65.8		28.6				
Change Period (Y+Rc), s	* 8.3	* 8.3		* 8.8	* 8.3	* 8.3		9.4				
Max Green Setting (Gmax), s	* 11	* 49		* 28	* 11	* 49		27.6				
Max Q Clear Time (g_c+I1), s	4.2	50.7		27.7	10.8	40.9		17.8				
Green Ext Time (p_c), s	0.0	0.0		0.1	0.0	4.6		1.4				

Intersection Summary

HCM 6th Ctrl Delay 73.8
HCM 6th LOS E

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [NBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
3: SR 472 & I-4

2019 Existing Conditions
Timing Plan: AM Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↓	↑↑					↓↓		↓
Traffic Volume (vph)	0	357	749	820	1161	0	0	0	0	125	0	128
Future Volume (vph)	0	357	749	820	1161	0	0	0	0	125	0	128
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	5%	5%	5%	3%	3%	3%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	0	401	842	921	1304	0	0	0	0	140	0	144
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	401	842	921	1304	0	0	0	0	140	0	144
Turn Type		NA	Perm	Prot	NA					Prot		Prot
Protected Phases		6		5	2					8		8
Permitted Phases			6									8
Detector Phase		6	6	5	2					8		8
Switch Phase												
Minimum Initial (s)		17.0	17.0	6.0	17.0					7.0		7.0
Minimum Split (s)		24.1	24.1	13.1	24.1					15.0		15.0
Total Split (s)		40.0	40.0	80.0	120.0					30.0		30.0
Total Split (%)		26.7%	26.7%	53.3%	80.0%					20.0%		20.0%
Yellow Time (s)		5.1	5.1	5.1	5.1					5.1		5.1
All-Red Time (s)		2.0	2.0	2.0	2.0					2.9		2.9
Lost Time Adjust (s)		0.0	0.0	0.0	0.0					0.0		0.0
Total Lost Time (s)		7.1	7.1	7.1	7.1					8.0		8.0
Lead/Lag		Lead	Lead	Lag								
Lead-Lag Optimize?		Yes	Yes	Yes								
Recall Mode		C-Min	C-Min	None	C-Min					None		None
v/c Ratio		0.41	1.26	1.08	0.45					0.52		0.64
Control Delay		23.1	143.3	83.1	3.0					72.7		32.0
Queue Delay		0.0	0.0	0.0	0.0					0.0		0.0
Total Delay		23.1	143.3	83.1	3.0					72.7		32.0
Queue Length 50th (ft)		64	~318	~1013	104					69		32
Queue Length 95th (ft)		m97	#1101	#1253	118					101		101
Internal Link Dist (ft)		2846			1605			330			679	
Turn Bay Length (ft)			500							550		550
Base Capacity (vph)		986	669	851	2875					503		326
Starvation Cap Reductn		0	0	0	0					0		0
Spillback Cap Reductn		0	0	0	0					0		0
Storage Cap Reductn		0	0	0	0					0		0
Reduced v/c Ratio		0.41	1.26	1.08	0.45					0.28		0.44

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 138 (92%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow

Natural Cycle: 150

Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

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

Splits and Phases: 3: SR 472 & I-4



HCM 6th Signalized Intersection Summary
3: SR 472 & I-4

2019 Existing Conditions
Timing Plan: AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↓	↑↑					↓↓		↑
Traffic Volume (veh/h)	0	357	749	820	1161	0	0	0	0	125	0	128
Future Volume (veh/h)	0	357	749	820	1161	0	0	0	0	125	0	128
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1826	1826	1856	1856	0				1870	0	1870
Adj Flow Rate, veh/h	0	401	0	921	1304	0				140	0	33
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89				0.89	0.89	0.89
Percent Heavy Veh, %	0	5	5	3	3	0				2	0	2
Cap, veh/h	0	480		1163	2974	0				193	0	89
Arrive On Green	0.00	0.14	0.00	1.00	1.00	0.00				0.06	0.00	0.06
Sat Flow, veh/h	0	3561	1547	1767	3618	0				3456	0	1585
Grp Volume(v), veh/h	0	401	0	921	1304	0				140	0	33
Grp Sat Flow(s), veh/h/ln	0	1735	1547	1767	1763	0				1728	0	1585
Q Serve(g_s), s	0.0	16.9	0.0	0.0	0.0	0.0				6.0	0.0	3.0
Cycle Q Clear(g_c), s	0.0	16.9	0.0	0.0	0.0	0.0				6.0	0.0	3.0
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	480		1163	2974	0				193	0	89
V/C Ratio(X)	0.00	0.84		0.79	0.44	0.00				0.72	0.00	0.37
Avail Cap(c_a), veh/h	0	761		1163	2974	0				507	0	232
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.51	0.00	0.67	0.67	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	63.0	0.0	0.0	0.0	0.0				69.7	0.0	68.3
Incr Delay (d2), s/veh	0.0	8.7	0.0	2.6	0.3	0.0				5.1	0.0	2.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	7.8	0.0	0.8	0.1	0.0				2.7	0.0	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	71.7	0.0	2.6	0.3	0.0				74.8	0.0	70.8
LnGrp LOS	A	E		A	A	A				E	A	E
Approach Vol, veh/h		401	A		2225						173	
Approach Delay, s/veh		71.7			1.3						74.0	
Approach LOS		E			A						E	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		133.6			105.8	27.8		16.4				
Change Period (Y+Rc), s		7.1			7.1	7.1		8.0				
Max Green Setting (Gmax), s		112.9			72.9	32.9		22.0				
Max Q Clear Time (g_c+I1), s		2.0			2.0	18.9		8.0				
Green Ext Time (p_c), s		12.2			3.8	1.8		0.4				
Intersection Summary												
HCM 6th Ctrl Delay			15.9									
HCM 6th LOS			B									
Notes												
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.												

Lanes, Volumes, Timings
4: I-4 & Howland Blvd

2019 Existing Conditions
Timing Plan: AM Peak Hour

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↗		↑↑↑	↖↗	↗
Traffic Volume (vph)	353	119	0	1974	572	155
Future Volume (vph)	353	119	0	1974	572	155
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	8%	8%	4%	4%	7%	7%
Adj. Flow (vph)	388	131	0	2169	629	170
Shared Lane Traffic (%)						
Lane Group Flow (vph)	388	131	0	2169	629	170
Turn Type	NA	Perm		NA	Prot	Perm
Protected Phases	2			6	4	
Permitted Phases		2				4
Detector Phase	2	2		6	4	4
Switch Phase						
Minimum Initial (s)	17.0	17.0		7.0	7.0	7.0
Minimum Split (s)	24.5	24.5		14.2	14.2	14.2
Total Split (s)	96.0	96.0		96.0	54.0	54.0
Total Split (%)	64.0%	64.0%		64.0%	36.0%	36.0%
Yellow Time (s)	5.5	5.5		4.8	4.8	4.8
All-Red Time (s)	2.0	2.0		2.4	2.4	2.4
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	7.5	7.5		7.2	7.2	7.2
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	Min	Min		C-Max	None	None
v/c Ratio	0.18	0.13		0.66	0.79	0.34
Control Delay	11.7	7.2		15.3	60.9	7.4
Queue Delay	0.0	0.0		0.0	0.0	0.0
Total Delay	11.7	7.2		15.3	60.9	7.4
Queue Length 50th (ft)	120	43		373	298	0
Queue Length 95th (ft)	211	117		537	346	57
Internal Link Dist (ft)	1605			1373	1105	
Turn Bay Length (ft)		620				1000
Base Capacity (vph)	2206	1031		3302	1021	587
Starvation Cap Reductn	0	0		0	0	0
Spillback Cap Reductn	0	0		0	0	0
Storage Cap Reductn	0	0		0	0	0
Reduced v/c Ratio	0.18	0.13		0.66	0.62	0.29

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 74 (49%), Referenced to phase 6:WBT, Start of Yellow

Natural Cycle: 60

Control Type: Actuated-Coordinated

Splits and Phases: 4: I-4 & Howland Blvd



HCM 6th Signalized Intersection Summary
4: I-4 & Howland Blvd

2019 Existing Conditions
Timing Plan: AM Peak Hour

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↗		↑↑↑	↖↗	↗
Traffic Volume (veh/h)	353	119	0	1974	572	155
Future Volume (veh/h)	353	119	0	1974	572	155
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1781	1781	0	1841	1796	1796
Adj Flow Rate, veh/h	388	0	0	2169	629	0
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	8	8	0	4	7	7
Cap, veh/h	2004		0	2975	725	
Arrive On Green	1.00	0.00	0.00	1.00	0.22	0.00
Sat Flow, veh/h	3474	1510	0	5356	3319	1522
Grp Volume(v), veh/h	388	0	0	2169	629	0
Grp Sat Flow(s),veh/h/ln	1692	1510	0	1675	1659	1522
Q Serve(g_s), s	0.0	0.0	0.0	0.0	27.4	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	27.4	0.0
Prop In Lane		1.00	0.00		1.00	1.00
Lane Grp Cap(c), veh/h	2004		0	2975	725	
V/C Ratio(X)	0.19		0.00	0.73	0.87	
Avail Cap(c_a), veh/h	2004		0	2975	1035	
HCM Platoon Ratio	2.00	2.00	1.00	2.00	1.00	1.00
Upstream Filter(I)	0.90	0.00	0.00	0.83	1.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	56.5	0.0
Incr Delay (d2), s/veh	0.1	0.0	0.0	1.3	6.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	0.4	11.9	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.1	0.0	0.0	1.3	63.2	0.0
LnGrp LOS	A		A	A	E	
Approach Vol, veh/h	388	A		2169	629	A
Approach Delay, s/veh	0.1			1.3	63.2	
Approach LOS	A			A	E	
Timer - Assigned Phs	2			4		6
Phs Duration (G+Y+Rc), s	96.3			40.0		96.3
Change Period (Y+Rc), s	7.5			* 7.2		* 7.5
Max Green Setting (Gmax), s	88.5			* 47		* 89
Max Q Clear Time (g_c+I1), s	2.0			29.4		2.0
Green Ext Time (p_c), s	3.7			3.3		50.3
Intersection Summary						
HCM 6th Ctrl Delay			13.4			
HCM 6th LOS			B			
Notes						
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.						
Unsignalized Delay for [NBR, EBR] is excluded from calculations of the approach delay and intersection delay.						

Lanes, Volumes, Timings
5: S Volusia Ave/N Volusia Ave & E Graves Ave

2019 Existing Conditions
Timing Plan: AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	22	29	32	113	31	93	6	773	59	64	1010	8
Future Volume (vph)	22	29	32	113	31	93	6	773	59	64	1010	8
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	5%	5%	5%	7%	7%	7%
Adj. Flow (vph)	24	32	35	123	34	101	7	840	64	70	1098	9
Shared Lane Traffic (%)												
Lane Group Flow (vph)	24	67	0	123	135	0	7	904	0	70	1107	0
Turn Type	Split	NA		Split	NA		Perm	NA		pm+pt	NA	
Protected Phases	8	8		4	4			6		5	2	
Permitted Phases							6			2		
Detector Phase	8	8		4	4		6	6		5	2	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		15.0	15.0		5.0	15.0	
Minimum Split (s)	15.7	15.7		15.9	15.9		22.3	22.3		12.2	22.3	
Total Split (s)	25.0	25.0		30.0	30.0		75.0	75.0		20.0	95.0	
Total Split (%)	16.7%	16.7%		20.0%	20.0%		50.0%	50.0%		13.3%	63.3%	
Yellow Time (s)	3.4	3.4		3.8	3.8		4.5	4.5		4.4	4.5	
All-Red Time (s)	2.3	2.3		2.1	2.1		2.8	2.8		2.8	2.8	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.7	5.7		5.9	5.9		7.3	7.3		7.2	7.3	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?							Yes	Yes		Yes		
Recall Mode	None	None		None	None		C-Min	C-Min		None	C-Min	
v/c Ratio	0.19	0.45		0.67	0.54		0.02	0.42		0.18	0.46	
Control Delay	68.8	48.8		81.2	32.8		11.8	10.9		9.1	10.9	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	68.8	48.8		81.2	32.8		11.8	10.9		9.1	10.9	
Queue Length 50th (ft)	23	35		118	46		2	141		20	233	
Queue Length 95th (ft)	54	87		182	113		m4	148		44	342	
Internal Link Dist (ft)		249			1033			5260			358	
Turn Bay Length (ft)							245			280		
Base Capacity (vph)	225	245		281	334		297	2166		426	2418	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.11	0.27		0.44	0.40		0.02	0.42		0.16	0.46	

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

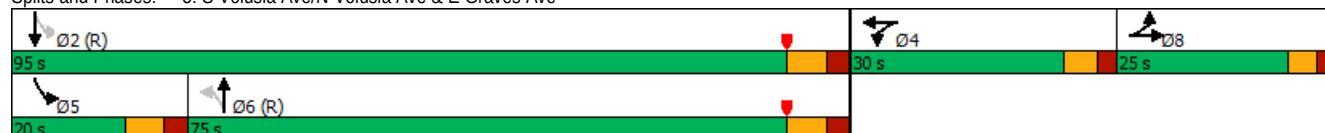
Offset: 24 (16%), Referenced to phase 2:SBTL and 6:NBTL, Start of Yellow

Natural Cycle: 70

Control Type: Actuated-Coordinated

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

Splits and Phases: 5: S Volusia Ave/N Volusia Ave & E Graves Ave



HCM 6th Signalized Intersection Summary
5: S Volusia Ave/N Volusia Ave & E Graves Ave

2019 Existing Conditions
Timing Plan: AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	22	29	32	113	31	93	6	773	59	64	1010	8
Future Volume (veh/h)	22	29	32	113	31	93	6	773	59	64	1010	8
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1826	1826	1826	1796	1796	1796
Adj Flow Rate, veh/h	24	32	20	123	34	47	7	840	57	70	1098	8
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	5	5	5	7	7	7
Cap, veh/h	113	68	43	151	60	83	345	2126	144	414	2516	18
Arrive On Green	0.06	0.06	0.06	0.09	0.09	0.09	0.65	0.65	0.65	0.03	0.72	0.72
Sat Flow, veh/h	1767	1068	667	1767	705	975	498	3297	224	1711	3473	25
Grp Volume(v), veh/h	24	0	52	123	0	81	7	442	455	70	540	566
Grp Sat Flow(s),veh/h/ln	1767	0	1735	1767	0	1680	498	1735	1786	1711	1706	1792
Q Serve(g_s), s	1.9	0.0	4.3	10.3	0.0	6.9	0.9	18.2	18.2	2.0	19.1	19.1
Cycle Q Clear(g_c), s	1.9	0.0	4.3	10.3	0.0	6.9	8.0	18.2	18.2	2.0	19.1	19.1
Prop In Lane	1.00		0.38	1.00		0.58	1.00		0.13	1.00		0.01
Lane Grp Cap(c), veh/h	113	0	111	151	0	144	345	1119	1152	414	1236	1298
V/C Ratio(X)	0.21	0.00	0.47	0.81	0.00	0.56	0.02	0.40	0.40	0.17	0.44	0.44
Avail Cap(c_a), veh/h	227	0	223	284	0	270	345	1119	1152	506	1236	1298
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.90	0.90	0.90	1.00	1.00	1.00
Uniform Delay (d), s/veh	66.6	0.0	67.8	67.4	0.0	65.9	12.3	12.7	12.7	9.1	8.3	8.3
Incr Delay (d2), s/veh	0.9	0.0	3.1	10.0	0.0	3.4	0.1	0.9	0.9	0.2	1.1	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.0	2.0	5.1	0.0	3.1	0.1	7.1	7.3	0.7	6.8	7.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	67.6	0.0	70.8	77.4	0.0	69.3	12.4	13.6	13.6	9.3	9.4	9.4
LnGrp LOS	E	A	E	E	A	E	B	B	B	A	A	A
Approach Vol, veh/h	76			204			904			1176		
Approach Delay, s/veh	69.8			74.2			13.6			9.4		
Approach LOS	E			E			B			A		
Timer - Assigned Phs	2			4		5	6		8			
Phs Duration (G+Y+Rc), s	116.0			18.7		11.9	104.1		15.3			
Change Period (Y+Rc), s	* 7.3			* 5.9		* 7.2	* 7.3		5.7			
Max Green Setting (Gmax), s	* 88			* 24		* 13	* 68		19.3			
Max Q Clear Time (g_c+I1), s	21.1			12.3		4.0	20.2		6.3			
Green Ext Time (p_c), s	8.8			0.6		0.1	6.5		0.2			

Intersection Summary

HCM 6th Ctrl Delay 18.6
HCM 6th LOS B

Notes

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

Lanes, Volumes, Timings
6: Veterans Memorial Pkwy & E Graves Ave

2019 Existing Conditions
Timing Plan: AM Peak Hour

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗	↘	↑	↘	↗
Traffic Volume (vph)	171	33	519	229	29	209
Future Volume (vph)	171	33	519	229	29	209
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	6%	6%	6%	6%	12%	12%
Adj. Flow (vph)	186	36	564	249	32	227
Shared Lane Traffic (%)						
Lane Group Flow (vph)	186	36	564	249	32	227
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	2		1	6	8	
Permitted Phases		2	6			8
Detector Phase	2	2	1	6	8	8
Switch Phase						
Minimum Initial (s)	11.0	11.0	7.0	11.0	7.0	7.0
Minimum Split (s)	18.0	18.0	14.0	18.0	14.0	14.0
Total Split (s)	30.0	30.0	20.0	50.0	25.0	25.0
Total Split (%)	40.0%	40.0%	26.7%	66.7%	33.3%	33.3%
Yellow Time (s)	4.5	4.5	4.5	4.5	5.0	5.0
All-Red Time (s)	2.5	2.5	2.5	2.5	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Recall Mode	Min	Min	None	Min	None	None
v/c Ratio	0.45	0.10	0.84	0.23	0.13	0.56
Control Delay	22.4	7.6	22.5	6.1	22.2	9.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.4	7.6	22.5	6.1	22.2	9.7
Queue Length 50th (ft)	50	0	88	30	9	0
Queue Length 95th (ft)	109	19	#289	73	30	51
Internal Link Dist (ft)	7674			1636	7026	
Turn Bay Length (ft)		400	300		1000	
Base Capacity (vph)	755	662	669	1411	531	627
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.25	0.05	0.84	0.18	0.06	0.36

Intersection Summary

Cycle Length: 75

Actuated Cycle Length: 54.9

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

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

Queue shown is maximum after two cycles.

Splits and Phases: 6: Veterans Memorial Pkwy & E Graves Ave



HCM 6th Signalized Intersection Summary
6: Veterans Memorial Pkwy & E Graves Ave

2019 Existing Conditions
Timing Plan: AM Peak Hour

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗	↘	↑	↘	↗
Traffic Volume (veh/h)	171	33	519	229	29	209
Future Volume (veh/h)	171	33	519	229	29	209
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1811	1811	1811	1811	1722	1722
Adj Flow Rate, veh/h	186	15	564	249	32	163
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	6	6	6	6	12	12
Cap, veh/h	379	321	699	1068	237	210
Arrive On Green	0.21	0.21	0.25	0.59	0.14	0.14
Sat Flow, veh/h	1811	1535	1725	1811	1640	1459
Grp Volume(v), veh/h	186	15	564	249	32	163
Grp Sat Flow(s),veh/h/ln	1811	1535	1725	1811	1640	1459
Q Serve(g_s), s	4.8	0.4	12.9	3.4	0.9	5.7
Cycle Q Clear(g_c), s	4.8	0.4	12.9	3.4	0.9	5.7
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	379	321	699	1068	237	210
V/C Ratio(X)	0.49	0.05	0.81	0.23	0.14	0.77
Avail Cap(c_a), veh/h	792	671	699	1481	561	500
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	18.3	16.6	10.8	5.1	19.6	21.7
Incr Delay (d2), s/veh	1.4	0.1	6.9	0.2	0.3	6.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	0.1	4.5	0.8	0.3	1.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	19.7	16.7	17.8	5.3	19.9	27.7
LnGrp LOS	B	B	B	A	B	C
Approach Vol, veh/h	201			813	195	
Approach Delay, s/veh	19.5			14.0	26.4	
Approach LOS	B			B	C	
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	20.0	18.0			38.0	14.6
Change Period (Y+Rc), s	7.0	7.0			7.0	7.0
Max Green Setting (Gmax), s	13.0	23.0			43.0	18.0
Max Q Clear Time (g_c+I1), s	14.9	6.8			5.4	7.7
Green Ext Time (p_c), s	0.0	1.2			2.0	0.4
Intersection Summary						
HCM 6th Ctrl Delay			16.9			
HCM 6th LOS			B			

Lanes, Volumes, Timings
7: S Kentucky Ave/N Kentucky Ave & E Graves Ave

2019 Existing Conditions
Timing Plan: AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	123	237	5	7	452	166	17	12	5	68	6	300
Future Volume (vph)	123	237	5	7	452	166	17	12	5	68	6	300
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	11%	11%	11%	4%	4%	4%	2%	2%	2%	6%	6%	6%
Adj. Flow (vph)	141	272	6	8	520	191	20	14	6	78	7	345
Shared Lane Traffic (%)												
Lane Group Flow (vph)	141	278	0	8	520	191	0	40	0	78	7	345
Turn Type	Prot	NA		Perm	NA	pm+ov	Split	NA		Split	NA	pm+ov
Protected Phases	5	2			6	8	4	4		8	8	5
Permitted Phases				6		6						8
Detector Phase	5	2		6	6	8	4	4		8	8	5
Switch Phase												
Minimum Initial (s)	5.0	11.0		11.0	11.0	7.0	7.0	7.0		7.0	7.0	5.0
Minimum Split (s)	11.0	18.0		18.0	18.0	14.0	14.0	14.0		14.0	14.0	11.0
Total Split (s)	20.0	70.0		50.0	50.0	50.0	20.0	20.0		50.0	50.0	20.0
Total Split (%)	14.3%	50.0%		35.7%	35.7%	35.7%	14.3%	14.3%		35.7%	35.7%	14.3%
Yellow Time (s)	4.0	5.0		5.0	5.0	5.0	4.0	4.0		5.0	5.0	4.0
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	3.0	3.0		2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0		0.0		0.0	0.0	0.0
Total Lost Time (s)	6.0	7.0		7.0	7.0	7.0		7.0		7.0	7.0	6.0
Lead/Lag	Lead			Lag	Lag							Lead
Lead-Lag Optimize?	Yes			Yes	Yes							Yes
Recall Mode	None	Min		Min	Min	None	None	None		None	None	None
v/c Ratio	0.56	0.26		0.02	0.72	0.20		0.24		0.39	0.03	0.48
Control Delay	48.8	9.6		19.4	30.5	1.5		42.7		47.0	41.0	8.5
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0		0.0	0.0	0.0
Total Delay	48.8	9.6		19.4	30.5	1.5		42.7		47.0	41.0	8.5
Queue Length 50th (ft)	80	75		3	265	0		20		45	4	26
Queue Length 95th (ft)	#166	131		13	404	14		55		94	17	97
Internal Link Dist (ft)		1636			3200			455			4140	
Turn Bay Length (ft)	200			235		460				320		175
Base Capacity (vph)	274	1269		557	945	1371		283		881	927	740
Starvation Cap Reductn	0	0		0	0	0		0		0	0	0
Spillback Cap Reductn	0	0		0	0	0		0		0	0	0
Storage Cap Reductn	0	0		0	0	0		0		0	0	0
Reduced v/c Ratio	0.51	0.22		0.01	0.55	0.14		0.14		0.09	0.01	0.47

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 87.4

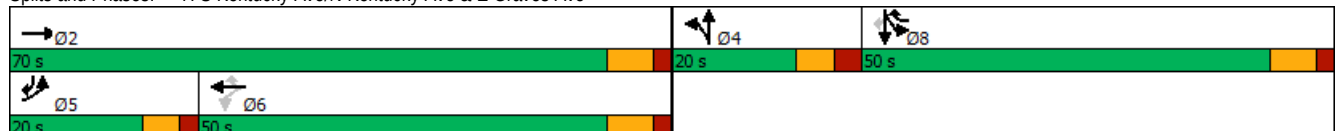
Natural Cycle: 70

Control Type: Actuated-Uncoordinated

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

Queue shown is maximum after two cycles.

Splits and Phases: 7: S Kentucky Ave/N Kentucky Ave & E Graves Ave



HCM 6th Signalized Intersection Summary
7: S Kentucky Ave/N Kentucky Ave & E Graves Ave

2019 Existing Conditions
Timing Plan: AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	123	237	5	7	452	166	17	12	5	68	6	300
Future Volume (veh/h)	123	237	5	7	452	166	17	12	5	68	6	300
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1737	1737	1737	1841	1841	1841	1870	1870	1870	1811	1811	1811
Adj Flow Rate, veh/h	141	272	6	8	520	148	20	14	3	78	7	184
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	11	11	11	4	4	4	2	2	2	6	6	6
Cap, veh/h	175	906	20	474	645	764	48	34	7	241	253	377
Arrive On Green	0.11	0.53	0.53	0.35	0.35	0.35	0.05	0.05	0.05	0.14	0.14	0.14
Sat Flow, veh/h	1654	1693	37	1084	1841	1560	971	679	146	1725	1811	1535
Grp Volume(v), veh/h	141	0	278	8	520	148	37	0	0	78	7	184
Grp Sat Flow(s),veh/h/ln	1654	0	1730	1084	1841	1560	1796	0	0	1725	1811	1535
Q Serve(g_s), s	6.3	0.0	6.8	0.4	19.5	4.1	1.5	0.0	0.0	3.1	0.3	7.8
Cycle Q Clear(g_c), s	6.3	0.0	6.8	0.4	19.5	4.1	1.5	0.0	0.0	3.1	0.3	7.8
Prop In Lane	1.00		0.02	1.00		1.00	0.54		0.08	1.00		1.00
Lane Grp Cap(c), veh/h	175	0	926	474	645	764	90	0	0	241	253	377
V/C Ratio(X)	0.80	0.00	0.30	0.02	0.81	0.19	0.41	0.00	0.00	0.32	0.03	0.49
Avail Cap(c_a), veh/h	304	0	1431	706	1039	1098	306	0	0	974	1022	1029
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.3	0.0	9.8	16.2	22.4	11.0	35.1	0.0	0.0	29.5	28.3	24.6
Incr Delay (d2), s/veh	8.4	0.0	0.3	0.0	3.5	0.2	3.0	0.0	0.0	0.8	0.0	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	0.0	2.1	0.1	8.0	1.7	0.7	0.0	0.0	1.2	0.1	2.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.7	0.0	10.1	16.2	25.9	11.1	38.1	0.0	0.0	30.3	28.4	25.6
LnGrp LOS	D	A	B	B	C	B	D	A	A	C	C	C
Approach Vol, veh/h	419			676			37			269		
Approach Delay, s/veh	20.7			22.5			38.1			27.1		
Approach LOS	C			C			D			C		
Timer - Assigned Phs	2			4			5			6		
Phs Duration (G+Y+Rc), s	47.8			10.8			14.1			33.7		
Change Period (Y+Rc), s	7.0			7.0			6.0			7.0		
Max Green Setting (Gmax), s	63.0			13.0			14.0			43.0		
Max Q Clear Time (g_c+I1), s	8.8			3.5			8.3			21.5		
Green Ext Time (p_c), s	2.4			0.1			0.2			5.2		
Intersection Summary												
HCM 6th Ctrl Delay	23.3											
HCM 6th LOS	C											

Lanes, Volumes, Timings
8: N Normandy Blvd & E Graves Ave

2019 Existing Conditions
Timing Plan: AM Peak Hour

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↘	↑	↘	↗
Traffic Volume (vph)	227	118	72	337	254	209
Future Volume (vph)	227	118	72	337	254	209
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	10%	10%	5%	5%	2%	2%
Adj. Flow (vph)	247	128	78	366	276	227
Shared Lane Traffic (%)						
Lane Group Flow (vph)	375	0	78	366	276	227
Turn Type	NA		pm+pt	NA	Prot	Perm
Protected Phases	6		5	2	4	
Permitted Phases			2			4
Detector Phase	6		5	2	4	4
Switch Phase						
Minimum Initial (s)	12.0		5.0	12.0	7.0	7.0
Minimum Split (s)	19.0		12.0	19.0	13.0	13.0
Total Split (s)	45.0		20.0	65.0	25.0	25.0
Total Split (%)	50.0%		22.2%	72.2%	27.8%	27.8%
Yellow Time (s)	5.0		5.0	5.0	4.0	4.0
All-Red Time (s)	2.0		2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0		7.0	7.0	6.0	6.0
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Recall Mode	Min		None	Min	None	None
v/c Ratio	0.39		0.18	0.46	0.56	0.37
Control Delay	13.0		9.0	11.8	21.6	5.0
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	13.0		9.0	11.8	21.6	5.0
Queue Length 50th (ft)	34		12	66	76	0
Queue Length 95th (ft)	76		34	140	155	43
Internal Link Dist (ft)	3200			471	9642	
Turn Bay Length (ft)			400		200	
Base Capacity (vph)	2507		587	1777	731	786
Starvation Cap Reductn	0		0	0	0	0
Spillback Cap Reductn	0		0	0	0	0
Storage Cap Reductn	0		0	0	0	0
Reduced v/c Ratio	0.15		0.13	0.21	0.38	0.29

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 48.9

Natural Cycle: 50

Control Type: Actuated-Uncoordinated

Splits and Phases: 8: N Normandy Blvd & E Graves Ave

↖ Ø2	65 s		↖ Ø4	25 s
↙ Ø5	20 s	→ Ø6	45 s	

HCM 6th Signalized Intersection Summary
8: N Normandy Blvd & E Graves Ave

2019 Existing Conditions
Timing Plan: AM Peak Hour

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↘	↑	↘	↗
Traffic Volume (veh/h)	227	118	72	337	254	209
Future Volume (veh/h)	227	118	72	337	254	209
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1752	1752	1826	1826	1870	1870
Adj Flow Rate, veh/h	247	128	78	366	276	81
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	10	10	5	5	2	2
Cap, veh/h	583	292	455	912	367	327
Arrive On Green	0.27	0.27	0.07	0.50	0.21	0.21
Sat Flow, veh/h	2234	1076	1739	1826	1781	1585
Grp Volume(v), veh/h	190	185	78	366	276	81
Grp Sat Flow(s),veh/h/ln	1664	1558	1739	1826	1781	1585
Q Serve(g_s), s	4.1	4.3	1.3	5.5	6.4	1.9
Cycle Q Clear(g_c), s	4.1	4.3	1.3	5.5	6.4	1.9
Prop In Lane		0.69	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	452	423	455	912	367	327
V/C Ratio(X)	0.42	0.44	0.17	0.40	0.75	0.25
Avail Cap(c_a), veh/h	1431	1340	845	2397	766	682
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	13.2	13.3	9.2	6.9	16.5	14.7
Incr Delay (d2), s/veh	0.9	1.0	0.2	0.4	3.1	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	1.3	0.3	1.3	2.3	1.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	14.1	14.3	9.4	7.3	19.6	15.1
LnGrp LOS	B	B	A	A	B	B
Approach Vol, veh/h	375			444	357	
Approach Delay, s/veh	14.2			7.7	18.6	
Approach LOS	B			A	B	
Timer - Assigned Phs	2			4	5	6
Phs Duration (G+Y+Rc), s	29.1			15.1	10.1	19.0
Change Period (Y+Rc), s	7.0			6.0	7.0	7.0
Max Green Setting (Gmax), s	58.0			19.0	13.0	38.0
Max Q Clear Time (g_c+I1), s	7.5			8.4	3.3	6.3
Green Ext Time (p_c), s	3.3			0.8	0.1	3.1
Intersection Summary						
HCM 6th Ctrl Delay			13.1			
HCM 6th LOS			B			

Lanes, Volumes, Timings
9: E Graves Ave & Howland Blvd

2019 Existing Conditions
Timing Plan: AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	247	28	168	19	32	121	316	1544	11	46	413	37
Future Volume (vph)	247	28	168	19	32	121	316	1544	11	46	413	37
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	6%	6%	6%	4%	4%	4%	3%	3%	3%	8%	8%	8%
Adj. Flow (vph)	268	30	183	21	35	132	343	1678	12	50	449	40
Shared Lane Traffic (%)	45%											
Lane Group Flow (vph)	147	151	183	21	35	132	343	1690	0	50	489	0
Turn Type	Split	NA	Perm	Split	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases			4			8	2			6		
Detector Phase	4	4	4	8	8	8	5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	5.0	17.0		7.0	17.0	
Minimum Split (s)	15.0	15.0	15.0	14.5	14.5	14.5	12.0	24.5		14.0	24.5	
Total Split (s)	30.0	30.0	30.0	16.0	16.0	16.0	54.0	79.0		25.0	50.0	
Total Split (%)	20.0%	20.0%	20.0%	10.7%	10.7%	10.7%	36.0%	52.7%		16.7%	33.3%	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.5		5.0	5.5	
All-Red Time (s)	3.0	3.0	3.0	2.5	2.5	2.5	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	8.0	8.0	8.0	7.5	7.5	7.5	7.0	7.5		7.0	7.5	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Recall Mode	None	None	None	None	None	None	None	C-Min		None	C-Min	
v/c Ratio	0.75	0.76	0.52	0.23	0.36	0.50	0.55	0.81		0.35	0.29	
Control Delay	102.4	103.6	41.1	51.4	55.2	8.4	14.0	29.9		21.6	23.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	102.4	103.6	41.1	51.4	55.2	8.4	14.0	29.9		21.6	23.1	
Queue Length 50th (ft)	157	162	101	19	32	24	130	697		16	142	
Queue Length 95th (ft)	226	229	168	m24	m40	m34	194	885		40	208	
Internal Link Dist (ft)		1373			8563			569			283	
Turn Bay Length (ft)	330			565			280			185		
Base Capacity (vph)	237	239	384	98	103	270	820	2077		258	1677	
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	0.62	0.63	0.48	0.21	0.34	0.49	0.42	0.81		0.19	0.29	

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

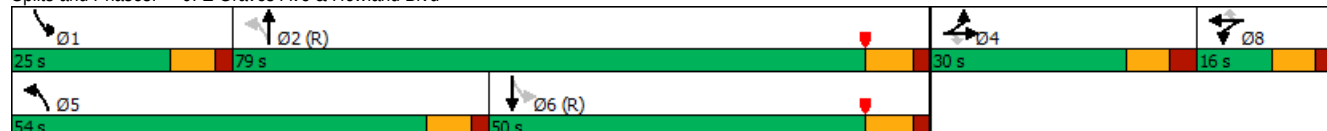
Offset: 82 (55%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow

Natural Cycle: 100

Control Type: Actuated-Coordinated

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

Splits and Phases: 9: E Graves Ave & Howland Blvd



HCM 6th Signalized Intersection Summary
9: E Graves Ave & Howland Blvd

2019 Existing Conditions
Timing Plan: AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	247	28	168	19	32	121	316	1544	11	46	413	37
Future Volume (veh/h)	247	28	168	19	32	121	316	1544	11	46	413	37
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1811	1811	1811	1841	1841	1841	1856	1856	1856	1781	1781	1781
Adj Flow Rate, veh/h	289	0	183	21	35	30	343	1678	0	50	449	35
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	6	6	6	4	4	4	3	3	3	8	8	8
Cap, veh/h	461	0	205	80	84	71	630	2025		180	1632	127
Arrive On Green	0.13	0.00	0.13	0.05	0.05	0.05	0.11	0.57	0.00	0.05	0.51	0.51
Sat Flow, veh/h	3450	0	1535	1753	1841	1560	1767	3618	0	1697	3182	247
Grp Volume(v), veh/h	289	0	183	21	35	30	343	1678	0	50	238	246
Grp Sat Flow(s),veh/h/ln	1725	0	1535	1753	1841	1560	1767	1763	0	1697	1692	1737
Q Serve(g_s), s	11.9	0.0	17.6	1.7	2.8	2.8	13.2	58.0	0.0	2.0	12.0	12.1
Cycle Q Clear(g_c), s	11.9	0.0	17.6	1.7	2.8	2.8	13.2	58.0	0.0	2.0	12.0	12.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.00	1.00		0.14
Lane Grp Cap(c), veh/h	461	0	205	80	84	71	630	2025		180	868	891
V/C Ratio(X)	0.63	0.00	0.89	0.26	0.42	0.42	0.54	0.83		0.28	0.27	0.28
Avail Cap(c_a), veh/h	506	0	225	99	104	88	993	2025		304	868	891
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.98	0.00	0.98	0.50	0.50	0.50	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	61.5	0.0	63.9	69.2	69.7	69.7	13.5	25.9	0.0	24.6	20.7	20.7
Incr Delay (d2), s/veh	2.1	0.0	30.9	0.9	1.7	2.0	0.7	4.1	0.0	0.8	0.8	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.2	0.0	8.5	0.8	1.3	1.1	5.3	24.6	0.0	0.8	5.0	5.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	63.5	0.0	94.8	70.1	71.3	71.7	14.2	30.0	0.0	25.5	21.5	21.5
LnGrp LOS	E	A	F	E	E	E	B	C		C	C	C
Approach Vol, veh/h	472			86			2021			A	534	
Approach Delay, s/veh	75.7			71.2			27.3			21.9		
Approach LOS	E			E			C			C		
Timer - Assigned Phs	1	2	4		5	6	8					
Phs Duration (G+Y+Rc), s	14.0	93.7	28.0		23.3	84.4	14.3					
Change Period (Y+Rc), s	7.0	7.5	8.0		7.0	7.5	7.5					
Max Green Setting (Gmax), s	18.0	71.5	22.0		47.0	42.5	8.5					
Max Q Clear Time (g_c+I1), s	4.0	60.0	19.6		15.2	14.1	4.8					
Green Ext Time (p_c), s	0.1	9.6	0.4		1.0	4.5	0.1					

Intersection Summary

HCM 6th Ctrl Delay 34.9
HCM 6th LOS C

Notes

User approved volume balancing among the lanes for turning movement.

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

Lanes, Volumes, Timings
10: Catalina Blvd & Howland Blvd

2019 Existing Conditions
Timing Plan: AM Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	103	369	19	26	1017	9	103	23	13	39	35	530
Future Volume (vph)	103	369	19	26	1017	9	103	23	13	39	35	530
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
Heavy Vehicles (%)	7%	7%	7%	4%	4%	4%	4%	4%	4%	2%	2%	2%
Adj. Flow (vph)	108	388	20	27	1071	9	108	24	14	41	37	558
Shared Lane Traffic (%)												
Lane Group Flow (vph)	108	408	0	27	1080	0	108	38	0	41	37	558
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		Perm	NA	Perm
Protected Phases	1	6		5	2		7	4			8	
Permitted Phases	6			2			4			8		8
Detector Phase	1	6		5	2		7	4		8	8	8
Switch Phase												
Minimum Initial (s)	5.0	11.0		5.0	11.0		5.0	7.0		7.0	7.0	7.0
Minimum Split (s)	13.5	19.5		13.5	19.5		12.0	14.0		14.0	14.0	14.0
Total Split (s)	24.0	65.0		18.0	59.0		24.0	67.0		43.0	43.0	43.0
Total Split (%)	16.0%	43.3%		12.0%	39.3%		16.0%	44.7%		28.7%	28.7%	28.7%
Yellow Time (s)	5.0	5.0		5.0	5.0		4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	3.5	3.5		3.5	3.5		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)	8.5	8.5		8.5	8.5		7.0	7.0		7.0	7.0	7.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead			Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes			Yes	Yes	Yes
Recall Mode	None	C-Min		None	C-Min		None	None		None	None	None
v/c Ratio	0.52	0.26		0.06	0.78		0.23	0.06		0.13	0.09	0.95
Control Delay	28.2	26.9		20.2	45.3		32.0	19.9		46.0	44.8	53.7
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	28.2	26.9		20.2	45.3		32.0	19.9		46.0	44.8	53.7
Queue Length 50th (ft)	54	142		13	507		67	14		31	28	280
Queue Length 95th (ft)	m91	m191		31	#669		112	39		67	60	#521
Internal Link Dist (ft)		8563			1815			941			4969	
Turn Bay Length (ft)	375			270			180			235		415
Base Capacity (vph)	256	1569		485	1391		476	698		331	452	608
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.42	0.26		0.06	0.78		0.23	0.05		0.12	0.08	0.92

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

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

Natural Cycle: 90

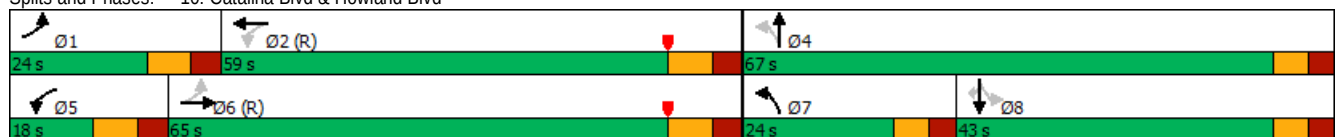
Control Type: Actuated-Coordinated

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 10: Catalina Blvd & Howland Blvd



HCM 6th Signalized Intersection Summary
10: Catalina Blvd & Howland Blvd

2019 Existing Conditions
Timing Plan: AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	103	369	19	26	1017	9	103	23	13	39	35	530
Future Volume (veh/h)	103	369	19	26	1017	9	103	23	13	39	35	530
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1796	1796	1796	1841	1841	1841	1841	1841	1841	1870	1870	1870
Adj Flow Rate, veh/h	108	388	19	27	1071	9	108	24	9	41	37	246
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, %	7	7	7	4	4	4	4	4	4	2	2	2
Cap, veh/h	275	1769	86	542	1824	15	328	361	136	287	325	276
Arrive On Green	0.04	0.53	0.53	0.02	0.51	0.51	0.06	0.28	0.28	0.17	0.17	0.17
Sat Flow, veh/h	1711	3312	162	1753	3554	30	1753	1276	479	1376	1870	1585
Grp Volume(v), veh/h	108	199	208	27	527	553	108	0	33	41	37	246
Grp Sat Flow(s),veh/h/ln	1711	1706	1767	1753	1749	1835	1753	0	1755	1376	1870	1585
Q Serve(g_s), s	4.5	9.2	9.3	1.1	31.5	31.5	7.4	0.0	2.1	3.8	2.5	22.8
Cycle Q Clear(g_c), s	4.5	9.2	9.3	1.1	31.5	31.5	7.4	0.0	2.1	3.8	2.5	22.8
Prop In Lane	1.00		0.09	1.00		0.02	1.00		0.27	1.00		1.00
Lane Grp Cap(c), veh/h	275	912	944	542	897	942	328	0	497	287	325	276
V/C Ratio(X)	0.39	0.22	0.22	0.05	0.59	0.59	0.33	0.00	0.07	0.14	0.11	0.89
Avail Cap(c_a), veh/h	377	912	944	614	897	942	416	0	702	378	449	380
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.70	0.70	0.70	0.76	0.76	0.76	1.00	0.00	1.00	0.76	0.76	0.76
Uniform Delay (d), s/veh	19.9	18.4	18.4	16.6	25.5	25.5	45.0	0.0	39.3	52.8	52.2	60.6
Incr Delay (d2), s/veh	0.6	0.4	0.4	0.0	2.1	2.0	0.6	0.0	0.1	0.2	0.2	15.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	3.7	3.8	0.4	13.2	13.8	3.3	0.0	0.9	1.3	1.2	10.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	20.6	18.8	18.8	16.6	27.6	27.5	45.6	0.0	39.3	53.0	52.4	76.5
LnGrp LOS	C	B	B	B	C	C	D	A	D	D	D	E
Approach Vol, veh/h	515			1107			141			324		
Approach Delay, s/veh	19.2			27.3			44.2			70.8		
Approach LOS	B			C			D			E		
Timer - Assigned Phs	1	2		4	5	6	7	8				
Phs Duration (G+Y+Rc), s	15.0	85.5		49.5	11.9	88.6	16.4	33.1				
Change Period (Y+Rc), s	8.5	8.5		7.0	8.5	8.5	7.0	7.0				
Max Green Setting (Gmax), s	15.5	50.5		60.0	9.5	56.5	17.0	36.0				
Max Q Clear Time (g_c+I1), s	6.5	33.5		4.1	3.1	11.3	9.4	24.8				
Green Ext Time (p_c), s	0.1	8.2		0.2	0.0	3.5	0.1	1.3				
Intersection Summary												
HCM 6th Ctrl Delay	33.2											
HCM 6th LOS	C											

Lanes, Volumes, Timings
11: Lake Helen Osteen Rd & Catalina Blvd

2019 Existing Conditions
Timing Plan: AM Peak Hour

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	34	72	385	265	82	158
Future Volume (vph)	34	72	385	265	82	158
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	5%	5%
Adj. Flow (vph)	38	80	428	294	91	176
Shared Lane Traffic (%)						
Lane Group Flow (vph)	38	80	428	294	267	0
Turn Type	Prot	Perm	pm+pt	NA	NA	
Protected Phases	8		1	6	2	
Permitted Phases		8	6			
Detector Phase	8	8	1	6	2	
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	15.0	15.0	
Minimum Split (s)	11.5	11.5	12.5	22.5	22.5	
Total Split (s)	20.0	20.0	20.0	50.0	30.0	
Total Split (%)	28.6%	28.6%	28.6%	71.4%	42.9%	
Yellow Time (s)	3.5	3.5	5.0	5.0	5.0	
All-Red Time (s)	3.0	3.0	2.5	2.5	2.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.5	6.5	7.5	7.5	7.5	
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	None	None	None	Min	Min	
v/c Ratio	0.13	0.25	0.61	0.23	0.45	
Control Delay	23.1	8.7	9.9	5.8	11.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	23.1	8.7	9.9	5.8	11.5	
Queue Length 50th (ft)	12	0	65	40	33	
Queue Length 95th (ft)	36	32	123	78	91	
Internal Link Dist (ft)	4969			10882	661	
Turn Bay Length (ft)	185		240			
Base Capacity (vph)	451	463	730	1446	785	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.08	0.17	0.59	0.20	0.34	

Intersection Summary

Cycle Length: 70

Actuated Cycle Length: 54.8

Natural Cycle: 55

Control Type: Actuated-Uncoordinated

Splits and Phases: 11: Lake Helen Osteen Rd & Catalina Blvd



HCM 6th Signalized Intersection Summary
11: Lake Helen Osteen Rd & Catalina Blvd

2019 Existing Conditions
Timing Plan: AM Peak Hour

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	34	72	385	265	82	158
Future Volume (veh/h)	34	72	385	265	82	158
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1826	1826
Adj Flow Rate, veh/h	38	11	428	294	91	154
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	5	5
Cap, veh/h	89	79	719	1241	187	317
Arrive On Green	0.05	0.05	0.20	0.66	0.31	0.31
Sat Flow, veh/h	1781	1585	1781	1870	609	1031
Grp Volume(v), veh/h	38	11	428	294	0	245
Grp Sat Flow(s),veh/h/ln	1781	1585	1781	1870	0	1640
Q Serve(g_s), s	1.0	0.3	6.9	3.1	0.0	5.9
Cycle Q Clear(g_c), s	1.0	0.3	6.9	3.1	0.0	5.9
Prop In Lane	1.00	1.00	1.00			0.63
Lane Grp Cap(c), veh/h	89	79	719	1241	0	504
V/C Ratio(X)	0.43	0.14	0.60	0.24	0.00	0.49
Avail Cap(c_a), veh/h	492	438	814	1628	0	756
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	22.5	22.2	7.5	3.3	0.0	13.8
Incr Delay (d2), s/veh	6.9	1.7	1.8	0.2	0.0	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.1	1.8	0.4	0.0	1.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	29.4	23.9	9.3	3.5	0.0	15.3
LnGrp LOS	C	C	A	A	A	B
Approach Vol, veh/h	49			722	245	
Approach Delay, s/veh	28.2			6.9	15.3	
Approach LOS	C			A	B	
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	17.4	22.5			39.9	8.9
Change Period (Y+Rc), s	7.5	7.5			7.5	6.5
Max Green Setting (Gmax), s	12.5	22.5			42.5	13.5
Max Q Clear Time (g_c+I1), s	8.9	7.9			5.1	3.0
Green Ext Time (p_c), s	1.0	2.0			3.4	0.1
Intersection Summary						
HCM 6th Ctrl Delay			10.0			
HCM 6th LOS			A			

Lanes, Volumes, Timings
12: Providence Blvd & Howland Blvd

2019 Existing Conditions
Timing Plan: AM Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	297	187	27	707	0	228	0	19	1	0	2
Future Volume (vph)	0	297	187	27	707	0	228	0	19	1	0	2
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
Heavy Vehicles (%)	9%	9%	9%	5%	5%	5%	3%	3%	3%	2%	2%	2%
Adj. Flow (vph)	0	313	197	28	744	0	240	0	20	1	0	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	313	197	28	744	0	240	20	0	0	3	0
Turn Type	Perm	NA	Perm	pm+pt	NA		pm+pt	NA		Perm	NA	
Protected Phases		6		5	2		7	4			8	
Permitted Phases	6		6	2			4			8		
Detector Phase	6	6	6	5	2		7	4		8	8	
Switch Phase												
Minimum Initial (s)	11.0	11.0	11.0	5.0	11.0		5.0	7.0		7.0	7.0	
Minimum Split (s)	18.0	18.0	18.0	12.0	18.0		12.0	14.0		14.0	14.0	
Total Split (s)	85.0	85.0	85.0	20.0	105.0		25.0	50.0		25.0	25.0	
Total Split (%)	54.8%	54.8%	54.8%	12.9%	67.7%		16.1%	32.3%		16.1%	16.1%	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		4.5	4.5		4.5	4.5	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.5	2.5		2.5	2.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0			7.0	
Lead/Lag	Lag	Lag	Lag	Lead			Lead			Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes			Yes	Yes	
Recall Mode	Min	Min	Min	None	C-Min		None	None		None	None	
v/c Ratio		0.28	0.19	0.04	0.58		0.71	0.03			0.02	
Control Delay		15.4	2.8	9.9	15.8		66.9	0.1			0.0	
Queue Delay		0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Total Delay		15.4	2.8	9.9	15.8		66.9	0.1			0.0	
Queue Length 50th (ft)		133	0	7	323		232	0			0	
Queue Length 95th (ft)		275	44	27	684		272	0			0	
Internal Link Dist (ft)		1815			1369			8692			129	
Turn Bay Length (ft)				160			280					
Base Capacity (vph)		1145	1041	702	1298		340	862			309	
Starvation Cap Reductn		0	0	0	0		0	0			0	
Spillback Cap Reductn		0	0	0	0		0	0			0	
Storage Cap Reductn		0	0	0	0		0	0			0	
Reduced v/c Ratio		0.27	0.19	0.04	0.57		0.71	0.02			0.01	

Intersection Summary

Cycle Length: 155

Actuated Cycle Length: 155

Offset: 0 (0%), Referenced to phase 2:WBTL, Start of Yellow

Natural Cycle: 60

Control Type: Actuated-Coordinated

Splits and Phases: 12: Providence Blvd & Howland Blvd



HCM 6th Signalized Intersection Summary
12: Providence Blvd & Howland Blvd

2019 Existing Conditions
Timing Plan: AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	297	187	27	707	0	228	0	19	1	0	2
Future Volume (veh/h)	0	297	187	27	707	0	228	0	19	1	0	2
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1767	1767	1767	1826	1826	1826	1856	1856	1856	1870	1870	1870
Adj Flow Rate, veh/h	0	313	165	28	744	0	240	0	5	1	0	1
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, %	9	9	9	5	5	5	3	3	3	2	2	2
Cap, veh/h	46	1182	1001	620	1345	0	291	0	272	44	0	9
Arrive On Green	0.00	0.67	0.67	0.02	0.74	0.00	0.12	0.00	0.17	0.01	0.00	0.01
Sat Flow, veh/h	676	1767	1497	1739	1826	0	1767	0	1572	746	0	746
Grp Volume(v), veh/h	0	313	165	28	744	0	240	0	5	2	0	0
Grp Sat Flow(s),veh/h/ln	676	1767	1497	1739	1826	0	1767	0	1572	1493	0	0
Q Serve(g_s), s	0.0	11.1	6.4	0.7	28.1	0.0	18.0	0.0	0.4	0.2	0.0	0.0
Cycle Q Clear(g_c), s	0.0	11.1	6.4	0.7	28.1	0.0	18.0	0.0	0.4	0.2	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	0.50		0.50
Lane Grp Cap(c), veh/h	46	1182	1001	620	1345	0	291	0	272	52	0	0
V/C Ratio(X)	0.00	0.26	0.16	0.05	0.55	0.00	0.82	0.00	0.02	0.04	0.00	0.00
Avail Cap(c_a), veh/h	46	1182	1001	727	1345	0	291	0	436	208	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.98	0.98	1.00	1.00	0.00	0.86	0.00	0.86	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	10.3	9.5	7.5	9.1	0.0	66.2	0.0	53.2	75.8	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.2	0.1	0.0	1.6	0.0	15.6	0.0	0.0	0.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	4.1	2.1	0.3	10.4	0.0	10.7	0.0	0.2	0.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	10.5	9.7	7.5	10.7	0.0	81.8	0.0	53.2	76.1	0.0	0.0
LnGrp LOS	A	B	A	A	B	A	F	A	D	E	A	A
Approach Vol, veh/h	478			772			245			2		
Approach Delay, s/veh	10.2			10.6			81.3			76.1		
Approach LOS	B			B			F			E		
Timer - Assigned Phs	2			4			5			6		
Phs Duration (G+Y+Rc), s	121.2			33.8			10.5			110.7		
Change Period (Y+Rc), s	7.0			7.0			7.0			7.0		
Max Green Setting (Gmax), s	98.0			43.0			13.0			78.0		
Max Q Clear Time (g_c+I1), s	30.1			2.4			2.7			13.1		
Green Ext Time (p_c), s	9.0			0.0			0.0			3.7		
Intersection Summary												
HCM 6th Ctrl Delay	22.1											
HCM 6th LOS	C											

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	33	168	134	87	59	129	758	64	64	1022	42
Future Volume (vph)	25	33	168	134	87	59	129	758	64	64	1022	42
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	2%	2%	2%	8%	8%	8%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	27	36	185	147	96	65	142	833	70	70	1123	46
Shared Lane Traffic (%)												
Lane Group Flow (vph)	27	36	185	147	161	0	142	903	0	70	1169	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8		8	4			6			2		
Detector Phase	3	8	8	7	4		1	6		5	2	
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0		5.0	15.0		5.0	15.0	
Minimum Split (s)	11.9	16.9	16.9	11.7	16.9		12.1	22.1		11.8	22.1	
Total Split (s)	18.0	40.0	40.0	18.0	40.0		32.0	72.0		20.0	60.0	
Total Split (%)	12.0%	26.7%	26.7%	12.0%	26.7%		21.3%	48.0%		13.3%	40.0%	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.9	4.9		4.8	4.9	
All-Red Time (s)	2.9	2.9	2.9	2.7	2.9		2.2	2.2		2.0	2.2	
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)	6.9	6.9	6.9	6.7	6.9		7.1	7.1		6.8	7.1	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	None	None	None	None		None	C-Min		None	C-Min	
v/c Ratio	0.13	0.19	0.57	0.56	0.55		0.48	0.44		0.19	0.63	
Control Delay	45.0	61.4	14.4	57.6	58.2		14.6	18.5		8.4	28.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	45.0	61.4	14.4	57.6	58.2		14.6	18.5		8.4	28.5	
Queue Length 50th (ft)	21	33	0	125	135		43	243		23	446	
Queue Length 95th (ft)	46	66	72	181	207		85	355		25	644	
Internal Link Dist (ft)		835			5352			877			5260	
Turn Bay Length (ft)	330		755	300			240			285		
Base Capacity (vph)	255	411	493	261	380		412	2039		427	1853	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.11	0.09	0.38	0.56	0.42		0.34	0.44		0.16	0.63	

Intersection Summary

Cycle Length: 150

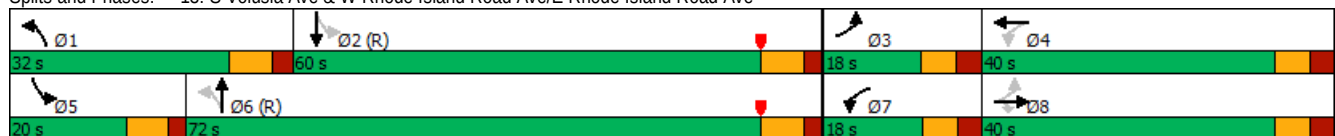
Actuated Cycle Length: 150

Offset: 86 (57%), Referenced to phase 2:SBTL and 6:NBTL, Start of Yellow

Natural Cycle: 80

Control Type: Actuated-Coordinated

Splits and Phases: 13: S Volusia Ave & W Rhode Island Road Ave/E Rhode Island Road Ave



HCM 6th Signalized Intersection Summary

13: S Volusia Ave & W Rhode Island Road Ave/E Rhode Island Road Ave

2019 Existing Conditions

Timing Plan: AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	33	168	134	87	59	129	758	64	64	1022	42
Future Volume (veh/h)	25	33	168	134	87	59	129	758	64	64	1022	42
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1781	1781	1781	1826	1826	1826	1826	1826	1826
Adj Flow Rate, veh/h	27	36	31	147	96	40	142	833	62	70	1123	41
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	8	8	8	5	5	5	5	5	5
Cap, veh/h	140	125	106	237	141	59	335	2105	157	419	2145	78
Arrive On Green	0.02	0.07	0.07	0.08	0.12	0.12	0.04	0.64	0.64	0.03	0.63	0.63
Sat Flow, veh/h	1781	1870	1585	1697	1194	498	1739	3273	244	1739	3413	125
Grp Volume(v), veh/h	27	36	31	147	0	136	142	441	454	70	571	593
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1697	0	1692	1739	1735	1782	1739	1735	1803
Q Serve(g_s), s	2.1	2.7	2.8	11.3	0.0	11.6	4.4	18.3	18.3	2.1	27.3	27.3
Cycle Q Clear(g_c), s	2.1	2.7	2.8	11.3	0.0	11.6	4.4	18.3	18.3	2.1	27.3	27.3
Prop In Lane	1.00		1.00	1.00		0.29	1.00		0.14	1.00		0.07
Lane Grp Cap(c), veh/h	140	125	106	237	0	200	335	1116	1146	419	1090	1133
V/C Ratio(X)	0.19	0.29	0.29	0.62	0.00	0.68	0.42	0.40	0.40	0.17	0.52	0.52
Avail Cap(c_a), veh/h	231	413	350	237	0	373	547	1116	1146	517	1090	1133
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.91	0.00	0.91	1.00	1.00	1.00	0.87	0.87	0.87
Uniform Delay (d), s/veh	63.2	66.6	66.6	58.9	0.0	63.4	12.3	12.8	12.8	10.0	15.4	15.4
Incr Delay (d2), s/veh	0.7	1.3	1.5	4.4	0.0	3.7	0.8	1.1	1.0	0.2	1.6	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	1.4	1.2	5.4	0.0	5.2	1.6	7.0	7.2	0.8	10.6	11.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	63.9	67.9	68.2	63.4	0.0	67.1	13.2	13.9	13.8	10.2	17.0	17.0
LnGrp LOS	E	E	E	E	A	E	B	B	B	B	B	B
Approach Vol, veh/h	94			283			1037			1234		
Approach Delay, s/veh	66.8			65.2			13.8			16.6		
Approach LOS	E			E			B			B		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	13.8	101.3	10.3	24.6	11.5	103.6	18.0	16.9				
Change Period (Y+Rc), s	* 7.1	* 7.1	6.9	6.9	6.8	* 7.1	* 6.7	6.9				
Max Green Setting (Gmax), s	* 25	* 53	11.1	33.1	13.2	* 65	* 11	33.1				
Max Q Clear Time (g_c+I1), s	6.4	29.3	4.1	13.6	4.1	20.3	13.3	4.8				
Green Ext Time (p_c), s	0.3	10.8	0.0	0.6	0.1	9.3	0.0	0.2				

Intersection Summary

HCM 6th Ctrl Delay 22.5

HCM 6th LOS C

Notes

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

Lanes, Volumes, Timings
14: Veterans Memorial Pkwy & E Rhode Island Road Ave

2019 Existing Conditions
Timing Plan: AM Peak Hour

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	96	156	171	170	488	208
Future Volume (vph)	96	156	171	170	488	208
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	2%	2%	5%	5%	5%	5%
Adj. Flow (vph)	109	177	194	193	555	236
Shared Lane Traffic (%)						
Lane Group Flow (vph)	109	177	194	193	555	236
Turn Type	Prot	Perm	pm+pt	NA	NA	Perm
Protected Phases	4		1	6	2	
Permitted Phases		4	6			2
Detector Phase	4	4	1	6	2	2
Switch Phase						
Minimum Initial (s)	7.0	7.0	5.0	11.0	11.0	11.0
Minimum Split (s)	13.5	13.5	13.5	20.5	20.5	20.5
Total Split (s)	20.0	20.0	15.0	50.0	35.0	35.0
Total Split (%)	28.6%	28.6%	21.4%	71.4%	50.0%	50.0%
Yellow Time (s)	3.5	3.5	5.5	5.5	5.5	5.5
All-Red Time (s)	3.0	3.0	3.0	4.0	4.0	4.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	8.5	9.5	9.5	9.5
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Recall Mode	None	None	None	Min	Min	Min
v/c Ratio	0.41	0.46	0.53	0.18	0.85	0.34
Control Delay	30.4	8.9	11.1	6.6	33.9	3.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.4	8.9	11.1	6.6	33.9	3.9
Queue Length 50th (ft)	41	0	28	29	191	0
Queue Length 95th (ft)	81	44	60	61	#368	38
Internal Link Dist (ft)	5352			4702	7026	
Turn Bay Length (ft)	450		385			385
Base Capacity (vph)	378	477	369	1161	731	761
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.29	0.37	0.53	0.17	0.76	0.31

Intersection Summary

Cycle Length: 70

Actuated Cycle Length: 63.6

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

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

Queue shown is maximum after two cycles.

Splits and Phases: 14: Veterans Memorial Pkwy & E Rhode Island Road Ave



HCM 6th Signalized Intersection Summary
14: Veterans Memorial Pkwy & E Rhode Island Road Ave

2019 Existing Conditions
Timing Plan: AM Peak Hour

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	96	156	171	170	488	208
Future Volume (veh/h)	96	156	171	170	488	208
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1826	1826	1826	1826
Adj Flow Rate, veh/h	109	74	194	193	555	236
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	5	5	5	5
Cap, veh/h	206	183	350	1105	653	553
Arrive On Green	0.12	0.12	0.10	0.61	0.36	0.36
Sat Flow, veh/h	1781	1585	1739	1826	1826	1547
Grp Volume(v), veh/h	109	74	194	193	555	236
Grp Sat Flow(s),veh/h/ln	1781	1585	1739	1826	1826	1547
Q Serve(g_s), s	3.3	2.5	3.7	2.7	16.1	6.6
Cycle Q Clear(g_c), s	3.3	2.5	3.7	2.7	16.1	6.6
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	206	183	350	1105	653	553
V/C Ratio(X)	0.53	0.40	0.55	0.17	0.85	0.43
Avail Cap(c_a), veh/h	420	373	374	1291	813	689
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.9	23.5	12.2	5.0	17.0	14.0
Incr Delay (d2), s/veh	2.1	1.4	1.6	0.1	7.1	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	0.9	1.1	0.6	6.4	1.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	26.0	24.9	13.7	5.1	24.1	14.5
LnGrp LOS	C	C	B	A	C	B
Approach Vol, veh/h	183			387	791	
Approach Delay, s/veh	25.6			9.4	21.2	
Approach LOS	C			A	C	
Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	14.2	30.0		13.1		44.2
Change Period (Y+Rc), s	8.5	9.5		6.5		9.5
Max Green Setting (Gmax), s	6.5	25.5		13.5		40.5
Max Q Clear Time (g_c+I1), s	5.7	18.1		5.3		4.7
Green Ext Time (p_c), s	0.0	2.4		0.3		1.0
Intersection Summary						
HCM 6th Ctrl Delay			18.4			
HCM 6th LOS			B			

Lanes, Volumes, Timings
15: N Normandy Blvd & Elkcam Blvd

2019 Existing Conditions
Timing Plan: AM Peak Hour

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	299	196	186	92	63	140
Future Volume (vph)	299	196	186	92	63	140
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	3%	3%	3%	3%	6%	6%
Adj. Flow (vph)	318	209	198	98	67	149
Shared Lane Traffic (%)						
Lane Group Flow (vph)	318	209	296	0	67	149
Turn Type	Prot	Perm	NA		pm+pt	NA
Protected Phases	4		6		5	2
Permitted Phases		4			2	
Detector Phase	4	4	6		5	2
Switch Phase						
Minimum Initial (s)	5.0	5.0	12.0		5.0	12.0
Minimum Split (s)	11.5	11.5	19.0		11.5	18.5
Total Split (s)	20.0	20.0	35.0		15.0	50.0
Total Split (%)	28.6%	28.6%	50.0%		21.4%	71.4%
Yellow Time (s)	4.0	4.0	4.5		4.0	4.0
All-Red Time (s)	2.5	2.5	2.5		2.5	2.5
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	6.5	6.5	7.0		6.5	6.5
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	None	None	Min		None	Min
v/c Ratio	0.64	0.35	0.31		0.15	0.10
Control Delay	25.0	5.1	12.1		7.9	7.4
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	25.0	5.1	12.1		7.9	7.4
Queue Length 50th (ft)	89	0	26		10	11
Queue Length 95th (ft)	#197	41	55		25	23
Internal Link Dist (ft)	7820		5060			9642
Turn Bay Length (ft)	460				275	
Base Capacity (vph)	513	607	2062		482	3029
Starvation Cap Reductn	0	0	0		0	0
Spillback Cap Reductn	0	0	0		0	0
Storage Cap Reductn	0	0	0		0	0
Reduced v/c Ratio	0.62	0.34	0.14		0.14	0.05

Intersection Summary

Cycle Length: 70

Actuated Cycle Length: 47.3

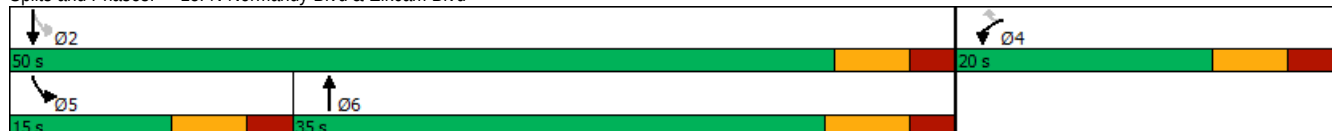
Natural Cycle: 55

Control Type: Actuated-Uncoordinated

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

Queue shown is maximum after two cycles.

Splits and Phases: 15: N Normandy Blvd & Elkcam Blvd



HCM 6th Signalized Intersection Summary
15: N Normandy Blvd & Elkcam Blvd

2019 Existing Conditions
Timing Plan: AM Peak Hour

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	299	196	186	92	63	140
Future Volume (veh/h)	299	196	186	92	63	140
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1811	1811
Adj Flow Rate, veh/h	318	113	198	60	67	149
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	3	3	3	3	6	6
Cap, veh/h	399	355	716	211	493	1632
Arrive On Green	0.23	0.23	0.27	0.27	0.06	0.47
Sat Flow, veh/h	1767	1572	2777	791	1725	3532
Grp Volume(v), veh/h	318	113	128	130	67	149
Grp Sat Flow(s),veh/h/ln	1767	1572	1763	1713	1725	1721
Q Serve(g_s), s	7.6	2.7	2.6	2.7	1.1	1.1
Cycle Q Clear(g_c), s	7.6	2.7	2.6	2.7	1.1	1.1
Prop In Lane	1.00	1.00		0.46	1.00	
Lane Grp Cap(c), veh/h	399	355	470	457	493	1632
V/C Ratio(X)	0.80	0.32	0.27	0.28	0.14	0.09
Avail Cap(c_a), veh/h	530	472	1097	1066	710	3328
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.4	14.5	13.0	13.1	9.4	6.5
Incr Delay (d2), s/veh	6.2	0.5	0.3	0.3	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.2	2.6	0.9	0.9	0.3	0.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	22.7	15.0	13.3	13.4	9.5	6.5
LnGrp LOS	C	B	B	B	A	A
Approach Vol, veh/h	431		258			216
Approach Delay, s/veh	20.7		13.4			7.5
Approach LOS	C		B			A
Timer - Assigned Phs	2		4	5	6	
Phs Duration (G+Y+Rc), s	28.3		16.6	9.3	19.0	
Change Period (Y+Rc), s	* 7		6.5	6.5	7.0	
Max Green Setting (Gmax), s	* 44		13.5	8.5	28.0	
Max Q Clear Time (g_c+I1), s	3.1		9.6	3.1	4.7	
Green Ext Time (p_c), s	0.9		0.5	0.0	1.4	
Intersection Summary						
HCM 6th Ctrl Delay			15.4			
HCM 6th LOS			B			
Notes						

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

Lanes, Volumes, Timings
16: Fort Smith Blvd & Elkcaml Blvd

2019 Existing Conditions
Timing Plan: AM Peak Hour

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	97	54	7	242	124	5
Future Volume (vph)	97	54	7	242	124	5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	3%	3%	3%	3%
Adj. Flow (vph)	108	60	8	269	138	6
Shared Lane Traffic (%)						
Lane Group Flow (vph)	168	0	0	277	144	0
Sign Control	Free			Free	Stop	

Intersection Summary

Control Type: Unsignalized

Intersection						
Int Delay, s/veh	3.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	97	54	7	242	124	5
Future Vol, veh/h	97	54	7	242	124	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	5	5	3	3	3	3
Mvmt Flow	108	60	8	269	138	6
Major/Minor	Major1	Major2		Minor1		
Conflicting Flow All	0	0	168	0	423	138
Stage 1	-	-	-	-	138	-
Stage 2	-	-	-	-	285	-
Critical Hdwy	-	-	4.13	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.227	-	3.527	3.327
Pot Cap-1 Maneuver	-	-	1404	-	586	908
Stage 1	-	-	-	-	886	-
Stage 2	-	-	-	-	761	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1404	-	582	908
Mov Cap-2 Maneuver	-	-	-	-	582	-
Stage 1	-	-	-	-	880	-
Stage 2	-	-	-	-	761	-
Approach	EB	WB		NB		
HCM Control Delay, s	0	0.2		13		
HCM LOS	B					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	590	-	-	1404	-	
HCM Lane V/C Ratio	0.243	-	-	0.006	-	
HCM Control Delay (s)	13	-	-	7.6	0	
HCM Lane LOS	B	-	-	A	A	
HCM 95th %tile Q(veh)	0.9	-	-	0	-	

Lanes, Volumes, Timings
17: Providence Blvd & Elkcaml Blvd

2019 Existing Conditions
Timing Plan: AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	43	76	19	123	150	72	19	253	93	38	180	27
Future Volume (vph)	43	76	19	123	150	72	19	253	93	38	180	27
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	4%	4%	4%	3%	3%	3%	5%	5%	5%	7%	7%	7%
Adj. Flow (vph)	46	81	20	131	160	77	20	269	99	40	191	29
Shared Lane Traffic (%)												
Lane Group Flow (vph)	46	101	0	131	237	0	20	269	99	40	191	29
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6			8		8	4		4
Detector Phase	5	2		1	6		3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	5.0	6.0		5.0	6.0		5.0	6.0	6.0	5.0	6.0	6.0
Minimum Split (s)	12.5	13.5		12.5	13.5		12.0	13.0	13.0	12.5	13.5	13.5
Total Split (s)	15.0	30.0		15.0	30.0		20.0	35.0	35.0	20.0	35.0	35.0
Total Split (%)	15.0%	30.0%		15.0%	30.0%		20.0%	35.0%	35.0%	20.0%	35.0%	35.0%
Yellow Time (s)	4.5	4.5		4.5	4.5		4.0	4.0	4.0	4.5	4.5	4.5
All-Red Time (s)	3.0	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	0.0
Total Lost Time (s)	7.5	7.5		7.5	7.5		7.0	7.0	7.0	7.5	7.5	7.5
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Min		None	Min		None	None	None	None	None	None
v/c Ratio	0.12	0.26		0.30	0.48		0.05	0.56	0.18	0.11	0.36	0.05
Control Delay	17.5	26.8		19.0	28.1		14.8	30.7	0.7	15.3	24.1	0.1
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.5	26.8		19.0	28.1		14.8	30.7	0.7	15.3	24.1	0.1
Queue Length 50th (ft)	13	37		40	94		5	117	0	11	58	0
Queue Length 95th (ft)	40	89		93	194		20	216	0	32	150	0
Internal Link Dist (ft)		4411			6336			3885			8692	
Turn Bay Length (ft)	375			225			235		365	220		295
Base Capacity (vph)	411	693		450	695		563	872	851	495	868	846
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.15		0.29	0.34		0.04	0.31	0.12	0.08	0.22	0.03

Intersection Summary

Cycle Length: 100

Actuated Cycle Length: 68.2

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Splits and Phases: 17: Providence Blvd & Elkcaml Blvd

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

HCM 6th Signalized Intersection Summary
17: Providence Blvd & Elkcam Blvd

2019 Existing Conditions
Timing Plan: AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	43	76	19	123	150	72	19	253	93	38	180	27
Future Volume (veh/h)	43	76	19	123	150	72	19	253	93	38	180	27
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1841	1841	1841	1856	1856	1856	1826	1826	1826	1796	1796	1796
Adj Flow Rate, veh/h	46	81	13	131	160	56	20	269	46	40	191	14
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	4	4	4	3	3	3	5	5	5	7	7	7
Cap, veh/h	274	205	33	389	227	80	336	384	325	273	425	360
Arrive On Green	0.05	0.13	0.13	0.09	0.17	0.17	0.02	0.21	0.21	0.04	0.24	0.24
Sat Flow, veh/h	1753	1548	248	1767	1313	460	1739	1826	1547	1711	1796	1522
Grp Volume(v), veh/h	46	0	94	131	0	216	20	269	46	40	191	14
Grp Sat Flow(s),veh/h/ln	1753	0	1796	1767	0	1773	1739	1826	1547	1711	1796	1522
Q Serve(g_s), s	1.3	0.0	2.7	3.5	0.0	6.5	0.5	7.7	1.4	1.0	5.1	0.4
Cycle Q Clear(g_c), s	1.3	0.0	2.7	3.5	0.0	6.5	0.5	7.7	1.4	1.0	5.1	0.4
Prop In Lane	1.00		0.14	1.00		0.26	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	274	0	238	389	0	307	336	384	325	273	425	360
V/C Ratio(X)	0.17	0.00	0.40	0.34	0.00	0.70	0.06	0.70	0.14	0.15	0.45	0.04
Avail Cap(c_a), veh/h	427	0	714	470	0	705	694	903	765	580	873	740
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	19.8	0.0	22.5	18.7	0.0	22.0	16.9	20.7	18.2	16.8	18.5	16.7
Incr Delay (d2), s/veh	0.3	0.0	1.5	0.5	0.0	4.2	0.1	3.3	0.3	0.2	1.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.0	1.1	1.4	0.0	2.8	0.2	3.3	0.5	0.4	2.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	20.1	0.0	24.0	19.2	0.0	26.2	17.0	24.0	18.5	17.0	19.5	16.7
LnGrp LOS	C	A	C	B	A	C	B	C	B	B	B	B
Approach Vol, veh/h	140			347			335			245		
Approach Delay, s/veh	22.7			23.6			22.8			19.0		
Approach LOS	C			C			C			B		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.4	15.0	8.3	20.9	10.1	17.3	9.8	19.4				
Change Period (Y+Rc), s	7.5	7.5	7.0	7.5	7.5	7.5	7.5	* 7.5				
Max Green Setting (Gmax), s	7.5	22.5	13.0	27.5	7.5	22.5	12.5	* 28				
Max Q Clear Time (g_c+I1), s	5.5	4.7	2.5	7.1	3.3	8.5	3.0	9.7				
Green Ext Time (p_c), s	0.1	0.5	0.0	1.4	0.0	1.3	0.0	2.2				

Intersection Summary

HCM 6th Ctrl Delay 22.2
HCM 6th LOS C

Notes

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

Lanes, Volumes, Timings
18: Lake Helen Osteen Rd & Elkcaml Blvd

2019 Existing Conditions
Timing Plan: AM Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	68	86	13	98	240	18	20	153	40	5	169	63
Future Volume (vph)	68	86	13	98	240	18	20	153	40	5	169	63
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	5%	5%	5%	4%	4%	4%	3%	3%	3%	5%	5%	5%
Adj. Flow (vph)	74	93	14	107	261	20	22	166	43	5	184	68
Shared Lane Traffic (%)												
Lane Group Flow (vph)	74	107	0	107	281	0	22	209	0	5	252	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		5	2		6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		5.0	7.0		7.0	7.0	
Minimum Split (s)	13.5	13.5		13.5	13.5		11.5	14.0		13.5	13.5	
Total Split (s)	20.0	20.0		20.0	20.0		20.0	45.0		25.0	25.0	
Total Split (%)	30.8%	30.8%		30.8%	30.8%		30.8%	69.2%		38.5%	38.5%	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.5		4.0	4.0	
All-Red Time (s)	2.5	2.5		2.5	2.5		2.5	2.5		2.5	2.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.5	6.5		6.5	6.5		6.5	7.0		6.5	6.5	
Lead/Lag							Lead			Lag	Lag	
Lead-Lag Optimize?							Yes			Yes	Yes	
Recall Mode	None	None		None	None		None	Min		Min	Min	
v/c Ratio	0.24	0.20		0.29	0.52		0.05	0.34		0.01	0.47	
Control Delay	15.0	12.5		15.2	17.4		8.0	9.2		12.2	14.4	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	15.0	12.5		15.2	17.4		8.0	9.2		12.2	14.4	
Queue Length 50th (ft)	9	12		14	38		3	25		1	32	
Queue Length 95th (ft)	52	62		70	174		11	57		8	119	
Internal Link Dist (ft)		10882			412			5142			782	
Turn Bay Length (ft)	405			105			100			170		
Base Capacity (vph)	395	666		468	676		694	1668		579	900	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.19	0.16		0.23	0.42		0.03	0.13		0.01	0.28	

Intersection Summary

Cycle Length: 65

Actuated Cycle Length: 38.2

Natural Cycle: 55

Control Type: Actuated-Uncoordinated

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

Queue shown is maximum after two cycles.

Splits and Phases: 18: Lake Helen Osteen Rd & Elkcaml Blvd



HCM 6th Signalized Intersection Summary
18: Lake Helen Osteen Rd & Elkcam Blvd

2019 Existing Conditions
Timing Plan: AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	68	86	13	98	240	18	20	153	40	5	169	63
Future Volume (veh/h)	68	86	13	98	240	18	20	153	40	5	169	63
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1826	1826	1826	1841	1841	1841	1856	1856	1856	1826	1826	1826
Adj Flow Rate, veh/h	74	93	10	107	261	18	22	166	25	5	184	42
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	5	5	5	4	4	4	3	3	3	5	5	5
Cap, veh/h	320	417	45	457	438	30	323	616	93	414	280	64
Arrive On Green	0.26	0.26	0.26	0.26	0.26	0.26	0.03	0.39	0.39	0.19	0.19	0.19
Sat Flow, veh/h	1074	1620	174	1271	1702	117	1767	1576	237	1164	1438	328
Grp Volume(v), veh/h	74	0	103	107	0	279	22	0	191	5	0	226
Grp Sat Flow(s),veh/h/ln	1074	0	1795	1271	0	1820	1767	0	1813	1164	0	1767
Q Serve(g_s), s	2.5	0.0	1.7	2.8	0.0	5.2	0.4	0.0	2.8	0.1	0.0	4.5
Cycle Q Clear(g_c), s	7.7	0.0	1.7	4.5	0.0	5.2	0.4	0.0	2.8	0.1	0.0	4.5
Prop In Lane	1.00		0.10	1.00		0.06	1.00		0.13	1.00		0.19
Lane Grp Cap(c), veh/h	320	0	462	457	0	468	323	0	709	414	0	344
V/C Ratio(X)	0.23	0.00	0.22	0.23	0.00	0.60	0.07	0.00	0.27	0.01	0.00	0.66
Avail Cap(c_a), veh/h	421	0	631	577	0	640	896	0	1794	748	0	851
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	15.9	0.0	11.2	13.0	0.0	12.5	10.8	0.0	8.0	12.5	0.0	14.3
Incr Delay (d2), s/veh	0.4	0.0	0.2	0.3	0.0	1.2	0.1	0.0	0.2	0.0	0.0	2.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.0	0.6	0.7	0.0	1.7	0.1	0.0	0.8	0.0	0.0	1.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	16.2	0.0	11.5	13.3	0.0	13.7	10.9	0.0	8.2	12.5	0.0	16.4
LnGrp LOS	B	A	B	B	A	B	B	A	A	B	A	B
Approach Vol, veh/h	177			386			213			231		
Approach Delay, s/veh	13.5			13.6			8.4			16.3		
Approach LOS	B			B			A			B		
Timer - Assigned Phs	2			4		5	6		8			
Phs Duration (G+Y+Rc), s	22.0			16.4		7.5	14.5		16.4			
Change Period (Y+Rc), s	7.0			6.5		6.5	* 7		6.5			
Max Green Setting (Gmax), s	38.0			13.5		13.5	* 19		13.5			
Max Q Clear Time (g_c+I1), s	4.8			9.7		2.4	6.5		7.2			
Green Ext Time (p_c), s	1.1			0.3		0.0	0.9		1.0			

Intersection Summary

HCM 6th Ctrl Delay 13.1
HCM 6th LOS B

Notes

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

Lanes, Volumes, Timings
19: Providence Blvd & Fort Smith Blvd

2019 Existing Conditions
Timing Plan: AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	55	19	314	82	93	19	180	83	36	278	5
Future Volume (vph)	8	55	19	314	82	93	19	180	83	36	278	5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	8%	8%	8%	4%	4%	4%	8%	8%	8%	4%	4%	4%
Adj. Flow (vph)	9	60	21	341	89	101	21	196	90	39	302	5
Shared Lane Traffic (%)												
Lane Group Flow (vph)	9	81	0	341	190	0	21	196	90	39	307	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2		2	6		
Detector Phase	4	4		8	8		2	2	2	1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		12.0	12.0	12.0	5.0	12.0	
Minimum Split (s)	14.0	14.0		13.5	13.5		18.5	18.5	18.5	13.0	20.0	
Total Split (s)	30.0	30.0		30.0	30.0		35.0	35.0	35.0	20.0	55.0	
Total Split (%)	35.3%	35.3%		35.3%	35.3%		41.2%	41.2%	41.2%	23.5%	64.7%	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.5	4.5	
All-Red Time (s)	3.0	3.0		2.5	2.5		2.5	2.5	2.5	3.5	3.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	7.0	7.0		6.5	6.5		6.5	6.5	6.5	8.0	8.0	
Lead/Lag							Lag	Lag	Lag	Lead		
Lead-Lag Optimize?							Yes	Yes	Yes	Yes		
Recall Mode	None	None		None	None		Min	Min	Min	None	None	
v/c Ratio	0.02	0.12		0.67	0.27		0.07	0.40	0.17	0.11	0.49	
Control Delay	15.0	12.1		25.8	10.9		19.6	21.8	1.7	12.2	17.0	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	15.0	12.1		25.8	10.9		19.6	21.8	1.7	12.2	17.0	
Queue Length 50th (ft)	2	10		75	21		5	47	0	9	81	
Queue Length 95th (ft)	12	47		#271	86		23	127	9	24	137	
Internal Link Dist (ft)		5102			547			839			3885	
Turn Bay Length (ft)	100			440			200			221		
Base Capacity (vph)	471	721		551	758		524	915	851	471	1544	
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	
Reduced v/c Ratio	0.02	0.11		0.62	0.25		0.04	0.21	0.11	0.08	0.20	

Intersection Summary

Cycle Length: 85

Actuated Cycle Length: 56.6

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

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

Queue shown is maximum after two cycles.

Splits and Phases: 19: Providence Blvd & Fort Smith Blvd



HCM 6th Signalized Intersection Summary
19: Providence Blvd & Fort Smith Blvd

2019 Existing Conditions
Timing Plan: AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	55	19	314	82	93	19	180	83	36	278	5
Future Volume (veh/h)	8	55	19	314	82	93	19	180	83	36	278	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1781	1781	1781	1841	1841	1841	1781	1781	1781	1841	1841	1841
Adj Flow Rate, veh/h	9	60	11	341	89	65	21	196	54	39	302	5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	8	8	8	4	4	4	8	8	8	4	4	4
Cap, veh/h	440	484	89	525	327	239	349	384	325	332	722	12
Arrive On Green	0.33	0.33	0.33	0.33	0.33	0.33	0.22	0.22	0.22	0.04	0.40	0.40
Sat Flow, veh/h	1174	1465	269	1308	989	722	1021	1781	1510	1753	1805	30
Grp Volume(v), veh/h	9	0	71	341	0	154	21	196	54	39	0	307
Grp Sat Flow(s),veh/h/ln	1174	0	1733	1308	0	1711	1021	1781	1510	1753	0	1835
Q Serve(g_s), s	0.3	0.0	1.6	13.7	0.0	3.7	0.9	5.4	1.6	0.9	0.0	6.7
Cycle Q Clear(g_c), s	4.0	0.0	1.6	15.3	0.0	3.7	0.9	5.4	1.6	0.9	0.0	6.7
Prop In Lane	1.00		0.15	1.00		0.42	1.00		1.00	1.00		0.02
Lane Grp Cap(c), veh/h	440	0	573	525	0	566	349	384	325	332	0	734
V/C Ratio(X)	0.02	0.00	0.12	0.65	0.00	0.27	0.06	0.51	0.17	0.12	0.00	0.42
Avail Cap(c_a), veh/h	537	0	716	644	0	722	652	912	773	639	0	1549
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	15.2	0.0	13.0	18.3	0.0	13.7	17.5	19.3	17.8	14.8	0.0	12.0
Incr Delay (d2), s/veh	0.0	0.0	0.1	1.7	0.0	0.3	0.1	1.5	0.3	0.2	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.6	3.8	0.0	1.3	0.2	2.1	0.5	0.3	0.0	2.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	15.2	0.0	13.1	20.0	0.0	14.0	17.6	20.7	18.1	14.9	0.0	12.6
LnGrp LOS	B	A	B	B	A	B	B	C	B	B	A	B
Approach Vol, veh/h	80			495			271			346		
Approach Delay, s/veh	13.3			18.1			20.0			12.8		
Approach LOS	B			B			B			B		
Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	10.3	20.0		25.4		30.3		25.4				
Change Period (Y+Rc), s	8.0	* 8		7.0		8.0		* 7				
Max Green Setting (Gmax), s	12.0	* 29		23.0		47.0		* 24				
Max Q Clear Time (g_c+I1), s	2.9	7.4		6.0		8.7		17.3				
Green Ext Time (p_c), s	0.0	1.8		0.3		2.8		1.1				

Intersection Summary

HCM 6th Ctrl Delay	16.7
HCM 6th LOS	B

Notes

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

Lanes, Volumes, Timings
20: Veterans Memorial Pkwy & Harley Strickland Blvd

2019 Existing Conditions
Timing Plan: AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	71	21	71	36	30	37	125	245	4	54	338	184
Future Volume (vph)	71	21	71	36	30	37	125	245	4	54	338	184
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	3%	3%	3%	7%	7%	7%	5%	5%	5%	4%	4%	4%
Adj. Flow (vph)	79	23	79	40	33	41	139	272	4	60	376	204
Shared Lane Traffic (%)												
Lane Group Flow (vph)	79	23	79	40	74	0	139	276	0	60	580	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8		8	4			6			2		
Detector Phase	3	8	8	7	4		1	6		5	2	
Switch Phase												
Minimum Initial (s)	5.0	7.0	7.0	5.0	7.0		5.0	16.0		5.0	16.0	
Minimum Split (s)	12.5	14.5	14.5	12.5	14.5		12.5	23.5		12.5	23.5	
Total Split (s)	25.0	40.0	40.0	20.0	35.0		30.0	50.0		20.0	40.0	
Total Split (%)	19.2%	30.8%	30.8%	15.4%	26.9%		23.1%	38.5%		15.4%	30.8%	
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	
All-Red Time (s)	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)	7.5	7.5	7.5	7.5	7.5		7.5	7.5		7.5	7.5	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	None	None	None	None		None	C-Min		None	C-Min	
v/c Ratio	0.37	0.15	0.23	0.22	0.49		0.25	0.12		0.08	0.29	
Control Delay	47.4	55.6	1.6	43.4	40.4		8.8	13.1		8.5	14.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	47.4	55.6	1.6	43.4	40.4		8.8	13.1		8.5	14.1	
Queue Length 50th (ft)	56	18	0	28	27		36	53		15	113	
Queue Length 95th (ft)	95	46	0	57	76		74	91		36	185	
Internal Link Dist (ft)		562			593			1843			1501	
Turn Bay Length (ft)	235		235	250			435			340		
Base Capacity (vph)	302	461	562	239	376		688	2211		798	1982	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.26	0.05	0.14	0.17	0.20		0.20	0.12		0.08	0.29	

Intersection Summary

Cycle Length: 130

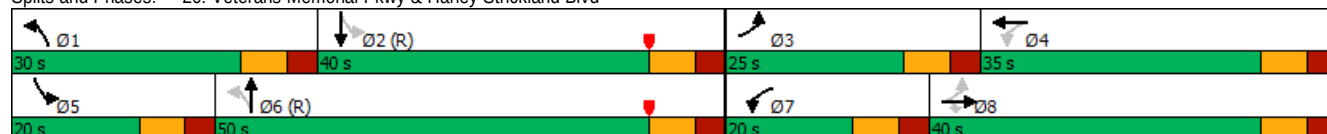
Actuated Cycle Length: 130

Offset: 40 (31%), Referenced to phase 2:SBTL and 6:NBTL, Start of Yellow

Natural Cycle: 65

Control Type: Actuated-Coordinated

Splits and Phases: 20: Veterans Memorial Pkwy & Harley Strickland Blvd



HCM 6th Signalized Intersection Summary
20: Veterans Memorial Pkwy & Harley Strickland Blvd

2019 Existing Conditions
Timing Plan: AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	71	21	71	36	30	37	125	245	4	54	338	184
Future Volume (veh/h)	71	21	71	36	30	37	125	245	4	54	338	184
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1796	1796	1796	1826	1826	1826	1841	1841	1841
Adj Flow Rate, veh/h	79	23	20	40	33	15	139	272	3	60	376	178
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	3	3	3	7	7	7	5	5	5	4	4	4
Cap, veh/h	187	146	123	176	62	28	586	2205	24	763	1423	664
Arrive On Green	0.05	0.08	0.08	0.03	0.05	0.05	0.05	0.63	0.63	0.03	0.61	0.61
Sat Flow, veh/h	1767	1856	1572	1711	1169	531	1739	3515	39	1753	2315	1080
Grp Volume(v), veh/h	79	23	20	40	0	48	139	134	141	60	283	271
Grp Sat Flow(s),veh/h/ln	1767	1856	1572	1711	0	1701	1739	1735	1819	1753	1749	1646
Q Serve(g_s), s	5.4	1.5	1.5	2.9	0.0	3.6	3.8	4.1	4.1	1.6	9.7	9.9
Cycle Q Clear(g_c), s	5.4	1.5	1.5	2.9	0.0	3.6	3.8	4.1	4.1	1.6	9.7	9.9
Prop In Lane	1.00		1.00	1.00		0.31	1.00		0.02	1.00		0.66
Lane Grp Cap(c), veh/h	187	146	123	176	0	91	586	1088	1141	763	1075	1012
V/C Ratio(X)	0.42	0.16	0.16	0.23	0.00	0.53	0.24	0.12	0.12	0.08	0.26	0.27
Avail Cap(c_a), veh/h	328	464	393	290	0	360	805	1088	1141	872	1075	1012
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	0.83	0.83	0.83	1.00	1.00	1.00
Uniform Delay (d), s/veh	54.2	55.9	55.9	56.0	0.0	59.9	8.6	9.8	9.8	8.3	11.5	11.6
Incr Delay (d2), s/veh	1.5	0.5	0.6	0.7	0.0	4.7	0.2	0.2	0.2	0.0	0.6	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	0.7	0.6	1.3	0.0	1.7	1.4	1.5	1.6	0.6	3.8	3.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	55.7	56.4	56.5	56.6	0.0	64.6	8.7	10.0	10.0	8.4	12.1	12.2
LnGrp LOS	E	E	E	E	A	E	A	A	A	A	B	B
Approach Vol, veh/h	122			88			414			614		
Approach Delay, s/veh	56.0			61.0			9.6			11.8		
Approach LOS	E			E			A			B		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	13.6	87.4	14.6	14.4	11.9	89.0	11.3	17.7				
Change Period (Y+Rc), s	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5				
Max Green Setting (Gmax), s	22.5	32.5	17.5	27.5	12.5	42.5	12.5	32.5				
Max Q Clear Time (g_c+I1), s	5.8	11.9	7.4	5.6	3.6	6.1	4.9	3.5				
Green Ext Time (p_c), s	0.3	4.5	0.1	0.2	0.1	2.2	0.0	0.1				
Intersection Summary												
HCM 6th Ctrl Delay	18.9											
HCM 6th LOS	B											

Lanes, Volumes, Timings
21: Broward Ave/Veterans Memorial Pkwy & Saxon Blvd

2019 Existing Conditions
Timing Plan: AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	121	569	12	111	1049	387	48	51	66	253	43	133
Future Volume (vph)	121	569	12	111	1049	387	48	51	66	253	43	133
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	5%	5%	5%	3%	3%	3%	2%	2%	2%	5%	5%	5%
Adj. Flow (vph)	130	612	13	119	1128	416	52	55	71	272	46	143
Shared Lane Traffic (%)										42%		
Lane Group Flow (vph)	130	625	0	119	1544	0	52	55	71	158	160	143
Turn Type	pm+pt	NA		pm+pt	NA		Split	NA	Perm	Split	NA	Perm
Protected Phases	1	6		5	2		4	4		8	8	
Permitted Phases	6			2					4			8
Detector Phase	1	6		5	2		4	4	4	8	8	8
Switch Phase												
Minimum Initial (s)	5.0	12.0		5.0	12.0		7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	12.9	18.8		12.8	18.8		14.5	14.5	14.5	15.3	15.3	15.3
Total Split (s)	20.0	72.0		20.0	72.0		18.0	18.0	18.0	30.0	30.0	30.0
Total Split (%)	14.3%	51.4%		14.3%	51.4%		12.9%	12.9%	12.9%	21.4%	21.4%	21.4%
Yellow Time (s)	4.8	4.8		4.8	4.8		3.7	3.7	3.7	4.5	4.5	4.5
All-Red Time (s)	3.1	2.0		3.0	2.0		3.8	3.8	3.8	3.8	3.8	3.8
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.9	6.8		7.8	6.8		7.5	7.5	7.5	8.3	8.3	8.3
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Recall Mode	None	C-Min		None	C-Min		None	None	None	None	None	None
v/c Ratio	0.58	0.24		0.25	0.62		0.43	0.43	0.28	0.75	0.75	0.43
Control Delay	26.4	19.9		6.4	13.8		73.0	72.6	2.8	79.7	79.1	11.1
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.4	19.9		6.4	13.8		73.0	72.6	2.8	79.7	79.1	11.1
Queue Length 50th (ft)	45	112		29	233		46	49	0	147	149	0
Queue Length 95th (ft)	108	158		14	372		91	94	0	227	229	56
Internal Link Dist (ft)		957			1787			543			1843	
Turn Bay Length (ft)	460			400			200		445	410		
Base Capacity (vph)	241	2567		517	2519		138	145	268	254	258	366
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.54	0.24		0.23	0.61		0.38	0.38	0.26	0.62	0.62	0.39

Intersection Summary

Cycle Length: 140

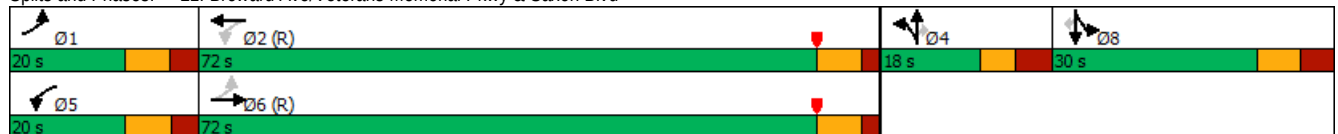
Actuated Cycle Length: 140

Offset: 18 (13%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow

Natural Cycle: 80

Control Type: Actuated-Coordinated

Splits and Phases: 21: Broward Ave/Veterans Memorial Pkwy & Saxon Blvd



HCM 6th Signalized Intersection Summary
21: Broward Ave/Veterans Memorial Pkwy & Saxon Blvd

2019 Existing Conditions
Timing Plan: AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	121	569	12	111	1049	387	48	51	66	253	43	133
Future Volume (veh/h)	121	569	12	111	1049	387	48	51	66	253	43	133
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1826	1826	1826	1856	1856	1856	1870	1870	1870	1826	1826	1826
Adj Flow Rate, veh/h	130	612	9	119	1128	414	52	55	18	305	0	60
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	5	5	5	3	3	3	2	2	2	5	5	5
Cap, veh/h	321	2960	43	547	2124	779	88	93	79	368	0	164
Arrive On Green	0.05	0.58	0.58	0.09	1.00	1.00	0.05	0.05	0.05	0.11	0.00	0.11
Sat Flow, veh/h	1739	5061	74	1767	3652	1340	1781	1870	1585	3478	0	1547
Grp Volume(v), veh/h	130	401	220	119	1043	499	52	55	18	305	0	60
Grp Sat Flow(s), veh/h/ln	1739	1662	1813	1767	1689	1614	1781	1870	1585	1739	0	1547
Q Serve(g_s), s	4.2	8.0	8.0	3.9	0.0	0.0	4.0	4.0	1.5	12.0	0.0	5.1
Cycle Q Clear(g_c), s	4.2	8.0	8.0	3.9	0.0	0.0	4.0	4.0	1.5	12.0	0.0	5.1
Prop In Lane	1.00		0.04	1.00		0.83	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	321	1943	1060	547	1964	939	88	93	79	368	0	164
V/C Ratio(X)	0.41	0.21	0.21	0.22	0.53	0.53	0.59	0.59	0.23	0.83	0.00	0.37
Avail Cap(c_a), veh/h	393	1943	1060	626	1964	939	134	140	119	539	0	240
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.88	0.88	0.88	1.00	1.00	1.00	0.97	0.00	0.97
Uniform Delay (d), s/veh	10.5	13.7	13.7	10.4	0.0	0.0	65.1	65.1	64.0	61.4	0.0	58.2
Incr Delay (d2), s/veh	0.8	0.2	0.4	0.2	0.9	1.9	6.1	5.9	1.5	6.7	0.0	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	2.9	3.3	1.4	0.2	0.5	2.0	2.1	0.6	5.6	0.0	2.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	11.4	14.0	14.2	10.5	0.9	1.9	71.2	71.1	65.4	68.1	0.0	59.6
LnGrp LOS	B	B	B	B	A	A	E	E	E	E	A	E
Approach Vol, veh/h	751			1661			125			365		
Approach Delay, s/veh	13.6			1.9			70.3			66.7		
Approach LOS	B			A			E			E		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	14.2	88.2		14.4	13.8	88.7		23.1				
Change Period (Y+Rc), s	7.9	6.8		7.5	7.8	6.8		8.3				
Max Green Setting (Gmax), s	12.1	65.2		10.5	12.2	65.2		21.7				
Max Q Clear Time (g_c+I1), s	6.2	2.0		6.0	5.9	10.0		14.0				
Green Ext Time (p_c), s	0.1	15.2		0.1	0.1	4.0		0.8				

Intersection Summary

HCM 6th Ctrl Delay 16.0
HCM 6th LOS B

Notes

User approved volume balancing among the lanes for turning movement.

Lanes, Volumes, Timings
22: FDOT Park & Ride & Saxon Blvd

2019 Existing Conditions
Timing Plan: AM Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	915	42	82	1597	21	48	1	81	10	4	8
Future Volume (vph)	16	915	42	82	1597	21	48	1	81	10	4	8
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	5%	5%	5%	4%	4%	4%	4%	4%	4%	5%	5%	5%
Adj. Flow (vph)	18	1028	47	92	1794	24	54	1	91	11	4	9
Shared Lane Traffic (%)												
Lane Group Flow (vph)	18	1075	0	92	1818	0	54	92	0	0	24	0
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	1	6		5	2		4	4			8	
Permitted Phases	6			2			4			8		
Detector Phase	1	6		5	2		4	4		8	8	
Switch Phase												
Minimum Initial (s)	5.0	11.0		5.0	11.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	12.7	17.9		12.8	17.9		14.6	14.6		14.6	14.6	
Total Split (s)	18.0	102.0		20.0	104.0		18.0	18.0		18.0	18.0	
Total Split (%)	12.9%	72.9%		14.3%	74.3%		12.9%	12.9%		12.9%	12.9%	
Yellow Time (s)	4.8	4.9		4.9	4.9		4.2	4.2		4.2	4.2	
All-Red Time (s)	2.9	2.0		2.9	2.0		3.4	3.4		3.4	3.4	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0			0.0	
Total Lost Time (s)	7.7	6.9		7.8	6.9		7.6	7.6			7.6	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Recall Mode	None	C-Min		None	C-Min		None	None		None	None	
v/c Ratio	0.09	0.31		0.23	0.47		0.50	0.44			0.20	
Control Delay	3.4	5.6		3.0	3.3		76.9	18.2			45.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0			0.0	
Total Delay	3.4	5.6		3.0	3.3		76.9	18.2			45.7	
Queue Length 50th (ft)	2	82		13	108		48	1			13	
Queue Length 95th (ft)	m6	103		m8	150		91	53			42	
Internal Link Dist (ft)		1787			407			186			166	
Turn Bay Length (ft)	365			390			105					
Base Capacity (vph)	260	3502		456	3880		117	217			128	
Starvation Cap Reductn	0	0		0	0		0	0			0	
Spillback Cap Reductn	0	0		0	0		0	0			0	
Storage Cap Reductn	0	0		0	0		0	0			0	
Reduced v/c Ratio	0.07	0.31		0.20	0.47		0.46	0.42			0.19	

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

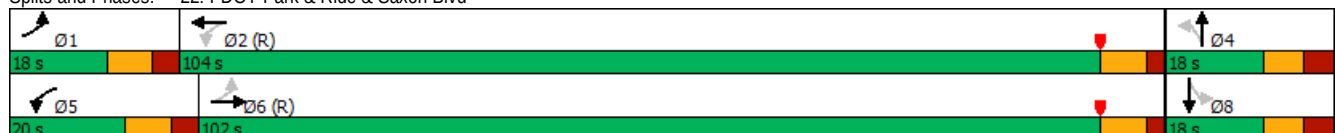
Offset: 21 (15%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow

Natural Cycle: 60

Control Type: Actuated-Coordinated

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

Splits and Phases: 22: FDOT Park & Ride & Saxon Blvd



HCM 6th Signalized Intersection Summary
22: FDOT Park & Ride & Saxon Blvd

2019 Existing Conditions
Timing Plan: AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	16	915	42	82	1597	21	48	1	81	10	4	8
Future Volume (veh/h)	16	915	42	82	1597	21	48	1	81	10	4	8
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1826	1826	1826	1841	1841	1841	1841	1841	1841	1826	1826	1826
Adj Flow Rate, veh/h	18	1028	44	92	1794	23	54	1	15	11	4	2
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	5	5	5	4	4	4	4	4	4	5	5	5
Cap, veh/h	247	3714	159	505	3964	51	123	5	71	79	25	8
Arrive On Green	0.04	1.00	1.00	0.03	0.78	0.78	0.05	0.05	0.05	0.05	0.05	0.05
Sat Flow, veh/h	1739	4902	210	1753	5113	66	1388	98	1477	760	523	171
Grp Volume(v), veh/h	18	697	375	92	1175	642	54	0	16	17	0	0
Grp Sat Flow(s), veh/h/ln	1739	1662	1788	1753	1675	1829	1388	0	1575	1454	0	0
Q Serve(g_s), s	0.3	0.0	0.0	1.6	17.0	17.0	3.3	0.0	1.4	0.3	0.0	0.0
Cycle Q Clear(g_c), s	0.3	0.0	0.0	1.6	17.0	17.0	4.9	0.0	1.4	1.6	0.0	0.0
Prop In Lane	1.00		0.12	1.00		0.04	1.00		0.94	0.65		0.12
Lane Grp Cap(c), veh/h	247	2518	1355	505	2597	1418	123	0	76	113	0	0
V/C Ratio(X)	0.07	0.28	0.28	0.18	0.45	0.45	0.44	0.00	0.21	0.15	0.00	0.00
Avail Cap(c_a), veh/h	344	2518	1355	597	2597	1418	159	0	117	151	0	0
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.95	0.95	0.95	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	4.3	0.0	0.0	3.2	5.5	5.5	65.6	0.0	64.1	64.1	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.3	0.5	0.2	0.6	1.0	2.5	0.0	1.4	0.6	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.1	0.2	0.5	4.9	5.5	2.0	0.0	0.6	0.6	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	4.4	0.3	0.5	3.4	6.0	6.5	68.1	0.0	65.4	64.7	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	E	A	E	E	A	A
Approach Vol, veh/h	1090			1909			70			17		
Approach Delay, s/veh	0.4			6.1			67.5			64.7		
Approach LOS	A			A			E			E		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.2	115.4		14.4	12.7	113.0		14.4				
Change Period (Y+Rc), s	* 7.7	6.9		7.6	7.8	6.9		7.6				
Max Green Setting (Gmax), s	* 10	97.1		10.4	12.2	95.1		10.4				
Max Q Clear Time (g_c+I1), s	2.3	19.0		6.9	3.6	2.0		3.6				
Green Ext Time (p_c), s	0.0	33.7		0.0	0.1	13.1		0.0				

Intersection Summary

HCM 6th Ctrl Delay	5.8
HCM 6th LOS	A

Notes

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

Lanes, Volumes, Timings
23: I-4 & Saxon Blvd

2019 Existing Conditions
Timing Plan: AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑		↑↑	↑			↑			↑
Traffic Volume (vph)	0	583	284	0	1645	542	0	0	300	0	0	477
Future Volume (vph)	0	583	284	0	1645	542	0	0	300	0	0	477
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
Heavy Vehicles (%)	7%	7%	7%	2%	2%	2%	9%	9%	9%	5%	5%	5%
Adj. Flow (vph)	0	614	299	0	1732	571	0	0	316	0	0	502
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	614	299	0	1732	571	0	0	316	0	0	502
Sign Control	Free			Free			Yield			Stop		

Intersection Summary

Control Type: Unsignalized

Intersection												
Int Delay, s/veh	29.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑		↑↑	↑			↑			↑
Traffic Vol, veh/h	0	583	284	0	1645	542	0	0	300	0	0	477
Future Vol, veh/h	0	583	284	0	1645	542	0	0	300	0	0	477
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Yield	Yield	Yield	Stop	Stop	Stop
RT Channelized	-	-	Free	-	-	Free	-	-	Yield	-	-	Stop
Storage Length	-	-	450	-	-	900	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	16965	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	7	7	7	2	2	2	9	9	9	5	5	5
Mvmt Flow	0	614	299	0	1732	571	0	0	316	0	0	502
Major/Minor	Major1		Major2				Minor2					
Conflicting Flow All	-	0	-	-	-	0	-	-	-	-	-	866
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	-	-	-	-	-	-	7
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	-	-	-	-	-	-	3.35
Pot Cap-1 Maneuver	0	-	0	0	-	0	0	0	0	0	0	*~ 397
Stage 1	0	-	0	0	-	0	0	0	0	0	0	-
Stage 2	0	-	0	0	-	0	0	0	0	0	0	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	1
Mov Cap-1 Maneuver	-	-	-	-	-	-	-	-	-	-	0	*~ 397
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	0	-
Stage 1	-	-	-	-	-	-	-	-	-	-	0	-
Stage 2	-	-	-	-	-	-	-	-	-	-	0	-
Approach	EB		WB				SB					
HCM Control Delay, s	0		0				167					
HCM LOS							F					
Minor Lane/Major Mvmt	EBT		WBT	SBLn1								
Capacity (veh/h)	-		-	397								
HCM Lane V/C Ratio	-		-	1.265								
HCM Control Delay (s)	-		-	167								
HCM Lane LOS	-		-	F								
HCM 95th %tile Q(veh)	-		-	21.8								
Notes												
~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon												

Lanes, Volumes, Timings
24: I-4 & Saxon Blvd

2019 Existing Conditions
Timing Plan: AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	285	618	0	0	1765	350	0	0	187	0	0	332
Future Volume (vph)	285	618	0	0	1765	350	0	0	187	0	0	332
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	7%	7%	7%	2%	2%	2%	7%	7%	7%	5%	5%	5%
Adj. Flow (vph)	317	687	0	0	1961	389	0	0	208	0	0	369
Shared Lane Traffic (%)												
Lane Group Flow (vph)	317	687	0	0	1961	389	0	0	208	0	0	369
Turn Type	Prot	NA			NA	Perm			Prot			Perm
Protected Phases	1	6			2				5			
Permitted Phases						2						6
Detector Phase	1	6			2	2			5			6
Switch Phase												
Minimum Initial (s)	5.0	15.0			17.0	17.0			6.0			15.0
Minimum Split (s)	12.7	21.8			23.8	23.8			12.0			21.8
Total Split (s)	35.0	118.0			105.0	105.0			22.0			118.0
Total Split (%)	25.0%	84.3%			75.0%	75.0%			15.7%			84.3%
Yellow Time (s)	5.4	4.8			4.8	4.8			4.0			4.8
All-Red Time (s)	2.3	2.0			2.0	2.0			2.0			2.0
Lost Time Adjust (s)	0.0	0.0			0.0	0.0			0.0			0.0
Total Lost Time (s)	7.7	6.8			6.8	6.8			6.0			6.8
Lead/Lag	Lead	Lag			Lag	Lag			Lead			Lag
Lead-Lag Optimize?	Yes	Yes			Yes	Yes			Yes			Yes
Recall Mode	None	C-Min			C-Min	C-Min			None			C-Min
v/c Ratio	0.93	0.24			0.80	0.34			0.29			0.25
Control Delay	85.9	1.8			9.8	3.4			1.0			0.4
Queue Delay	0.0	0.0			0.0	0.0			0.0			0.0
Total Delay	85.9	1.8			9.8	3.4			1.0			0.4
Queue Length 50th (ft)	238	20			322	41			0			0
Queue Length 95th (ft)	#488	84			m352	m57			0			0
Internal Link Dist (ft)		1519			3036			820			423	
Turn Bay Length (ft)	700					160						
Base Capacity (vph)	342	2920			2482	1148			858			1501
Starvation Cap Reductn	0	0			0	0			0			0
Spillback Cap Reductn	0	0			0	0			0			0
Storage Cap Reductn	0	0			0	0			0			0
Reduced v/c Ratio	0.93	0.24			0.79	0.34			0.24			0.25

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 104 (74%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow

Natural Cycle: 90

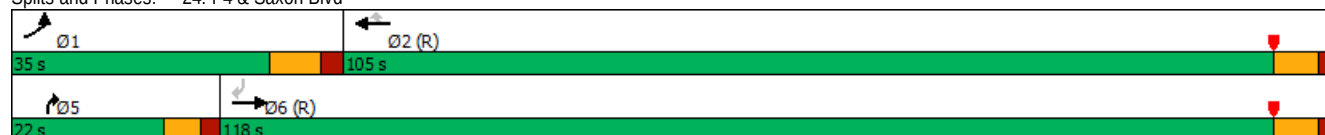
Control Type: Actuated-Coordinated

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 24: I-4 & Saxon Blvd



HCM Signalized Intersection Capacity Analysis
24: I-4 & Saxon Blvd

2019 Existing Conditions
Timing Plan: AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	285	618	0	0	1765	350	0	0	187	0	0	332
Future Volume (vph)	285	618	0	0	1765	350	0	0	187	0	0	332
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.7	6.8			6.8	6.8			6.0			6.8
Lane Util. Factor	1.00	0.95			0.95	1.00			0.88			1.00
Frt	1.00	1.00			1.00	0.85			0.85			0.86
Flt Protected	0.95	1.00			1.00	1.00			1.00			1.00
Satd. Flow (prot)	1687	3374			3539	1583			2656			1565
Flt Permitted	0.95	1.00			1.00	1.00			1.00			1.00
Satd. Flow (perm)	1687	3374			3539	1583			2656			1565
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	317	687	0	0	1961	389	0	0	208	0	0	369
RTOR Reduction (vph)	0	0	0	0	0	39	0	0	199	0	0	50
Lane Group Flow (vph)	317	687	0	0	1961	350	0	0	9	0	0	319
Heavy Vehicles (%)	7%	7%	7%	2%	2%	2%	7%	7%	7%	5%	5%	5%
Turn Type	Prot	NA			NA	Perm			Prot			Perm
Protected Phases	1	6			2				5			
Permitted Phases						2						6
Actuated Green, G (s)	28.4	121.2			97.1	97.1			6.0			121.2
Effective Green, g (s)	28.4	121.2			97.1	97.1			6.0			121.2
Actuated g/C Ratio	0.20	0.87			0.69	0.69			0.04			0.87
Clearance Time (s)	7.7	6.8			6.8	6.8			6.0			6.8
Vehicle Extension (s)	3.0	3.0			3.0	3.0			3.0			3.0
Lane Grp Cap (vph)	342	2920			2454	1097			113			1354
v/s Ratio Prot	c0.19	0.20			c0.55				0.00			
v/s Ratio Perm						0.22						0.20
v/c Ratio	0.93	0.24			0.80	0.32			0.08			0.24
Uniform Delay, d1	54.8	1.6			14.7	8.4			64.3			1.6
Progression Factor	0.96	1.03			0.53	0.52			1.00			1.00
Incremental Delay, d2	30.1	0.2			1.7	0.5			0.3			0.4
Delay (s)	82.8	1.8			9.6	4.9			64.6			2.0
Level of Service	F	A			A	A			E			A
Approach Delay (s)		27.4			8.8			64.6			2.0	
Approach LOS		C			A			E			A	
Intersection Summary												
HCM 2000 Control Delay			15.9				HCM 2000 Level of Service			B		
HCM 2000 Volume to Capacity ratio			0.83									
Actuated Cycle Length (s)			140.0				Sum of lost time (s)			14.5		
Intersection Capacity Utilization			80.7%				ICU Level of Service			D		
Analysis Period (min)			15									
c Critical Lane Group												

Lanes, Volumes, Timings
25: N Normandy Blvd & Saxon Blvd

2019 Existing Conditions
Timing Plan: AM Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	105	361	90	29	1163	45	213	106	18	50	129	432
Future Volume (vph)	105	361	90	29	1163	45	213	106	18	50	129	432
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	8%	8%	8%	2%	2%	2%	3%	3%	3%	2%	2%	2%
Adj. Flow (vph)	121	415	103	33	1337	52	245	122	21	57	148	497
Shared Lane Traffic (%)												
Lane Group Flow (vph)	121	415	103	33	1389	0	245	143	0	57	148	497
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA	pm+ov
Protected Phases	1	6		5	2		7	4		3	8	1
Permitted Phases	6		6	2			4			8		8
Detector Phase	1	6	6	5	2		7	4		3	8	1
Switch Phase												
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0		5.0	10.0		5.0	10.0	5.0
Minimum Split (s)	12.6	21.9	21.9	13.1	21.9		11.8	16.9		12.5	16.9	12.6
Total Split (s)	21.0	72.0	72.0	18.0	69.0		27.0	32.0		18.0	23.0	21.0
Total Split (%)	15.0%	51.4%	51.4%	12.9%	49.3%		19.3%	22.9%		12.9%	16.4%	15.0%
Yellow Time (s)	4.4	4.9	4.9	4.9	4.9		4.0	4.8		4.8	4.8	4.4
All-Red Time (s)	3.2	2.0	2.0	3.2	2.0		2.8	2.1		2.7	2.1	3.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	7.6	6.9	6.9	8.1	6.9		6.8	6.9		7.5	6.9	7.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	Yes
Recall Mode	None	C-Min	C-Min	None	C-Min		None	None		None	None	None
v/c Ratio	0.53	0.23	0.11	0.07	0.89		0.71	0.39		0.24	0.74	0.96
Control Delay	37.0	17.7	1.2	13.3	43.6		52.2	51.7		39.3	82.3	66.0
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	37.0	17.7	1.2	13.3	43.6		52.2	51.7		39.3	82.3	66.0
Queue Length 50th (ft)	63	95	1	12	601		180	111		37	132	342
Queue Length 95th (ft)	127	133	10	26	668		254	176		70	#204	#534
Internal Link Dist (ft)		3036			7092			3666			5060	
Turn Bay Length (ft)	520		220	470			260					385
Base Capacity (vph)	227	1807	902	539	1569		351	364		261	214	520
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	0
Reduced v/c Ratio	0.53	0.23	0.11	0.06	0.89		0.70	0.39		0.22	0.69	0.96

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 48 (34%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow

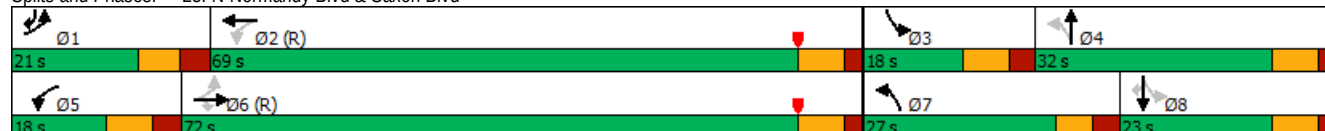
Natural Cycle: 100

Control Type: Actuated-Coordinated

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

Queue shown is maximum after two cycles.

Splits and Phases: 25: N Normandy Blvd & Saxon Blvd



HCM 6th Signalized Intersection Summary
25: N Normandy Blvd & Saxon Blvd

2019 Existing Conditions
Timing Plan: AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	105	361	90	29	1163	45	213	106	18	50	129	432
Future Volume (veh/h)	105	361	90	29	1163	45	213	106	18	50	129	432
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1781	1781	1781	1870	1870	1870	1856	1856	1856	1870	1870	1870
Adj Flow Rate, veh/h	121	415	56	33	1337	46	245	122	16	57	148	331
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	8	8	8	2	2	2	3	3	3	2	2	2
Cap, veh/h	206	1762	786	480	1756	60	323	331	43	263	215	260
Arrive On Green	0.02	0.17	0.17	0.03	0.50	0.50	0.13	0.21	0.21	0.04	0.12	0.12
Sat Flow, veh/h	1697	3385	1510	1781	3505	120	1767	1607	211	1781	1870	1585
Grp Volume(v), veh/h	121	415	56	33	677	706	245	0	138	57	148	331
Grp Sat Flow(s),veh/h/ln	1697	1692	1510	1781	1777	1849	1767	0	1818	1781	1870	1585
Q Serve(g_s), s	4.8	14.8	4.4	1.3	43.0	43.2	16.6	0.0	9.1	3.9	10.6	16.1
Cycle Q Clear(g_c), s	4.8	14.8	4.4	1.3	43.0	43.2	16.6	0.0	9.1	3.9	10.6	16.1
Prop In Lane	1.00		1.00	1.00		0.07	1.00		0.12	1.00		1.00
Lane Grp Cap(c), veh/h	206	1762	786	480	890	926	323	0	374	263	215	260
V/C Ratio(X)	0.59	0.24	0.07	0.07	0.76	0.76	0.76	0.00	0.37	0.22	0.69	1.27
Avail Cap(c_a), veh/h	286	1762	786	560	890	926	342	0	374	329	215	260
HCM Platoon Ratio	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.98	0.98	0.98	0.59	0.59	0.59	0.97	0.00	0.97	0.88	0.88	0.88
Uniform Delay (d), s/veh	26.1	33.9	29.6	16.5	28.2	28.2	44.9	0.0	47.8	51.9	59.5	58.5
Incr Delay (d2), s/veh	2.6	0.3	0.2	0.0	3.7	3.6	8.7	0.0	0.8	0.4	8.7	147.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	6.8	1.6	0.5	18.5	19.3	8.0	0.0	4.2	1.8	5.5	19.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	28.7	34.2	29.8	16.5	31.8	31.8	53.6	0.0	48.6	52.3	68.2	205.9
LnGrp LOS	C	C	C	B	C	C	D	A	D	D	E	F
Approach Vol, veh/h	592			1416			383			536		
Approach Delay, s/veh	32.7			31.4			51.8			151.5		
Approach LOS	C			C			D			F		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	14.4	77.0	12.8	35.7	11.7	79.8	25.5	23.0				
Change Period (Y+Rc), s	* 7.6	6.9	* 7.5	6.9	* 8.1	6.9	* 6.8	6.9				
Max Green Setting (Gmax), s	* 13	62.1	* 11	25.1	* 9.9	65.1	* 20	16.1				
Max Q Clear Time (g_c+I1), s	6.8	45.2	5.9	11.1	3.3	16.8	18.6	18.1				
Green Ext Time (p_c), s	0.1	10.9	0.0	0.7	0.0	4.5	0.1	0.0				

Intersection Summary

HCM 6th Ctrl Delay	56.3
HCM 6th LOS	E

Notes

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

Lanes, Volumes, Timings
26: Tivoli Dr & Saxon Blvd

2019 Existing Conditions
Timing Plan: AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	140	205	117	6	463	3	56	50	9	8	97	323
Future Volume (vph)	140	205	117	6	463	3	56	50	9	8	97	323
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	3%	3%	3%	4%	4%	4%	5%	5%	5%	4%	4%	4%
Adj. Flow (vph)	152	223	127	7	503	3	61	54	10	9	105	351
Shared Lane Traffic (%)												
Lane Group Flow (vph)	152	223	127	7	506	0	61	64	0	9	456	0
Turn Type	pm+pt	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases	5	2			6			4			8	
Permitted Phases	2		2	6			4			8		
Detector Phase	5	2	2	6	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	5.0	11.0	11.0	11.0	11.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	12.0	17.5	17.5	17.5	17.5		11.5	11.5		11.5	11.5	
Total Split (s)	15.0	45.0	45.0	30.0	30.0		30.0	30.0		30.0	30.0	
Total Split (%)	20.0%	60.0%	60.0%	40.0%	40.0%		40.0%	40.0%		40.0%	40.0%	
Yellow Time (s)	4.5	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.5	2.5	2.5	2.5	2.5		2.5	2.5		2.5	2.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	7.0	6.5	6.5	6.5	6.5		6.5	6.5		6.5	6.5	
Lead/Lag	Lead			Lag	Lag							
Lead-Lag Optimize?	Yes			Yes	Yes							
Recall Mode	None	Min	Min	Min	Min		None	None		None	None	
v/c Ratio	0.40	0.23	0.14	0.02	0.77		0.53	0.15		0.03	0.80	
Control Delay	11.9	9.2	2.5	17.3	31.1		39.6	17.7		18.6	23.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	11.9	9.2	2.5	17.3	31.1		39.6	17.7		18.6	23.0	
Queue Length 50th (ft)	27	40	0	2	184		22	18		3	84	
Queue Length 95th (ft)	67	93	23	11	#395		60	44		13	188	
Internal Link Dist (ft)		7092			564			624			1001	
Turn Bay Length (ft)	390			120			265			150		
Base Capacity (vph)	391	1191	1057	456	736		192	719		527	792	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.39	0.19	0.12	0.02	0.69		0.32	0.09		0.02	0.58	

Intersection Summary

Cycle Length: 75

Actuated Cycle Length: 62.7

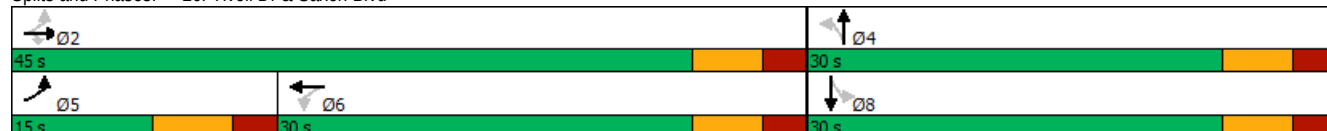
Natural Cycle: 60

Control Type: Actuated-Uncoordinated

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

Queue shown is maximum after two cycles.

Splits and Phases: 26: Tivoli Dr & Saxon Blvd



HCM 6th Signalized Intersection Summary
26: Tivoli Dr & Saxon Blvd

2019 Existing Conditions
Timing Plan: AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	140	205	117	6	463	3	56	50	9	8	97	323
Future Volume (veh/h)	140	205	117	6	463	3	56	50	9	8	97	323
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1841	1841	1841	1826	1826	1826	1841	1841	1841
Adj Flow Rate, veh/h	152	223	18	7	503	3	61	54	10	9	105	175
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	4	4	4	5	5	5	4	4	4
Cap, veh/h	331	982	832	491	600	4	225	371	69	412	154	256
Arrive On Green	0.08	0.53	0.53	0.33	0.33	0.33	0.25	0.25	0.25	0.25	0.25	0.25
Sat Flow, veh/h	1767	1856	1572	1121	1828	11	1073	1498	277	1317	620	1034
Grp Volume(v), veh/h	152	223	18	7	0	506	61	0	64	9	0	280
Grp Sat Flow(s),veh/h/ln	1767	1856	1572	1121	0	1839	1073	0	1776	1317	0	1655
Q Serve(g_s), s	3.0	3.7	0.3	0.2	0.0	14.8	3.2	0.0	1.6	0.3	0.0	8.9
Cycle Q Clear(g_c), s	3.0	3.7	0.3	0.2	0.0	14.8	12.1	0.0	1.6	2.0	0.0	8.9
Prop In Lane	1.00		1.00	1.00		0.01	1.00		0.16	1.00		0.63
Lane Grp Cap(c), veh/h	331	982	832	491	0	603	225	0	439	412	0	409
V/C Ratio(X)	0.46	0.23	0.02	0.01	0.00	0.84	0.27	0.00	0.15	0.02	0.00	0.68
Avail Cap(c_a), veh/h	431	1227	1040	576	0	742	392	0	717	618	0	668
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	12.8	7.3	6.5	13.2	0.0	18.1	25.3	0.0	17.1	17.9	0.0	19.8
Incr Delay (d2), s/veh	1.0	0.2	0.0	0.0	0.0	7.8	0.6	0.0	0.2	0.0	0.0	2.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	1.1	0.1	0.1	0.0	6.7	0.8	0.0	0.6	0.1	0.0	3.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	13.8	7.5	6.5	13.2	0.0	26.0	26.0	0.0	17.2	17.9	0.0	21.9
LnGrp LOS	B	A	A	B	A	C	C	A	B	B	A	C
Approach Vol, veh/h	393			513			125			289		
Approach Delay, s/veh	9.9			25.8			21.5			21.7		
Approach LOS	A			C			C			C		
Timer - Assigned Phs												
	2			4			5			6		
Phs Duration (G+Y+Rc), s	37.3			20.9			11.7			25.6		
Change Period (Y+Rc), s	6.5			6.5			7.0			6.5		
Max Green Setting (Gmax), s	38.5			23.5			8.0			23.5		
Max Q Clear Time (g_c+I1), s	5.7			14.1			5.0			16.8		
Green Ext Time (p_c), s	1.9			0.3			0.1			2.2		
Intersection Summary												
HCM 6th Ctrl Delay	19.8											
HCM 6th LOS	B											

Lanes, Volumes, Timings
27: N Normandy Blvd & Deltona Blvd

2019 Existing Conditions
Timing Plan: AM Peak Hour

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	134	70	271	143	57	212
Future Volume (vph)	134	70	271	143	57	212
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%
Adj. Flow (vph)	143	74	288	152	61	226
Shared Lane Traffic (%)						
Lane Group Flow (vph)	143	74	288	152	61	226
Turn Type	Prot	Perm	pm+pt	NA	NA	Perm
Protected Phases	4		5	2	6	
Permitted Phases		4	2			6
Detector Phase	4	4	5	2	6	6
Switch Phase						
Minimum Initial (s)	4.0	4.0	3.0	10.0	10.0	10.0
Minimum Split (s)	10.0	10.0	9.5	16.5	17.0	17.0
Total Split (s)	20.0	20.0	15.0	40.0	25.0	25.0
Total Split (%)	33.3%	33.3%	25.0%	66.7%	41.7%	41.7%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.5	4.5
All-Red Time (s)	2.0	2.0	2.5	2.5	2.5	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.5	6.5	7.0	7.0
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Recall Mode	None	None	None	Min	Min	Min
v/c Ratio	0.43	0.21	0.44	0.13	0.14	0.41
Control Delay	21.2	6.7	8.5	6.2	16.7	5.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.2	6.7	8.5	6.2	16.7	5.9
Queue Length 50th (ft)	35	0	36	17	13	0
Queue Length 95th (ft)	77	25	85	45	39	43
Internal Link Dist (ft)	828			759	3666	
Turn Bay Length (ft)			230			350
Base Capacity (vph)	567	557	671	1386	767	783
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.25	0.13	0.43	0.11	0.08	0.29

Intersection Summary

Cycle Length: 60

Actuated Cycle Length: 44.5

Natural Cycle: 45

Control Type: Actuated-Uncoordinated

Splits and Phases: 27: N Normandy Blvd & Deltona Blvd



HCM 6th Signalized Intersection Summary
27: N Normandy Blvd & Deltona Blvd

2019 Existing Conditions
Timing Plan: AM Peak Hour

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	134	70	271	143	57	212
Future Volume (veh/h)	134	70	271	143	57	212
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1841	1841	1841	1841	1841	1841
Adj Flow Rate, veh/h	143	23	288	152	61	72
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	4	4	4	4	4	4
Cap, veh/h	197	176	725	1039	457	387
Arrive On Green	0.11	0.11	0.15	0.56	0.25	0.25
Sat Flow, veh/h	1753	1560	1753	1841	1841	1560
Grp Volume(v), veh/h	143	23	288	152	61	72
Grp Sat Flow(s),veh/h/ln	1753	1560	1753	1841	1841	1560
Q Serve(g_s), s	3.2	0.5	4.3	1.6	1.0	1.5
Cycle Q Clear(g_c), s	3.2	0.5	4.3	1.6	1.0	1.5
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	197	176	725	1039	457	387
V/C Ratio(X)	0.72	0.13	0.40	0.15	0.13	0.19
Avail Cap(c_a), veh/h	610	542	824	1532	823	697
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.3	16.1	7.4	4.2	11.8	11.9
Incr Delay (d2), s/veh	3.7	0.2	0.3	0.1	0.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	0.5	1.2	0.3	0.4	0.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	21.0	16.3	7.6	4.2	11.9	12.2
LnGrp LOS	C	B	A	A	B	B
Approach Vol, veh/h	166			440	133	
Approach Delay, s/veh	20.3			6.5	12.0	
Approach LOS	C			A	B	
Timer - Assigned Phs	2			4	5	6
Phs Duration (G+Y+Rc), s	29.7			10.5	12.7	17.0
Change Period (Y+Rc), s	* 7			6.0	6.5	7.0
Max Green Setting (Gmax), s	* 34			14.0	8.5	18.0
Max Q Clear Time (g_c+I1), s	3.6			5.2	6.3	3.5
Green Ext Time (p_c), s	0.8			0.2	0.2	0.4
Intersection Summary						
HCM 6th Ctrl Delay			10.6			
HCM 6th LOS			B			
Notes						
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.						

Arterial Level of Service: EB E Saxon Blvd

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
N Normandy Blvd	II	40	53.1	17.7	70.8	0.59	30.0	B
Tivoli Dr	II	40	122.3	9.2	131.5	1.36	37.2	A
Total	II		175.4	26.9	202.3	1.95	34.7	B

Arterial Level of Service: WB E Saxon Blvd

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Tivoli Dr	II	35	15.2	31.1	46.3	0.12	9.5	F
N Normandy Blvd	II	40	122.3	43.6	165.9	1.36	29.5	B
I-4 EB	II	45	47.2	9.8	57.0	0.59	37.3	A
Total	II		184.7	84.5	269.2	2.07	27.7	C

Arterial Level of Service: EB SR 472

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
N Kentucky Ave	I	55	17.7	54.2	71.9	0.18	9.1	F
I-4 WB	I	55	36.3	23.1	59.4	0.55	33.6	C
I-4 EB	I	50	30.3	11.7	42.0	0.32	27.4	C
E Graves Ave	I	50	26.1	103.6	129.7	0.28	7.6	F
Total	I		110.4	192.6	303.0	1.33	15.8	F

Arterial Level of Service: WB SR 472

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
I-4 EB	I	50	26.1	15.3	41.4	0.28	23.9	D
I-4 WB	I	50	30.3	3.0	33.3	0.32	34.5	B
Dr. Martin Luther Ki	I	55	36.3	39.0	75.3	0.55	26.5	D
Total	I		92.7	57.3	150.0	1.15	27.6	C

Arterial Level of Service: EB W Saxon Blvd

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Broward Ave	II	45	21.4	19.9	41.3	0.20	17.1	D
FDOT Park & Ride	II	45	33.9	5.6	39.5	0.35	32.2	B
Total	II		55.3	25.5	80.8	0.55	24.5	C

Arterial Level of Service: WB W Saxon Blvd

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
FDOT Park & Ride	II	45	37.1	3.3	40.4	0.40	35.2	A
Veterans Memorial Pk	II	45	33.9	13.8	47.7	0.35	26.7	C
Total	II		71.0	17.1	88.1	0.75	30.6	B

H2: AM Peak Hour Future Year Background Traffic Conditions

Lanes, Volumes, Timings
1: Dr Martin Luther King Jr Beltway & Orange Camp Rd

2020 Future Background Conditions
Timing Plan: AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	49	644	126	82	585	349	214	528	73	343	286	55
Future Volume (vph)	49	644	126	82	585	349	214	528	73	343	286	55
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
Heavy Vehicles (%)	5%	5%	5%	4%	4%	4%	4%	4%	4%	3%	3%	3%
Adj. Flow (vph)	52	678	133	86	616	367	225	556	77	361	301	58
Shared Lane Traffic (%)												
Lane Group Flow (vph)	52	811	0	86	983	0	225	556	77	361	301	58
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8			4			6		6	2		2
Detector Phase	3	8		7	4		1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	7.0		5.0	17.0	17.0	5.0	17.0	17.0
Minimum Split (s)	11.5	14.5		11.5	14.5		11.5	24.5	24.5	11.5	24.5	24.5
Total Split (s)	30.0	60.0		30.0	60.0		30.0	60.0	60.0	30.0	60.0	60.0
Total Split (%)	16.7%	33.3%		16.7%	33.3%		16.7%	33.3%	33.3%	16.7%	33.3%	33.3%
Yellow Time (s)	3.5	5.5		3.5	5.5		3.5	5.5	5.5	3.5	5.5	5.5
All-Red Time (s)	3.0	2.0		3.0	2.0		3.0	2.0	2.0	3.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	7.5		6.5	7.5		6.5	7.5	7.5	6.5	7.5	7.5
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None		None	None		None	Min	Min	None	Min	Min
v/c Ratio	0.40	1.46		0.55	1.63		0.48	0.97	0.14	1.24	0.47	0.09
Control Delay	38.3	254.3		45.4	326.3		28.9	86.8	3.0	179.3	46.9	0.3
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.3	254.3		45.4	326.3		28.9	86.8	3.0	179.3	46.9	0.3
Queue Length 50th (ft)	34	~1207		57	~1574		139	603	0	~438	257	0
Queue Length 95th (ft)	63	#1515		104	#1880		209	#884	18	#686	385	0
Internal Link Dist (ft)		536			746			5808			524	
Turn Bay Length (ft)	385			550			340		375	335		380
Base Capacity (vph)	279	557		280	602		522	573	559	290	641	613
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.19	1.46		0.31	1.63		0.43	0.97	0.14	1.24	0.47	0.09

Intersection Summary

Cycle Length: 180

Actuated Cycle Length: 167.3

Natural Cycle: 150

Control Type: Actuated-Uncoordinated

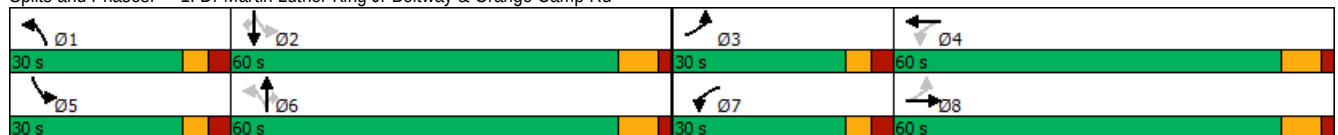
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

Splits and Phases: 1: Dr Martin Luther King Jr Beltway & Orange Camp Rd



HCM 6th Signalized Intersection Summary
1: Dr Martin Luther King Jr Beltway & Orange Camp Rd

2020 Future Background Conditions
Timing Plan: AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	49	644	126	82	585	349	214	528	73	343	286	55
Future Volume (veh/h)	49	644	126	82	585	349	214	528	73	343	286	55
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1826	1826	1826	1841	1841	1841	1841	1841	1841	1856	1856	1856
Adj Flow Rate, veh/h	52	678	118	86	616	327	225	556	52	361	301	43
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, %	5	5	5	4	4	4	4	4	4	3	3	3
Cap, veh/h	96	490	85	123	383	203	460	580	491	315	666	565
Arrive On Green	0.03	0.32	0.32	0.04	0.34	0.34	0.10	0.31	0.31	0.14	0.36	0.36
Sat Flow, veh/h	1739	1515	264	1753	1132	601	1753	1841	1560	1767	1856	1572
Grp Volume(v), veh/h	52	0	796	86	0	943	225	556	52	361	301	43
Grp Sat Flow(s),veh/h/ln	1739	0	1778	1753	0	1733	1753	1841	1560	1767	1856	1572
Q Serve(g_s), s	3.2	0.0	52.5	5.3	0.0	55.0	14.0	48.2	3.8	23.5	20.2	2.9
Cycle Q Clear(g_c), s	3.2	0.0	52.5	5.3	0.0	55.0	14.0	48.2	3.8	23.5	20.2	2.9
Prop In Lane	1.00		0.15	1.00		0.35	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	96	0	575	123	0	586	460	580	491	315	666	565
V/C Ratio(X)	0.54	0.00	1.39	0.70	0.00	1.61	0.49	0.96	0.11	1.15	0.45	0.08
Avail Cap(c_a), veh/h	296	0	575	298	0	586	538	595	504	315	666	565
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.6	0.0	55.0	42.6	0.0	53.7	32.5	54.6	39.4	51.1	39.8	34.3
Incr Delay (d2), s/veh	4.7	0.0	183.9	7.0	0.0	281.6	0.8	26.9	0.1	96.5	0.7	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	0.0	52.1	2.5	0.0	69.0	5.9	25.8	1.5	21.1	9.1	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	48.3	0.0	238.8	49.6	0.0	335.3	33.3	81.5	39.6	147.6	40.5	34.4
LnGrp LOS	D	A	F	D	A	F	C	F	D	F	D	C
Approach Vol, veh/h	848			1029			833			705		
Approach Delay, s/veh	227.2			311.4			65.9			95.0		
Approach LOS	F			F			E			F		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	22.8	65.8	11.3	62.5	30.0	58.7	13.8	60.0				
Change Period (Y+Rc), s	6.5	7.5	6.5	7.5	6.5	7.5	6.5	7.5				
Max Green Setting (Gmax), s	23.5	52.5	23.5	52.5	23.5	52.5	23.5	52.5				
Max Q Clear Time (g_c+I1), s	16.0	22.2	5.2	57.0	25.5	50.2	7.3	54.5				
Green Ext Time (p_c), s	0.3	2.5	0.1	0.0	0.0	1.0	0.1	0.0				
Intersection Summary												
HCM 6th Ctrl Delay	185.9											
HCM 6th LOS	F											

Lanes, Volumes, Timings
2: N Kentucky Ave/Dr. Martin Luther King Jr Beltway & SR 472

2020 Future Background Conditions
Timing Plan: AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	934	198	109	1067	251	284	247	69	223	354	50
Future Volume (vph)	26	934	198	109	1067	251	284	247	69	223	354	50
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	8%	8%	8%	5%	5%	5%	4%	4%	4%	4%	4%	4%
Adj. Flow (vph)	30	1061	225	124	1213	285	323	281	78	253	402	57
Shared Lane Traffic (%)												
Lane Group Flow (vph)	30	1061	225	124	1213	285	0	604	78	253	402	57
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Split	NA	Perm	Split	NA	Perm
Protected Phases	1	6		5	2		4	4		8	8	
Permitted Phases			6			2			4			8
Detector Phase	1	6	6	5	2	2	4	4	4	8	8	8
Switch Phase												
Minimum Initial (s)	5.0	17.0	17.0	5.0	17.0	17.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	13.3	25.3	25.3	13.3	25.3	25.3	15.8	15.8	15.8	16.4	16.4	16.4
Total Split (s)	19.0	57.0	57.0	19.0	57.0	57.0	37.0	37.0	37.0	37.0	37.0	37.0
Total Split (%)	12.7%	38.0%	38.0%	12.7%	38.0%	38.0%	24.7%	24.7%	24.7%	24.7%	24.7%	24.7%
Yellow Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.6	5.6	5.6
All-Red Time (s)	2.8	2.8	2.8	2.8	2.8	2.8	3.3	3.3	3.3	3.8	3.8	3.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	8.3	8.3	8.3	8.3	8.3	8.3		8.8	8.8	9.4	9.4	9.4
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes						
Recall Mode	None	Min	Min	None	C-Min	C-Min	None	None	None	None	None	None
v/c Ratio	0.30	0.98	0.35	1.02	0.94	0.38		1.81	0.16	0.79	1.20	0.12
Control Delay	74.7	72.3	5.8	149.7	54.5	6.8		408.9	0.7	77.0	164.4	0.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Delay	74.7	72.3	5.8	149.7	54.5	6.8		408.9	0.7	77.0	164.4	0.5
Queue Length 50th (ft)	28	541	0	~126	~696	25		~886	0	239	~475	0
Queue Length 95th (ft)	63	#663	55	m#246	#807	m73		#1093	0	#356	#665	0
Internal Link Dist (ft)		884			2846			4140			2874	
Turn Bay Length (ft)	400		395	425		400			485	350		350
Base Capacity (vph)	119	1085	637	122	1290	745		334	477	319	336	467
Starvation Cap Reductn	0	0	0	0	0	0		0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0		0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0		0	0	0	0	0
Reduced v/c Ratio	0.25	0.98	0.35	1.02	0.94	0.38		1.81	0.16	0.79	1.20	0.12

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 93 (62%), Referenced to phase 2:WBT, Start of Yellow

Natural Cycle: 150

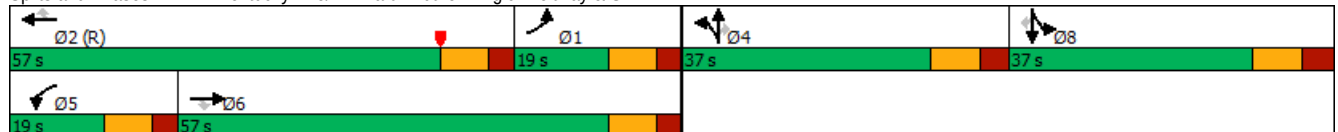
Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

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

Splits and Phases: 2: N Kentucky Ave/Dr. Martin Luther King Jr Beltway & SR 472



HCM 6th Signalized Intersection Summary
2: N Kentucky Ave/Dr. Martin Luther King Jr Beltway & SR 472

2020 Future Background Conditions
Timing Plan: AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	26	934	198	109	1067	251	284	247	69	223	354	50
Future Volume (veh/h)	26	934	198	109	1067	251	284	247	69	223	354	50
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1781	1781	1781	1826	1826	1826	1841	1841	1841	1841	1841	1841
Adj Flow Rate, veh/h	30	1061	147	124	1212	170	323	281	0	253	402	0
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	8	8	8	5	5	5	4	4	4	4	4	4
Cap, veh/h	121	1099	490	124	1126	502	180	157		323	339	
Arrive On Green	0.07	0.32	0.32	0.02	0.11	0.11	0.19	0.19	0.00	0.18	0.18	0.00
Sat Flow, veh/h	1697	3385	1510	1739	3469	1547	959	834	1560	1753	1841	1560
Grp Volume(v), veh/h	30	1061	147	124	1212	170	604	0	0	253	402	0
Grp Sat Flow(s),veh/h/ln	1697	1692	1510	1739	1735	1547	1793	0	1560	1753	1841	1560
Q Serve(g_s), s	2.5	46.3	10.9	10.7	48.7	15.3	28.2	0.0	0.0	20.6	27.6	0.0
Cycle Q Clear(g_c), s	2.5	46.3	10.9	10.7	48.7	15.3	28.2	0.0	0.0	20.6	27.6	0.0
Prop In Lane	1.00		1.00	1.00		1.00	0.53		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	121	1099	490	124	1126	502	337	0		323	339	
V/C Ratio(X)	0.25	0.97	0.30	1.00	1.08	0.34	1.79	0.00		0.78	1.19	
Avail Cap(c_a), veh/h	121	1099	490	124	1126	502	337	0		323	339	
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.81	0.81	0.81	0.68	0.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	65.8	49.8	37.9	73.2	67.0	52.0	60.9	0.0	0.0	58.4	61.2	0.0
Incr Delay (d2), s/veh	1.1	19.4	0.5	72.6	47.4	1.5	364.5	0.0	0.0	12.6	109.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	21.6	4.0	7.4	30.0	6.5	46.7	0.0	0.0	10.0	22.8	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	66.9	69.2	38.4	145.8	114.4	53.5	425.4	0.0	0.0	71.0	171.1	0.0
LnGrp LOS	E	E	D	F	F	D	F	A		E	F	
Approach Vol, veh/h	1238			1506			604			655		
Approach Delay, s/veh	65.5			110.1			425.4			132.4		
Approach LOS	E			F			F			F		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	19.0	57.0		37.0	19.0	57.0		37.0				
Change Period (Y+Rc), s	* 8.3	* 8.3		* 8.8	* 8.3	* 8.3		9.4				
Max Green Setting (Gmax), s	* 11	* 49		* 28	* 11	* 49		27.6				
Max Q Clear Time (g_c+I1), s	4.5	50.7		30.2	12.7	48.3		29.6				
Green Ext Time (p_c), s	0.0	0.0		0.0	0.0	0.3		0.0				

Intersection Summary

HCM 6th Ctrl Delay 147.5

HCM 6th LOS F

Notes

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

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

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↓	↑↑					↓↓		↑
Traffic Volume (vph)	0	392	793	910	1208	0	0	0	0	249	0	227
Future Volume (vph)	0	392	793	910	1208	0	0	0	0	249	0	227
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	5%	5%	5%	3%	3%	3%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	0	440	891	1022	1357	0	0	0	0	280	0	255
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	440	891	1022	1357	0	0	0	0	280	0	255
Turn Type		NA	Perm	Prot	NA					Prot		Prot
Protected Phases		6		5	2					8		8
Permitted Phases			6									8
Detector Phase		6	6	5	2					8		8
Switch Phase												
Minimum Initial (s)		17.0	17.0	6.0	17.0					7.0		7.0
Minimum Split (s)		24.1	24.1	13.1	24.1					15.0		15.0
Total Split (s)		40.0	40.0	80.0	120.0					30.0		30.0
Total Split (%)		26.7%	26.7%	53.3%	80.0%					20.0%		20.0%
Yellow Time (s)		5.1	5.1	5.1	5.1					5.1		5.1
All-Red Time (s)		2.0	2.0	2.0	2.0					2.9		2.9
Lost Time Adjust (s)		0.0	0.0	0.0	0.0					0.0		0.0
Total Lost Time (s)		7.1	7.1	7.1	7.1					8.0		8.0
Lead/Lag		Lead	Lead	Lag								
Lead-Lag Optimize?		Yes	Yes	Yes								
Recall Mode		C-Min	C-Min	None	C-Min					None		None
v/c Ratio		0.54	1.50	1.20	0.50					0.63		0.88
Control Delay		30.0	244.9	124.3	4.8					68.4		67.5
Queue Delay		0.0	0.0	0.0	0.0					0.0		0.0
Total Delay		30.0	244.9	124.3	4.8					68.4		67.5
Queue Length 50th (ft)		126	~1037	~1215	126					133		152
Queue Length 95th (ft)		m145	m#1112	m#1411	m201					180		#284
Internal Link Dist (ft)		2846			1605			330			679	
Turn Bay Length (ft)			500							550		550
Base Capacity (vph)		816	595	851	2701					503		317
Starvation Cap Reductn		0	0	0	0					0		0
Spillback Cap Reductn		0	0	0	0					0		0
Storage Cap Reductn		0	0	0	0					0		0
Reduced v/c Ratio		0.54	1.50	1.20	0.50					0.56		0.80

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 138 (92%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow

Natural Cycle: 150

Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

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

Splits and Phases: 3: SR 472 & I-4



HCM 6th Signalized Intersection Summary
3: SR 472 & I-4

2020 Future Background Conditions
Timing Plan: AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↑	↑↑					↑↑		↑
Traffic Volume (veh/h)	0	392	793	910	1208	0	0	0	0	249	0	227
Future Volume (veh/h)	0	392	793	910	1208	0	0	0	0	249	0	227
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1826	1826	1856	1856	0				1870	0	1870
Adj Flow Rate, veh/h	0	440	0	1022	1357	0				280	0	57
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89				0.89	0.89	0.89
Percent Heavy Veh, %	0	5	5	3	3	0				2	0	2
Cap, veh/h	0	519		1068	2826	0				337	0	155
Arrive On Green	0.00	0.15	0.00	1.00	1.00	0.00				0.10	0.00	0.10
Sat Flow, veh/h	0	3561	1547	1767	3618	0				3456	0	1585
Grp Volume(v), veh/h	0	440	0	1022	1357	0				280	0	57
Grp Sat Flow(s),veh/h/ln	0	1735	1547	1767	1763	0				1728	0	1585
Q Serve(g_s), s	0.0	18.5	0.0	0.0	0.0	0.0				11.9	0.0	5.0
Cycle Q Clear(g_c), s	0.0	18.5	0.0	0.0	0.0	0.0				11.9	0.0	5.0
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	519		1068	2826	0				337	0	155
V/C Ratio(X)	0.00	0.85		0.96	0.48	0.00				0.83	0.00	0.37
Avail Cap(c_a), veh/h	0	761		1068	2826	0				507	0	232
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.32	0.00	0.42	0.42	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	62.1	0.0	0.0	0.0	0.0				66.5	0.0	63.3
Incr Delay (d2), s/veh	0.0	5.7	0.0	9.7	0.2	0.0				7.1	0.0	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	8.3	0.0	2.9	0.1	0.0				5.5	0.0	2.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	67.8	0.0	9.7	0.2	0.0				73.6	0.0	64.8
LnGrp LOS	A	E		A	A	A				E	A	E
Approach Vol, veh/h		440	A		2379						337	
Approach Delay, s/veh		67.8			4.3						72.1	
Approach LOS		E			A						E	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		127.4			97.8	29.6		22.6				
Change Period (Y+Rc), s		7.1			7.1	7.1		8.0				
Max Green Setting (Gmax), s		112.9			72.9	32.9		22.0				
Max Q Clear Time (g_c+I1), s		2.0			2.0	20.5		13.9				
Green Ext Time (p_c), s		13.1			4.6	1.9		0.7				
Intersection Summary												
HCM 6th Ctrl Delay			20.4									
HCM 6th LOS			C									
Notes												
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.												

Lanes, Volumes, Timings
4: I-4 & Howland Blvd

2020 Future Background Conditions
Timing Plan: AM Peak Hour

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↗		↑↑↑	↖↗	↗
Traffic Volume (vph)	440	149	0	2169	879	304
Future Volume (vph)	440	149	0	2169	879	304
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	8%	8%	4%	4%	7%	7%
Adj. Flow (vph)	484	164	0	2384	966	334
Shared Lane Traffic (%)						
Lane Group Flow (vph)	484	164	0	2384	966	334
Turn Type	NA	Perm		NA	Prot	Perm
Protected Phases	2			6	4	
Permitted Phases		2				4
Detector Phase	2	2		6	4	4
Switch Phase						
Minimum Initial (s)	17.0	17.0		7.0	7.0	7.0
Minimum Split (s)	24.5	24.5		14.2	14.2	14.2
Total Split (s)	96.0	96.0		96.0	54.0	54.0
Total Split (%)	64.0%	64.0%		64.0%	36.0%	36.0%
Yellow Time (s)	5.5	5.5		4.8	4.8	4.8
All-Red Time (s)	2.0	2.0		2.4	2.4	2.4
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	7.5	7.5		7.2	7.2	7.2
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	Min	Min		C-Max	None	None
v/c Ratio	0.24	0.17		0.81	0.95	0.48
Control Delay	20.9	11.4		20.3	68.9	6.1
Queue Delay	0.0	0.0		0.0	0.0	0.0
Total Delay	20.9	11.4		20.3	68.9	6.1
Queue Length 50th (ft)	231	66		499	476	0
Queue Length 95th (ft)	304	152		m513	#609	74
Internal Link Dist (ft)	1605			1373	1105	
Turn Bay Length (ft)		620				1000
Base Capacity (vph)	1976	951		2959	1021	700
Starvation Cap Reductn	0	0		0	0	0
Spillback Cap Reductn	0	0		0	0	0
Storage Cap Reductn	0	0		0	0	0
Reduced v/c Ratio	0.24	0.17		0.81	0.95	0.48

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 74 (49%), Referenced to phase 6:WBT, Start of Yellow

Natural Cycle: 90

Control Type: Actuated-Coordinated

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 4: I-4 & Howland Blvd



HCM 6th Signalized Intersection Summary
4: I-4 & Howland Blvd

2020 Future Background Conditions
Timing Plan: AM Peak Hour

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↗		↑↑↑	↖↗	↗
Traffic Volume (veh/h)	440	149	0	2169	879	304
Future Volume (veh/h)	440	149	0	2169	879	304
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1781	1781	0	1841	1796	1796
Adj Flow Rate, veh/h	484	0	0	2384	966	0
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	8	8	0	4	7	7
Cap, veh/h	2004		0	2975	1016	
Arrive On Green	1.00	0.00	0.00	1.00	0.31	0.00
Sat Flow, veh/h	3474	1510	0	5356	3319	1522
Grp Volume(v), veh/h	484	0	0	2384	966	0
Grp Sat Flow(s),veh/h/ln	1692	1510	0	1675	1659	1522
Q Serve(g_s), s	0.0	0.0	0.0	0.0	42.7	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	42.7	0.0
Prop In Lane		1.00	0.00		1.00	1.00
Lane Grp Cap(c), veh/h	2004		0	2975	1016	
V/C Ratio(X)	0.24		0.00	0.80	0.95	
Avail Cap(c_a), veh/h	2004		0	2975	1035	
HCM Platoon Ratio	2.00	2.00	1.00	2.00	1.00	1.00
Upstream Filter(I)	0.79	0.00	0.00	0.09	1.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	51.0	0.0
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.2	17.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	0.1	19.7	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.1	0.0	0.0	0.2	68.4	0.0
LnGrp LOS	A		A	A	E	
Approach Vol, veh/h	484	A		2384	966	A
Approach Delay, s/veh	0.1			0.2	68.4	
Approach LOS	A			A	E	
Timer - Assigned Phs	2			4		6
Phs Duration (G+Y+Rc), s	96.3			53.1		96.3
Change Period (Y+Rc), s	7.5			* 7.2		* 7.5
Max Green Setting (Gmax), s	88.5			* 47		* 89
Max Q Clear Time (g_c+I1), s	2.0			44.7		2.0
Green Ext Time (p_c), s	4.7			1.2		59.0

Intersection Summary

HCM 6th Ctrl Delay 17.4
HCM 6th LOS B

Notes

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

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

Lanes, Volumes, Timings
5: S Volusia Ave/N Volusia Ave & E Graves Ave

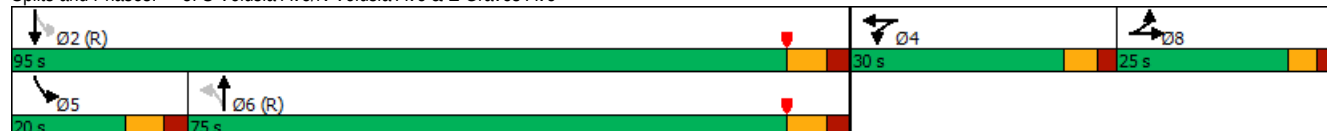
2020 Future Background Conditions
Timing Plan: AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	24	44	34	115	46	95	6	805	62	65	1026	8
Future Volume (vph)	24	44	34	115	46	95	6	805	62	65	1026	8
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	5%	5%	5%	7%	7%	7%
Adj. Flow (vph)	26	48	37	125	50	103	7	875	67	71	1115	9
Shared Lane Traffic (%)												
Lane Group Flow (vph)	26	85	0	125	153	0	7	942	0	71	1124	0
Turn Type	Split	NA		Split	NA		Perm	NA		pm+pt	NA	
Protected Phases	8	8		4	4			6		5	2	
Permitted Phases							6			2		
Detector Phase	8	8		4	4		6	6		5	2	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		15.0	15.0		5.0	15.0	
Minimum Split (s)	15.7	15.7		15.9	15.9		22.3	22.3		12.2	22.3	
Total Split (s)	25.0	25.0		30.0	30.0		75.0	75.0		20.0	95.0	
Total Split (%)	16.7%	16.7%		20.0%	20.0%		50.0%	50.0%		13.3%	63.3%	
Yellow Time (s)	3.4	3.4		3.8	3.8		4.5	4.5		4.4	4.5	
All-Red Time (s)	2.3	2.3		2.1	2.1		2.8	2.8		2.8	2.8	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.7	5.7		5.9	5.9		7.3	7.3		7.2	7.3	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?							Yes	Yes		Yes		
Recall Mode	None	None		None	None		C-Min	C-Min		None	C-Min	
v/c Ratio	0.19	0.54		0.67	0.67		0.03	0.47		0.21	0.49	
Control Delay	66.4	62.2		81.5	53.0		11.7	12.3		10.3	12.6	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	66.4	62.2		81.5	53.0		11.7	12.3		10.3	12.6	
Queue Length 50th (ft)	24	61		120	89		2	151		21	245	
Queue Length 95th (ft)	55	117		185	163		m4	151		48	371	
Internal Link Dist (ft)		249			1033			5260			358	
Turn Bay Length (ft)							245			280		
Base Capacity (vph)	225	240		281	315		267	2002		389	2316	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.12	0.35		0.44	0.49		0.03	0.47		0.18	0.49	

Intersection Summary

Cycle Length: 150
 Actuated Cycle Length: 150
 Offset: 24 (16%), Referenced to phase 2:SBTL and 6:NBTL, Start of Yellow
 Natural Cycle: 75
 Control Type: Actuated-Coordinated
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 5: S Volusia Ave/N Volusia Ave & E Graves Ave



HCM 6th Signalized Intersection Summary
5: S Volusia Ave/N Volusia Ave & E Graves Ave

2020 Future Background Conditions
Timing Plan: AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	24	44	34	115	46	95	6	805	62	65	1026	8
Future Volume (veh/h)	24	44	34	115	46	95	6	805	62	65	1026	8
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1826	1826	1826	1796	1796	1796
Adj Flow Rate, veh/h	26	48	20	125	50	48	7	875	60	71	1115	8
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	5	5	5	7	7	7
Cap, veh/h	115	81	34	154	76	73	337	2114	145	397	2506	18
Arrive On Green	0.07	0.07	0.07	0.09	0.09	0.09	0.64	0.64	0.64	0.03	0.72	0.72
Sat Flow, veh/h	1767	1244	518	1767	870	835	490	3294	226	1711	3473	25
Grp Volume(v), veh/h	26	0	68	125	0	98	7	461	474	71	548	575
Grp Sat Flow(s),veh/h/ln	1767	0	1762	1767	0	1705	490	1735	1785	1711	1706	1792
Q Serve(g_s), s	2.1	0.0	5.6	10.4	0.0	8.3	0.9	19.4	19.4	2.0	19.8	19.8
Cycle Q Clear(g_c), s	2.1	0.0	5.6	10.4	0.0	8.3	8.7	19.4	19.4	2.0	19.8	19.8
Prop In Lane	1.00		0.29	1.00		0.49	1.00		0.13	1.00		0.01
Lane Grp Cap(c), veh/h	115	0	115	154	0	149	337	1113	1146	397	1231	1293
V/C Ratio(X)	0.23	0.00	0.59	0.81	0.00	0.66	0.02	0.41	0.41	0.18	0.44	0.44
Avail Cap(c_a), veh/h	227	0	227	284	0	274	337	1113	1146	489	1231	1293
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.85	0.85	0.85	1.00	1.00	1.00
Uniform Delay (d), s/veh	66.5	0.0	68.1	67.2	0.0	66.3	12.8	13.1	13.1	9.4	8.6	8.6
Incr Delay (d2), s/veh	1.0	0.0	4.7	9.7	0.0	4.9	0.1	1.0	0.9	0.2	1.2	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.0	2.7	5.1	0.0	3.9	0.1	7.6	7.8	0.7	7.1	7.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	67.5	0.0	72.9	77.0	0.0	71.2	12.9	14.1	14.0	9.6	9.7	9.7
LnGrp LOS	E	A	E	E	A	E	B	B	B	A	A	A
Approach Vol, veh/h	94			223			942			1194		
Approach Delay, s/veh	71.4			74.4			14.0			9.7		
Approach LOS	E			E			B			A		
Timer - Assigned Phs	2			4		5	6		8			
Phs Duration (G+Y+Rc), s	115.5			19.0		11.9	103.6		15.5			
Change Period (Y+Rc), s	* 7.3			* 5.9		* 7.2	* 7.3		5.7			
Max Green Setting (Gmax), s	* 88			* 24		* 13	* 68		19.3			
Max Q Clear Time (g_c+I1), s	21.8			12.4		4.0	21.4		7.6			
Green Ext Time (p_c), s	9.0			0.7		0.1	6.8		0.3			

Intersection Summary

HCM 6th Ctrl Delay 19.6
HCM 6th LOS B

Notes

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

Lanes, Volumes, Timings
6: Veterans Memorial Pkwy & E Graves Ave

2020 Future Background Conditions
Timing Plan: AM Peak Hour

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗	↘	↑	↘	↗
Traffic Volume (vph)	222	35	810	344	51	487
Future Volume (vph)	222	35	810	344	51	487
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	6%	6%	6%	6%	12%	12%
Adj. Flow (vph)	241	38	880	374	55	529
Shared Lane Traffic (%)						
Lane Group Flow (vph)	241	38	880	374	55	529
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	2		1	6	8	
Permitted Phases		2	6			8
Detector Phase	2	2	1	6	8	8
Switch Phase						
Minimum Initial (s)	11.0	11.0	7.0	11.0	7.0	7.0
Minimum Split (s)	18.0	18.0	14.0	18.0	14.0	14.0
Total Split (s)	30.0	30.0	20.0	50.0	25.0	25.0
Total Split (%)	40.0%	40.0%	26.7%	66.7%	33.3%	33.3%
Yellow Time (s)	4.5	4.5	4.5	4.5	5.0	5.0
All-Red Time (s)	2.5	2.5	2.5	2.5	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Recall Mode	Min	Min	None	Min	None	None
v/c Ratio	0.55	0.09	1.34	0.35	0.21	0.78
Control Delay	24.8	7.6	181.3	7.9	23.7	11.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.8	7.6	181.3	7.9	23.7	11.6
Queue Length 50th (ft)	68	0	~314	50	16	0
Queue Length 95th (ft)	153	20	#783	138	48	84
Internal Link Dist (ft)	7674			1636	7026	
Turn Bay Length (ft)		400	300		1000	
Base Capacity (vph)	713	629	655	1333	502	813
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.34	0.06	1.34	0.28	0.11	0.65

Intersection Summary

Cycle Length: 75

Actuated Cycle Length: 58.8

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

Splits and Phases: 6: Veterans Memorial Pkwy & E Graves Ave



HCM 6th Signalized Intersection Summary
6: Veterans Memorial Pkwy & E Graves Ave

2020 Future Background Conditions
Timing Plan: AM Peak Hour

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗	↘	↑	↘	↗
Traffic Volume (veh/h)	222	35	810	344	51	487
Future Volume (veh/h)	222	35	810	344	51	487
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1811	1811	1811	1811	1722	1722
Adj Flow Rate, veh/h	241	16	880	374	55	379
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	6	6	6	6	12	12
Cap, veh/h	326	277	527	898	464	413
Arrive On Green	0.18	0.18	0.21	0.50	0.28	0.28
Sat Flow, veh/h	1811	1535	1725	1811	1640	1459
Grp Volume(v), veh/h	241	16	880	374	55	379
Grp Sat Flow(s),veh/h/ln	1811	1535	1725	1811	1640	1459
Q Serve(g_s), s	8.0	0.5	13.0	8.3	1.6	15.9
Cycle Q Clear(g_c), s	8.0	0.5	13.0	8.3	1.6	15.9
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	326	277	527	898	464	413
V/C Ratio(X)	0.74	0.06	1.67	0.42	0.12	0.92
Avail Cap(c_a), veh/h	658	557	527	1229	466	415
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.6	21.5	18.1	10.1	16.8	22.0
Incr Delay (d2), s/veh	4.6	0.1	310.2	0.4	0.1	25.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.5	0.2	50.4	2.6	0.5	7.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	29.2	21.6	328.3	10.6	17.0	47.0
LnGrp LOS	C	C	F	B	B	D
Approach Vol, veh/h	257			1254	434	
Approach Delay, s/veh	28.7			233.5	43.2	
Approach LOS	C			F	D	
Timer - Assigned Phs	1	2		6	8	
Phs Duration (G+Y+Rc), s	20.0	18.4		38.4	24.9	
Change Period (Y+Rc), s	7.0	7.0		7.0	7.0	
Max Green Setting (Gmax), s	13.0	23.0		43.0	18.0	
Max Q Clear Time (g_c+I1), s	15.0	10.0		10.3	17.9	
Green Ext Time (p_c), s	0.0	1.4		3.2	0.0	
Intersection Summary						
HCM 6th Ctrl Delay			164.0			
HCM 6th LOS			F			

Lanes, Volumes, Timings
7: S Kentucky Ave/N Kentucky Ave & E Graves Ave

2020 Future Background Conditions
Timing Plan: AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	201	546	8	11	862	484	17	12	5	289	7	339
Future Volume (vph)	201	546	8	11	862	484	17	12	5	289	7	339
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	11%	11%	11%	4%	4%	4%	2%	2%	2%	6%	6%	6%
Adj. Flow (vph)	231	628	9	13	991	556	20	14	6	332	8	390
Shared Lane Traffic (%)												
Lane Group Flow (vph)	231	637	0	13	991	556	0	40	0	332	8	390
Turn Type	Prot	NA		Perm	NA	pm+ov	Split	NA		Split	NA	pm+ov
Protected Phases	5	2			6	8	4	4		8	8	5
Permitted Phases				6		6						8
Detector Phase	5	2		6	6	8	4	4		8	8	5
Switch Phase												
Minimum Initial (s)	5.0	11.0		11.0	11.0	7.0	7.0	7.0		7.0	7.0	5.0
Minimum Split (s)	11.0	18.0		18.0	18.0	14.0	14.0	14.0		14.0	14.0	11.0
Total Split (s)	20.0	70.0		50.0	50.0	50.0	20.0	20.0		50.0	50.0	20.0
Total Split (%)	14.3%	50.0%		35.7%	35.7%	35.7%	14.3%	14.3%		35.7%	35.7%	14.3%
Yellow Time (s)	4.0	5.0		5.0	5.0	5.0	4.0	4.0		5.0	5.0	4.0
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	3.0	3.0		2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0		0.0		0.0	0.0	0.0
Total Lost Time (s)	6.0	7.0		7.0	7.0	7.0		7.0		7.0	7.0	6.0
Lead/Lag	Lead			Lag	Lag							Lead
Lead-Lag Optimize?	Yes			Yes	Yes							Yes
Recall Mode	None	Min		Min	Min	None	None	None		None	None	None
v/c Ratio	1.20	0.70		0.05	1.49	0.49		0.31		0.78	0.02	0.51
Control Delay	176.7	29.7		31.6	261.0	2.6		58.3		55.7	33.7	14.0
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0		0.0	0.0	0.0
Total Delay	176.7	29.7		31.6	261.0	2.6		58.3		55.7	33.7	14.0
Queue Length 50th (ft)	~226	375		7	~1100	15		27		246	5	102
Queue Length 95th (ft)	#428	625		24	#1506	33		67		347	18	183
Internal Link Dist (ft)		1636			3200			455			4140	
Turn Bay Length (ft)	200			235		460				320		175
Base Capacity (vph)	192	909		251	663	1269		200		618	650	767
Starvation Cap Reductn	0	0		0	0	0		0		0	0	0
Spillback Cap Reductn	0	0		0	0	0		0		0	0	0
Storage Cap Reductn	0	0		0	0	0		0		0	0	0
Reduced v/c Ratio	1.20	0.70		0.05	1.49	0.44		0.20		0.54	0.01	0.51

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 120.3

Natural Cycle: 150

Control Type: Actuated-Uncoordinated

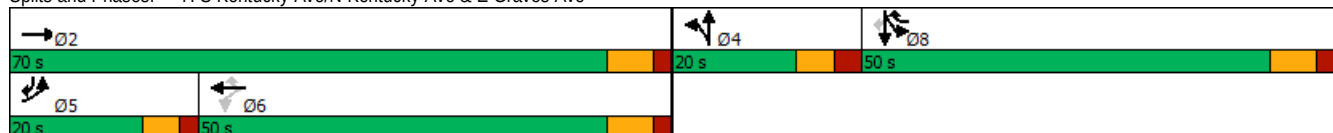
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

Splits and Phases: 7: S Kentucky Ave/N Kentucky Ave & E Graves Ave



HCM 6th Signalized Intersection Summary
 7: S Kentucky Ave/N Kentucky Ave & E Graves Ave

2020 Future Background Conditions
 Timing Plan: AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	201	546	8	11	862	484	17	12	5	289	7	339
Future Volume (veh/h)	201	546	8	11	862	484	17	12	5	289	7	339
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1737	1737	1737	1841	1841	1841	1870	1870	1870	1811	1811	1811
Adj Flow Rate, veh/h	231	628	9	13	991	431	20	14	3	332	8	208
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	11	11	11	4	4	4	2	2	2	6	6	6
Cap, veh/h	204	947	14	293	697	931	41	29	6	377	395	524
Arrive On Green	0.12	0.55	0.55	0.38	0.38	0.38	0.04	0.04	0.04	0.22	0.22	0.22
Sat Flow, veh/h	1654	1708	24	779	1841	1560	971	679	146	1725	1811	1535
Grp Volume(v), veh/h	231	0	637	13	991	431	37	0	0	332	8	208
Grp Sat Flow(s),veh/h/ln	1654	0	1733	779	1841	1560	1796	0	0	1725	1811	1535
Q Serve(g_s), s	14.0	0.0	29.4	1.4	43.0	17.5	2.3	0.0	0.0	21.2	0.4	11.7
Cycle Q Clear(g_c), s	14.0	0.0	29.4	10.8	43.0	17.5	2.3	0.0	0.0	21.2	0.4	11.7
Prop In Lane	1.00		0.01	1.00		1.00	0.54		0.08	1.00		1.00
Lane Grp Cap(c), veh/h	204	0	961	293	697	931	76	0	0	377	395	524
V/C Ratio(X)	1.13	0.00	0.66	0.04	1.42	0.46	0.49	0.00	0.00	0.88	0.02	0.40
Avail Cap(c_a), veh/h	204	0	961	293	697	931	205	0	0	653	685	770
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	49.8	0.0	17.8	28.7	35.3	12.8	53.2	0.0	0.0	43.0	34.9	28.5
Incr Delay (d2), s/veh	103.5	0.0	1.9	0.1	198.6	0.5	4.7	0.0	0.0	7.2	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	11.5	0.0	11.1	0.3	56.4	9.7	1.1	0.0	0.0	9.4	0.2	4.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	153.4	0.0	19.8	28.8	233.9	13.3	57.9	0.0	0.0	50.2	34.9	29.0
LnGrp LOS	F	A	B	C	F	B	E	A	A	D	C	C
Approach Vol, veh/h	868			1435			37			548		
Approach Delay, s/veh	55.3			165.8			57.9			41.9		
Approach LOS	E			F			E			D		
Timer - Assigned Phs	2			4			5			6		
Phs Duration (G+Y+Rc), s	70.0			11.8			20.0			50.0		
Change Period (Y+Rc), s	7.0			7.0			6.0			7.0		
Max Green Setting (Gmax), s	63.0			13.0			14.0			43.0		
Max Q Clear Time (g_c+I1), s	31.4			4.3			16.0			45.0		
Green Ext Time (p_c), s	6.4			0.1			0.0			1.6		
Intersection Summary												
HCM 6th Ctrl Delay	107.7											
HCM 6th LOS	F											

Lanes, Volumes, Timings
8: N Normandy Blvd & E Graves Ave

2020 Future Background Conditions
Timing Plan: AM Peak Hour

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↘	↑	↘	↗
Traffic Volume (vph)	450	618	477	617	700	606
Future Volume (vph)	450	618	477	617	700	606
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	10%	10%	5%	5%	2%	2%
Adj. Flow (vph)	489	672	518	671	761	659
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1161	0	518	671	761	659
Turn Type	NA		pm+pt	NA	Prot	Perm
Protected Phases	6		5	2	4	
Permitted Phases			2			4
Detector Phase	6		5	2	4	4
Switch Phase						
Minimum Initial (s)	12.0		5.0	12.0	7.0	7.0
Minimum Split (s)	19.0		12.0	19.0	13.0	13.0
Total Split (s)	45.0		20.0	65.0	25.0	25.0
Total Split (%)	50.0%		22.2%	72.2%	27.8%	27.8%
Yellow Time (s)	5.0		5.0	5.0	4.0	4.0
All-Red Time (s)	2.0		2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0		7.0	7.0	6.0	6.0
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Recall Mode	Min		None	Min	None	None
v/c Ratio	0.82		1.46	0.60	1.89	0.92
Control Delay	18.4		245.8	12.3	432.1	31.6
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	18.4		245.8	12.3	432.1	31.6
Queue Length 50th (ft)	170		~341	193	~641	114
Queue Length 95th (ft)	254		#559	287	#904	#359
Internal Link Dist (ft)	3200			471	9642	
Turn Bay Length (ft)			400		200	
Base Capacity (vph)	1628		354	1261	403	713
Starvation Cap Reductn	0		0	0	0	0
Spillback Cap Reductn	0		0	0	0	0
Storage Cap Reductn	0		0	0	0	0
Reduced v/c Ratio	0.71		1.46	0.53	1.89	0.92

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 83.8

Natural Cycle: 100

Control Type: Actuated-Uncoordinated

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

Splits and Phases: 8: N Normandy Blvd & E Graves Ave



HCM 6th Signalized Intersection Summary
8: N Normandy Blvd & E Graves Ave

2020 Future Background Conditions
Timing Plan: AM Peak Hour

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↘	↑	↘	↗
Traffic Volume (veh/h)	450	618	477	617	700	606
Future Volume (veh/h)	450	618	477	617	700	606
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1752	1752	1826	1826	1870	1870
Adj Flow Rate, veh/h	489	672	518	671	761	251
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	10	10	5	5	2	2
Cap, veh/h	703	627	331	1177	376	335
Arrive On Green	0.42	0.42	0.14	0.64	0.21	0.21
Sat Flow, veh/h	1752	1485	1739	1826	1781	1585
Grp Volume(v), veh/h	489	672	518	671	761	251
Grp Sat Flow(s),veh/h/ln	1664	1485	1739	1826	1781	1585
Q Serve(g_s), s	21.6	38.0	13.0	18.6	19.0	13.4
Cycle Q Clear(g_c), s	21.6	38.0	13.0	18.6	19.0	13.4
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	703	627	331	1177	376	335
V/C Ratio(X)	0.70	1.07	1.56	0.57	2.02	0.75
Avail Cap(c_a), veh/h	703	627	331	1177	376	335
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	21.3	26.0	28.0	9.0	35.5	33.3
Incr Delay (d2), s/veh	3.3	56.8	268.1	0.8	469.9	9.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.2	21.7	27.4	5.9	56.8	12.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	24.6	82.8	296.1	9.8	505.4	42.4
LnGrp LOS	C	F	F	A	F	D
Approach Vol, veh/h	1161			1189	1012	
Approach Delay, s/veh	58.3			134.5	390.6	
Approach LOS	E			F	F	
Timer - Assigned Phs	2			4	5	6
Phs Duration (G+Y+Rc), s	65.0			25.0	20.0	45.0
Change Period (Y+Rc), s	7.0			6.0	7.0	7.0
Max Green Setting (Gmax), s	58.0			19.0	13.0	38.0
Max Q Clear Time (g_c+I1), s	20.6			21.0	15.0	40.0
Green Ext Time (p_c), s	7.1			0.0	0.0	0.0
Intersection Summary						
HCM 6th Ctrl Delay			185.3			
HCM 6th LOS			F			

Lanes, Volumes, Timings
9: E Graves Ave & Howland Blvd

2020 Future Background Conditions
Timing Plan: AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	535	62	517	19	45	122	613	1802	13	75	670	166
Future Volume (vph)	535	62	517	19	45	122	613	1802	13	75	670	166
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	6%	6%	6%	4%	4%	4%	3%	3%	3%	8%	8%	8%
Adj. Flow (vph)	582	67	562	21	49	133	666	1959	14	82	728	180
Shared Lane Traffic (%)	45%											
Lane Group Flow (vph)	320	329	562	21	49	133	666	1973	0	82	908	0
Turn Type	Split	NA	Perm	Split	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases			4			8	2			6		
Detector Phase	4	4	4	8	8	8	5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	5.0	17.0		7.0	17.0	
Minimum Split (s)	15.0	15.0	15.0	14.5	14.5	14.5	12.0	24.5		14.0	24.5	
Total Split (s)	30.0	30.0	30.0	16.0	16.0	16.0	54.0	79.0		25.0	50.0	
Total Split (%)	20.0%	20.0%	20.0%	10.7%	10.7%	10.7%	36.0%	52.7%		16.7%	33.3%	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.5		5.0	5.5	
All-Red Time (s)	3.0	3.0	3.0	2.5	2.5	2.5	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	8.0	8.0	8.0	7.5	7.5	7.5	7.0	7.5		7.0	7.5	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Recall Mode	None	None	None	None	None	None	None	C-Min		None	C-Min	
v/c Ratio	1.35	1.37	0.83	0.23	0.50	0.50	1.10	1.05		0.54	0.97	
Control Delay	233.0	240.4	34.3	48.1	49.9	4.7	108.7	69.0		43.8	75.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	233.0	240.4	34.3	48.1	49.9	4.7	108.7	69.0		43.8	75.5	
Queue Length 50th (ft)	~435	~453	239	18	44	19	~694	~1096		29	456	
Queue Length 95th (ft)	#643	#660	#313	m17	m41	m14	#943	#1297		81	#601	
Internal Link Dist (ft)		1373			8563			569			283	
Turn Bay Length (ft)	330			565			280			185		
Base Capacity (vph)	237	240	674	98	103	270	603	1880		247	932	
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	1.35	1.37	0.83	0.21	0.48	0.49	1.10	1.05		0.33	0.97	

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 82 (55%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow

Natural Cycle: 150

Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

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

Splits and Phases: 9: E Graves Ave & Howland Blvd



HCM 6th Signalized Intersection Summary
9: E Graves Ave & Howland Blvd

2020 Future Background Conditions
Timing Plan: AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	535	62	517	19	45	122	613	1802	13	75	670	166
Future Volume (veh/h)	535	62	517	19	45	122	613	1802	13	75	670	166
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1811	1811	1811	1841	1841	1841	1856	1856	1856	1781	1781	1781
Adj Flow Rate, veh/h	630	0	0	21	49	30	666	1959	13	82	728	155
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	6	6	6	4	4	4	3	3	3	8	8	8
Cap, veh/h	506	0		81	85	72	629	2010	13	135	816	174
Arrive On Green	0.15	0.00	0.00	0.05	0.05	0.05	0.31	0.56	0.56	0.05	0.29	0.29
Sat Flow, veh/h	3450	0	1535	1753	1841	1560	1767	3590	24	1697	2776	591
Grp Volume(v), veh/h	630	0	0	21	49	30	666	961	1011	82	444	439
Grp Sat Flow(s),veh/h/ln	1725	0	1535	1753	1841	1560	1767	1763	1851	1697	1692	1675
Q Serve(g_s), s	22.0	0.0	0.0	1.7	3.9	2.8	47.0	79.1	79.5	5.0	37.6	37.6
Cycle Q Clear(g_c), s	22.0	0.0	0.0	1.7	3.9	2.8	47.0	79.1	79.5	5.0	37.6	37.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.01	1.00		0.35
Lane Grp Cap(c), veh/h	506	0		81	85	72	629	987	1036	135	498	493
V/C Ratio(X)	1.25	0.00		0.26	0.58	0.42	1.06	0.97	0.98	0.61	0.89	0.89
Avail Cap(c_a), veh/h	506	0		99	104	88	629	987	1036	258	498	493
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.95	0.00	0.00	0.09	0.09	0.09	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	64.0	0.0	0.0	69.1	70.1	69.6	41.8	31.9	32.0	40.5	50.7	50.7
Incr Delay (d2), s/veh	125.4	0.0	0.0	0.2	0.6	0.4	52.7	22.9	22.7	4.4	20.8	21.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	18.2	0.0	0.0	0.8	1.8	1.1	32.3	38.5	40.5	2.3	18.8	18.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	189.4	0.0	0.0	69.2	70.7	70.0	94.5	54.9	54.7	44.8	71.5	71.7
LnGrp LOS	F	A		E	E	E	F	D	D	D	E	E
Approach Vol, veh/h	630			A			100			2638		
Approach Delay, s/veh	189.4			70.2			64.8			69.3		
Approach LOS	F			E			E			E		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	14.1	91.5		30.0	54.0	51.6		14.4				
Change Period (Y+Rc), s	7.0	7.5		8.0	7.0	7.5		7.5				
Max Green Setting (Gmax), s	18.0	71.5		22.0	47.0	42.5		8.5				
Max Q Clear Time (g_c+I1), s	7.0	81.5		24.0	49.0	39.6		5.9				
Green Ext Time (p_c), s	0.1	0.0		0.0	0.0	1.8		0.1				

Intersection Summary

HCM 6th Ctrl Delay 84.1

HCM 6th LOS F

Notes

User approved volume balancing among the lanes for turning movement.

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

Lanes, Volumes, Timings
10: Catalina Blvd & Howland Blvd

2020 Future Background Conditions
Timing Plan: AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	233	678	59	31	1308	11	131	23	13	39	35	599
Future Volume (vph)	233	678	59	31	1308	11	131	23	13	39	35	599
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
Heavy Vehicles (%)	7%	7%	7%	4%	4%	4%	4%	4%	4%	2%	2%	2%
Adj. Flow (vph)	245	714	62	33	1377	12	138	24	14	41	37	631
Shared Lane Traffic (%)												
Lane Group Flow (vph)	245	776	0	33	1389	0	138	38	0	41	37	631
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		Perm	NA	Perm
Protected Phases	1	6		5	2		7	4			8	
Permitted Phases	6			2			4			8		8
Detector Phase	1	6		5	2		7	4		8	8	8
Switch Phase												
Minimum Initial (s)	5.0	11.0		5.0	11.0		5.0	7.0		7.0	7.0	7.0
Minimum Split (s)	13.5	19.5		13.5	19.5		12.0	14.0		14.0	14.0	14.0
Total Split (s)	24.0	65.0		18.0	59.0		24.0	67.0		43.0	43.0	43.0
Total Split (%)	16.0%	43.3%		12.0%	39.3%		16.0%	44.7%		28.7%	28.7%	28.7%
Yellow Time (s)	5.0	5.0		5.0	5.0		4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	3.5	3.5		3.5	3.5		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)	8.5	8.5		8.5	8.5		7.0	7.0		7.0	7.0	7.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead			Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes			Yes	Yes	Yes
Recall Mode	None	C-Min		None	C-Min		None	None		None	None	None
v/c Ratio	1.11	0.56		0.12	1.19		0.27	0.05		0.12	0.08	1.05
Control Delay	130.4	35.5		21.5	137.1		31.0	19.8		45.7	44.8	81.7
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	130.4	35.5		21.5	137.1		31.0	19.8		45.7	44.8	81.7
Queue Length 50th (ft)	~221	313		16	~862		87	14		32	28	~474
Queue Length 95th (ft)	m#383	m360		36	#1003		139	39		67	60	#719
Internal Link Dist (ft)		8563			1815			941			4969	
Turn Bay Length (ft)	375			270			180			235		415
Base Capacity (vph)	221	1377		293	1168		520	698		342	467	599
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	1.11	0.56		0.11	1.19		0.27	0.05		0.12	0.08	1.05

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

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

Natural Cycle: 150

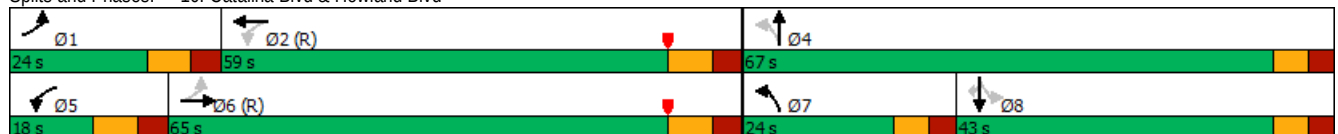
Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

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

Splits and Phases: 10: Catalina Blvd & Howland Blvd



HCM 6th Signalized Intersection Summary
10: Catalina Blvd & Howland Blvd

2020 Future Background Conditions
Timing Plan: AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	233	678	59	31	1308	11	131	23	13	39	35	599
Future Volume (veh/h)	233	678	59	31	1308	11	131	23	13	39	35	599
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1796	1796	1796	1841	1841	1841	1841	1841	1841	1870	1870	1870
Adj Flow Rate, veh/h	245	714	59	33	1377	12	138	24	9	41	37	278
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, %	7	7	7	4	4	4	4	4	4	2	2	2
Cap, veh/h	245	1595	132	336	1497	13	366	402	151	314	361	306
Arrive On Green	0.10	0.50	0.50	0.02	0.42	0.42	0.08	0.32	0.32	0.19	0.19	0.19
Sat Flow, veh/h	1711	3192	264	1753	3553	31	1753	1276	479	1376	1870	1585
Grp Volume(v), veh/h	245	382	391	33	678	711	138	0	33	41	37	278
Grp Sat Flow(s),veh/h/ln	1711	1706	1749	1753	1749	1835	1753	0	1755	1376	1870	1585
Q Serve(g_s), s	15.5	21.6	21.6	1.6	54.9	54.9	9.2	0.0	2.0	3.7	2.4	25.7
Cycle Q Clear(g_c), s	15.5	21.6	21.6	1.6	54.9	54.9	9.2	0.0	2.0	3.7	2.4	25.7
Prop In Lane	1.00		0.15	1.00		0.02	1.00		0.27	1.00		1.00
Lane Grp Cap(c), veh/h	245	853	874	336	737	773	366	0	553	314	361	306
V/C Ratio(X)	1.00	0.45	0.45	0.10	0.92	0.92	0.38	0.00	0.06	0.13	0.10	0.91
Avail Cap(c_a), veh/h	245	853	874	403	737	773	432	0	702	378	449	380
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.09	0.09	0.09	0.56	0.56	0.56	1.00	0.00	1.00	0.62	0.62	0.62
Uniform Delay (d), s/veh	45.3	24.2	24.2	23.8	41.0	41.0	42.1	0.0	35.8	50.3	49.8	59.2
Incr Delay (d2), s/veh	16.9	0.2	0.2	0.1	11.8	11.4	0.6	0.0	0.0	0.2	0.1	16.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.3	8.5	8.8	0.7	25.1	26.3	4.1	0.0	0.9	1.3	1.2	11.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	62.2	24.3	24.3	23.8	52.8	52.4	42.7	0.0	35.9	50.5	49.9	75.5
LnGrp LOS	E	C	C	C	D	D	D	A	D	D	D	E
Approach Vol, veh/h	1018			1422			171			356		
Approach Delay, s/veh	33.4			51.9			41.4			70.0		
Approach LOS	C			D			D			E		
Timer - Assigned Phs	1	2		4	5	6	7	8				
Phs Duration (G+Y+Rc), s	24.0	71.7		54.3	12.2	83.5	18.3	36.0				
Change Period (Y+Rc), s	8.5	8.5		7.0	8.5	8.5	7.0	7.0				
Max Green Setting (Gmax), s	15.5	50.5		60.0	9.5	56.5	17.0	36.0				
Max Q Clear Time (g_c+I1), s	17.5	56.9		4.0	3.6	23.6	11.2	27.7				
Green Ext Time (p_c), s	0.0	0.0		0.2	0.0	7.2	0.2	1.2				
Intersection Summary												
HCM 6th Ctrl Delay	47.1											
HCM 6th LOS	D											

Lanes, Volumes, Timings
11: Lake Helen Osteen Rd & Catalina Blvd

2020 Future Background Conditions
Timing Plan: AM Peak Hour

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	49	116	450	282	84	174
Future Volume (vph)	49	116	450	282	84	174
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	5%	5%
Adj. Flow (vph)	54	129	500	313	93	193
Shared Lane Traffic (%)						
Lane Group Flow (vph)	54	129	500	313	286	0
Turn Type	Prot	Perm	pm+pt	NA	NA	
Protected Phases	8		1	6	2	
Permitted Phases		8	6			
Detector Phase	8	8	1	6	2	
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	15.0	15.0	
Minimum Split (s)	11.5	11.5	12.5	22.5	22.5	
Total Split (s)	20.0	20.0	20.0	50.0	30.0	
Total Split (%)	28.6%	28.6%	28.6%	71.4%	42.9%	
Yellow Time (s)	3.5	3.5	5.0	5.0	5.0	
All-Red Time (s)	3.0	3.0	2.5	2.5	2.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.5	6.5	7.5	7.5	7.5	
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	None	None	None	Min	Min	
v/c Ratio	0.18	0.34	0.72	0.25	0.48	
Control Delay	23.7	8.2	14.4	6.1	11.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	23.7	8.2	14.4	6.1	11.9	
Queue Length 50th (ft)	17	0	83	45	36	
Queue Length 95th (ft)	46	40	#186	88	99	
Internal Link Dist (ft)	4969			10882	661	
Turn Bay Length (ft)	185		240			
Base Capacity (vph)	444	494	717	1431	780	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.12	0.26	0.70	0.22	0.37	

Intersection Summary

Cycle Length: 70

Actuated Cycle Length: 55.6

Natural Cycle: 55

Control Type: Actuated-Uncoordinated

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

Queue shown is maximum after two cycles.

Splits and Phases: 11: Lake Helen Osteen Rd & Catalina Blvd



HCM 6th Signalized Intersection Summary
11: Lake Helen Osteen Rd & Catalina Blvd

2020 Future Background Conditions
Timing Plan: AM Peak Hour

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	49	116	450	282	84	174
Future Volume (veh/h)	49	116	450	282	84	174
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1826	1826
Adj Flow Rate, veh/h	54	18	500	313	93	167
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	5	5
Cap, veh/h	112	99	718	1241	172	308
Arrive On Green	0.06	0.06	0.22	0.66	0.29	0.29
Sat Flow, veh/h	1781	1585	1781	1870	585	1051
Grp Volume(v), veh/h	54	18	500	313	0	260
Grp Sat Flow(s),veh/h/ln	1781	1585	1781	1870	0	1637
Q Serve(g_s), s	1.5	0.6	8.9	3.5	0.0	6.8
Cycle Q Clear(g_c), s	1.5	0.6	8.9	3.5	0.0	6.8
Prop In Lane	1.00	1.00	1.00			0.64
Lane Grp Cap(c), veh/h	112	99	718	1241	0	480
V/C Ratio(X)	0.48	0.18	0.70	0.25	0.00	0.54
Avail Cap(c_a), veh/h	470	418	755	1554	0	720
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	23.2	22.7	8.4	3.5	0.0	15.2
Incr Delay (d2), s/veh	6.8	1.8	3.6	0.2	0.0	2.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.2	2.6	0.5	0.0	2.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	30.0	24.6	11.9	3.7	0.0	17.2
LnGrp LOS	C	C	B	A	A	B
Approach Vol, veh/h	72			813	260	
Approach Delay, s/veh	28.6			8.8	17.2	
Approach LOS	C			A	B	
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	18.9	22.5			41.4	9.7
Change Period (Y+Rc), s	7.5	7.5			7.5	6.5
Max Green Setting (Gmax), s	12.5	22.5			42.5	13.5
Max Q Clear Time (g_c+I1), s	10.9	8.8			5.5	3.5
Green Ext Time (p_c), s	0.6	2.1			3.7	0.2
Intersection Summary						
HCM 6th Ctrl Delay			11.9			
HCM 6th LOS			B			

Lanes, Volumes, Timings
12: Providence Blvd & Howland Blvd

2020 Future Background Conditions
Timing Plan: AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	522	265	31	905	0	266	0	22	1	0	2
Future Volume (vph)	0	522	265	31	905	0	266	0	22	1	0	2
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
Heavy Vehicles (%)	9%	9%	9%	5%	5%	5%	3%	3%	3%	2%	2%	2%
Adj. Flow (vph)	0	549	279	33	953	0	280	0	23	1	0	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	549	279	33	953	0	280	23	0	0	3	0
Turn Type	Perm	NA	Perm	pm+pt	NA		pm+pt	NA		Perm	NA	
Protected Phases		6		5	2		7	4			8	
Permitted Phases	6		6	2			4			8		
Detector Phase	6	6	6	5	2		7	4		8	8	
Switch Phase												
Minimum Initial (s)	11.0	11.0	11.0	5.0	11.0		5.0	7.0		7.0	7.0	
Minimum Split (s)	18.0	18.0	18.0	12.0	18.0		12.0	14.0		14.0	14.0	
Total Split (s)	85.0	85.0	85.0	20.0	105.0		25.0	50.0		25.0	25.0	
Total Split (%)	54.8%	54.8%	54.8%	12.9%	67.7%		16.1%	32.3%		16.1%	16.1%	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		4.5	4.5		4.5	4.5	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.5	2.5		2.5	2.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0			7.0	
Lead/Lag	Lag	Lag	Lag	Lead			Lead			Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes			Yes	Yes	
Recall Mode	Min	Min	Min	None	C-Min		None	None		None	None	
v/c Ratio		0.49	0.27	0.07	0.74		0.86	0.04			0.02	
Control Delay		17.5	2.5	7.5	18.4		83.5	0.1			0.0	
Queue Delay		0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Total Delay		17.5	2.5	7.5	18.4		83.5	0.1			0.0	
Queue Length 50th (ft)		296	7	9	558		271	0			0	
Queue Length 95th (ft)		403	44	21	742		#394	0			0	
Internal Link Dist (ft)		1815			1369			8692			129	
Turn Bay Length (ft)				160			280					
Base Capacity (vph)		1124	1048	525	1294		325	711			309	
Starvation Cap Reductn		0	0	0	0		0	0			0	
Spillback Cap Reductn		0	0	0	0		0	0			0	
Storage Cap Reductn		0	0	0	0		0	0			0	
Reduced v/c Ratio		0.49	0.27	0.06	0.74		0.86	0.03			0.01	

Intersection Summary

Cycle Length: 155

Actuated Cycle Length: 155

Offset: 0 (0%), Referenced to phase 2:WBTL, Start of Yellow

Natural Cycle: 80

Control Type: Actuated-Coordinated

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

Queue shown is maximum after two cycles.

Splits and Phases: 12: Providence Blvd & Howland Blvd



HCM 6th Signalized Intersection Summary
12: Providence Blvd & Howland Blvd

2020 Future Background Conditions
Timing Plan: AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	522	265	31	905	0	266	0	22	1	0	2
Future Volume (veh/h)	0	522	265	31	905	0	266	0	22	1	0	2
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1767	1767	1767	1826	1826	1826	1856	1856	1856	1870	1870	1870
Adj Flow Rate, veh/h	0	549	235	33	953	0	280	0	6	1	0	1
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, %	9	9	9	5	5	5	3	3	3	2	2	2
Cap, veh/h	46	1176	996	436	1342	0	293	0	274	45	0	10
Arrive On Green	0.00	0.67	0.67	0.02	0.74	0.00	0.12	0.00	0.17	0.01	0.00	0.01
Sat Flow, veh/h	556	1767	1497	1739	1826	0	1767	0	1572	746	0	746
Grp Volume(v), veh/h	0	549	235	33	953	0	280	0	6	2	0	0
Grp Sat Flow(s),veh/h/ln	556	1767	1497	1739	1826	0	1767	0	1572	1492	0	0
Q Serve(g_s), s	0.0	23.4	9.7	0.9	44.8	0.0	18.0	0.0	0.5	0.2	0.0	0.0
Cycle Q Clear(g_c), s	0.0	23.4	9.7	0.9	44.8	0.0	18.0	0.0	0.5	0.2	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	0.50		0.50
Lane Grp Cap(c), veh/h	46	1176	996	436	1342	0	293	0	274	54	0	0
V/C Ratio(X)	0.00	0.47	0.24	0.08	0.71	0.00	0.95	0.00	0.02	0.04	0.00	0.00
Avail Cap(c_a), veh/h	46	1176	996	539	1342	0	293	0	436	208	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.82	0.82	1.00	1.00	0.00	0.84	0.00	0.84	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	12.6	10.3	9.2	11.4	0.0	67.6	0.0	53.0	75.6	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.3	0.1	0.1	3.2	0.0	36.4	0.0	0.0	0.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	8.7	3.2	0.3	16.8	0.0	14.1	0.0	0.2	0.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	12.9	10.4	9.2	14.6	0.0	104.0	0.0	53.0	75.8	0.0	0.0
LnGrp LOS	A	B	B	A	B	A	F	A	D	E	A	A
Approach Vol, veh/h	784			986			286			2		
Approach Delay, s/veh	12.2			14.4			102.9			75.8		
Approach LOS	B			B			F			E		
Timer - Assigned Phs	2			4			5			6		
Phs Duration (G+Y+Rc), s	121.0			34.0			10.8			110.2		
Change Period (Y+Rc), s	7.0			7.0			7.0			7.0		
Max Green Setting (Gmax), s	98.0			43.0			13.0			78.0		
Max Q Clear Time (g_c+I1), s	46.8			2.5			2.9			25.4		
Green Ext Time (p_c), s	14.0			0.0			0.0			7.3		
Intersection Summary												
HCM 6th Ctrl Delay	25.9											
HCM 6th LOS	C											

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	36	60	241	174	108	78	134	790	94	79	1054	43
Future Volume (vph)	36	60	241	174	108	78	134	790	94	79	1054	43
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	2%	2%	2%	8%	8%	8%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	40	66	265	191	119	86	147	868	103	87	1158	47
Shared Lane Traffic (%)												
Lane Group Flow (vph)	40	66	265	191	205	0	147	971	0	87	1205	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8		8	4			6			2		
Detector Phase	3	8	8	7	4		1	6		5	2	
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0		5.0	15.0		5.0	15.0	
Minimum Split (s)	11.9	16.9	16.9	11.7	16.9		12.1	22.1		11.8	22.1	
Total Split (s)	18.0	40.0	40.0	18.0	40.0		32.0	72.0		20.0	60.0	
Total Split (%)	12.0%	26.7%	26.7%	12.0%	26.7%		21.3%	48.0%		13.3%	40.0%	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.9	4.9		4.8	4.9	
All-Red Time (s)	2.9	2.9	2.9	2.7	2.9		2.2	2.2		2.0	2.2	
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)	6.9	6.9	6.9	6.7	6.9		7.1	7.1		6.8	7.1	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	None	None	None	None		None	C-Min		None	C-Min	
v/c Ratio	0.19	0.28	0.61	0.66	0.69		0.53	0.52		0.27	0.68	
Control Delay	42.4	59.2	12.0	59.3	64.7		18.2	23.3		10.6	31.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	42.4	59.2	12.0	59.3	64.7		18.2	23.3		10.6	31.9	
Queue Length 50th (ft)	30	59	0	160	176		51	295		33	492	
Queue Length 95th (ft)	58	100	79	217	254		98	432		28	684	
Internal Link Dist (ft)		835			5352			877			5260	
Turn Bay Length (ft)	330		755	300			240			285		
Base Capacity (vph)	251	411	555	288	380		393	1871		373	1760	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.16	0.16	0.48	0.66	0.54		0.37	0.52		0.23	0.68	

Intersection Summary

Cycle Length: 150

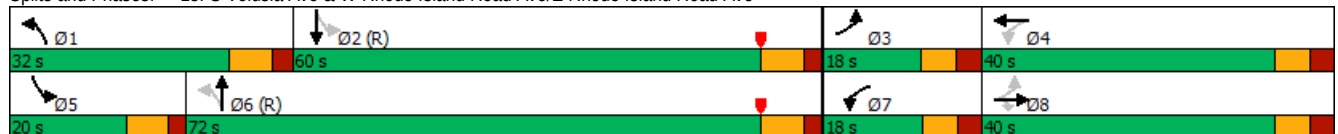
Actuated Cycle Length: 150

Offset: 86 (57%), Referenced to phase 2:SBTL and 6:NBTL, Start of Yellow

Natural Cycle: 90

Control Type: Actuated-Coordinated

Splits and Phases: 13: S Volusia Ave & W Rhode Island Road Ave/E Rhode Island Road Ave



HCM 6th Signalized Intersection Summary

2020 Future Background Conditions

13: S Volusia Ave & W Rhode Island Road Ave/E Rhode Island Road Ave

Timing Plan: AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	36	60	241	174	108	78	134	790	94	79	1054	43
Future Volume (veh/h)	36	60	241	174	108	78	134	790	94	79	1054	43
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1781	1781	1781	1826	1826	1826	1826	1826	1826
Adj Flow Rate, veh/h	40	66	44	191	119	53	147	868	92	87	1158	42
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	8	8	8	5	5	5	5	5	5
Cap, veh/h	120	135	114	223	138	62	322	2015	214	390	2120	77
Arrive On Green	0.03	0.07	0.07	0.08	0.12	0.12	0.05	0.64	0.64	0.03	0.62	0.62
Sat Flow, veh/h	1781	1870	1585	1697	1168	520	1739	3165	335	1739	3414	124
Grp Volume(v), veh/h	40	66	44	191	0	172	147	476	484	87	588	612
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1697	0	1688	1739	1735	1766	1739	1735	1804
Q Serve(g_s), s	3.1	5.1	4.0	11.3	0.0	15.0	4.6	20.6	20.6	2.7	29.2	29.2
Cycle Q Clear(g_c), s	3.1	5.1	4.0	11.3	0.0	15.0	4.6	20.6	20.6	2.7	29.2	29.2
Prop In Lane	1.00		1.00	1.00		0.31	1.00		0.19	1.00		0.07
Lane Grp Cap(c), veh/h	120	135	114	223	0	200	322	1104	1124	390	1077	1120
V/C Ratio(X)	0.33	0.49	0.38	0.86	0.00	0.86	0.46	0.43	0.43	0.22	0.55	0.55
Avail Cap(c_a), veh/h	202	413	350	223	0	372	531	1104	1124	486	1077	1120
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.27	0.00	0.27	1.00	1.00	1.00	0.85	0.85	0.85
Uniform Delay (d), s/veh	62.4	66.9	66.4	61.9	0.0	64.9	13.3	13.6	13.6	10.8	16.3	16.3
Incr Delay (d2), s/veh	1.6	2.7	2.1	9.0	0.0	3.1	1.0	1.2	1.2	0.2	1.7	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	2.5	1.7	2.6	0.0	6.6	1.7	7.9	8.1	1.0	11.4	11.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	64.0	69.6	68.5	70.9	0.0	68.0	14.3	14.9	14.8	11.0	18.0	17.9
LnGrp LOS	E	E	E	E	A	E	B	B	B	B	B	B
Approach Vol, veh/h	150				363			1107			1287	
Approach Delay, s/veh	67.8				69.5			14.8			17.5	
Approach LOS	E				E			B			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	14.0	100.3	11.1	24.7	11.7	102.6	18.0	17.7				
Change Period (Y+Rc), s	* 7.1	* 7.1	6.9	6.9	6.8	* 7.1	* 6.7	6.9				
Max Green Setting (Gmax), s	* 25	* 53	11.1	33.1	13.2	* 65	* 11	33.1				
Max Q Clear Time (g_c+I1), s	6.6	31.2	5.1	17.0	4.7	22.6	13.3	7.1				
Green Ext Time (p_c), s	0.3	10.7	0.0	0.8	0.1	10.3	0.0	0.4				

Intersection Summary

HCM 6th Ctrl Delay 25.6
 HCM 6th LOS C

Notes

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

Lanes, Volumes, Timings
14: Veterans Memorial Pkwy & E Rhode Island Road Ave

2020 Future Background Conditions
Timing Plan: AM Peak Hour

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	185	171	333	358	646	349
Future Volume (vph)	185	171	333	358	646	349
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	2%	2%	5%	5%	5%	5%
Adj. Flow (vph)	210	194	378	407	734	397
Shared Lane Traffic (%)						
Lane Group Flow (vph)	210	194	378	407	734	397
Turn Type	Prot	Perm	pm+pt	NA	NA	Perm
Protected Phases	4		1	6	2	
Permitted Phases		4	6			2
Detector Phase	4	4	1	6	2	2
Switch Phase						
Minimum Initial (s)	7.0	7.0	5.0	11.0	11.0	11.0
Minimum Split (s)	13.5	13.5	13.5	20.5	20.5	20.5
Total Split (s)	20.0	20.0	15.0	50.0	35.0	35.0
Total Split (%)	28.6%	28.6%	21.4%	71.4%	50.0%	50.0%
Yellow Time (s)	3.5	3.5	5.5	5.5	5.5	5.5
All-Red Time (s)	3.0	3.0	3.0	4.0	4.0	4.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	8.5	9.5	9.5	9.5
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Recall Mode	None	None	None	Min	Min	Min
v/c Ratio	0.68	0.45	1.38	0.38	1.09	0.48
Control Delay	38.6	7.9	214.5	9.0	85.8	4.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.6	7.9	214.5	9.0	85.8	4.2
Queue Length 50th (ft)	84	0	~175	86	~370	0
Queue Length 95th (ft)	145	46	#323	135	#549	47
Internal Link Dist (ft)	5352			4702	7026	
Turn Bay Length (ft)	450		385			385
Base Capacity (vph)	349	468	273	1072	675	822
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.60	0.41	1.38	0.38	1.09	0.48

Intersection Summary

Cycle Length: 70

Actuated Cycle Length: 68.4

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

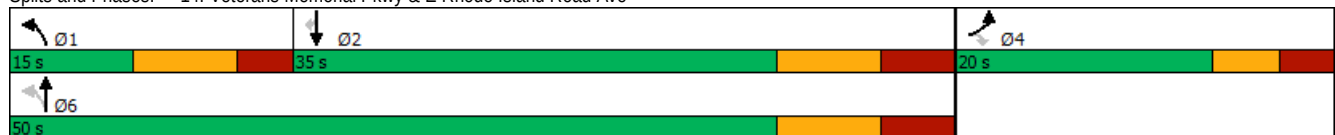
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

Splits and Phases: 14: Veterans Memorial Pkwy & E Rhode Island Road Ave



HCM 6th Signalized Intersection Summary
14: Veterans Memorial Pkwy & E Rhode Island Road Ave

2020 Future Background Conditions
Timing Plan: AM Peak Hour

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	185	171	333	358	646	349
Future Volume (veh/h)	185	171	333	358	646	349
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1826	1826	1826	1826
Adj Flow Rate, veh/h	210	80	378	407	734	397
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	5	5	5	5
Cap, veh/h	264	235	279	1115	702	595
Arrive On Green	0.15	0.15	0.10	0.61	0.38	0.38
Sat Flow, veh/h	1781	1585	1739	1826	1826	1547
Grp Volume(v), veh/h	210	80	378	407	734	397
Grp Sat Flow(s),veh/h/ln	1781	1585	1739	1826	1826	1547
Q Serve(g_s), s	7.6	3.0	6.5	7.4	25.5	14.1
Cycle Q Clear(g_c), s	7.6	3.0	6.5	7.4	25.5	14.1
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	264	235	279	1115	702	595
V/C Ratio(X)	0.80	0.34	1.35	0.37	1.05	0.67
Avail Cap(c_a), veh/h	363	323	279	1115	702	595
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.3	25.3	16.1	6.5	20.4	16.9
Incr Delay (d2), s/veh	8.3	0.9	181.4	0.2	46.5	2.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.5	1.1	15.9	1.8	17.7	4.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	35.6	26.2	197.5	6.7	66.9	19.8
LnGrp LOS	D	C	F	A	F	B
Approach Vol, veh/h	290			785	1131	
Approach Delay, s/veh	33.0			98.6	50.3	
Approach LOS	C			F	D	
Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	15.0	35.0		16.3		50.0
Change Period (Y+Rc), s	8.5	9.5		6.5		9.5
Max Green Setting (Gmax), s	6.5	25.5		13.5		40.5
Max Q Clear Time (g_c+I1), s	8.5	27.5		9.6		9.4
Green Ext Time (p_c), s	0.0	0.0		0.3		2.3
Intersection Summary						
HCM 6th Ctrl Delay			65.2			
HCM 6th LOS			E			

Lanes, Volumes, Timings
15: N Normandy Blvd & Elkcam Blvd

2020 Future Background Conditions
Timing Plan: AM Peak Hour

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	324	332	601	94	193	588
Future Volume (vph)	324	332	601	94	193	588
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	3%	3%	3%	3%	6%	6%
Adj. Flow (vph)	345	353	639	100	205	626
Shared Lane Traffic (%)						
Lane Group Flow (vph)	345	353	739	0	205	626
Turn Type	Prot	Perm	NA		pm+pt	NA
Protected Phases	4		6		5	2
Permitted Phases		4			2	
Detector Phase	4	4	6		5	2
Switch Phase						
Minimum Initial (s)	5.0	5.0	12.0		5.0	12.0
Minimum Split (s)	11.5	11.5	19.0		11.5	18.5
Total Split (s)	20.0	20.0	35.0		15.0	50.0
Total Split (%)	28.6%	28.6%	50.0%		21.4%	71.4%
Yellow Time (s)	4.0	4.0	4.5		4.0	4.0
All-Red Time (s)	2.5	2.5	2.5		2.5	2.5
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	6.5	6.5	7.0		6.5	6.5
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	None	None	Min		None	Min
v/c Ratio	0.88	0.57	0.68		0.52	0.33
Control Delay	51.8	7.2	20.9		11.3	7.5
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	51.8	7.2	20.9		11.3	7.5
Queue Length 50th (ft)	124	0	118		33	57
Queue Length 95th (ft)	#304	63	167		60	82
Internal Link Dist (ft)	7820		5060			9642
Turn Bay Length (ft)	460				275	
Base Capacity (vph)	391	624	1608		400	2452
Starvation Cap Reductn	0	0	0		0	0
Spillback Cap Reductn	0	0	0		0	0
Storage Cap Reductn	0	0	0		0	0
Reduced v/c Ratio	0.88	0.57	0.46		0.51	0.26

Intersection Summary

Cycle Length: 70

Actuated Cycle Length: 60.9

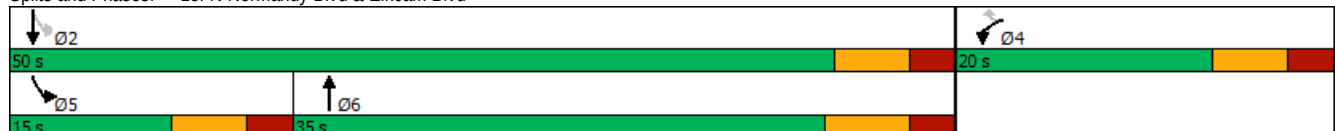
Natural Cycle: 60

Control Type: Actuated-Uncoordinated

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

Queue shown is maximum after two cycles.

Splits and Phases: 15: N Normandy Blvd & Elkcam Blvd



HCM 6th Signalized Intersection Summary
15: N Normandy Blvd & Elkcaml Blvd

2020 Future Background Conditions
Timing Plan: AM Peak Hour

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	324	332	601	94	193	588
Future Volume (veh/h)	324	332	601	94	193	588
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1811	1811
Adj Flow Rate, veh/h	345	198	639	61	205	626
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	3	3	3	3	6	6
Cap, veh/h	407	362	927	88	405	1780
Arrive On Green	0.23	0.23	0.28	0.28	0.11	0.52
Sat Flow, veh/h	1767	1572	3345	310	1725	3532
Grp Volume(v), veh/h	345	198	346	354	205	626
Grp Sat Flow(s),veh/h/ln	1767	1572	1763	1800	1725	1721
Q Serve(g_s), s	10.0	5.9	9.3	9.4	4.1	5.7
Cycle Q Clear(g_c), s	10.0	5.9	9.3	9.4	4.1	5.7
Prop In Lane	1.00	1.00		0.17	1.00	
Lane Grp Cap(c), veh/h	407	362	502	513	405	1780
V/C Ratio(X)	0.85	0.55	0.69	0.69	0.51	0.35
Avail Cap(c_a), veh/h	446	397	923	942	488	2799
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	19.7	18.1	17.0	17.0	11.4	7.6
Incr Delay (d2), s/veh	13.3	1.3	1.7	1.7	1.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.1	5.3	3.5	3.6	1.2	1.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	33.0	19.4	18.7	18.7	12.4	7.7
LnGrp LOS	C	B	B	B	B	A
Approach Vol, veh/h	543		700			831
Approach Delay, s/veh	28.0		18.7			8.9
Approach LOS	C		B			A
Timer - Assigned Phs	2		4		5	6
Phs Duration (G+Y+Rc), s	34.7		18.8		12.4	22.2
Change Period (Y+Rc), s	* 7		6.5		6.5	7.0
Max Green Setting (Gmax), s	* 44		13.5		8.5	28.0
Max Q Clear Time (g_c+I1), s	7.7		12.0		6.1	11.4
Green Ext Time (p_c), s	4.3		0.3		0.1	3.9
Intersection Summary						
HCM 6th Ctrl Delay			17.2			
HCM 6th LOS			B			
Notes						

Lanes, Volumes, Timings
16: Fort Smith Blvd & Elkcaml Blvd

2020 Future Background Conditions
Timing Plan: AM Peak Hour

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations					 	
Traffic Volume (vph)	148	116	7	294	179	5
Future Volume (vph)	148	116	7	294	179	5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	3%	3%	3%	3%
Adj. Flow (vph)	164	129	8	327	199	6
Shared Lane Traffic (%)						
Lane Group Flow (vph)	293	0	0	335	205	0
Sign Control	Free			Free	Stop	

Intersection Summary

Control Type: Unsignalized

Intersection						
Int Delay, s/veh	4.5					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	148	116	7	294	179	5
Future Vol, veh/h	148	116	7	294	179	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	5	5	3	3	3	3
Mvmt Flow	164	129	8	327	199	6
Major/Minor	Major1	Major2		Minor1		
Conflicting Flow All	0	0	293	0	572	229
Stage 1	-	-	-	-	229	-
Stage 2	-	-	-	-	343	-
Critical Hdwy	-	-	4.13	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.227	-	3.527	3.327
Pot Cap-1 Maneuver	-	-	1263	-	480	808
Stage 1	-	-	-	-	807	-
Stage 2	-	-	-	-	716	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1263	-	476	808
Mov Cap-2 Maneuver	-	-	-	-	476	-
Stage 1	-	-	-	-	801	-
Stage 2	-	-	-	-	716	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0.2		17.9	
HCM LOS	C					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	481	-	-	1263	-	
HCM Lane V/C Ratio	0.425	-	-	0.006	-	
HCM Control Delay (s)	17.9	-	-	7.9	0	
HCM Lane LOS	C	-	-	A	A	
HCM 95th %tile Q(veh)	2.1	-	-	0	-	

Lanes, Volumes, Timings
17: Providence Blvd & Elkcam Blvd

2020 Future Background Conditions
Timing Plan: AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	58	77	33	124	151	73	34	281	103	44	210	44
Future Volume (vph)	58	77	33	124	151	73	34	281	103	44	210	44
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	4%	4%	4%	3%	3%	3%	5%	5%	5%	7%	7%	7%
Adj. Flow (vph)	62	82	35	132	161	78	36	299	110	47	223	47
Shared Lane Traffic (%)												
Lane Group Flow (vph)	62	117	0	132	239	0	36	299	110	47	223	47
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6			8		8	4		4
Detector Phase	5	2		1	6		3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	5.0	6.0		5.0	6.0		5.0	6.0	6.0	5.0	6.0	6.0
Minimum Split (s)	12.5	13.5		12.5	13.5		12.0	13.0	13.0	12.5	13.5	13.5
Total Split (s)	15.0	30.0		15.0	30.0		20.0	35.0	35.0	20.0	35.0	35.0
Total Split (%)	15.0%	30.0%		15.0%	30.0%		20.0%	35.0%	35.0%	20.0%	35.0%	35.0%
Yellow Time (s)	4.5	4.5		4.5	4.5		4.0	4.0	4.0	4.5	4.5	4.5
All-Red Time (s)	3.0	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	0.0
Total Lost Time (s)	7.5	7.5		7.5	7.5		7.0	7.0	7.0	7.5	7.5	7.5
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Min		None	Min		None	None	None	None	None	None
v/c Ratio	0.16	0.30		0.30	0.48		0.08	0.60	0.19	0.13	0.45	0.08
Control Delay	18.1	26.3		19.6	28.7		15.0	31.4	0.7	15.6	28.0	0.3
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.1	26.3		19.6	28.7		15.0	31.4	0.7	15.6	28.0	0.3
Queue Length 50th (ft)	19	41		42	98		10	134	0	14	95	0
Queue Length 95th (ft)	51	97		94	196		29	242	0	36	177	0
Internal Link Dist (ft)		4411			6336			3885			8692	
Turn Bay Length (ft)	375			225			235		365	220		295
Base Capacity (vph)	406	671		442	680		557	850	835	482	825	815
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.17		0.30	0.35		0.06	0.35	0.13	0.10	0.27	0.06

Intersection Summary

Cycle Length: 100

Actuated Cycle Length: 69.8

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Splits and Phases: 17: Providence Blvd & Elkcam Blvd

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

HCM 6th Signalized Intersection Summary
17: Providence Blvd & Elkcam Blvd

2020 Future Background Conditions
Timing Plan: AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	58	77	33	124	151	73	34	281	103	44	210	44
Future Volume (veh/h)	58	77	33	124	151	73	34	281	103	44	210	44
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1841	1841	1841	1856	1856	1856	1826	1826	1826	1796	1796	1796
Adj Flow Rate, veh/h	62	82	22	132	161	57	36	299	50	47	223	23
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	4	4	4	3	3	3	5	5	5	7	7	7
Cap, veh/h	279	195	52	383	225	80	335	411	349	271	434	367
Arrive On Green	0.05	0.14	0.14	0.09	0.17	0.17	0.04	0.23	0.23	0.05	0.24	0.24
Sat Flow, veh/h	1753	1398	375	1767	1309	463	1739	1826	1547	1711	1796	1522
Grp Volume(v), veh/h	62	0	104	132	0	218	36	299	50	47	223	23
Grp Sat Flow(s),veh/h/ln	1753	0	1773	1767	0	1772	1739	1826	1547	1711	1796	1522
Q Serve(g_s), s	1.8	0.0	3.2	3.7	0.0	6.9	0.9	9.0	1.5	1.2	6.4	0.7
Cycle Q Clear(g_c), s	1.8	0.0	3.2	3.7	0.0	6.9	0.9	9.0	1.5	1.2	6.4	0.7
Prop In Lane	1.00		0.21	1.00		0.26	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	279	0	247	383	0	304	335	411	349	271	434	367
V/C Ratio(X)	0.22	0.00	0.42	0.34	0.00	0.72	0.11	0.73	0.14	0.17	0.51	0.06
Avail Cap(c_a), veh/h	405	0	670	453	0	670	649	859	728	553	830	703
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	20.3	0.0	23.4	19.4	0.0	23.3	16.8	21.4	18.5	17.0	19.6	17.4
Incr Delay (d2), s/veh	0.4	0.0	1.6	0.5	0.0	4.5	0.1	3.5	0.3	0.3	1.3	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.0	1.3	1.4	0.0	3.0	0.3	3.9	0.5	0.5	2.6	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	20.7	0.0	25.0	19.9	0.0	27.7	16.9	24.9	18.7	17.3	20.9	17.5
LnGrp LOS	C	A	C	B	A	C	B	C	B	B	C	B
Approach Vol, veh/h	166			350			385			293		
Approach Delay, s/veh	23.4			24.8			23.3			20.1		
Approach LOS	C			C			C			C		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.6	15.8	9.2	21.9	10.7	17.7	10.2	20.9				
Change Period (Y+Rc), s	7.5	7.5	7.0	7.5	7.5	7.5	7.5	* 7.5				
Max Green Setting (Gmax), s	7.5	22.5	13.0	27.5	7.5	22.5	12.5	* 28				
Max Q Clear Time (g_c+I1), s	5.7	5.2	2.9	8.4	3.8	8.9	3.2	11.0				
Green Ext Time (p_c), s	0.1	0.6	0.0	1.7	0.0	1.3	0.0	2.4				

Intersection Summary

HCM 6th Ctrl Delay 23.0
HCM 6th LOS C

Notes

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

Lanes, Volumes, Timings
18: Lake Helen Osteen Rd & Elkcarn Blvd

2020 Future Background Conditions
Timing Plan: AM Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	69	102	13	100	258	18	20	156	41	5	172	64
Future Volume (vph)	69	102	13	100	258	18	20	156	41	5	172	64
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	5%	5%	5%	4%	4%	4%	3%	3%	3%	5%	5%	5%
Adj. Flow (vph)	75	111	14	109	280	20	22	170	45	5	187	70
Shared Lane Traffic (%)												
Lane Group Flow (vph)	75	125	0	109	300	0	22	215	0	5	257	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		5	2		6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		5.0	7.0		7.0	7.0	
Minimum Split (s)	13.5	13.5		13.5	13.5		11.5	14.0		13.5	13.5	
Total Split (s)	20.0	20.0		20.0	20.0		20.0	45.0		25.0	25.0	
Total Split (%)	30.8%	30.8%		30.8%	30.8%		30.8%	69.2%		38.5%	38.5%	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.5		4.0	4.0	
All-Red Time (s)	2.5	2.5		2.5	2.5		2.5	2.5		2.5	2.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.5	6.5		6.5	6.5		6.5	7.0		6.5	6.5	
Lead/Lag							Lead			Lag	Lag	
Lead-Lag Optimize?							Yes			Yes	Yes	
Recall Mode	None	None		None	None		None	Min		Min	Min	
v/c Ratio	0.23	0.23		0.29	0.53		0.06	0.36		0.02	0.50	
Control Delay	15.0	12.9		15.2	18.0		8.1	9.7		12.2	15.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	15.0	12.9		15.2	18.0		8.1	9.7		12.2	15.1	
Queue Length 50th (ft)	10	15		14	41		3	27		1	35	
Queue Length 95th (ft)	53	72		72	#194		11	59		8	121	
Internal Link Dist (ft)		10882			412			5142			782	
Turn Bay Length (ft)	405			105			100			170		
Base Capacity (vph)	390	670		462	679		696	1667		578	902	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.19	0.19		0.24	0.44		0.03	0.13		0.01	0.28	

Intersection Summary

Cycle Length: 65

Actuated Cycle Length: 38.3

Natural Cycle: 55

Control Type: Actuated-Uncoordinated

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

Queue shown is maximum after two cycles.

Splits and Phases: 18: Lake Helen Osteen Rd & Elkcarn Blvd



HCM 6th Signalized Intersection Summary
18: Lake Helen Osteen Rd & Elkcarn Blvd

2020 Future Background Conditions
Timing Plan: AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	69	102	13	100	258	18	20	156	41	5	172	64
Future Volume (veh/h)	69	102	13	100	258	18	20	156	41	5	172	64
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1826	1826	1826	1841	1841	1841	1856	1856	1856	1826	1826	1826
Adj Flow Rate, veh/h	75	111	10	109	280	18	22	170	24	5	187	42
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	5	5	5	4	4	4	3	3	3	5	5	5
Cap, veh/h	315	441	40	452	458	29	317	617	87	410	281	63
Arrive On Green	0.27	0.27	0.27	0.27	0.27	0.27	0.03	0.39	0.39	0.19	0.19	0.19
Sat Flow, veh/h	1056	1650	149	1250	1711	110	1767	1591	225	1161	1443	324
Grp Volume(v), veh/h	75	0	121	109	0	298	22	0	194	5	0	229
Grp Sat Flow(s),veh/h/ln	1056	0	1799	1250	0	1821	1767	0	1815	1161	0	1768
Q Serve(g_s), s	2.6	0.0	2.1	2.9	0.0	5.6	0.4	0.0	2.9	0.1	0.0	4.7
Cycle Q Clear(g_c), s	8.2	0.0	2.1	5.0	0.0	5.6	0.4	0.0	2.9	0.1	0.0	4.7
Prop In Lane	1.00		0.08	1.00		0.06	1.00		0.12	1.00		0.18
Lane Grp Cap(c), veh/h	315	0	481	452	0	487	317	0	704	410	0	344
V/C Ratio(X)	0.24	0.00	0.25	0.24	0.00	0.61	0.07	0.00	0.28	0.01	0.00	0.67
Avail Cap(c_a), veh/h	396	0	620	549	0	627	878	0	1761	732	0	835
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	16.2	0.0	11.3	13.2	0.0	12.6	11.1	0.0	8.2	12.8	0.0	14.6
Incr Delay (d2), s/veh	0.4	0.0	0.3	0.3	0.0	1.2	0.1	0.0	0.2	0.0	0.0	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	0.7	0.7	0.0	1.9	0.1	0.0	0.8	0.0	0.0	1.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	16.6	0.0	11.5	13.5	0.0	13.8	11.2	0.0	8.4	12.8	0.0	16.8
LnGrp LOS	B	A	B	B	A	B	B	A	A	B	A	B
Approach Vol, veh/h	196			407			216			234		
Approach Delay, s/veh	13.5			13.7			8.7			16.7		
Approach LOS	B			B			A			B		
Timer - Assigned Phs	2			4			5			6		
Phs Duration (G+Y+Rc), s	22.2			17.0			7.6			14.6		
Change Period (Y+Rc), s	7.0			6.5			6.5			* 7		
Max Green Setting (Gmax), s	38.0			13.5			13.5			* 19		
Max Q Clear Time (g_c+I1), s	4.9			10.2			2.4			6.7		
Green Ext Time (p_c), s	1.1			0.3			0.0			0.9		

Intersection Summary

HCM 6th Ctrl Delay 13.3
HCM 6th LOS B

Notes

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

Lanes, Volumes, Timings
19: Providence Blvd & Fort Smith Blvd

2020 Future Background Conditions
Timing Plan: AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	99	33	316	123	94	32	181	84	40	313	6
Future Volume (vph)	8	99	33	316	123	94	32	181	84	40	313	6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	8%	8%	8%	4%	4%	4%	8%	8%	8%	4%	4%	4%
Adj. Flow (vph)	9	108	36	343	134	102	35	197	91	43	340	7
Shared Lane Traffic (%)												
Lane Group Flow (vph)	9	144	0	343	236	0	35	197	91	43	347	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2		2	6		
Detector Phase	4	4		8	8		2	2	2	1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		12.0	12.0	12.0	5.0	12.0	
Minimum Split (s)	14.0	14.0		13.5	13.5		18.5	18.5	18.5	13.0	20.0	
Total Split (s)	30.0	30.0		30.0	30.0		35.0	35.0	35.0	20.0	55.0	
Total Split (%)	35.3%	35.3%		35.3%	35.3%		41.2%	41.2%	41.2%	23.5%	64.7%	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.5	4.5	
All-Red Time (s)	3.0	3.0		2.5	2.5		2.5	2.5	2.5	3.5	3.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	7.0	7.0		6.5	6.5		6.5	6.5	6.5	8.0	8.0	
Lead/Lag							Lag	Lag	Lag	Lead		
Lead-Lag Optimize?							Yes	Yes	Yes	Yes		
Recall Mode	None	None		None	None		Min	Min	Min	None	None	
v/c Ratio	0.02	0.22		0.72	0.34		0.14	0.43	0.18	0.11	0.52	
Control Delay	16.2	14.9		30.3	14.4		21.5	24.2	1.8	11.7	17.2	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	16.2	14.9		30.3	14.4		21.5	24.2	1.8	11.7	17.2	
Queue Length 50th (ft)	2	33		115	52		11	69	0	10	95	
Queue Length 95th (ft)	13	83		#290	123		33	128	9	25	156	
Internal Link Dist (ft)		5102			547			839			3885	
Turn Bay Length (ft)	100			440			200			221		
Base Capacity (vph)	413	661		476	697		463	837	792	470	1429	
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	
Reduced v/c Ratio	0.02	0.22		0.72	0.34		0.08	0.24	0.11	0.09	0.24	

Intersection Summary

Cycle Length: 85

Actuated Cycle Length: 61.2

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

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

Queue shown is maximum after two cycles.

Splits and Phases: 19: Providence Blvd & Fort Smith Blvd



HCM 6th Signalized Intersection Summary
19: Providence Blvd & Fort Smith Blvd

2020 Future Background Conditions
Timing Plan: AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	99	33	316	123	94	32	181	84	40	313	6
Future Volume (veh/h)	8	99	33	316	123	94	32	181	84	40	313	6
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1781	1781	1781	1841	1841	1841	1781	1781	1781	1841	1841	1841
Adj Flow Rate, veh/h	9	108	19	343	134	66	35	197	55	43	340	7
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	8	8	8	4	4	4	8	8	8	4	4	4
Cap, veh/h	435	532	94	508	420	207	324	364	309	315	690	14
Arrive On Green	0.36	0.36	0.36	0.36	0.36	0.36	0.20	0.20	0.20	0.04	0.38	0.38
Sat Flow, veh/h	1126	1475	260	1244	1164	573	985	1781	1510	1753	1797	37
Grp Volume(v), veh/h	9	0	127	343	0	200	35	197	55	43	0	347
Grp Sat Flow(s),veh/h/ln	1126	0	1735	1244	0	1738	985	1781	1510	1753	0	1834
Q Serve(g_s), s	0.3	0.0	3.0	15.4	0.0	4.9	1.7	5.8	1.8	1.1	0.0	8.4
Cycle Q Clear(g_c), s	5.2	0.0	3.0	18.4	0.0	4.9	1.7	5.8	1.8	1.1	0.0	8.4
Prop In Lane	1.00		0.15	1.00		0.33	1.00		1.00	1.00		0.02
Lane Grp Cap(c), veh/h	435	0	626	508	0	627	324	364	309	315	0	704
V/C Ratio(X)	0.02	0.00	0.20	0.67	0.00	0.32	0.11	0.54	0.18	0.14	0.00	0.49
Avail Cap(c_a), veh/h	470	0	680	558	0	696	601	865	733	598	0	1469
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	15.4	0.0	12.9	19.3	0.0	13.6	19.3	20.9	19.3	16.1	0.0	13.7
Incr Delay (d2), s/veh	0.0	0.0	0.2	2.9	0.0	0.3	0.2	1.8	0.4	0.2	0.0	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	1.1	4.3	0.0	1.7	0.4	2.4	0.6	0.4	0.0	3.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	15.5	0.0	13.1	22.1	0.0	13.8	19.5	22.7	19.7	16.3	0.0	14.5
LnGrp LOS	B	A	B	C	A	B	B	C	B	B	A	B
Approach Vol, veh/h	136			543			287			390		
Approach Delay, s/veh	13.3			19.1			21.7			14.7		
Approach LOS	B			B			C			B		
Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	10.5	20.0		28.2		30.5		28.2				
Change Period (Y+Rc), s	8.0	* 8		7.0		8.0		* 7				
Max Green Setting (Gmax), s	12.0	* 29		23.0		47.0		* 24				
Max Q Clear Time (g_c+I1), s	3.1	7.8		7.2		10.4		20.4				
Green Ext Time (p_c), s	0.0	2.0		0.6		3.2		0.8				

Intersection Summary

HCM 6th Ctrl Delay 17.8
HCM 6th LOS B

Notes

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

Lanes, Volumes, Timings
20: Veterans Memorial Pkwy & Harley Strickland Blvd

2020 Future Background Conditions
Timing Plan: AM Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	87	25	114	36	30	37	161	259	4	71	448	244
Future Volume (vph)	87	25	114	36	30	37	161	259	4	71	448	244
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	3%	3%	3%	7%	7%	7%	5%	5%	5%	4%	4%	4%
Adj. Flow (vph)	97	28	127	40	33	41	179	288	4	79	498	271
Shared Lane Traffic (%)												
Lane Group Flow (vph)	97	28	127	40	74	0	179	292	0	79	769	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8		8	4			6			2		
Detector Phase	3	8	8	7	4		1	6		5	2	
Switch Phase												
Minimum Initial (s)	5.0	7.0	7.0	5.0	7.0		5.0	16.0		5.0	16.0	
Minimum Split (s)	12.5	14.5	14.5	12.5	14.5		12.5	23.5		12.5	23.5	
Total Split (s)	25.0	40.0	40.0	20.0	35.0		30.0	50.0		20.0	40.0	
Total Split (%)	19.2%	30.8%	30.8%	15.4%	26.9%		23.1%	38.5%		15.4%	30.8%	
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	
All-Red Time (s)	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)	7.5	7.5	7.5	7.5	7.5		7.5	7.5		7.5	7.5	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	None	None	None	None		None	C-Min		None	C-Min	
v/c Ratio	0.44	0.16	0.36	0.22	0.49		0.38	0.14		0.12	0.44	
Control Delay	48.4	54.3	2.9	42.4	40.4		10.7	14.4		9.8	20.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	48.4	54.3	2.9	42.4	40.4		10.7	14.4		9.8	20.5	
Queue Length 50th (ft)	69	22	0	28	27		50	58		21	190	
Queue Length 95th (ft)	111	51	0	56	76		98	101		47	304	
Internal Link Dist (ft)		562			593			1843			1501	
Turn Bay Length (ft)	235		235	250			435			340		
Base Capacity (vph)	294	461	562	238	376		551	2047		712	1749	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.33	0.06	0.23	0.17	0.20		0.32	0.14		0.11	0.44	

Intersection Summary

Cycle Length: 130

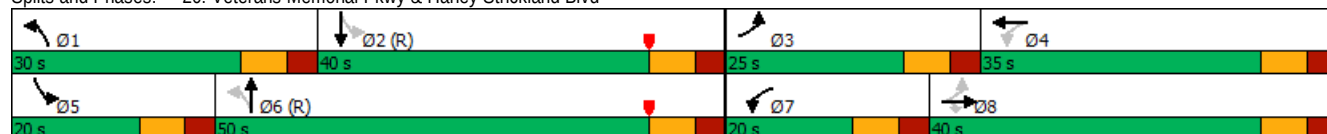
Actuated Cycle Length: 130

Offset: 40 (31%), Referenced to phase 2:SBTL and 6:NBTL, Start of Yellow

Natural Cycle: 65

Control Type: Actuated-Coordinated

Splits and Phases: 20: Veterans Memorial Pkwy & Harley Strickland Blvd



HCM 6th Signalized Intersection Summary
20: Veterans Memorial Pkwy & Harley Strickland Blvd

2020 Future Background Conditions
Timing Plan: AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	87	25	114	36	30	37	161	259	4	71	448	244
Future Volume (veh/h)	87	25	114	36	30	37	161	259	4	71	448	244
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1796	1796	1796	1826	1826	1826	1841	1841	1841
Adj Flow Rate, veh/h	97	28	31	40	33	15	179	288	3	79	498	238
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	3	3	3	7	7	7	5	5	5	4	4	4
Cap, veh/h	206	166	141	175	63	28	494	2159	22	740	1360	647
Arrive On Green	0.07	0.09	0.09	0.03	0.05	0.05	0.06	0.61	0.61	0.04	0.59	0.59
Sat Flow, veh/h	1767	1856	1572	1711	1169	531	1739	3517	37	1753	2299	1093
Grp Volume(v), veh/h	97	28	31	40	0	48	179	142	149	79	378	358
Grp Sat Flow(s),veh/h/ln	1767	1856	1572	1711	0	1701	1739	1735	1819	1753	1749	1644
Q Serve(g_s), s	6.7	1.8	2.4	2.9	0.0	3.6	5.2	4.5	4.5	2.3	14.6	14.8
Cycle Q Clear(g_c), s	6.7	1.8	2.4	2.9	0.0	3.6	5.2	4.5	4.5	2.3	14.6	14.8
Prop In Lane	1.00		1.00	1.00		0.31	1.00		0.02	1.00		0.67
Lane Grp Cap(c), veh/h	206	166	141	175	0	91	494	1065	1117	740	1035	973
V/C Ratio(X)	0.47	0.17	0.22	0.23	0.00	0.53	0.36	0.13	0.13	0.11	0.37	0.37
Avail Cap(c_a), veh/h	328	464	393	289	0	360	693	1065	1117	845	1035	973
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	0.72	0.72	0.72	1.00	1.00	1.00
Uniform Delay (d), s/veh	53.4	54.7	55.0	56.0	0.0	59.9	10.0	10.6	10.6	9.4	13.8	13.8
Incr Delay (d2), s/veh	1.7	0.5	0.8	0.7	0.0	4.6	0.3	0.2	0.2	0.1	1.0	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.0	0.9	1.0	1.3	0.0	1.7	1.9	1.7	1.8	0.8	5.8	5.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	55.1	55.2	55.7	56.6	0.0	64.6	10.3	10.7	10.7	9.5	14.8	14.9
LnGrp LOS	E	E	E	E	A	E	B	B	B	A	B	B
Approach Vol, veh/h	156			88			470			815		
Approach Delay, s/veh	55.2			61.0			10.6			14.4		
Approach LOS	E			E			B			B		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	15.1	84.4	16.0	14.5	12.2	87.3	11.3	19.2				
Change Period (Y+Rc), s	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5				
Max Green Setting (Gmax), s	22.5	32.5	17.5	27.5	12.5	42.5	12.5	32.5				
Max Q Clear Time (g_c+I1), s	7.2	16.8	8.7	5.6	4.3	6.5	4.9	4.4				
Green Ext Time (p_c), s	0.4	5.4	0.1	0.2	0.1	2.4	0.0	0.2				
Intersection Summary												
HCM 6th Ctrl Delay	20.0											
HCM 6th LOS	C											

Lanes, Volumes, Timings
21: Broward Ave/Veterans Memorial Pkwy & Saxon Blvd

2020 Future Background Conditions
Timing Plan: AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	124	666	12	126	1274	468	48	52	67	293	45	140
Future Volume (vph)	124	666	12	126	1274	468	48	52	67	293	45	140
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	5%	5%	5%	3%	3%	3%	2%	2%	2%	5%	5%	5%
Adj. Flow (vph)	133	716	13	135	1370	503	52	56	72	315	48	151
Shared Lane Traffic (%)										43%		
Lane Group Flow (vph)	133	729	0	135	1873	0	52	56	72	180	183	151
Turn Type	pm+pt	NA		pm+pt	NA		Split	NA	Perm	Split	NA	Perm
Protected Phases	1	6		5	2		4	4		8	8	
Permitted Phases	6			2					4			8
Detector Phase	1	6		5	2		4	4	4	8	8	8
Switch Phase												
Minimum Initial (s)	5.0	12.0		5.0	12.0		7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	12.9	18.8		12.8	18.8		14.5	14.5	14.5	15.3	15.3	15.3
Total Split (s)	20.0	72.0		20.0	72.0		18.0	18.0	18.0	30.0	30.0	30.0
Total Split (%)	14.3%	51.4%		14.3%	51.4%		12.9%	12.9%	12.9%	21.4%	21.4%	21.4%
Yellow Time (s)	4.8	4.8		4.8	4.8		3.7	3.7	3.7	4.5	4.5	4.5
All-Red Time (s)	3.1	2.0		3.0	2.0		3.8	3.8	3.8	3.8	3.8	3.8
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.9	6.8		7.8	6.8		7.5	7.5	7.5	8.3	8.3	8.3
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Recall Mode	None	C-Min		None	C-Min		None	None	None	None	None	None
v/c Ratio	0.72	0.29		0.31	0.76		0.45	0.46	0.29	0.81	0.81	0.44
Control Delay	52.4	20.8		7.3	14.8		75.2	75.2	2.9	84.1	83.9	12.0
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.4	20.8		7.3	14.8		75.2	75.2	2.9	84.1	83.9	12.0
Queue Length 50th (ft)	70	141		12	445		46	50	0	167	170	0
Queue Length 95th (ft)	#161	181		33	417		92	96	0	#271	#273	64
Internal Link Dist (ft)		957			1787			543			1843	
Turn Bay Length (ft)	460			400			200		445	410		
Base Capacity (vph)	199	2513		465	2469		132	139	263	253	256	365
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.67	0.29		0.29	0.76		0.39	0.40	0.27	0.71	0.71	0.41

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 18 (13%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow

Natural Cycle: 90

Control Type: Actuated-Coordinated

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

Queue shown is maximum after two cycles.

Splits and Phases: 21: Broward Ave/Veterans Memorial Pkwy & Saxon Blvd

 Ø1	 Ø2 (R)	 Ø4	 Ø8
20 s	72 s	18 s	30 s
 Ø5	 Ø6 (R)		
20 s	72 s		

HCM 6th Signalized Intersection Summary
21: Broward Ave/Veterans Memorial Pkwy & Saxon Blvd

2020 Future Background Conditions
Timing Plan: AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	124	666	12	126	1274	468	48	52	67	293	45	140
Future Volume (veh/h)	124	666	12	126	1274	468	48	52	67	293	45	140
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1826	1826	1826	1856	1856	1856	1870	1870	1870	1826	1826	1826
Adj Flow Rate, veh/h	133	716	9	135	1370	501	52	56	18	349	0	64
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	5	5	5	3	3	3	2	2	2	5	5	5
Cap, veh/h	268	2877	36	495	2080	753	88	93	79	411	0	183
Arrive On Green	0.05	0.57	0.57	0.10	1.00	1.00	0.05	0.05	0.05	0.12	0.00	0.12
Sat Flow, veh/h	1739	5074	64	1767	3666	1328	1781	1870	1585	3478	0	1547
Grp Volume(v), veh/h	133	469	256	135	1261	610	52	56	18	349	0	64
Grp Sat Flow(s), veh/h/ln	1739	1662	1814	1767	1689	1617	1781	1870	1585	1739	0	1547
Q Serve(g_s), s	4.5	10.0	10.0	4.6	0.0	0.0	4.0	4.1	1.5	13.8	0.0	5.3
Cycle Q Clear(g_c), s	4.5	10.0	10.0	4.6	0.0	0.0	4.0	4.1	1.5	13.8	0.0	5.3
Prop In Lane	1.00		0.04	1.00		0.82	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	268	1885	1029	495	1916	917	88	93	79	411	0	183
V/C Ratio(X)	0.50	0.25	0.25	0.27	0.66	0.66	0.59	0.60	0.23	0.85	0.00	0.35
Avail Cap(c_a), veh/h	337	1885	1029	564	1916	917	134	140	119	539	0	240
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.79	0.79	0.79	1.00	1.00	1.00	0.91	0.00	0.91
Uniform Delay (d), s/veh	11.3	15.3	15.3	11.1	0.0	0.0	65.1	65.2	64.0	60.5	0.0	56.8
Incr Delay (d2), s/veh	1.4	0.3	0.6	0.2	1.4	3.0	6.1	6.2	1.5	8.9	0.0	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	3.7	4.1	1.6	0.4	0.8	2.0	2.1	0.6	6.5	0.0	2.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	12.7	15.6	15.9	11.3	1.4	3.0	71.2	71.3	65.4	69.4	0.0	57.8
LnGrp LOS	B	B	B	B	A	A	E	E	E	E	A	E
Approach Vol, veh/h	858			2006			126			413		
Approach Delay, s/veh	15.2			2.6			70.4			67.6		
Approach LOS	B			A			E			E		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	14.5	86.2		14.4	14.5	86.2		24.8				
Change Period (Y+Rc), s	7.9	6.8		7.5	7.8	6.8		8.3				
Max Green Setting (Gmax), s	12.1	65.2		10.5	12.2	65.2		21.7				
Max Q Clear Time (g_c+I1), s	6.5	2.0		6.1	6.6	12.0		15.8				
Green Ext Time (p_c), s	0.1	21.8		0.1	0.1	4.8		0.8				

Intersection Summary

HCM 6th Ctrl Delay 16.2
HCM 6th LOS B

Notes

User approved volume balancing among the lanes for turning movement.

Lanes, Volumes, Timings
22: FDOT Park & Ride & Saxon Blvd

2020 Future Background Conditions
Timing Plan: AM Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	19	1216	51	93	1926	24	48	1	82	10	4	8
Future Volume (vph)	19	1216	51	93	1926	24	48	1	82	10	4	8
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	5%	5%	5%	4%	4%	4%	4%	4%	4%	5%	5%	5%
Adj. Flow (vph)	21	1366	57	104	2164	27	54	1	92	11	4	9
Shared Lane Traffic (%)												
Lane Group Flow (vph)	21	1423	0	104	2191	0	54	93	0	0	24	0
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	1	6		5	2		4	4		8	8	
Permitted Phases	6			2			4			8		
Detector Phase	1	6		5	2		4	4		8	8	
Switch Phase												
Minimum Initial (s)	5.0	11.0		5.0	11.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	12.7	17.9		12.8	17.9		14.6	14.6		14.6	14.6	
Total Split (s)	18.0	102.0		20.0	104.0		18.0	18.0		18.0	18.0	
Total Split (%)	12.9%	72.9%		14.3%	74.3%		12.9%	12.9%		12.9%	12.9%	
Yellow Time (s)	4.8	4.9		4.9	4.9		4.2	4.2		4.2	4.2	
All-Red Time (s)	2.9	2.0		2.9	2.0		3.4	3.4		3.4	3.4	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	7.7	6.9		7.8	6.9		7.6	7.6		7.6	7.6	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Recall Mode	None	C-Min		None	C-Min		None	None		None	None	
v/c Ratio	0.14	0.40		0.35	0.57		0.56	0.47			0.22	
Control Delay	4.5	5.6		4.5	6.2		83.9	20.0			48.3	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0			0.0	
Total Delay	4.5	5.6		4.5	6.2		83.9	20.0			48.3	
Queue Length 50th (ft)	2	117		7	206		48	1			13	
Queue Length 95th (ft)	m5	96		m11	376		#96	56			44	
Internal Link Dist (ft)		1787			407			186			166	
Turn Bay Length (ft)	365			390			105					
Base Capacity (vph)	207	3526		354	3812		106	207			118	
Starvation Cap Reductn	0	0		0	0		0	0			0	
Spillback Cap Reductn	0	0		0	0		0	0			0	
Storage Cap Reductn	0	0		0	0		0	0			0	
Reduced v/c Ratio	0.10	0.40		0.29	0.57		0.51	0.45			0.20	

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 21 (15%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow

Natural Cycle: 65

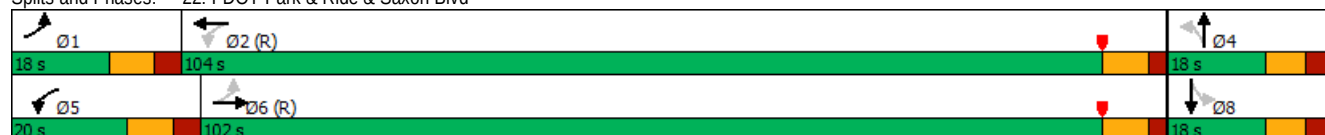
Control Type: Actuated-Coordinated

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 22: FDOT Park & Ride & Saxon Blvd



HCM 6th Signalized Intersection Summary
22: FDOT Park & Ride & Saxon Blvd

2020 Future Background Conditions
Timing Plan: AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	19	1216	51	93	1926	24	48	1	82	10	4	8
Future Volume (veh/h)	19	1216	51	93	1926	24	48	1	82	10	4	8
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1826	1826	1826	1841	1841	1841	1841	1841	1841	1826	1826	1826
Adj Flow Rate, veh/h	21	1366	54	104	2164	25	54	1	14	11	4	2
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	5	5	5	4	4	4	4	4	4	5	5	5
Cap, veh/h	192	3726	147	395	3960	46	123	5	71	80	26	8
Arrive On Green	0.04	1.00	1.00	0.04	0.77	0.77	0.05	0.05	0.05	0.05	0.05	0.05
Sat Flow, veh/h	1739	4920	194	1753	5121	59	1388	105	1471	773	528	173
Grp Volume(v), veh/h	21	923	497	104	1415	774	54	0	15	17	0	0
Grp Sat Flow(s), veh/h/ln	1739	1662	1791	1753	1675	1830	1388	0	1576	1474	0	0
Q Serve(g_s), s	0.4	0.0	0.0	1.8	23.2	23.3	3.4	0.0	1.3	0.3	0.0	0.0
Cycle Q Clear(g_c), s	0.4	0.0	0.0	1.8	23.2	23.3	5.0	0.0	1.3	1.6	0.0	0.0
Prop In Lane	1.00		0.11	1.00		0.03	1.00		0.93	0.65		0.12
Lane Grp Cap(c), veh/h	192	2517	1356	395	2590	1415	123	0	76	114	0	0
V/C Ratio(X)	0.11	0.37	0.37	0.26	0.55	0.55	0.44	0.00	0.20	0.15	0.00	0.00
Avail Cap(c_a), veh/h	285	2517	1356	486	2590	1415	159	0	117	152	0	0
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.93	0.93	0.93	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	5.2	0.0	0.0	3.2	6.2	6.2	65.6	0.0	64.0	64.0	0.0	0.0
Incr Delay (d2), s/veh	0.2	0.4	0.7	0.4	0.8	1.5	2.5	0.0	1.2	0.6	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.1	0.3	0.5	6.7	7.7	2.0	0.0	0.5	0.6	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	5.4	0.4	0.7	3.6	7.1	7.8	68.1	0.0	65.3	64.7	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	E	A	E	E	A	A
Approach Vol, veh/h	1441			2293			69			17		
Approach Delay, s/veh	0.6			7.1			67.5			64.7		
Approach LOS	A			A			E			E		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.5	115.1		14.4	12.7	112.9		14.4				
Change Period (Y+Rc), s	* 7.7	6.9		7.6	7.8	6.9		7.6				
Max Green Setting (Gmax), s	* 10	97.1		10.4	12.2	95.1		10.4				
Max Q Clear Time (g_c+I1), s	2.4	25.3		7.0	3.8	2.0		3.6				
Green Ext Time (p_c), s	0.0	45.0		0.0	0.1	21.6		0.0				

Intersection Summary

HCM 6th Ctrl Delay	6.0
HCM 6th LOS	A

Notes

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

Lanes, Volumes, Timings
23: I-4 & Saxon Blvd

2020 Future Background Conditions
Timing Plan: AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑		↑↑	↑			↑			↑
Traffic Volume (vph)	0	842	359	0	1941	631	0	0	715	0	0	866
Future Volume (vph)	0	842	359	0	1941	631	0	0	715	0	0	866
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
Heavy Vehicles (%)	7%	7%	7%	2%	2%	2%	9%	9%	9%	5%	5%	5%
Adj. Flow (vph)	0	886	378	0	2043	664	0	0	753	0	0	912
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	886	378	0	2043	664	0	0	753	0	0	912
Sign Control	Free			Free			Yield			Stop		

Intersection Summary

Control Type: Unsignalized

Intersection												
Int Delay, s/veh	239.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑		↑↑	↑			↑			↑
Traffic Vol, veh/h	0	842	359	0	1941	631	0	0	715	0	0	866
Future Vol, veh/h	0	842	359	0	1941	631	0	0	715	0	0	866
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Yield	Yield	Yield	Stop	Stop	Stop
RT Channelized	-	-	Free	-	-	Free	-	-	Yield	-	-	Stop
Storage Length	-	-	450	-	-	900	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	16965	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	7	7	7	2	2	2	9	9	9	5	5	5
Mvmt Flow	0	886	378	0	2043	664	0	0	753	0	0	912
Major/Minor	Major1		Major2				Minor2					
Conflicting Flow All	-	0	-	-	-	0	-	-	-	-	-	1022
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	-	-	-	-	-	-	7
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	-	-	-	-	-	-	3.35
Pot Cap-1 Maneuver	0	-	0	0	-	0	-	-	-	0	0	*~ 288
Stage 1	0	-	0	0	-	0	-	-	-	0	0	-
Stage 2	0	-	0	0	-	0	-	-	-	0	0	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	1
Mov Cap-1 Maneuver	-	-	-	-	-	-	-	-	-	-	0	*~ 288
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	0	-
Stage 1	-	-	-	-	-	-	-	-	-	-	0	-
Stage 2	-	-	-	-	-	-	-	-	-	-	0	-
Approach	EB		WB				SB					
HCM Control Delay, s	0		0				\$ 1009.8					
HCM LOS							F					
Minor Lane/Major Mvmt	EBT		WBT	SBLn1								
Capacity (veh/h)	-		-	288								
HCM Lane V/C Ratio	-		-	3.165								
HCM Control Delay (s)	-		-	\$ 1009.8								
HCM Lane LOS	-		-	F								
HCM 95th %tile Q(veh)	-		-	82.1								
Notes												
~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon												

Lanes, Volumes, Timings
24: I-4 & Saxon Blvd

2020 Future Background Conditions
Timing Plan: AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	325	837	0	0	2019	401	0	0	439	0	0	334
Future Volume (vph)	325	837	0	0	2019	401	0	0	439	0	0	334
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	7%	7%	7%	2%	2%	2%	7%	7%	7%	5%	5%	5%
Adj. Flow (vph)	361	930	0	0	2243	446	0	0	488	0	0	371
Shared Lane Traffic (%)												
Lane Group Flow (vph)	361	930	0	0	2243	446	0	0	488	0	0	371
Turn Type	Prot	NA			NA	Perm			Prot			Perm
Protected Phases	1	6			2				5			
Permitted Phases						2						6
Detector Phase	1	6			2	2			5			6
Switch Phase												
Minimum Initial (s)	5.0	15.0			17.0	17.0			6.0			15.0
Minimum Split (s)	12.7	21.8			23.8	23.8			12.0			21.8
Total Split (s)	35.0	118.0			105.0	105.0			22.0			118.0
Total Split (%)	25.0%	84.3%			75.0%	75.0%			15.7%			84.3%
Yellow Time (s)	5.4	4.8			4.8	4.8			4.0			4.8
All-Red Time (s)	2.3	2.0			2.0	2.0			2.0			2.0
Lost Time Adjust (s)	0.0	0.0			0.0	0.0			0.0			0.0
Total Lost Time (s)	7.7	6.8			6.8	6.8			6.0			6.8
Lead/Lag	Lead	Lag			Lag	Lag			Lead			Lag
Lead-Lag Optimize?	Yes	Yes			Yes	Yes			Yes			Yes
Recall Mode	None	C-Min			C-Min	C-Min			None			C-Min
v/c Ratio	1.10	0.33			0.90	0.39			0.84			0.25
Control Delay	129.8	3.9			14.7	4.7			24.4			0.4
Queue Delay	0.0	0.0			0.0	0.0			0.0			0.0
Total Delay	129.8	3.9			14.7	4.7			24.4			0.4
Queue Length 50th (ft)	~375	97			493	79			35			0
Queue Length 95th (ft)	#579	140			m417	m80			100			0
Internal Link Dist (ft)		1519			3036			820			423	
Turn Bay Length (ft)	700					160						
Base Capacity (vph)	328	2817			2482	1138			672			1486
Starvation Cap Reductn	0	0			0	0			0			0
Spillback Cap Reductn	0	0			0	0			0			0
Storage Cap Reductn	0	0			0	0			0			0
Reduced v/c Ratio	1.10	0.33			0.90	0.39			0.73			0.25

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 104 (74%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow

Natural Cycle: 100

Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

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

Splits and Phases: 24: I-4 & Saxon Blvd



HCM Signalized Intersection Capacity Analysis
24: I-4 & Saxon Blvd

2020 Future Background Conditions
Timing Plan: AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	325	837	0	0	2019	401	0	0	439	0	0	334
Future Volume (vph)	325	837	0	0	2019	401	0	0	439	0	0	334
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.7	6.8			6.8	6.8			6.0			6.8
Lane Util. Factor	1.00	0.95			0.95	1.00			0.88			1.00
Frt	1.00	1.00			1.00	0.85			0.85			0.86
Flt Protected	0.95	1.00			1.00	1.00			1.00			1.00
Satd. Flow (prot)	1687	3374			3539	1583			2656			1565
Flt Permitted	0.95	1.00			1.00	1.00			1.00			1.00
Satd. Flow (perm)	1687	3374			3539	1583			2656			1565
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	361	930	0	0	2243	446	0	0	488	0	0	371
RTOR Reduction (vph)	0	0	0	0	0	28	0	0	386	0	0	61
Lane Group Flow (vph)	361	930	0	0	2243	418	0	0	102	0	0	310
Heavy Vehicles (%)	7%	7%	7%	2%	2%	2%	7%	7%	7%	5%	5%	5%
Turn Type	Prot	NA			NA	Perm			Prot			Perm
Protected Phases	1	6			2				5			
Permitted Phases						2						6
Actuated Green, G (s)	27.3	116.9			98.2	98.2			10.3			116.9
Effective Green, g (s)	27.3	116.9			98.2	98.2			10.3			116.9
Actuated g/C Ratio	0.20	0.84			0.70	0.70			0.07			0.84
Clearance Time (s)	7.7	6.8			6.8	6.8			6.0			6.8
Vehicle Extension (s)	3.0	3.0			3.0	3.0			3.0			3.0
Lane Grp Cap (vph)	328	2817			2482	1110			195			1306
v/s Ratio Prot	c0.21	0.28			c0.63				0.04			
v/s Ratio Perm						0.26						0.20
v/c Ratio	1.10	0.33			0.90	0.38			0.52			0.24
Uniform Delay, d1	56.4	2.6			17.0	8.5			62.5			2.4
Progression Factor	0.99	1.23			0.68	0.65			1.00			1.00
Incremental Delay, d2	79.2	0.3			2.5	0.4			2.5			0.4
Delay (s)	134.9	3.5			14.1	5.9			65.0			2.8
Level of Service	F	A			B	A			E			A
Approach Delay (s)		40.3			12.8			65.0			2.8	
Approach LOS		D			B			E			A	
Intersection Summary												
HCM 2000 Control Delay		24.6			HCM 2000 Level of Service			C				
HCM 2000 Volume to Capacity ratio		0.95										
Actuated Cycle Length (s)		140.0			Sum of lost time (s)			14.5				
Intersection Capacity Utilization		87.8%			ICU Level of Service			E				
Analysis Period (min)		15										
c Critical Lane Group												

Lanes, Volumes, Timings
25: N Normandy Blvd & Saxon Blvd

2020 Future Background Conditions
Timing Plan: AM Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	287	442	110	29	1169	178	214	187	18	195	216	606
Future Volume (vph)	287	442	110	29	1169	178	214	187	18	195	216	606
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	8%	8%	8%	2%	2%	2%	3%	3%	3%	2%	2%	2%
Adj. Flow (vph)	330	508	126	33	1344	205	246	215	21	224	248	697
Shared Lane Traffic (%)												
Lane Group Flow (vph)	330	508	126	33	1549	0	246	236	0	224	248	697
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA	pm+ov
Protected Phases	1	6		5	2		7	4		3	8	1
Permitted Phases	6		6	2			4			8		8
Detector Phase	1	6	6	5	2		7	4		3	8	1
Switch Phase												
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0		5.0	10.0		5.0	10.0	5.0
Minimum Split (s)	12.6	21.9	21.9	13.1	21.9		11.8	16.9		12.5	16.9	12.6
Total Split (s)	21.0	72.0	72.0	18.0	69.0		27.0	32.0		18.0	23.0	21.0
Total Split (%)	15.0%	51.4%	51.4%	12.9%	49.3%		19.3%	22.9%		12.9%	16.4%	15.0%
Yellow Time (s)	4.4	4.9	4.9	4.9	4.9		4.0	4.8		4.8	4.8	4.4
All-Red Time (s)	3.2	2.0	2.0	3.2	2.0		2.8	2.1		2.7	2.1	3.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	7.6	6.9	6.9	8.1	6.9		6.8	6.9		7.5	6.9	7.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	Yes
Recall Mode	None	C-Min	C-Min	None	C-Min		None	None		None	None	None
v/c Ratio	1.59	0.29	0.14	0.07	1.00		0.84	0.72		0.90	1.10	1.33
Control Delay	313.3	23.2	2.8	13.4	61.5		64.2	66.9		82.0	143.0	191.9
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	313.3	23.2	2.8	13.4	61.5		64.2	66.9		82.0	143.0	191.9
Queue Length 50th (ft)	~386	128	1	12	~730		181	202		163	~266	~732
Queue Length 95th (ft)	#558	196	m16	26	#851		#284	287		#241	#421	#925
Internal Link Dist (ft)		3036			7092			3666			5060	
Turn Bay Length (ft)	520		220	470			260					385
Base Capacity (vph)	208	1765	886	501	1547		303	328		248	226	526
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	0
Reduced v/c Ratio	1.59	0.29	0.14	0.07	1.00		0.81	0.72		0.90	1.10	1.33

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 48 (34%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow

Natural Cycle: 140

Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

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

Splits and Phases: 25: N Normandy Blvd & Saxon Blvd



HCM 6th Signalized Intersection Summary
25: N Normandy Blvd & Saxon Blvd

2020 Future Background Conditions
Timing Plan: AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	287	442	110	29	1169	178	214	187	18	195	216	606
Future Volume (veh/h)	287	442	110	29	1169	178	214	187	18	195	216	606
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1781	1781	1781	1870	1870	1870	1856	1856	1856	1870	1870	1870
Adj Flow Rate, veh/h	330	508	69	33	1344	182	246	215	16	224	248	465
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	8	8	8	2	2	2	3	3	3	2	2	2
Cap, veh/h	227	1760	785	423	1428	192	289	289	21	242	215	334
Arrive On Green	0.03	0.17	0.17	0.03	0.45	0.45	0.13	0.17	0.17	0.08	0.12	0.12
Sat Flow, veh/h	1697	3385	1510	1781	3148	423	1767	1706	127	1781	1870	1585
Grp Volume(v), veh/h	330	508	69	33	754	772	246	0	231	224	248	465
Grp Sat Flow(s),veh/h/ln	1697	1692	1510	1781	1777	1794	1767	0	1833	1781	1870	1585
Q Serve(g_s), s	13.4	18.3	5.4	1.4	56.4	57.7	16.7	0.0	16.8	10.5	16.1	16.1
Cycle Q Clear(g_c), s	13.4	18.3	5.4	1.4	56.4	57.7	16.7	0.0	16.8	10.5	16.1	16.1
Prop In Lane	1.00		1.00	1.00		0.24	1.00		0.07	1.00		1.00
Lane Grp Cap(c), veh/h	227	1760	785	423	806	814	289	0	310	242	215	334
V/C Ratio(X)	1.45	0.29	0.09	0.08	0.94	0.95	0.85	0.00	0.74	0.93	1.15	1.39
Avail Cap(c_a), veh/h	227	1760	785	503	806	814	306	0	329	242	215	334
HCM Platoon Ratio	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.85	0.85	0.85	0.47	0.47	0.47	0.95	0.00	0.95	0.84	0.84	0.84
Uniform Delay (d), s/veh	48.3	35.4	30.1	19.6	36.3	36.7	45.3	0.0	55.3	56.4	61.9	55.3
Incr Delay (d2), s/veh	223.2	0.4	0.2	0.0	11.0	12.4	18.5	0.0	8.8	34.2	103.9	191.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	22.7	8.4	2.0	0.6	25.9	27.1	8.8	0.0	8.5	5.1	13.8	29.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	271.5	35.8	30.3	19.7	47.4	49.1	63.8	0.0	64.1	90.6	165.9	246.6
LnGrp LOS	F	D	C	B	D	D	E	A	E	F	F	F
Approach Vol, veh/h	907			1559			477			937		
Approach Delay, s/veh	121.1			47.6			63.9			187.9		
Approach LOS	F			D			E			F		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	21.0	70.4	18.0	30.6	11.7	79.7	25.6	23.0				
Change Period (Y+Rc), s	* 7.6	6.9	* 7.5	6.9	* 8.1	6.9	* 6.8	6.9				
Max Green Setting (Gmax), s	* 13	62.1	* 11	25.1	* 9.9	65.1	* 20	16.1				
Max Q Clear Time (g_c+I1), s	15.4	59.7	12.5	18.8	3.4	20.3	18.7	18.1				
Green Ext Time (p_c), s	0.0	2.1	0.0	0.8	0.0	5.6	0.1	0.0				
Intersection Summary												
HCM 6th Ctrl Delay	100.7											
HCM 6th LOS	F											
Notes												

Lanes, Volumes, Timings
26: Tivoli Dr & Saxon Blvd

2020 Future Background Conditions
Timing Plan: AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	143	266	133	6	525	3	70	51	9	8	99	329
Future Volume (vph)	143	266	133	6	525	3	70	51	9	8	99	329
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	3%	3%	3%	4%	4%	4%	5%	5%	5%	4%	4%	4%
Adj. Flow (vph)	155	289	145	7	571	3	76	55	10	9	108	358
Shared Lane Traffic (%)												
Lane Group Flow (vph)	155	289	145	7	574	0	76	65	0	9	466	0
Turn Type	pm+pt	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases	5	2			6			4			8	
Permitted Phases	2		2	6			4			8		
Detector Phase	5	2	2	6	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	5.0	11.0	11.0	11.0	11.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	12.0	17.5	17.5	17.5	17.5		11.5	11.5		11.5	11.5	
Total Split (s)	15.0	45.0	45.0	30.0	30.0		30.0	30.0		30.0	30.0	
Total Split (%)	20.0%	60.0%	60.0%	40.0%	40.0%		40.0%	40.0%		40.0%	40.0%	
Yellow Time (s)	4.5	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.5	2.5	2.5	2.5	2.5		2.5	2.5		2.5	2.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	7.0	6.5	6.5	6.5	6.5		6.5	6.5		6.5	6.5	
Lead/Lag	Lead			Lag	Lag							
Lead-Lag Optimize?	Yes			Yes	Yes							
Recall Mode	None	Min	Min	Min	Min		None	None		None	None	
v/c Ratio	0.46	0.29	0.16	0.02	0.84		0.68	0.15		0.03	0.82	
Control Delay	13.4	9.9	2.4	17.7	36.6		54.1	17.6		18.5	24.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	13.4	9.9	2.4	17.7	36.6		54.1	17.6		18.5	24.1	
Queue Length 50th (ft)	29	58	0	2	229		29	18		3	90	
Queue Length 95th (ft)	68	121	25	11	#470		#85	45		13	198	
Internal Link Dist (ft)		7092			564			624			1001	
Turn Bay Length (ft)	390			120			265			150		
Base Capacity (vph)	348	1136	1021	400	685		171	670		490	752	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.45	0.25	0.14	0.02	0.84		0.44	0.10		0.02	0.62	

Intersection Summary

Cycle Length: 75

Actuated Cycle Length: 65.1

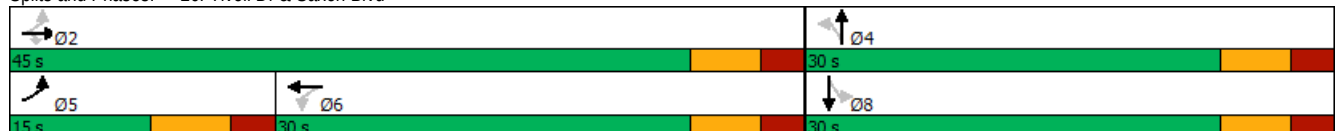
Natural Cycle: 70

Control Type: Actuated-Uncoordinated

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

Queue shown is maximum after two cycles.

Splits and Phases: 26: Tivoli Dr & Saxon Blvd



HCM 6th Signalized Intersection Summary
26: Tivoli Dr & Saxon Blvd

2020 Future Background Conditions
Timing Plan: AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	143	266	133	6	525	3	70	51	9	8	99	329
Future Volume (veh/h)	143	266	133	6	525	3	70	51	9	8	99	329
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1841	1841	1841	1826	1826	1826	1841	1841	1841
Adj Flow Rate, veh/h	155	289	20	7	571	3	76	55	10	9	108	179
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	4	4	4	5	5	5	4	4	4
Cap, veh/h	295	994	843	478	634	3	225	391	71	418	162	268
Arrive On Green	0.08	0.54	0.54	0.35	0.35	0.35	0.26	0.26	0.26	0.26	0.26	0.26
Sat Flow, veh/h	1767	1856	1572	1053	1829	10	1066	1503	273	1315	623	1032
Grp Volume(v), veh/h	155	289	20	7	0	574	76	0	65	9	0	287
Grp Sat Flow(s),veh/h/ln	1767	1856	1572	1053	0	1839	1066	0	1777	1315	0	1655
Q Serve(g_s), s	3.3	5.5	0.4	0.3	0.0	18.9	4.4	0.0	1.8	0.3	0.0	9.9
Cycle Q Clear(g_c), s	3.3	5.5	0.4	0.3	0.0	18.9	14.3	0.0	1.8	2.1	0.0	9.9
Prop In Lane	1.00		1.00	1.00		0.01	1.00		0.15	1.00		0.62
Lane Grp Cap(c), veh/h	295	994	843	478	0	637	225	0	462	418	0	430
V/C Ratio(X)	0.53	0.29	0.02	0.01	0.00	0.90	0.34	0.00	0.14	0.02	0.00	0.67
Avail Cap(c_a), veh/h	376	1122	951	502	0	679	341	0	656	561	0	611
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	14.4	8.1	6.9	13.7	0.0	19.8	27.5	0.0	18.1	18.9	0.0	21.1
Incr Delay (d2), s/veh	1.4	0.2	0.0	0.0	0.0	15.1	0.9	0.0	0.1	0.0	0.0	1.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	1.7	0.1	0.1	0.0	9.7	1.1	0.0	0.7	0.1	0.0	3.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	15.8	8.4	7.0	13.7	0.0	34.9	28.4	0.0	18.2	18.9	0.0	22.9
LnGrp LOS	B	A	A	B	A	C	C	A	B	B	A	C
Approach Vol, veh/h	464			581			141			296		
Approach Delay, s/veh	10.8			34.6			23.7			22.8		
Approach LOS	B			C			C			C		
Timer - Assigned Phs												
	2		4		5	6	8					
Phs Duration (G+Y+Rc), s	40.6		23.1		12.1	28.6	23.1					
Change Period (Y+Rc), s	6.5		6.5		7.0	6.5	6.5					
Max Green Setting (Gmax), s	38.5		23.5		8.0	23.5	23.5					
Max Q Clear Time (g_c+I1), s	7.5		16.3		5.3	20.9	11.9					
Green Ext Time (p_c), s	2.5		0.3		0.1	1.2	1.4					
Intersection Summary												
HCM 6th Ctrl Delay	23.8											
HCM 6th LOS	C											

Lanes, Volumes, Timings
27: N Normandy Blvd & Deltona Blvd

2020 Future Background Conditions
Timing Plan: AM Peak Hour

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	177	71	276	173	87	259
Future Volume (vph)	177	71	276	173	87	259
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%
Adj. Flow (vph)	188	76	294	184	93	276
Shared Lane Traffic (%)						
Lane Group Flow (vph)	188	76	294	184	93	276
Turn Type	Prot	Perm	pm+pt	NA	NA	Perm
Protected Phases	4		5	2	6	
Permitted Phases		4	2			6
Detector Phase	4	4	5	2	6	6
Switch Phase						
Minimum Initial (s)	4.0	4.0	3.0	10.0	10.0	10.0
Minimum Split (s)	10.0	10.0	9.5	16.5	17.0	17.0
Total Split (s)	20.0	20.0	15.0	40.0	25.0	25.0
Total Split (%)	33.3%	33.3%	25.0%	66.7%	41.7%	41.7%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.5	4.5
All-Red Time (s)	2.0	2.0	2.5	2.5	2.5	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.5	6.5	7.0	7.0
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Recall Mode	None	None	None	Min	Min	Min
v/c Ratio	0.51	0.19	0.46	0.16	0.21	0.48
Control Delay	22.4	6.3	9.3	6.8	18.0	6.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.4	6.3	9.3	6.8	18.0	6.1
Queue Length 50th (ft)	47	0	40	23	22	0
Queue Length 95th (ft)	101	25	92	57	56	48
Internal Link Dist (ft)	828			759	3666	
Turn Bay Length (ft)			230			350
Base Capacity (vph)	554	547	652	1354	750	800
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.34	0.14	0.45	0.14	0.12	0.34

Intersection Summary

Cycle Length: 60

Actuated Cycle Length: 45.8

Natural Cycle: 50

Control Type: Actuated-Uncoordinated

Splits and Phases: 27: N Normandy Blvd & Deltona Blvd



HCM 6th Signalized Intersection Summary
27: N Normandy Blvd & Deltona Blvd

2020 Future Background Conditions
Timing Plan: AM Peak Hour

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	177	71	276	173	87	259
Future Volume (veh/h)	177	71	276	173	87	259
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1841	1841	1841	1841	1841	1841
Adj Flow Rate, veh/h	188	22	294	184	93	148
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	4	4	4	4	4	4
Cap, veh/h	251	223	667	1010	436	370
Arrive On Green	0.14	0.14	0.16	0.55	0.24	0.24
Sat Flow, veh/h	1753	1560	1753	1841	1841	1560
Grp Volume(v), veh/h	188	22	294	184	93	148
Grp Sat Flow(s),veh/h/ln	1753	1560	1753	1841	1841	1560
Q Serve(g_s), s	4.3	0.5	4.7	2.1	1.7	3.4
Cycle Q Clear(g_c), s	4.3	0.5	4.7	2.1	1.7	3.4
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	251	223	667	1010	436	370
V/C Ratio(X)	0.75	0.10	0.44	0.18	0.21	0.40
Avail Cap(c_a), veh/h	582	518	744	1462	785	666
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.4	15.7	8.1	4.8	12.9	13.6
Incr Delay (d2), s/veh	3.3	0.1	0.3	0.1	0.2	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	0.5	1.3	0.5	0.6	1.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	20.7	15.9	8.4	4.9	13.2	14.3
LnGrp LOS	C	B	A	A	B	B
Approach Vol, veh/h	210			478	241	
Approach Delay, s/veh	20.2			7.1	13.8	
Approach LOS	C			A	B	
Timer - Assigned Phs	2			4	5	6
Phs Duration (G+Y+Rc), s	30.2			12.0	13.2	17.0
Change Period (Y+Rc), s	* 7			6.0	6.5	7.0
Max Green Setting (Gmax), s	* 34			14.0	8.5	18.0
Max Q Clear Time (g_c+I1), s	4.1			6.3	6.7	5.4
Green Ext Time (p_c), s	1.1			0.3	0.1	0.7
Intersection Summary						
HCM 6th Ctrl Delay			11.8			
HCM 6th LOS			B			
Notes						
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.						

Arterial Level of Service: EB E Saxon Blvd

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
N Normandy Blvd	II	40	53.1	23.2	76.3	0.59	27.8	C
Tivoli Dr	II	40	122.3	9.9	132.2	1.36	37.0	A
Total	II		175.4	33.1	208.5	1.95	33.6	B

Arterial Level of Service: WB E Saxon Blvd

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Tivoli Dr	II	35	15.2	36.6	51.8	0.12	8.5	F
N Normandy Blvd	II	40	122.3	61.5	183.8	1.36	26.6	C
I-4	II	45	47.2	14.7	61.9	0.59	34.3	B
Total	II		184.7	112.8	297.5	2.07	25.1	C

Arterial Level of Service: EB SR 472

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
N Kentucky Ave	I	55	17.7	72.3	90.0	0.18	7.3	F
I-4 WB	I	55	36.3	30.0	66.3	0.55	30.1	C
I-4 EB	I	50	30.3	20.9	51.2	0.32	22.4	D
E Graves Ave	I	50	26.1	240.4	266.5	0.28	3.7	F
Total	I		110.4	363.6	474.0	1.33	10.1	F

Arterial Level of Service: WB SR 472

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
I-4 EB	I	50	26.1	20.3	46.4	0.28	21.4	D
I-4 WB	I	50	30.3	4.8	35.1	0.32	32.7	C
Dr. Martin Luther Ki	I	55	36.3	54.5	90.8	0.55	22.0	D
Total	I		92.7	79.6	172.3	1.15	24.0	D

Arterial Level of Service: EB W Saxon Blvd

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Broward Ave	II	45	21.4	20.8	42.2	0.20	16.8	E
FDOT Park & Ride	II	45	33.9	5.6	39.5	0.35	32.2	B
Total	II		55.3	26.4	81.7	0.55	24.2	C

Arterial Level of Service: WB W Saxon Blvd

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
FDOT Park & Ride	II	45	37.1	6.2	43.3	0.40	32.8	B
Veterans Memorial Pk	II	45	33.9	14.8	48.7	0.35	26.1	C
Total	II		71.0	21.0	92.0	0.75	29.3	B

H3: AM Peak Hour Future Year Background Traffic Conditions with Improvements

Lanes, Volumes, Timings
1: Dr Martin Luther King Jr Beltway & Orange Camp Rd

2020 Future Background Conditions w/Imp
Timing Plan: AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	49	644	126	82	585	349	214	528	73	343	286	55
Future Volume (vph)	49	644	126	82	585	349	214	528	73	343	286	55
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
Heavy Vehicles (%)	5%	5%	5%	4%	4%	4%	4%	4%	4%	3%	3%	3%
Adj. Flow (vph)	52	678	133	86	616	367	225	556	77	361	301	58
Shared Lane Traffic (%)												
Lane Group Flow (vph)	52	811	0	86	616	367	225	556	77	361	301	58
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8			4		4	6		6	2		2
Detector Phase	3	8		7	4	4	1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	7.0	7.0	5.0	17.0	17.0	5.0	17.0	17.0
Minimum Split (s)	11.5	14.5		11.5	14.5	14.5	11.5	24.5	24.5	11.5	24.5	24.5
Total Split (s)	30.0	60.0		30.0	60.0	60.0	30.0	59.0	59.0	31.0	60.0	60.0
Total Split (%)	16.7%	33.3%		16.7%	33.3%	33.3%	16.7%	32.8%	32.8%	17.2%	33.3%	33.3%
Yellow Time (s)	3.5	5.5		3.5	5.5	5.5	3.5	5.5	5.5	3.5	5.5	5.5
All-Red Time (s)	3.0	2.0		3.0	2.0	2.0	3.0	2.0	2.0	3.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	7.5		6.5	7.5	7.5	6.5	7.5	7.5	6.5	7.5	7.5
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None		None	None	None	None	Min	Min	None	Min	Min
v/c Ratio	0.21	0.85		0.45	0.56	0.50	0.46	0.95	0.13	1.13	0.44	0.09
Control Delay	31.6	63.4		37.7	48.6	7.2	26.4	79.2	3.1	133.9	43.7	0.3
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.6	63.4		37.7	48.6	7.2	26.4	79.2	3.1	133.9	43.7	0.3
Queue Length 50th (ft)	34	420		57	291	11	129	577	0	~384	242	0
Queue Length 95th (ft)	63	515		96	363	97	208	#895	18	#661	385	0
Internal Link Dist (ft)		536			746			5808			524	
Turn Bay Length (ft)	385			550			340		375	335		380
Base Capacity (vph)	389	1108		311	1163	754	561	587	571	319	677	642
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.73		0.28	0.53	0.49	0.40	0.95	0.13	1.13	0.44	0.09

Intersection Summary

Cycle Length: 180

Actuated Cycle Length: 160.6

Natural Cycle: 110

Control Type: Actuated-Uncoordinated

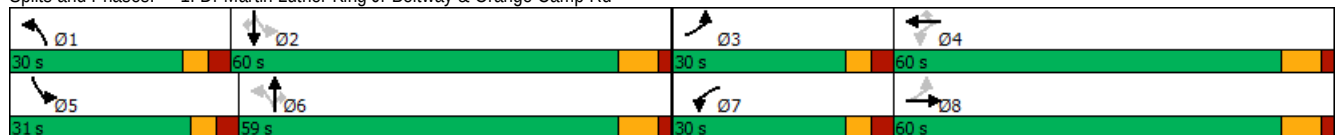
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

Splits and Phases: 1: Dr Martin Luther King Jr Beltway & Orange Camp Rd



HCM 6th Signalized Intersection Summary
1: Dr Martin Luther King Jr Beltway & Orange Camp Rd

2020 Future Background Conditions w/Imp
Timing Plan: AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	49	644	126	82	585	349	214	528	73	343	286	55
Future Volume (veh/h)	49	644	126	82	585	349	214	528	73	343	286	55
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1826	1826	1826	1841	1841	1841	1841	1841	1841	1856	1856	1856
Adj Flow Rate, veh/h	52	678	118	86	616	327	225	556	52	361	301	43
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, %	5	5	5	4	4	4	4	4	4	3	3	3
Cap, veh/h	183	803	140	170	1009	450	502	594	503	368	721	611
Arrive On Green	0.03	0.27	0.27	0.05	0.29	0.29	0.10	0.32	0.32	0.17	0.39	0.39
Sat Flow, veh/h	1739	2954	514	1753	3497	1560	1753	1841	1560	1767	1856	1572
Grp Volume(v), veh/h	52	398	398	86	616	327	225	556	52	361	301	43
Grp Sat Flow(s),veh/h/ln	1739	1735	1733	1753	1749	1560	1753	1841	1560	1767	1856	1572
Q Serve(g_s), s	3.2	31.8	31.9	5.2	22.3	27.7	12.5	43.1	3.4	23.8	17.4	2.5
Cycle Q Clear(g_c), s	3.2	31.8	31.9	5.2	22.3	27.7	12.5	43.1	3.4	23.8	17.4	2.5
Prop In Lane	1.00		0.30	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	183	471	471	170	1009	450	502	594	503	368	721	611
V/C Ratio(X)	0.28	0.84	0.85	0.51	0.61	0.73	0.45	0.94	0.10	0.98	0.42	0.07
Avail Cap(c_a), veh/h	406	620	619	366	1250	557	605	645	547	368	721	611
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.3	50.6	50.6	39.7	45.1	47.0	28.2	48.3	34.9	43.6	32.8	28.3
Incr Delay (d2), s/veh	0.8	9.2	9.3	2.3	0.9	4.4	0.6	20.8	0.1	42.0	0.6	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	14.6	14.6	2.3	9.6	11.0	5.1	22.3	1.3	17.1	7.6	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	39.1	59.8	59.9	42.0	46.0	51.4	28.9	69.1	35.0	85.7	33.3	28.3
LnGrp LOS	D	E	E	D	D	D	C	E	C	F	C	C
Approach Vol, veh/h	848			1029			833			705		
Approach Delay, s/veh	58.6			47.4			56.1			59.8		
Approach LOS	E			D			E			E		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	21.3	64.6	11.1	49.9	31.0	54.9	13.6	47.4				
Change Period (Y+Rc), s	6.5	7.5	6.5	7.5	6.5	7.5	6.5	7.5				
Max Green Setting (Gmax), s	23.5	52.5	23.5	52.5	24.5	51.5	23.5	52.5				
Max Q Clear Time (g_c+I1), s	14.5	19.4	5.2	29.7	25.8	45.1	7.2	33.9				
Green Ext Time (p_c), s	0.4	2.6	0.1	7.2	0.0	2.3	0.1	6.0				
Intersection Summary												
HCM 6th Ctrl Delay	54.9											
HCM 6th LOS	D											

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	934	198	109	1067	251	284	247	69	223	354	50
Future Volume (vph)	26	934	198	109	1067	251	284	247	69	223	354	50
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	8%	8%	8%	5%	5%	5%	4%	4%	4%	4%	4%	4%
Adj. Flow (vph)	30	1061	225	124	1213	285	323	281	78	253	402	57
Shared Lane Traffic (%)												
Lane Group Flow (vph)	30	1061	225	124	1213	285	323	281	78	253	402	57
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases			6			2			4			8
Detector Phase	1	6	6	5	2	2	7	4	4	3	8	8
Switch Phase												
Minimum Initial (s)	5.0	17.0	17.0	5.0	17.0	17.0	5.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	13.3	25.3	25.3	13.3	25.3	25.3	13.3	15.8	15.8	16.4	16.4	16.4
Total Split (s)	14.0	66.0	66.0	25.0	77.0	77.0	27.0	31.7	31.7	27.3	32.0	32.0
Total Split (%)	9.3%	44.0%	44.0%	16.7%	51.3%	51.3%	18.0%	21.1%	21.1%	18.2%	21.3%	21.3%
Yellow Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.6	5.6	5.6
All-Red Time (s)	2.8	2.8	2.8	2.8	2.8	2.8	2.8	3.3	3.3	3.8	3.8	3.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.8	8.8	9.4	9.4	9.4
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Min	Min	None	C-Min	C-Min	None	None	None	None	None	None
v/c Ratio	0.42	0.77	0.30	0.74	0.70	0.31	0.81	0.66	0.20	0.55	0.81	0.14
Control Delay	88.2	43.5	4.6	89.5	27.5	3.8	80.9	70.4	1.2	65.9	75.8	0.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	88.2	43.5	4.6	89.5	27.5	3.8	80.9	70.4	1.2	65.9	75.8	0.7
Queue Length 50th (ft)	29	486	0	125	457	20	160	140	0	119	201	0
Queue Length 95th (ft)	#67	563	50	m186	547	m66	210	181	0	168	256	0
Internal Link Dist (ft)		884			2846			4140			2874	
Turn Bay Length (ft)	400		395	425		400			485	350		350
Base Capacity (vph)	71	1378	748	191	1751	923	419	529	430	456	522	420
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.42	0.77	0.30	0.65	0.69	0.31	0.77	0.53	0.18	0.55	0.77	0.14

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 93 (62%), Referenced to phase 2:WBT, Start of Yellow

Natural Cycle: 90

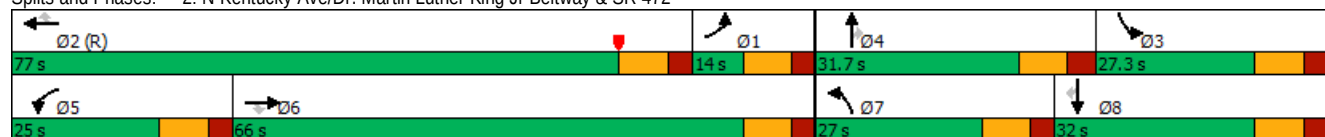
Control Type: Actuated-Coordinated

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 2: N Kentucky Ave/Dr. Martin Luther King Jr Beltway & SR 472



HCM 6th Signalized Intersection Summary
2: N Kentucky Ave/Dr. Martin Luther King Jr Beltway & SR 472

2020 Future Background Conditions w/Imp
Timing Plan: AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	26	934	198	109	1067	251	284	247	69	223	354	50
Future Volume (veh/h)	26	934	198	109	1067	251	284	247	69	223	354	50
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1781	1781	1781	1826	1826	1826	1841	1841	1841	1841	1841	1841
Adj Flow Rate, veh/h	30	1061	147	124	1212	170	323	281	0	253	402	0
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	8	8	8	5	5	5	4	4	4	4	4	4
Cap, veh/h	190	1508	672	147	1449	646	370	353		467	464	
Arrive On Green	0.11	0.45	0.45	0.03	0.14	0.14	0.11	0.10	0.00	0.14	0.13	0.00
Sat Flow, veh/h	1697	3385	1510	1739	3469	1547	3401	3497	1560	3401	3497	1560
Grp Volume(v), veh/h	30	1061	147	124	1212	170	323	281	0	253	402	0
Grp Sat Flow(s),veh/h/ln	1697	1692	1510	1739	1735	1547	1700	1749	1560	1700	1749	1560
Q Serve(g_s), s	2.4	38.0	9.0	10.6	51.1	14.7	14.0	11.8	0.0	10.4	16.9	0.0
Cycle Q Clear(g_c), s	2.4	38.0	9.0	10.6	51.1	14.7	14.0	11.8	0.0	10.4	16.9	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	190	1508	672	147	1449	646	370	353		467	464	
V/C Ratio(X)	0.16	0.70	0.22	0.84	0.84	0.26	0.87	0.80		0.54	0.87	
Avail Cap(c_a), veh/h	190	1508	672	194	1589	709	424	534		467	527	
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.81	0.81	0.81	0.51	0.51	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	60.2	33.6	25.6	71.9	59.7	44.0	65.8	65.9	0.0	60.3	63.8	0.0
Incr Delay (d2), s/veh	0.4	1.7	0.2	18.6	4.8	0.8	9.2	3.4	0.0	1.7	13.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	15.1	3.2	5.6	24.7	6.2	6.5	5.3	0.0	4.5	8.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	60.6	35.3	25.8	90.5	64.5	44.8	75.0	69.3	0.0	62.0	77.6	0.0
LnGrp LOS	E	D	C	F	E	D	E	E		E	E	
Approach Vol, veh/h	1238			1506			604			655		
Approach Delay, s/veh	34.7			64.4			72.3			71.5		
Approach LOS	C			E			E			E		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	25.1	71.0	30.0	23.9	21.0	75.1	24.6	29.3				
Change Period (Y+Rc), s	* 8.3	* 8.3	* 9.4	* 8.8	* 8.3	* 8.3	* 8.3	* 9.4				
Max Green Setting (Gmax), s	* 5.7	* 69	* 18	* 23	* 17	* 58	* 19	* 23				
Max Q Clear Time (g_c+I1), s	4.4	53.1	12.4	13.8	12.6	40.0	16.0	18.9				
Green Ext Time (p_c), s	0.0	9.6	0.6	1.4	0.1	9.1	0.3	1.0				

Intersection Summary

HCM 6th Ctrl Delay 57.6
HCM 6th LOS E

Notes

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

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

Lanes, Volumes, Timings
6: Veterans Memorial Pkwy & E Graves Ave

2020 Future Background Conditions w/Imp
Timing Plan: AM Peak Hour

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗	↘	↑	↘	↗
Traffic Volume (vph)	222	35	810	344	51	487
Future Volume (vph)	222	35	810	344	51	487
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	6%	6%	6%	6%	12%	12%
Adj. Flow (vph)	241	38	880	374	55	529
Shared Lane Traffic (%)						
Lane Group Flow (vph)	241	38	880	374	55	529
Turn Type	NA	Perm	pm+pt	NA	Prot	pm+ov
Protected Phases	2		1	6	8	1
Permitted Phases		2	6			8
Detector Phase	2	2	1	6	8	1
Switch Phase						
Minimum Initial (s)	11.0	11.0	7.0	11.0	7.0	7.0
Minimum Split (s)	18.0	18.0	14.0	18.0	14.0	14.0
Total Split (s)	20.0	20.0	41.0	61.0	14.0	41.0
Total Split (%)	26.7%	26.7%	54.7%	81.3%	18.7%	54.7%
Yellow Time (s)	4.5	4.5	4.5	4.5	5.0	4.5
All-Red Time (s)	2.5	2.5	2.5	2.5	2.0	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag	Lag	Lag	Lead			Lead
Lead-Lag Optimize?	Yes	Yes	Yes			Yes
Recall Mode	Min	Min	None	Min	None	None
v/c Ratio	0.64	0.11	0.91	0.25	0.29	0.60
Control Delay	37.4	10.7	24.3	3.4	35.5	8.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.4	10.7	24.3	3.4	35.5	8.3
Queue Length 50th (ft)	108	0	253	49	25	70
Queue Length 95th (ft)	#218	24	#525	80	59	141
Internal Link Dist (ft)	7674			1636	7026	
Turn Bay Length (ft)		400	300		1000	
Base Capacity (vph)	391	362	1104	1491	189	1040
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.62	0.10	0.80	0.25	0.29	0.51

Intersection Summary

Cycle Length: 75

Actuated Cycle Length: 63.4

Natural Cycle: 75

Control Type: Actuated-Uncoordinated

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

Queue shown is maximum after two cycles.

Splits and Phases: 6: Veterans Memorial Pkwy & E Graves Ave



HCM 6th Signalized Intersection Summary
6: Veterans Memorial Pkwy & E Graves Ave

2020 Future Background Conditions w/Imp
Timing Plan: AM Peak Hour

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗	↘	↑	↘	↗
Traffic Volume (veh/h)	222	35	810	344	51	487
Future Volume (veh/h)	222	35	810	344	51	487
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1811	1811	1811	1811	1722	1722
Adj Flow Rate, veh/h	241	16	880	374	55	379
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	6	6	6	6	12	12
Cap, veh/h	291	246	914	1285	159	801
Arrive On Green	0.16	0.16	0.45	0.71	0.10	0.10
Sat Flow, veh/h	1811	1535	1725	1811	1640	1459
Grp Volume(v), veh/h	241	16	880	374	55	379
Grp Sat Flow(s),veh/h/ln	1811	1535	1725	1811	1640	1459
Q Serve(g_s), s	9.3	0.6	29.8	5.5	2.3	7.0
Cycle Q Clear(g_c), s	9.3	0.6	29.8	5.5	2.3	7.0
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	291	246	914	1285	159	801
V/C Ratio(X)	0.83	0.06	0.96	0.29	0.35	0.47
Avail Cap(c_a), veh/h	326	276	946	1354	159	801
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.4	25.7	12.7	3.8	30.5	9.9
Incr Delay (d2), s/veh	16.0	0.2	20.5	0.2	1.3	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.0	0.2	13.1	1.1	0.9	2.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	45.3	25.9	33.3	4.0	31.8	10.4
LnGrp LOS	D	C	C	A	C	B
Approach Vol, veh/h	257			1254	434	
Approach Delay, s/veh	44.1			24.5	13.1	
Approach LOS	D			C	B	
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	39.7	18.6			58.3	14.0
Change Period (Y+Rc), s	7.0	7.0			7.0	7.0
Max Green Setting (Gmax), s	34.0	13.0			54.0	7.0
Max Q Clear Time (g_c+I1), s	31.8	11.3			7.5	9.0
Green Ext Time (p_c), s	0.9	0.3			3.4	0.0
Intersection Summary						
HCM 6th Ctrl Delay			24.6			
HCM 6th LOS			C			

Lanes, Volumes, Timings
7: S Kentucky Ave/N Kentucky Ave & E Graves Ave

2020 Future Background Conditions w/Imp
Timing Plan: AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	201	546	8	11	862	484	17	12	5	289	7	339
Future Volume (vph)	201	546	8	11	862	484	17	12	5	289	7	339
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	11%	11%	11%	4%	4%	4%	2%	2%	2%	6%	6%	6%
Adj. Flow (vph)	231	628	9	13	991	556	20	14	6	332	8	390
Shared Lane Traffic (%)												
Lane Group Flow (vph)	231	637	0	13	1547	0	0	40	0	332	398	0
Turn Type	Prot	NA		Perm	NA		Split	NA		Split	NA	
Protected Phases	5	2			6		4	4		8	8	
Permitted Phases				6								
Detector Phase	5	2		6	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	5.0	11.0		11.0	11.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	11.0	18.0		18.0	18.0		14.0	14.0		14.0	14.0	
Total Split (s)	28.0	91.0		63.0	63.0		20.0	20.0		29.0	29.0	
Total Split (%)	20.0%	65.0%		45.0%	45.0%		14.3%	14.3%		20.7%	20.7%	
Yellow Time (s)	4.0	5.0		5.0	5.0		4.0	4.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		3.0	3.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Lead/Lag	Lead			Lag	Lag							
Lead-Lag Optimize?	Yes			Yes	Yes							
Recall Mode	None	Min		Min	Min		None	None		None	None	
v/c Ratio	0.87	0.30		0.04	1.03		0.33	0.33		0.70	0.72	
Control Delay	84.3	11.2		24.8	66.1		61.3	61.3		61.7	13.6	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	84.3	11.2		24.8	66.1		61.3	61.3		61.7	13.6	
Queue Length 50th (ft)	195	122		7	~751		29	29		141	6	
Queue Length 95th (ft)	#340	167		21	#898		67	67		190	91	
Internal Link Dist (ft)		1636			3200		455	455			4140	
Turn Bay Length (ft)	200			235						320		
Base Capacity (vph)	281	2148		330	1500		187	187		572	587	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.82	0.30		0.04	1.03		0.21	0.21		0.58	0.68	

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 128.2

Natural Cycle: 100

Control Type: Actuated-Uncoordinated

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

Splits and Phases: 7: S Kentucky Ave/N Kentucky Ave & E Graves Ave



HCM 6th Signalized Intersection Summary
7: S Kentucky Ave/N Kentucky Ave & E Graves Ave

2020 Future Background Conditions w/Imp
Timing Plan: AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	201	546	8	11	862	484	17	12	5	289	7	339
Future Volume (veh/h)	201	546	8	11	862	484	17	12	5	289	7	339
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1737	1737	1737	1841	1841	1841	1870	1870	1870	1811	1811	1811
Adj Flow Rate, veh/h	231	628	9	13	991	431	20	14	3	332	8	208
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	11	11	11	4	4	4	2	2	2	6	6	6
Cap, veh/h	255	2124	30	396	1041	446	39	27	6	528	9	235
Arrive On Green	0.15	0.64	0.64	0.44	0.44	0.44	0.04	0.04	0.04	0.16	0.16	0.16
Sat Flow, veh/h	1654	3331	48	779	2385	1021	971	679	146	3346	57	1486
Grp Volume(v), veh/h	231	311	326	13	723	699	37	0	0	332	0	216
Grp Sat Flow(s),veh/h/ln	1654	1650	1728	779	1749	1657	1796	0	0	1673	0	1544
Q Serve(g_s), s	17.5	10.7	10.8	1.2	50.7	52.6	2.6	0.0	0.0	11.9	0.0	17.5
Cycle Q Clear(g_c), s	17.5	10.7	10.8	1.2	50.7	52.6	2.6	0.0	0.0	11.9	0.0	17.5
Prop In Lane	1.00		0.03	1.00		0.62	0.54		0.08	1.00		0.96
Lane Grp Cap(c), veh/h	255	1052	1102	396	764	724	72	0	0	528	0	244
V/C Ratio(X)	0.91	0.30	0.30	0.03	0.95	0.97	0.51	0.00	0.00	0.63	0.00	0.89
Avail Cap(c_a), veh/h	285	1085	1136	398	766	726	183	0	0	576	0	266
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	53.1	10.3	10.3	20.6	34.5	35.1	60.1	0.0	0.0	50.3	0.0	52.7
Incr Delay (d2), s/veh	28.6	0.2	0.2	0.0	20.6	25.4	5.6	0.0	0.0	1.9	0.0	26.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.1	3.6	3.8	0.2	24.6	25.0	1.3	0.0	0.0	5.0	0.0	8.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	81.7	10.5	10.5	20.7	55.1	60.5	65.7	0.0	0.0	52.2	0.0	79.5
LnGrp LOS	F	B	B	C	E	E	E	A	A	D	A	E
Approach Vol, veh/h	868			1435			37			548		
Approach Delay, s/veh	29.5			57.4			65.7			63.0		
Approach LOS	C			E			E			E		
Timer - Assigned Phs	2			4			5			6		
Phs Duration (G+Y+Rc), s	88.5			12.1			25.7			62.8		
Change Period (Y+Rc), s	7.0			7.0			6.0			7.0		
Max Green Setting (Gmax), s	84.0			13.0			22.0			56.0		
Max Q Clear Time (g_c+I1), s	12.8			4.6			19.5			54.6		
Green Ext Time (p_c), s	6.1			0.1			0.2			1.2		
Intersection Summary												
HCM 6th Ctrl Delay	50.2											
HCM 6th LOS	D											

Lanes, Volumes, Timings
8: N Normandy Blvd & E Graves Ave

2020 Future Background Conditions w/Imp
Timing Plan: AM Peak Hour

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↗	↘	↑	↘	↗
Traffic Volume (vph)	450	618	477	617	700	606
Future Volume (vph)	450	618	477	617	700	606
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	10%	10%	5%	5%	2%	2%
Adj. Flow (vph)	489	672	518	671	761	659
Shared Lane Traffic (%)						
Lane Group Flow (vph)	489	672	518	671	761	659
Turn Type	NA	pm+ov	Prot	NA	Prot	Perm
Protected Phases	6	4	5	2	4	
Permitted Phases		6				4
Detector Phase	6	4	5	2	4	4
Switch Phase						
Minimum Initial (s)	12.0	7.0	5.0	12.0	7.0	7.0
Minimum Split (s)	19.0	13.0	12.0	19.0	13.0	13.0
Total Split (s)	27.0	37.0	26.0	53.0	37.0	37.0
Total Split (%)	30.0%	41.1%	28.9%	58.9%	41.1%	41.1%
Yellow Time (s)	5.0	4.0	5.0	5.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	6.0	7.0	7.0	6.0	6.0
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Recall Mode	Min	None	None	Min	None	None
v/c Ratio	0.69	0.71	0.76	0.73	0.68	0.74
Control Delay	36.2	14.7	39.3	21.9	27.5	9.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.2	14.7	39.3	21.9	27.5	9.9
Queue Length 50th (ft)	134	208	142	282	185	39
Queue Length 95th (ft)	188	342	198	420	246	162
Internal Link Dist (ft)	3200			471	9642	
Turn Bay Length (ft)		630	400		200	
Base Capacity (vph)	824	1029	796	1046	1337	959
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.59	0.65	0.65	0.64	0.57	0.69

Intersection Summary

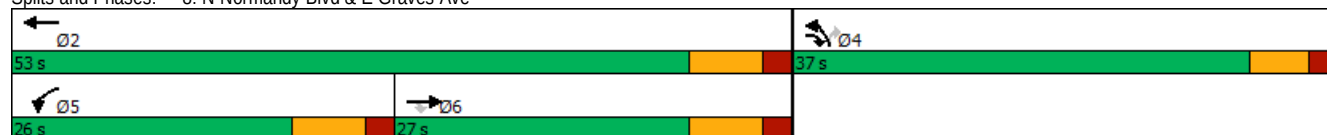
Cycle Length: 90

Actuated Cycle Length: 81.4

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Splits and Phases: 8: N Normandy Blvd & E Graves Ave



HCM 6th Signalized Intersection Summary
8: N Normandy Blvd & E Graves Ave

2020 Future Background Conditions w/Imp
Timing Plan: AM Peak Hour

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↑↑	↑	↑↑	↑
Traffic Volume (veh/h)	450	618	477	617	700	606
Future Volume (veh/h)	450	618	477	617	700	606
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1752	1752	1826	1826	1870	1870
Adj Flow Rate, veh/h	489	672	518	671	761	251
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	10	10	5	5	2	2
Cap, veh/h	893	807	634	1005	952	437
Arrive On Green	0.27	0.27	0.19	0.55	0.28	0.28
Sat Flow, veh/h	3416	1485	3374	1826	3456	1585
Grp Volume(v), veh/h	489	672	518	671	761	251
Grp Sat Flow(s),veh/h/ln	1664	1485	1687	1826	1728	1585
Q Serve(g_s), s	9.4	20.0	11.0	19.5	15.3	10.2
Cycle Q Clear(g_c), s	9.4	20.0	11.0	19.5	15.3	10.2
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	893	807	634	1005	952	437
V/C Ratio(X)	0.55	0.83	0.82	0.67	0.80	0.58
Avail Cap(c_a), veh/h	893	807	860	1127	1437	659
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.4	12.3	29.0	11.9	25.1	23.2
Incr Delay (d2), s/veh	0.9	7.7	4.5	1.6	1.9	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.4	13.2	4.4	6.5	5.8	0.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	24.3	20.0	33.6	13.5	27.0	24.4
LnGrp LOS	C	C	C	B	C	C
Approach Vol, veh/h	1161			1189	1012	
Approach Delay, s/veh	21.8			22.2	26.4	
Approach LOS	C			C	C	
Timer - Assigned Phs	2			4	5	6
Phs Duration (G+Y+Rc), s	48.0			26.5	21.0	27.0
Change Period (Y+Rc), s	7.0			6.0	7.0	7.0
Max Green Setting (Gmax), s	46.0			31.0	19.0	20.0
Max Q Clear Time (g_c+I1), s	21.5			17.3	13.0	22.0
Green Ext Time (p_c), s	6.4			3.3	1.0	0.0
Intersection Summary						
HCM 6th Ctrl Delay			23.3			
HCM 6th LOS			C			

Lanes, Volumes, Timings
9: E Graves Ave & Howland Blvd

2020 Future Background Conditions w/Imp
Timing Plan: AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	535	62	517	19	45	122	613	1802	13	75	670	166
Future Volume (vph)	535	62	517	19	45	122	613	1802	13	75	670	166
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	6%	6%	6%	4%	4%	4%	3%	3%	3%	8%	8%	8%
Adj. Flow (vph)	582	67	562	21	49	133	666	1959	14	82	728	180
Shared Lane Traffic (%)												
Lane Group Flow (vph)	582	67	562	21	49	133	666	1959	14	82	908	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	5.0	17.0	17.0	7.0	17.0	
Minimum Split (s)	15.0	15.0	15.0	14.5	14.5	14.5	12.0	24.5	24.5	14.0	24.5	
Total Split (s)	35.4	33.1	33.1	16.9	14.6	14.6	46.0	86.0	86.0	14.0	54.0	
Total Split (%)	23.6%	22.1%	22.1%	11.3%	9.7%	9.7%	30.7%	57.3%	57.3%	9.3%	36.0%	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.5	5.5	5.0	5.5	
All-Red Time (s)	3.0	3.0	3.0	2.5	2.5	2.5	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	8.0	8.0	8.0	7.5	7.5	7.5	7.0	7.5	7.5	7.0	7.5	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	None	None	None	None	None	None	C-Min	C-Min	None	C-Min	
v/c Ratio	0.97	0.17	0.78	0.13	0.57	0.43	0.86	1.07	0.02	0.54	0.56	
Control Delay	98.0	65.7	34.8	78.4	51.2	3.2	67.4	76.6	0.0	83.6	40.4	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	98.0	65.7	34.8	78.4	51.2	3.2	67.4	76.6	0.0	83.6	40.4	
Queue Length 50th (ft)	303	62	252	9	46	2	324	~1112	0	41	254	
Queue Length 95th (ft)	#421	111	315	m8	m43	m0	385	#1245	0	71	316	
Internal Link Dist (ft)		1373			8563			569			283	
Turn Bay Length (ft)	330			565			280			185		
Base Capacity (vph)	603	396	724	210	86	308	884	1834	915	151	1622	
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.97	0.17	0.78	0.10	0.57	0.43	0.75	1.07	0.02	0.54	0.56	

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 82 (55%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow

Natural Cycle: 150

Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

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

Splits and Phases: 9: E Graves Ave & Howland Blvd



HCM 6th Signalized Intersection Summary
9: E Graves Ave & Howland Blvd

2020 Future Background Conditions w/Imp
Timing Plan: AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	535	62	517	19	45	122	613	1802	13	75	670	166
Future Volume (veh/h)	535	62	517	19	45	122	613	1802	13	75	670	166
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1811	1811	1811	1841	1841	1841	1856	1856	1856	1781	1781	1781
Adj Flow Rate, veh/h	582	67	0	21	49	30	666	1959	13	82	728	155
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	6	6	6	4	4	4	3	3	3	8	8	8
Cap, veh/h	611	337		159	86	73	735	2141	955	154	1768	372
Arrive On Green	0.18	0.19	0.00	0.05	0.05	0.05	0.21	0.61	0.61	0.05	0.44	0.44
Sat Flow, veh/h	3346	1811	1535	3401	1841	1560	3428	3526	1572	3291	4024	847
Grp Volume(v), veh/h	582	67	0	21	49	30	666	1959	13	82	585	298
Grp Sat Flow(s),veh/h/ln	1673	1811	1535	1700	1841	1560	1714	1763	1572	1646	1621	1629
Q Serve(g_s), s	25.8	4.7	0.0	0.9	3.9	2.8	28.4	73.7	0.5	3.7	18.5	18.8
Cycle Q Clear(g_c), s	25.8	4.7	0.0	0.9	3.9	2.8	28.4	73.7	0.5	3.7	18.5	18.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.52
Lane Grp Cap(c), veh/h	611	337		159	86	73	735	2141	955	154	1425	716
V/C Ratio(X)	0.95	0.20		0.13	0.57	0.41	0.91	0.91	0.01	0.53	0.41	0.42
Avail Cap(c_a), veh/h	611	337		213	87	74	891	2141	955	154	1425	716
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.95	0.95	0.00	0.09	0.09	0.09	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	60.7	51.6	0.0	68.6	70.0	69.5	57.4	26.0	11.7	69.9	28.8	28.8
Incr Delay (d2), s/veh	24.2	0.3	0.0	0.0	0.8	0.3	11.2	7.6	0.0	3.6	0.9	1.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.7	2.1	0.0	0.4	1.8	1.1	13.4	31.5	0.2	1.6	7.5	7.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	84.9	51.9	0.0	68.6	70.8	69.8	68.7	33.6	11.7	73.5	29.6	30.6
LnGrp LOS	F	D		E	E	E	E	C	B	E	C	C
Approach Vol, veh/h		649	A		100			2638			965	
Approach Delay, s/veh		81.5			70.1			42.3			33.7	
Approach LOS		F			E			D			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	14.0	98.8	14.5	35.9	39.2	73.7	35.4	15.0				
Change Period (Y+Rc), s	7.0	7.5	7.5	8.0	7.0	7.5	8.0	* 8				
Max Green Setting (Gmax), s	7.0	78.5	9.4	25.1	39.0	46.5	27.4	* 7.1				
Max Q Clear Time (g_c+I1), s	5.7	75.7	2.9	6.7	30.4	20.8	27.8	5.9				
Green Ext Time (p_c), s	0.0	2.7	0.0	0.2	1.8	9.0	0.0	0.0				

Intersection Summary

HCM 6th Ctrl Delay 46.9
HCM 6th LOS D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
10: Catalina Blvd & Howland Blvd

2020 Future Background Conditions w/Imp
Timing Plan: AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	233	678	59	31	1308	11	131	23	13	39	35	599
Future Volume (vph)	233	678	59	31	1308	11	131	23	13	39	35	599
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
Heavy Vehicles (%)	7%	7%	7%	4%	4%	4%	4%	4%	4%	2%	2%	2%
Adj. Flow (vph)	245	714	62	33	1377	12	138	24	14	41	37	631
Shared Lane Traffic (%)												
Lane Group Flow (vph)	245	776	0	33	1389	0	138	38	0	41	37	631
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		Perm	NA	Perm
Protected Phases	1	6		5	2		7	4			8	
Permitted Phases	6			2			4			8		8
Detector Phase	1	6		5	2		7	4		8	8	8
Switch Phase												
Minimum Initial (s)	5.0	11.0		5.0	11.0		5.0	7.0		7.0	7.0	7.0
Minimum Split (s)	13.5	19.5		13.5	19.5		12.0	14.0		14.0	14.0	14.0
Total Split (s)	25.0	70.0		18.0	63.0		26.0	62.0		36.0	36.0	36.0
Total Split (%)	16.7%	46.7%		12.0%	42.0%		17.3%	41.3%		24.0%	24.0%	24.0%
Yellow Time (s)	5.0	5.0		5.0	5.0		4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	3.5	3.5		3.5	3.5		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)	8.5	8.5		8.5	8.5		7.0	7.0		7.0	7.0	7.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead			Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes			Yes	Yes	Yes
Recall Mode	None	C-Min		None	C-Min		None	None		None	None	None
v/c Ratio	1.06	0.52		0.11	1.10		0.29	0.06		0.14	0.09	1.17
Control Delay	119.5	27.8		18.9	102.4		34.7	22.0		51.3	50.1	123.6
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	119.5	27.8		18.9	102.4		34.7	22.0		51.3	50.1	123.6
Queue Length 50th (ft)	~207	272		15	~811		93	15		33	30	~528
Queue Length 95th (ft)	#398	335		33	#953		148	42		72	64	#785
Internal Link Dist (ft)		8563			1815			941			4969	
Turn Bay Length (ft)	375			270			180			235		415
Base Capacity (vph)	232	1490		322	1260		483	641		288	394	540
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	1.06	0.52		0.10	1.10		0.29	0.06		0.14	0.09	1.17

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

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

Natural Cycle: 150

Control Type: Actuated-Coordinated

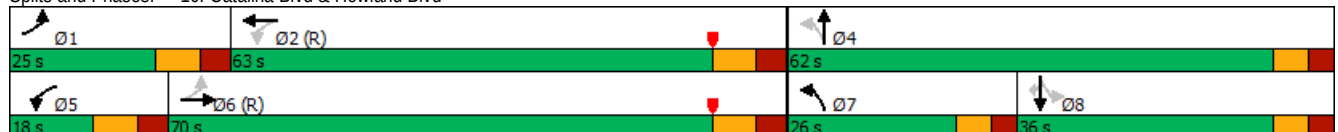
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

Splits and Phases: 10: Catalina Blvd & Howland Blvd



HCM 6th Signalized Intersection Summary
10: Catalina Blvd & Howland Blvd

2020 Future Background Conditions w/Imp
Timing Plan: AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	233	678	59	31	1308	11	131	23	13	39	35	599
Future Volume (veh/h)	233	678	59	31	1308	11	131	23	13	39	35	599
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1796	1796	1796	1841	1841	1841	1841	1841	1841	1870	1870	1870
Adj Flow Rate, veh/h	245	714	59	33	1377	12	138	24	9	41	37	278
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, %	7	7	7	4	4	4	4	4	4	2	2	2
Cap, veh/h	256	1611	133	340	1491	13	361	396	149	306	351	297
Arrive On Green	0.11	0.50	0.50	0.02	0.42	0.42	0.08	0.31	0.31	0.19	0.19	0.19
Sat Flow, veh/h	1711	3192	264	1753	3553	31	1753	1276	479	1376	1870	1585
Grp Volume(v), veh/h	245	382	391	33	678	711	138	0	33	41	37	278
Grp Sat Flow(s),veh/h/ln	1711	1706	1749	1753	1749	1835	1753	0	1755	1376	1870	1585
Q Serve(g_s), s	15.4	21.4	21.4	1.6	55.1	55.1	9.3	0.0	2.0	3.7	2.5	25.9
Cycle Q Clear(g_c), s	15.4	21.4	21.4	1.6	55.1	55.1	9.3	0.0	2.0	3.7	2.5	25.9
Prop In Lane	1.00		0.15	1.00		0.02	1.00		0.27	1.00		1.00
Lane Grp Cap(c), veh/h	256	861	883	340	734	770	361	0	545	306	351	297
V/C Ratio(X)	0.96	0.44	0.44	0.10	0.92	0.92	0.38	0.00	0.06	0.13	0.11	0.93
Avail Cap(c_a), veh/h	256	861	883	407	734	770	449	0	643	314	362	306
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.95	0.95	0.95	0.56	0.56	0.56	1.00	0.00	1.00	0.62	0.62	0.62
Uniform Delay (d), s/veh	44.9	23.7	23.7	23.9	41.2	41.3	42.6	0.0	36.3	51.0	50.5	60.0
Incr Delay (d2), s/veh	43.4	1.6	1.5	0.1	12.2	11.8	0.7	0.0	0.0	0.2	0.1	25.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.2	8.8	9.0	0.7	25.3	26.5	4.1	0.0	0.9	1.3	1.2	12.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	88.3	25.3	25.2	23.9	53.5	53.1	43.3	0.0	36.4	51.2	50.6	85.3
LnGrp LOS	F	C	C	C	D	D	D	A	D	D	D	F
Approach Vol, veh/h	1018			1422			171			356		
Approach Delay, s/veh	40.4			52.6			42.0			77.7		
Approach LOS	D			D			D			E		
Timer - Assigned Phs	1	2		4	5	6	7	8				
Phs Duration (G+Y+Rc), s	25.0	71.4		53.6	12.2	84.2	18.4	35.1				
Change Period (Y+Rc), s	8.5	8.5		7.0	8.5	8.5	7.0	7.0				
Max Green Setting (Gmax), s	16.5	54.5		55.0	9.5	61.5	19.0	29.0				
Max Q Clear Time (g_c+I1), s	17.4	57.1		4.0	3.6	23.4	11.3	27.9				
Green Ext Time (p_c), s	0.0	0.0		0.2	0.0	7.5	0.2	0.2				
Intersection Summary												
HCM 6th Ctrl Delay	50.8											
HCM 6th LOS	D											

Lanes, Volumes, Timings
14: Veterans Memorial Pkwy & E Rhode Island Road Ave

2020 Future Background Conditions w/Imp
Timing Plan: AM Peak Hour

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	185	171	333	358	646	349
Future Volume (vph)	185	171	333	358	646	349
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	2%	2%	5%	5%	5%	5%
Adj. Flow (vph)	210	194	378	407	734	397
Shared Lane Traffic (%)						
Lane Group Flow (vph)	210	194	378	407	734	397
Turn Type	Prot	Perm	Prot	NA	NA	Perm
Protected Phases	4		1	6	2	
Permitted Phases		4				2
Detector Phase	4	4	1	6	2	2
Switch Phase						
Minimum Initial (s)	7.0	7.0	5.0	11.0	11.0	11.0
Minimum Split (s)	13.5	13.5	13.5	20.5	20.5	20.5
Total Split (s)	15.4	15.4	16.5	54.6	38.1	38.1
Total Split (%)	22.0%	22.0%	23.6%	78.0%	54.4%	54.4%
Yellow Time (s)	3.5	3.5	5.5	5.5	5.5	5.5
All-Red Time (s)	3.0	3.0	3.0	4.0	4.0	4.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	8.5	9.5	9.5	9.5
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Recall Mode	None	None	None	Min	Min	Min
v/c Ratio	0.93	0.52	0.99	0.35	0.99	0.46
Control Delay	79.4	10.6	78.6	6.7	55.0	3.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	79.4	10.6	78.6	6.7	55.0	3.6
Queue Length 50th (ft)	91	0	85	69	304	0
Queue Length 95th (ft)	#204	50	#162	109	#512	44
Internal Link Dist (ft)	5352			4702	7026	
Turn Bay Length (ft)	450		385			385
Base Capacity (vph)	225	370	381	1166	739	863
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.93	0.52	0.99	0.35	0.99	0.46

Intersection Summary

Cycle Length: 70

Actuated Cycle Length: 70

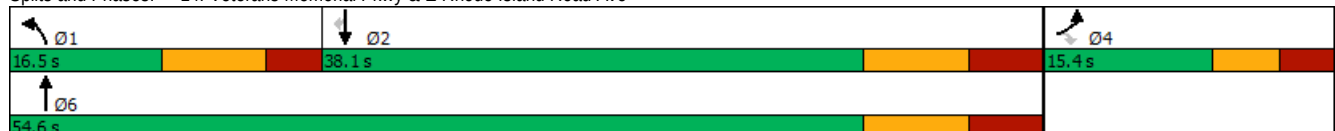
Natural Cycle: 90

Control Type: Actuated-Uncoordinated

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

Queue shown is maximum after two cycles.

Splits and Phases: 14: Veterans Memorial Pkwy & E Rhode Island Road Ave



HCM 6th Signalized Intersection Summary
14: Veterans Memorial Pkwy & E Rhode Island Road Ave

2020 Future Background Conditions w/Imp
Timing Plan: AM Peak Hour

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	185	171	333	358	646	349
Future Volume (veh/h)	185	171	333	358	646	349
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1826	1826	1826	1826
Adj Flow Rate, veh/h	210	80	378	407	734	397
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	5	5	5	5
Cap, veh/h	226	202	386	1176	746	632
Arrive On Green	0.13	0.13	0.11	0.64	0.41	0.41
Sat Flow, veh/h	1781	1585	3374	1826	1826	1547
Grp Volume(v), veh/h	210	80	378	407	734	397
Grp Sat Flow(s),veh/h/ln	1781	1585	1687	1826	1826	1547
Q Serve(g_s), s	8.2	3.2	7.8	7.1	27.8	14.3
Cycle Q Clear(g_c), s	8.2	3.2	7.8	7.1	27.8	14.3
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	226	202	386	1176	746	632
V/C Ratio(X)	0.93	0.40	0.98	0.35	0.98	0.63
Avail Cap(c_a), veh/h	226	202	386	1176	746	632
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.2	28.1	30.9	5.7	20.5	16.5
Incr Delay (d2), s/veh	40.2	1.3	40.5	0.2	28.8	2.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.8	1.2	5.0	1.7	15.4	4.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	70.5	29.3	71.4	5.9	49.3	18.4
LnGrp LOS	E	C	E	A	D	B
Approach Vol, veh/h	290			785	1131	
Approach Delay, s/veh	59.1			37.4	38.5	
Approach LOS	E			D	D	
Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	16.5	38.1		15.4		54.6
Change Period (Y+Rc), s	8.5	9.5		6.5		9.5
Max Green Setting (Gmax), s	8.0	28.6		8.9		45.1
Max Q Clear Time (g_c+I1), s	9.8	29.8		10.2		9.1
Green Ext Time (p_c), s	0.0	0.0		0.0		2.3
Intersection Summary						
HCM 6th Ctrl Delay			40.8			
HCM 6th LOS			D			

Lanes, Volumes, Timings
21: Broward Ave/Veterans Memorial Pkwy & Saxon Blvd

2020 Future Background Conditions w/Imp
Timing Plan: AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	124	666	12	126	1274	468	48	52	67	293	45	140
Future Volume (vph)	124	666	12	126	1274	468	48	52	67	293	45	140
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	5%	5%	5%	3%	3%	3%	2%	2%	2%	5%	5%	5%
Adj. Flow (vph)	133	716	13	135	1370	503	52	56	72	315	48	151
Shared Lane Traffic (%)										43%		
Lane Group Flow (vph)	133	729	0	135	1873	0	52	56	72	180	183	151
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases	1	6		5	2		4		4	3	8	
Permitted Phases	6			2			4		4	8		8
Detector Phase	1	6		5	2		4	4	4	3	8	8
Switch Phase												
Minimum Initial (s)	5.0	12.0		5.0	12.0		7.0	7.0	7.0	5.0	7.0	7.0
Minimum Split (s)	12.9	18.8		12.8	18.8		14.5	14.5	14.5	12.9	15.3	15.3
Total Split (s)	20.0	72.0		20.0	72.0		18.0	18.0	18.0	20.0	38.0	38.0
Total Split (%)	15.4%	55.4%		15.4%	55.4%		13.8%	13.8%	13.8%	15.4%	29.2%	29.2%
Yellow Time (s)	4.8	4.8		4.8	4.8		3.7	3.7	3.7	4.8	4.5	4.5
All-Red Time (s)	3.1	2.0		3.0	2.0		3.8	3.8	3.8	3.1	3.8	3.8
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.9	6.8		7.8	6.8		7.5	7.5	7.5	7.9	8.3	8.3
Lead/Lag	Lead	Lag		Lead	Lag		Lag	Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes		
Recall Mode	None	C-Min		None	C-Min		None	None	None	None	None	None
v/c Ratio	0.69	0.28		0.30	0.74		0.58	0.40	0.27	0.71	0.72	0.32
Control Delay	45.0	18.2		11.3	26.2		83.9	65.7	2.4	45.7	46.7	4.3
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.0	18.2		11.3	26.2		83.9	65.7	2.4	45.7	46.7	4.3
Queue Length 50th (ft)	61	127		43	445		43	46	0	136	140	38
Queue Length 95th (ft)	131	155		67	491		#97	91	0	#169	#180	6
Internal Link Dist (ft)		957			1787			543			1843	
Turn Bay Length (ft)	460			400			200		445	410		
Base Capacity (vph)	214	2563		486	2540		95	150	278	254	257	479
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.62	0.28		0.28	0.74		0.55	0.37	0.26	0.71	0.71	0.32

Intersection Summary

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 18 (14%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow

Natural Cycle: 90

Control Type: Actuated-Coordinated

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

Queue shown is maximum after two cycles.

Splits and Phases: 21: Broward Ave/Veterans Memorial Pkwy & Saxon Blvd

 Ø1	 Ø2 (R)	 Ø3	 Ø4
20 s	72 s	20 s	18 s
 Ø5	 Ø6 (R)	 Ø7	 Ø8
20 s	72 s	38 s	

HCM 6th Signalized Intersection Summary
21: Broward Ave/Veterans Memorial Pkwy & Saxon Blvd

2020 Future Background Conditions w/Imp
Timing Plan: AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	124	666	12	126	1274	468	48	52	67	293	45	140
Future Volume (veh/h)	124	666	12	126	1274	468	48	52	67	293	45	140
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1826	1826	1826	1856	1856	1856	1870	1870	1870	1826	1826	1826
Adj Flow Rate, veh/h	133	716	9	135	1370	501	52	56	18	349	0	64
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	5	5	5	3	3	3	2	2	2	5	5	5
Cap, veh/h	211	2879	36	499	2078	753	128	102	86	500	0	322
Arrive On Green	0.05	0.57	0.57	0.05	0.57	0.57	0.05	0.05	0.05	0.16	0.00	0.35
Sat Flow, veh/h	1739	5074	64	1767	3666	1328	1338	1870	1585	3478	0	1547
Grp Volume(v), veh/h	133	469	256	135	1261	610	52	56	18	349	0	64
Grp Sat Flow(s),veh/h/ln	1739	1662	1814	1767	1689	1617	1338	1870	1585	1739	0	1547
Q Serve(g_s), s	4.1	9.2	9.2	4.1	33.6	34.1	5.0	3.8	1.4	12.1	0.0	3.8
Cycle Q Clear(g_c), s	4.1	9.2	9.2	4.1	33.6	34.1	5.0	3.8	1.4	12.1	0.0	3.8
Prop In Lane	1.00		0.04	1.00		0.82	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	211	1886	1030	499	1914	916	128	102	86	500	0	322
V/C Ratio(X)	0.63	0.25	0.25	0.27	0.66	0.67	0.41	0.55	0.21	0.70	0.00	0.20
Avail Cap(c_a), veh/h	290	1886	1030	580	1914	916	163	151	128	500	0	354
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.67	1.67	1.67
Upstream Filter(I)	1.00	1.00	1.00	0.79	0.79	0.79	1.00	1.00	1.00	0.91	0.00	0.91
Uniform Delay (d), s/veh	20.5	14.2	14.2	10.8	19.5	19.6	60.5	59.9	58.8	47.4	0.0	34.8
Incr Delay (d2), s/veh	3.1	0.3	0.6	0.2	1.4	3.0	2.1	4.5	1.2	3.9	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	3.4	3.8	1.5	12.5	12.6	1.8	1.9	0.6	5.1	0.0	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.6	14.5	14.7	11.1	20.9	22.6	62.5	64.4	60.0	51.2	0.0	35.1
LnGrp LOS	C	B	B	B	C	C	E	E	E	D	A	D
Approach Vol, veh/h	858			2006			126			413		
Approach Delay, s/veh	16.0			20.8			63.0			48.7		
Approach LOS	B			C			E			D		
Timer - Assigned Phs	1	2	3	4	5	6	8					
Phs Duration (G+Y+Rc), s	14.1	80.5	20.0	15.4	14.0	80.6	35.4					
Change Period (Y+Rc), s	7.9	6.8	7.9	* 8.3	7.8	6.8	* 8.3					
Max Green Setting (Gmax), s	12.1	65.2	12.1	* 11	12.2	65.2	* 30					
Max Q Clear Time (g_c+I1), s	6.1	36.1	14.1	7.0	6.1	11.2	5.8					
Green Ext Time (p_c), s	0.1	16.0	0.0	0.1	0.1	4.8	0.1					

Intersection Summary

HCM 6th Ctrl Delay 24.5
HCM 6th LOS C

Notes

User approved volume balancing among the lanes for turning movement.

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

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			 				  			
Traffic Volume (vph)	325	837	0	0	2019	401	0	0	439	0	0	334
Future Volume (vph)	325	837	0	0	2019	401	0	0	439	0	0	334
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	7%	7%	7%	2%	2%	2%	7%	7%	7%	5%	5%	5%
Adj. Flow (vph)	361	930	0	0	2243	446	0	0	488	0	0	371
Shared Lane Traffic (%)												
Lane Group Flow (vph)	361	930	0	0	2243	446	0	0	488	0	0	371
Turn Type	Prot	NA			NA	Perm			Prot			Perm
Protected Phases	1	6			2				5			
Permitted Phases						2						6
Detector Phase	1	6			2	2			5			6
Switch Phase												
Minimum Initial (s)	5.0	15.0			17.0	17.0			6.0			15.0
Minimum Split (s)	12.7	21.8			23.8	23.8			12.0			21.8
Total Split (s)	40.0	118.0			100.0	100.0			22.0			118.0
Total Split (%)	28.6%	84.3%			71.4%	71.4%			15.7%			84.3%
Yellow Time (s)	5.4	4.8			4.8	4.8			4.0			4.8
All-Red Time (s)	2.3	2.0			2.0	2.0			2.0			2.0
Lost Time Adjust (s)	0.0	0.0			0.0	0.0			0.0			0.0
Total Lost Time (s)	7.7	6.8			6.8	6.8			6.0			6.8
Lead/Lag	Lead	Lag			Lag	Lag			Lead			Lag
Lead-Lag Optimize?	Yes	Yes			Yes	Yes			Yes			Yes
Recall Mode	None	C-Min			C-Min	C-Min			None			C-Min
v/c Ratio	0.95	0.18			0.94	0.40			0.72			0.25
Control Delay	84.4	2.4			19.4	4.1			9.0			0.4
Queue Delay	0.0	0.0			0.0	0.0			0.0			0.0
Total Delay	84.4	2.4			19.4	4.1			9.0			0.4
Queue Length 50th (ft)	324	28			490	69			0			0
Queue Length 95th (ft)	#516	69			m376	m57			25			0
Internal Link Dist (ft)		1519			3036			820			423	
Turn Bay Length (ft)	700					160						
Base Capacity (vph)	389	5254			2374	1108			871			1498
Starvation Cap Reductn	0	0			0	0			0			0
Spillback Cap Reductn	0	0			0	0			0			0
Storage Cap Reductn	0	0			0	0			0			0
Reduced v/c Ratio	0.93	0.18			0.94	0.40			0.56			0.25

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 104 (74%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow

Natural Cycle: 100

Control Type: Actuated-Coordinated

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 24: I-4 & Saxon Blvd



HCM Signalized Intersection Capacity Analysis
24: I-4 & Saxon Blvd

2020 Future Background Conditions w/Imp
Timing Plan: AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	325	837	0	0	2019	401	0	0	439	0	0	334
Future Volume (vph)	325	837	0	0	2019	401	0	0	439	0	0	334
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.7	6.8			6.8	6.8			6.0			6.8
Lane Util. Factor	1.00	0.86			0.95	1.00			0.76			1.00
Frt	1.00	1.00			1.00	0.85			0.85			0.86
Flt Protected	0.95	1.00			1.00	1.00			1.00			1.00
Satd. Flow (prot)	1687	6108			3539	1583			3441			1565
Flt Permitted	0.95	1.00			1.00	1.00			1.00			1.00
Satd. Flow (perm)	1687	6108			3539	1583			3441			1565
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	361	930	0	0	2243	446	0	0	488	0	0	371
RTOR Reduction (vph)	0	0	0	0	0	46	0	0	464	0	0	52
Lane Group Flow (vph)	361	930	0	0	2243	400	0	0	24	0	0	319
Heavy Vehicles (%)	7%	7%	7%	2%	2%	2%	7%	7%	7%	5%	5%	5%
Turn Type	Prot	NA			NA	Perm			Prot			Perm
Protected Phases	1	6			2				5			
Permitted Phases						2						6
Actuated Green, G (s)	31.6	120.4			93.9	93.9			6.8			120.4
Effective Green, g (s)	31.6	120.4			93.9	93.9			6.8			120.4
Actuated g/C Ratio	0.23	0.86			0.67	0.67			0.05			0.86
Clearance Time (s)	7.7	6.8			6.8	6.8			6.0			6.8
Vehicle Extension (s)	3.0	3.0			3.0	3.0			3.0			3.0
Lane Grp Cap (vph)	380	5252			2373	1061			167			1345
v/s Ratio Prot	c0.21	0.15			c0.63				0.01			
v/s Ratio Perm						0.25						0.20
v/c Ratio	0.95	0.18			0.95	0.38			0.14			0.24
Uniform Delay, d1	53.4	1.6			20.7	10.2			63.8			1.7
Progression Factor	0.93	1.41			0.72	0.54			1.00			1.00
Incremental Delay, d2	32.7	0.1			3.6	0.3			0.4			0.4
Delay (s)	82.2	2.4			18.6	5.9			64.2			2.1
Level of Service	F	A			B	A			E			A
Approach Delay (s)		24.7			16.5			64.2			2.1	
Approach LOS		C			B			E			A	
Intersection Summary												
HCM 2000 Control Delay			22.4				HCM 2000 Level of Service			C		
HCM 2000 Volume to Capacity ratio			0.95									
Actuated Cycle Length (s)			140.0				Sum of lost time (s)			14.5		
Intersection Capacity Utilization			87.8%				ICU Level of Service			E		
Analysis Period (min)			15									
c Critical Lane Group												

Lanes, Volumes, Timings
25: N Normandy Blvd & Saxon Blvd

2020 Future Background Conditions w/Imp
Timing Plan: AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 		 	 		 	 		 	 	
Traffic Volume (vph)	287	442	110	29	1169	178	214	187	18	195	216	606
Future Volume (vph)	287	442	110	29	1169	178	214	187	18	195	216	606
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	8%	8%	8%	2%	2%	2%	3%	3%	3%	2%	2%	2%
Adj. Flow (vph)	330	508	126	33	1344	205	246	215	21	224	248	697
Shared Lane Traffic (%)												
Lane Group Flow (vph)	330	508	126	33	1344	205	246	236	0	224	248	697
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	pm+ov
Protected Phases	1	6		5	2		7	4		3	8	1
Permitted Phases	6		6	2		2	4			8		8
Detector Phase	1	6	6	5	2	2	7	4		3	8	1
Switch Phase												
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	5.0	10.0		5.0	10.0	5.0
Minimum Split (s)	12.6	21.9	21.9	13.1	21.9	21.9	11.8	16.9		12.5	16.9	12.6
Total Split (s)	36.4	70.0	70.0	13.2	46.8	46.8	19.0	30.8		26.0	37.8	36.4
Total Split (%)	26.0%	50.0%	50.0%	9.4%	33.4%	33.4%	13.6%	22.0%		18.6%	27.0%	26.0%
Yellow Time (s)	4.4	4.9	4.9	4.9	4.9	4.9	4.0	4.8		4.8	4.8	4.4
All-Red Time (s)	3.2	2.0	2.0	3.2	2.0	2.0	2.8	2.1		2.7	2.1	3.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	7.6	6.9	6.9	8.1	6.9	6.9	6.8	6.9		7.5	6.9	7.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None		None	None	None
v/c Ratio	0.41	0.30	0.15	0.10	1.29	0.33	0.87	0.82		0.73	0.68	0.89
Control Delay	28.7	19.7	1.9	19.7	175.9	6.2	68.2	78.5		50.5	61.2	45.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	28.7	19.7	1.9	19.7	175.9	6.2	68.2	78.5		50.5	61.2	45.1
Queue Length 50th (ft)	85	127	0	14	~835	0	167	205		151	205	507
Queue Length 95th (ft)	142	159	13	30	#926	52	#271	#295		216	287	#671
Internal Link Dist (ft)		3036			7092			3666			5060	
Turn Bay Length (ft)	520		220	470			260					385
Base Capacity (vph)	805	1711	836	316	1045	613	284	313		322	411	780
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.41	0.30	0.15	0.10	1.29	0.33	0.87	0.75		0.70	0.60	0.89

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 48 (34%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow

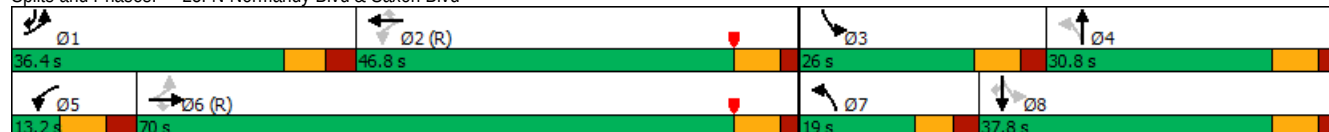
Natural Cycle: 130

Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 25: N Normandy Blvd & Saxon Blvd



HCM 6th Signalized Intersection Summary
25: N Normandy Blvd & Saxon Blvd

2020 Future Background Conditions w/Imp
Timing Plan: AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	287	442	110	29	1169	178	214	187	18	195	216	606
Future Volume (veh/h)	287	442	110	29	1169	178	214	187	18	195	216	606
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1781	1781	1781	1870	1870	1870	1856	1856	1856	1870	1870	1870
Adj Flow Rate, veh/h	330	508	69	33	1344	182	246	215	16	224	248	465
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	8	8	8	2	2	2	3	3	3	2	2	2
Cap, veh/h	399	1561	696	371	1459	651	280	319	24	338	413	477
Arrive On Green	0.03	0.15	0.15	0.03	0.41	0.41	0.09	0.19	0.19	0.12	0.22	0.22
Sat Flow, veh/h	3291	3385	1510	1781	3554	1585	1767	1706	127	1781	1870	1585
Grp Volume(v), veh/h	330	508	69	33	1344	182	246	0	231	224	248	465
Grp Sat Flow(s),veh/h/ln	1646	1692	1510	1781	1777	1585	1767	0	1833	1781	1870	1585
Q Serve(g_s), s	8.2	18.7	5.5	1.5	50.2	10.7	12.2	0.0	16.4	14.0	16.7	30.9
Cycle Q Clear(g_c), s	8.2	18.7	5.5	1.5	50.2	10.7	12.2	0.0	16.4	14.0	16.7	30.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.07	1.00		1.00
Lane Grp Cap(c), veh/h	399	1561	696	371	1459	651	280	0	343	338	413	477
V/C Ratio(X)	0.83	0.33	0.10	0.09	0.92	0.28	0.88	0.00	0.67	0.66	0.60	0.98
Avail Cap(c_a), veh/h	813	1561	696	390	1459	651	280	0	343	367	413	477
HCM Platoon Ratio	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.94	0.94	0.94	0.66	0.66	0.66	0.95	0.00	0.95	0.84	0.84	0.84
Uniform Delay (d), s/veh	35.9	39.9	34.3	23.2	39.1	27.5	47.6	0.0	52.9	40.1	49.0	48.4
Incr Delay (d2), s/veh	4.1	0.5	0.3	0.1	7.8	0.7	24.8	0.0	5.4	3.3	2.4	31.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.6	8.6	2.1	0.6	22.8	4.2	4.7	0.0	8.0	6.5	8.0	20.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.0	40.4	34.6	23.2	46.9	28.2	72.4	0.0	58.3	43.5	51.4	79.9
LnGrp LOS	D	D	C	C	D	C	E	A	E	D	D	E
Approach Vol, veh/h		907			1559			477			937	
Approach Delay, s/veh		39.8			44.2			65.6			63.7	
Approach LOS		D			D			E			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	18.8	64.4	23.7	33.1	11.7	71.5	19.0	37.8				
Change Period (Y+Rc), s	* 7.6	6.9	* 7.5	6.9	* 8.1	6.9	* 6.8	6.9				
Max Green Setting (Gmax), s	* 29	39.9	* 19	23.9	* 5.1	63.1	* 12	30.9				
Max Q Clear Time (g_c+I1), s	10.2	52.2	16.0	18.4	3.5	20.7	14.2	32.9				
Green Ext Time (p_c), s	1.1	0.0	0.2	0.7	0.0	5.6	0.0	0.0				

Intersection Summary

HCM 6th Ctrl Delay 50.5
HCM 6th LOS D

Notes

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

Lanes, Volumes, Timings
26: Tivoli Dr & Saxon Blvd

2020 Future Background Conditions w/Imp
Timing Plan: AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	143	266	133	6	525	3	70	51	9	8	99	329
Future Volume (vph)	143	266	133	6	525	3	70	51	9	8	99	329
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	3%	3%	3%	4%	4%	4%	5%	5%	5%	4%	4%	4%
Adj. Flow (vph)	155	289	145	7	571	3	76	55	10	9	108	358
Shared Lane Traffic (%)												
Lane Group Flow (vph)	155	289	145	7	574	0	76	65	0	9	108	358
Turn Type	pm+pt	NA	Perm	Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases	5	2			6			4			8	
Permitted Phases	2		2	6			4			8		8
Detector Phase	5	2	2	6	6		4	4		8	8	8
Switch Phase												
Minimum Initial (s)	5.0	11.0	11.0	11.0	11.0		5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	12.0	17.5	17.5	17.5	17.5		11.5	11.5		11.5	11.5	11.5
Total Split (s)	15.0	45.0	45.0	30.0	30.0		30.0	30.0		30.0	30.0	30.0
Total Split (%)	20.0%	60.0%	60.0%	40.0%	40.0%		40.0%	40.0%		40.0%	40.0%	40.0%
Yellow Time (s)	4.5	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	2.5	2.5	2.5	2.5	2.5		2.5	2.5		2.5	2.5	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	7.0	6.5	6.5	6.5	6.5		6.5	6.5		6.5	6.5	6.5
Lead/Lag	Lead			Lag	Lag							
Lead-Lag Optimize?	Yes			Yes	Yes							
Recall Mode	None	Min	Min	Min	Min		None	None		None	None	None
v/c Ratio	0.39	0.26	0.14	0.02	0.77		0.36	0.21		0.04	0.35	0.65
Control Delay	8.8	6.7	1.8	13.8	27.0		27.5	20.7		21.0	25.7	9.4
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	8.8	6.7	1.8	13.8	27.0		27.5	20.7		21.0	25.7	9.4
Queue Length 50th (ft)	20	40	0	2	185		26	18		3	36	3
Queue Length 95th (ft)	55	96	21	10	#411		59	46		13	75	63
Internal Link Dist (ft)		7092			564			624			1001	
Turn Bay Length (ft)	390			120			265			150		
Base Capacity (vph)	410	1242	1103	437	749		510	732		536	750	843
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	0
Reduced v/c Ratio	0.38	0.23	0.13	0.02	0.77		0.15	0.09		0.02	0.14	0.42

Intersection Summary

Cycle Length: 75

Actuated Cycle Length: 58.7

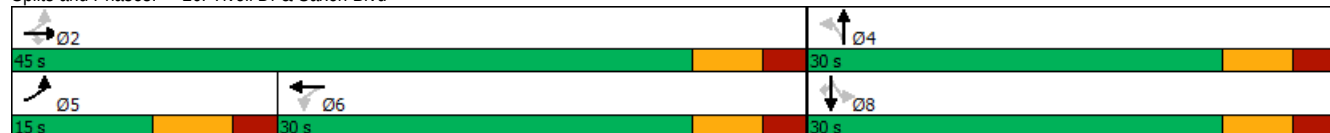
Natural Cycle: 60

Control Type: Actuated-Uncoordinated

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

Queue shown is maximum after two cycles.

Splits and Phases: 26: Tivoli Dr & Saxon Blvd



HCM 6th Signalized Intersection Summary
26: Tivoli Dr & Saxon Blvd

2020 Future Background Conditions w/Imp
Timing Plan: AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	143	266	133	6	525	3	70	51	9	8	99	329
Future Volume (veh/h)	143	266	133	6	525	3	70	51	9	8	99	329
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1841	1841	1841	1826	1826	1826	1841	1841	1841
Adj Flow Rate, veh/h	155	289	20	7	571	3	76	55	10	9	108	179
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	4	4	4	5	5	5	4	4	4
Cap, veh/h	357	1091	924	527	678	4	258	251	46	314	307	260
Arrive On Green	0.08	0.59	0.59	0.37	0.37	0.37	0.17	0.17	0.17	0.17	0.17	0.17
Sat Flow, veh/h	1767	1856	1572	1053	1829	10	1066	1503	273	1315	1841	1560
Grp Volume(v), veh/h	155	289	20	7	0	574	76	0	65	9	108	179
Grp Sat Flow(s),veh/h/ln	1767	1856	1572	1053	0	1839	1066	0	1777	1315	1841	1560
Q Serve(g_s), s	2.6	4.0	0.3	0.2	0.0	15.1	3.6	0.0	1.7	0.3	2.7	5.7
Cycle Q Clear(g_c), s	2.6	4.0	0.3	0.2	0.0	15.1	6.3	0.0	1.7	2.0	2.7	5.7
Prop In Lane	1.00		1.00	1.00		0.01	1.00		0.15	1.00		1.00
Lane Grp Cap(c), veh/h	357	1091	924	527	0	682	258	0	296	314	307	260
V/C Ratio(X)	0.43	0.27	0.02	0.01	0.00	0.84	0.29	0.00	0.22	0.03	0.35	0.69
Avail Cap(c_a), veh/h	474	1349	1143	603	0	816	554	0	788	678	817	692
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	10.9	5.3	4.6	10.6	0.0	15.2	22.3	0.0	19.1	19.9	19.5	20.8
Incr Delay (d2), s/veh	0.8	0.2	0.0	0.0	0.0	7.5	0.6	0.0	0.4	0.0	0.7	3.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	1.0	0.1	0.0	0.0	6.6	0.9	0.0	0.7	0.1	1.1	2.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	11.7	5.5	4.6	10.6	0.0	22.7	23.0	0.0	19.4	20.0	20.2	24.0
LnGrp LOS	B	A	A	B	A	C	C	A	B	B	C	C
Approach Vol, veh/h	464			581			141			296		
Approach Delay, s/veh	7.5			22.6			21.3			22.5		
Approach LOS	A			C			C			C		
Timer - Assigned Phs	2			4		5	6		8			
Phs Duration (G+Y+Rc), s	37.6			15.3		11.5	26.1		15.3			
Change Period (Y+Rc), s	6.5			6.5		7.0	6.5		6.5			
Max Green Setting (Gmax), s	38.5			23.5		8.0	23.5		23.5			
Max Q Clear Time (g_c+I1), s	6.0			8.3		4.6	17.1		7.7			
Green Ext Time (p_c), s	2.5			0.5		0.1	2.5		1.1			
Intersection Summary												
HCM 6th Ctrl Delay	17.7											
HCM 6th LOS	B											

Arterial Level of Service: EB E Saxon Blvd

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
N Normandy Blvd	II	40	53.1	19.7	72.8	0.59	29.2	B
Tivoli Dr	II	40	122.3	6.7	129.0	1.36	37.9	A
Total	II		175.4	26.4	201.8	1.95	34.8	B

Arterial Level of Service: WB E Saxon Blvd

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Tivoli Dr	II	35	15.2	27.0	42.2	0.12	10.4	F
N Normandy Blvd	II	40	122.3	175.9	298.2	1.36	16.4	E
I-4	II	45	47.2	19.4	66.6	0.59	31.9	B
Total	II		184.7	222.3	407.0	2.07	18.3	D

Arterial Level of Service: EB SR 472

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
N Kentucky Ave	I	55	17.7	43.5	61.2	0.18	10.7	F
I-4 WB	I	55	36.3	31.4	67.7	0.55	29.5	C
I-4 EB	I	50	30.3	22.3	52.6	0.32	21.8	D
E Graves Ave	I	50	26.1	65.7	91.8	0.28	10.8	F
Total	I		110.4	162.9	273.3	1.33	17.5	E

Arterial Level of Service: WB SR 472

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
I-4 EB	I	50	26.1	17.4	43.5	0.28	22.8	D
I-4 WB	I	50	30.3	4.6	34.9	0.32	32.9	C
Dr. Martin Luther Ki	I	55	36.3	27.5	63.8	0.55	31.3	C
Total	I		92.7	49.5	142.2	1.15	29.1	C

Arterial Level of Service: EB W Saxon Blvd

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Broward Ave	II	45	21.4	18.2	39.6	0.20	17.9	D
FDOT Park & Ride	II	45	33.9	8.4	42.3	0.35	30.1	B
Total	II		55.3	26.6	81.9	0.55	24.2	C

Arterial Level of Service: WB W Saxon Blvd

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
FDOT Park & Ride	II	45	37.1	5.8	42.9	0.40	33.2	B
Veterans Memorial Pk	II	45	33.9	26.2	60.1	0.35	21.2	D
Total	II		71.0	32.0	103.0	0.75	26.2	C

H4: AM Peak Hour Buildout Traffic Conditions (with Background Improvement)

Lanes, Volumes, Timings
1: Dr Martin Luther King Jr Beltway & Orange Camp Rd

2020 Buildout Conditions
Timing Plan: AM Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	49	644	137	88	585	349	214	528	73	343	297	55
Future Volume (vph)	49	644	137	88	585	349	214	528	73	343	297	55
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
Heavy Vehicles (%)	5%	5%	5%	4%	4%	4%	4%	4%	4%	3%	3%	3%
Adj. Flow (vph)	52	678	144	93	616	367	225	556	77	361	313	58
Shared Lane Traffic (%)												
Lane Group Flow (vph)	52	822	0	93	616	367	225	556	77	361	313	58
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8			4		4	6		6	2		2
Detector Phase	3	8		7	4	4	1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	7.0	7.0	5.0	17.0	17.0	5.0	17.0	17.0
Minimum Split (s)	11.5	14.5		11.5	14.5	14.5	11.5	24.5	24.5	11.5	24.5	24.5
Total Split (s)	30.0	60.0		30.0	60.0	60.0	30.0	59.0	59.0	31.0	60.0	60.0
Total Split (%)	16.7%	33.3%		16.7%	33.3%	33.3%	16.7%	32.8%	32.8%	17.2%	33.3%	33.3%
Yellow Time (s)	3.5	5.5		3.5	5.5	5.5	3.5	5.5	5.5	3.5	5.5	5.5
All-Red Time (s)	3.0	2.0		3.0	2.0	2.0	3.0	2.0	2.0	3.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	7.5		6.5	7.5	7.5	6.5	7.5	7.5	6.5	7.5	7.5
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None		None	None	None	None	Min	Min	None	Min	Min
v/c Ratio	0.21	0.86		0.48	0.56	0.50	0.47	0.95	0.14	1.15	0.47	0.09
Control Delay	31.3	64.1		38.5	48.2	7.1	27.2	81.1	3.1	140.6	44.9	0.3
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.3	64.1		38.5	48.2	7.1	27.2	81.1	3.1	140.6	44.9	0.3
Queue Length 50th (ft)	34	430		62	291	11	132	585	0	~397	258	0
Queue Length 95th (ft)	63	527		102	363	95	210	#902	19	#670	403	0
Internal Link Dist (ft)		536			746			5808			524	
Turn Bay Length (ft)	385			550			340		375	335		380
Base Capacity (vph)	392	1100		308	1163	754	545	583	568	315	672	638
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.75		0.30	0.53	0.49	0.41	0.95	0.14	1.15	0.47	0.09

Intersection Summary

Cycle Length: 180

Actuated Cycle Length: 161.7

Natural Cycle: 120

Control Type: Actuated-Uncoordinated

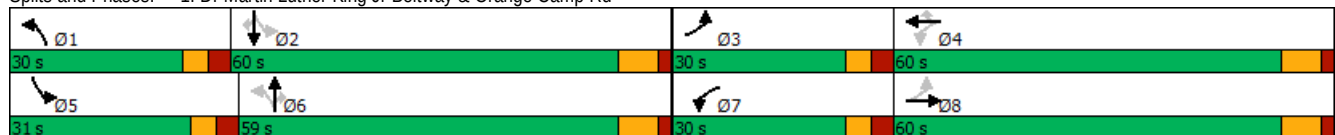
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

Splits and Phases: 1: Dr Martin Luther King Jr Beltway & Orange Camp Rd



HCM 6th Signalized Intersection Summary
1: Dr Martin Luther King Jr Beltway & Orange Camp Rd

2020 Buildout Conditions
Timing Plan: AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	49	644	137	88	585	349	214	528	73	343	297	55
Future Volume (veh/h)	49	644	137	88	585	349	214	528	73	343	297	55
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1826	1826	1826	1841	1841	1841	1841	1841	1841	1856	1856	1856
Adj Flow Rate, veh/h	52	678	127	93	616	327	225	556	52	361	313	43
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, %	5	5	5	4	4	4	4	4	4	3	3	3
Cap, veh/h	186	799	149	174	1028	458	489	592	502	362	715	606
Arrive On Green	0.03	0.27	0.27	0.05	0.29	0.29	0.10	0.32	0.32	0.16	0.39	0.39
Sat Flow, veh/h	1739	2916	546	1753	3497	1560	1753	1841	1560	1767	1856	1572
Grp Volume(v), veh/h	52	403	402	93	616	327	225	556	52	361	313	43
Grp Sat Flow(s),veh/h/ln	1739	1735	1728	1753	1749	1560	1753	1841	1560	1767	1856	1572
Q Serve(g_s), s	3.2	32.7	32.7	5.6	22.4	27.8	12.6	43.6	3.5	24.3	18.5	2.6
Cycle Q Clear(g_c), s	3.2	32.7	32.7	5.6	22.4	27.8	12.6	43.6	3.5	24.3	18.5	2.6
Prop In Lane	1.00		0.32	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	186	475	473	174	1028	458	489	592	502	362	715	606
V/C Ratio(X)	0.28	0.85	0.85	0.53	0.60	0.71	0.46	0.94	0.10	1.00	0.44	0.07
Avail Cap(c_a), veh/h	406	613	610	361	1235	551	589	638	540	362	715	606
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.4	51.1	51.1	39.9	45.0	46.9	28.8	49.0	35.4	44.8	33.8	28.8
Incr Delay (d2), s/veh	0.8	9.8	9.9	2.5	0.8	4.1	0.7	21.5	0.1	46.1	0.6	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	15.0	15.0	2.5	9.6	11.0	5.2	22.7	1.3	17.7	8.2	1.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	39.2	60.8	61.0	42.5	45.8	51.0	29.4	70.5	35.5	91.0	34.4	28.9
LnGrp LOS	D	E	E	D	D	D	C	E	D	F	C	C
Approach Vol, veh/h	857			1036			833			717		
Approach Delay, s/veh	59.6			47.2			57.2			62.5		
Approach LOS	E			D			E			E		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	21.5	64.8	11.1	51.2	31.0	55.3	14.1	48.2				
Change Period (Y+Rc), s	6.5	7.5	6.5	7.5	6.5	7.5	6.5	7.5				
Max Green Setting (Gmax), s	23.5	52.5	23.5	52.5	24.5	51.5	23.5	52.5				
Max Q Clear Time (g_c+I1), s	14.6	20.5	5.2	29.8	26.3	45.6	7.6	34.7				
Green Ext Time (p_c), s	0.4	2.6	0.1	7.2	0.0	2.2	0.2	6.0				
Intersection Summary												
HCM 6th Ctrl Delay	55.9											
HCM 6th LOS	E											

Lanes, Volumes, Timings
2: N Kentucky Ave/Dr. Martin Luther King Jr Beltway & SR 472

2020 Buildout Conditions
Timing Plan: AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	934	249	115	1067	251	284	247	71	223	388	50
Future Volume (vph)	26	934	249	115	1067	251	284	247	71	223	388	50
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	8%	8%	8%	5%	5%	5%	4%	4%	4%	4%	4%	4%
Adj. Flow (vph)	30	1061	283	131	1213	285	323	281	81	253	441	57
Shared Lane Traffic (%)												
Lane Group Flow (vph)	30	1061	283	131	1213	285	323	281	81	253	441	57
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases			6			2			4			8
Detector Phase	1	6	6	5	2	2	7	4	4	3	8	8
Switch Phase												
Minimum Initial (s)	5.0	17.0	17.0	5.0	17.0	17.0	5.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	13.3	25.3	25.3	13.3	25.3	25.3	13.3	15.8	15.8	16.4	16.4	16.4
Total Split (s)	14.0	66.0	66.0	25.0	77.0	77.0	27.0	31.7	31.7	27.3	32.0	32.0
Total Split (%)	9.3%	44.0%	44.0%	16.7%	51.3%	51.3%	18.0%	21.1%	21.1%	18.2%	21.3%	21.3%
Yellow Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.6	5.6	5.6
All-Red Time (s)	2.8	2.8	2.8	2.8	2.8	2.8	2.8	3.3	3.3	3.8	3.8	3.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.8	8.8	9.4	9.4	9.4
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Min	Min	None	C-Min	C-Min	None	None	None	None	None	None
v/c Ratio	0.42	0.78	0.37	0.69	0.70	0.31	0.81	0.66	0.21	0.53	0.86	0.14
Control Delay	88.2	44.8	4.6	90.7	28.3	3.9	80.9	70.4	1.2	64.9	79.1	0.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	88.2	44.8	4.6	90.7	28.3	3.9	80.9	70.4	1.2	64.9	79.1	0.7
Queue Length 50th (ft)	29	490	0	132	458	19	160	140	0	119	224	0
Queue Length 95th (ft)	#67	563	55	m195	548	m65	210	181	0	168	#294	0
Internal Link Dist (ft)		884			2846			4140			2874	
Turn Bay Length (ft)	400		395	425		400			485	350		350
Base Capacity (vph)	71	1352	773	191	1734	916	419	529	430	473	525	421
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.42	0.78	0.37	0.69	0.70	0.31	0.77	0.53	0.19	0.53	0.84	0.14

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 93 (62%), Referenced to phase 2:WBT, Start of Yellow

Natural Cycle: 90

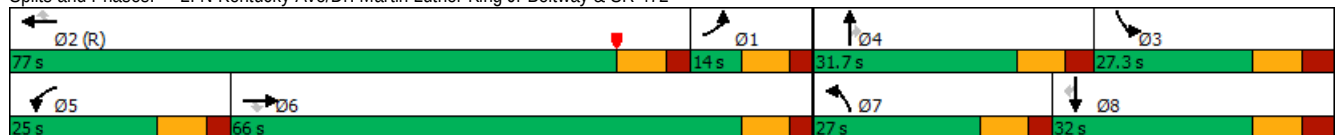
Control Type: Actuated-Coordinated

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 2: N Kentucky Ave/Dr. Martin Luther King Jr Beltway & SR 472



HCM 6th Signalized Intersection Summary
2: N Kentucky Ave/Dr. Martin Luther King Jr Beltway & SR 472

2020 Buildout Conditions
Timing Plan: AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	26	934	249	115	1067	251	284	247	71	223	388	50
Future Volume (veh/h)	26	934	249	115	1067	251	284	247	71	223	388	50
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1781	1781	1781	1826	1826	1826	1841	1841	1841	1841	1841	1841
Adj Flow Rate, veh/h	30	1061	184	131	1212	170	323	281	0	253	441	0
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	8	8	8	5	5	5	4	4	4	4	4	4
Cap, veh/h	175	1464	653	154	1449	646	370	353		497	495	
Arrive On Green	0.10	0.43	0.43	0.03	0.14	0.14	0.11	0.10	0.00	0.15	0.14	0.00
Sat Flow, veh/h	1697	3385	1510	1739	3469	1547	3401	3497	1560	3401	3497	1560
Grp Volume(v), veh/h	30	1061	184	131	1212	170	323	281	0	253	441	0
Grp Sat Flow(s),veh/h/ln	1697	1692	1510	1739	1735	1547	1700	1749	1560	1700	1749	1560
Q Serve(g_s), s	2.4	38.9	11.8	11.2	51.1	14.7	14.0	11.8	0.0	10.3	18.6	0.0
Cycle Q Clear(g_c), s	2.4	38.9	11.8	11.2	51.1	14.7	14.0	11.8	0.0	10.3	18.6	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	175	1464	653	154	1449	646	370	353		497	495	
V/C Ratio(X)	0.17	0.72	0.28	0.85	0.84	0.26	0.87	0.80		0.51	0.89	
Avail Cap(c_a), veh/h	175	1464	653	194	1589	709	424	534		497	527	
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.80	0.80	0.80	0.49	0.49	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	61.4	35.2	27.5	71.8	59.7	44.0	65.8	65.9	0.0	59.1	63.3	0.0
Incr Delay (d2), s/veh	0.5	2.0	0.3	20.2	4.8	0.8	8.8	3.2	0.0	1.2	17.1	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(50%),veh/ln	1.0	15.6	4.2	6.0	24.7	6.2	6.4	5.3	0.0	4.4	9.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	61.9	37.2	27.8	92.1	64.4	44.8	74.6	69.2	0.0	60.3	80.3	0.0
LnGrp LOS	E	D	C	F	E	D	E	E		E	F	
Approach Vol, veh/h	1275			1513			604			694		
Approach Delay, s/veh	36.4			64.6			72.1			73.0		
Approach LOS	D			E			E			E		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	23.8	71.0	31.3	23.9	21.6	73.2	24.6	30.6				
Change Period (Y+Rc), s	* 8.3	* 8.3	* 9.4	* 8.8	* 8.3	* 8.3	* 8.3	* 9.4				
Max Green Setting (Gmax), s	* 5.7	* 69	* 18	* 23	* 17	* 58	* 19	* 23				
Max Q Clear Time (g_c+I1), s	4.4	53.1	12.3	13.8	13.2	40.9	16.0	20.6				
Green Ext Time (p_c), s	0.0	9.6	0.6	1.4	0.1	9.0	0.3	0.6				

Intersection Summary

HCM 6th Ctrl Delay 58.3
HCM 6th LOS E

Notes

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

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

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↓	↑↑					↓↓		↑
Traffic Volume (vph)	0	392	795	910	1208	0	0	0	0	266	0	234
Future Volume (vph)	0	392	795	910	1208	0	0	0	0	266	0	234
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	5%	5%	5%	3%	3%	3%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	0	440	893	1022	1357	0	0	0	0	299	0	263
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	440	893	1022	1357	0	0	0	0	299	0	263
Turn Type		NA	Perm	Prot	NA					Prot		Prot
Protected Phases		6		5	2					8		8
Permitted Phases			6									8
Detector Phase		6	6	5	2					8		8
Switch Phase												
Minimum Initial (s)		17.0	17.0	6.0	17.0					7.0		7.0
Minimum Split (s)		24.1	24.1	13.1	24.1					15.0		15.0
Total Split (s)		40.0	40.0	80.0	120.0					30.0		30.0
Total Split (%)		26.7%	26.7%	53.3%	80.0%					20.0%		20.0%
Yellow Time (s)		5.1	5.1	5.1	5.1					5.1		5.1
All-Red Time (s)		2.0	2.0	2.0	2.0					2.9		2.9
Lost Time Adjust (s)		0.0	0.0	0.0	0.0					0.0		0.0
Total Lost Time (s)		7.1	7.1	7.1	7.1					8.0		8.0
Lead/Lag		Lead	Lead	Lag								
Lead-Lag Optimize?		Yes	Yes	Yes								
Recall Mode		C-Min	C-Min	None	C-Min					None		None
v/c Ratio		0.55	1.51	1.20	0.50					0.67		0.89
Control Delay		30.6	256.7	123.7	4.6					69.3		70.4
Queue Delay		0.0	0.0	0.0	0.0					0.0		0.0
Total Delay		30.6	256.7	123.7	4.6					69.3		70.4
Queue Length 50th (ft)		164	~999	~1207	108					143		161
Queue Length 95th (ft)		203	#1202	m#1411	m202					192		#302
Internal Link Dist (ft)		2846			1605			330			679	
Turn Bay Length (ft)			500							550		550
Base Capacity (vph)		807	593	851	2693					503		317
Starvation Cap Reductn		0	0	0	0					0		0
Spillback Cap Reductn		0	0	0	0					0		0
Storage Cap Reductn		0	0	0	0					0		0
Reduced v/c Ratio		0.55	1.51	1.20	0.50					0.59		0.83

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 138 (92%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow

Natural Cycle: 140

Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

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

Splits and Phases: 3: SR 472 & I-4



HCM 6th Signalized Intersection Summary
3: SR 472 & I-4

2020 Buildout Conditions
Timing Plan: AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↓	↑↑					↓↓		↓
Traffic Volume (veh/h)	0	392	795	910	1208	0	0	0	0	266	0	234
Future Volume (veh/h)	0	392	795	910	1208	0	0	0	0	266	0	234
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1826	1826	1856	1856	0				1870	0	1870
Adj Flow Rate, veh/h	0	440	0	1022	1357	0				299	0	59
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89				0.89	0.89	0.89
Percent Heavy Veh, %	0	5	5	3	3	0				2	0	2
Cap, veh/h	0	519		1059	2807	0				356	0	163
Arrive On Green	0.00	0.15	0.00	1.00	1.00	0.00				0.10	0.00	0.10
Sat Flow, veh/h	0	3561	1547	1767	3618	0				3456	0	1585
Grp Volume(v), veh/h	0	440	0	1022	1357	0				299	0	59
Grp Sat Flow(s),veh/h/ln	0	1735	1547	1767	1763	0				1728	0	1585
Q Serve(g_s), s	0.0	18.5	0.0	0.0	0.0	0.0				12.7	0.0	5.2
Cycle Q Clear(g_c), s	0.0	18.5	0.0	0.0	0.0	0.0				12.7	0.0	5.2
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	519		1059	2807	0				356	0	163
V/C Ratio(X)	0.00	0.85		0.97	0.48	0.00				0.84	0.00	0.36
Avail Cap(c_a), veh/h	0	761		1059	2807	0				507	0	232
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.64	0.00	0.42	0.42	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	62.1	0.0	0.0	0.0	0.0				66.0	0.0	62.7
Incr Delay (d2), s/veh	0.0	10.6	0.0	11.0	0.3	0.0				8.4	0.0	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	8.7	0.0	3.2	0.1	0.0				5.9	0.0	2.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	72.7	0.0	11.0	0.3	0.0				74.5	0.0	64.0
LnGrp LOS	A	E		B	A	A				E	A	E
Approach Vol, veh/h		440	A		2379						358	
Approach Delay, s/veh		72.7			4.9						72.8	
Approach LOS		E			A						E	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		126.5			97.0	29.6		23.5				
Change Period (Y+Rc), s		7.1			7.1	7.1		8.0				
Max Green Setting (Gmax), s		112.9			72.9	32.9		22.0				
Max Q Clear Time (g_c+I1), s		2.0			2.0	20.5		14.7				
Green Ext Time (p_c), s		13.1			4.6	1.9		0.7				
Intersection Summary												
HCM 6th Ctrl Delay			21.9									
HCM 6th LOS			C									
Notes												
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.												

Lanes, Volumes, Timings
4: I-4 & Howland Blvd

2020 Buildout Conditions
Timing Plan: AM Peak Hour

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↗		↑↑↑	↘↘	↗
Traffic Volume (vph)	458	149	0	2170	879	333
Future Volume (vph)	458	149	0	2170	879	333
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	8%	8%	4%	4%	7%	7%
Adj. Flow (vph)	503	164	0	2385	966	366
Shared Lane Traffic (%)						
Lane Group Flow (vph)	503	164	0	2385	966	366
Turn Type	NA	Perm		NA	Prot	Perm
Protected Phases	2			6	4	
Permitted Phases		2				4
Detector Phase	2	2		6	4	4
Switch Phase						
Minimum Initial (s)	17.0	17.0		7.0	7.0	7.0
Minimum Split (s)	24.5	24.5		14.2	14.2	14.2
Total Split (s)	96.0	96.0		96.0	54.0	54.0
Total Split (%)	64.0%	64.0%		64.0%	36.0%	36.0%
Yellow Time (s)	5.5	5.5		4.8	4.8	4.8
All-Red Time (s)	2.0	2.0		2.4	2.4	2.4
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	7.5	7.5		7.2	7.2	7.2
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	Min	Min		C-Max	None	None
v/c Ratio	0.25	0.17		0.81	0.95	0.51
Control Delay	22.9	12.1		15.9	68.9	6.4
Queue Delay	0.0	0.0		0.0	0.0	0.0
Total Delay	22.9	12.1		15.9	68.9	6.4
Queue Length 50th (ft)	266	68		328	476	3
Queue Length 95th (ft)	323	156		364	#609	82
Internal Link Dist (ft)	1605			1373	1105	
Turn Bay Length (ft)		620				1000
Base Capacity (vph)	1976	951		2959	1021	719
Starvation Cap Reductn	0	0		0	0	0
Spillback Cap Reductn	0	0		0	0	0
Storage Cap Reductn	0	0		0	0	0
Reduced v/c Ratio	0.25	0.17		0.81	0.95	0.51

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 74 (49%), Referenced to phase 6:WBT, Start of Yellow

Natural Cycle: 90

Control Type: Actuated-Coordinated

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

Queue shown is maximum after two cycles.

Splits and Phases: 4: I-4 & Howland Blvd

→ Ø2	↖ Ø4
96 s	54 s
← Ø6 (R)	
96 s	

HCM 6th Signalized Intersection Summary
4: I-4 & Howland Blvd

2020 Buildout Conditions
Timing Plan: AM Peak Hour

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↗		↑↑↑	↖↗	↗
Traffic Volume (veh/h)	458	149	0	2170	879	333
Future Volume (veh/h)	458	149	0	2170	879	333
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1781	1781	0	1841	1796	1796
Adj Flow Rate, veh/h	503	0	0	2385	966	0
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	8	8	0	4	7	7
Cap, veh/h	2004		0	2975	1016	
Arrive On Green	1.00	0.00	0.00	0.59	0.31	0.00
Sat Flow, veh/h	3474	1510	0	5356	3319	1522
Grp Volume(v), veh/h	503	0	0	2385	966	0
Grp Sat Flow(s),veh/h/ln	1692	1510	0	1675	1659	1522
Q Serve(g_s), s	0.0	0.0	0.0	55.3	42.7	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	55.3	42.7	0.0
Prop In Lane		1.00	0.00		1.00	1.00
Lane Grp Cap(c), veh/h	2004		0	2975	1016	
V/C Ratio(X)	0.25		0.00	0.80	0.95	
Avail Cap(c_a), veh/h	2004		0	2975	1035	
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.77	0.00	0.00	0.32	1.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	23.8	51.0	0.0
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.8	17.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	20.2	19.7	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.1	0.0	0.0	24.5	68.4	0.0
LnGrp LOS	A		A	C	E	
Approach Vol, veh/h	503	A		2385	966	A
Approach Delay, s/veh	0.1			24.5	68.4	
Approach LOS	A			C	E	
Timer - Assigned Phs	2			4		6
Phs Duration (G+Y+Rc), s	96.3			53.1		96.3
Change Period (Y+Rc), s	7.5			* 7.2		* 7.5
Max Green Setting (Gmax), s	88.5			* 47		* 89
Max Q Clear Time (g_c+I1), s	2.0			44.7		57.3
Green Ext Time (p_c), s	4.9			1.2		26.9
Intersection Summary						
HCM 6th Ctrl Delay			32.3			
HCM 6th LOS			C			
Notes						
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.						
Unsignalized Delay for [NBR, EBR] is excluded from calculations of the approach delay and intersection delay.						

Lanes, Volumes, Timings
5: S Volusia Ave/N Volusia Ave & E Graves Ave

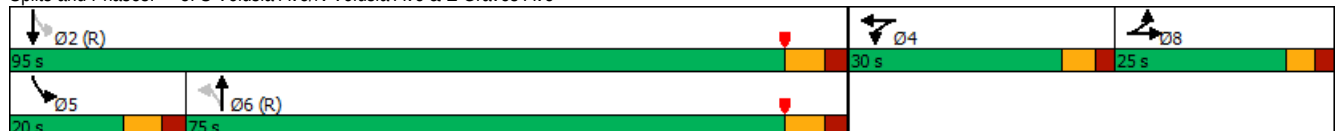
2020 Buildout Conditions
Timing Plan: AM Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	24	50	34	115	46	95	6	805	62	65	1026	8
Future Volume (vph)	24	50	34	115	46	95	6	805	62	65	1026	8
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	5%	5%	5%	7%	7%	7%
Adj. Flow (vph)	26	54	37	125	50	103	7	875	67	71	1115	9
Shared Lane Traffic (%)												
Lane Group Flow (vph)	26	91	0	125	153	0	7	942	0	71	1124	0
Turn Type	Split	NA		Split	NA		Perm	NA		pm+pt	NA	
Protected Phases	8	8		4	4			6		5	2	
Permitted Phases							6			2		
Detector Phase	8	8		4	4		6	6		5	2	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		15.0	15.0		5.0	15.0	
Minimum Split (s)	15.7	15.7		15.9	15.9		22.3	22.3		12.2	22.3	
Total Split (s)	25.0	25.0		30.0	30.0		75.0	75.0		20.0	95.0	
Total Split (%)	16.7%	16.7%		20.0%	20.0%		50.0%	50.0%		13.3%	63.3%	
Yellow Time (s)	3.4	3.4		3.8	3.8		4.5	4.5		4.4	4.5	
All-Red Time (s)	2.3	2.3		2.1	2.1		2.8	2.8		2.8	2.8	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.7	5.7		5.9	5.9		7.3	7.3		7.2	7.3	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?							Yes	Yes		Yes		
Recall Mode	None	None		None	None		C-Min	C-Min		None	C-Min	
v/c Ratio	0.18	0.57		0.67	0.67		0.03	0.47		0.21	0.49	
Control Delay	65.6	65.5		81.5	53.0		11.8	12.4		10.5	12.9	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	65.6	65.5		81.5	53.0		11.8	12.4		10.5	12.9	
Queue Length 50th (ft)	24	69		120	89		2	153		21	249	
Queue Length 95th (ft)	55	127		185	163		m4	150		48	376	
Internal Link Dist (ft)		249			1033			5260			358	
Turn Bay Length (ft)							245			280		
Base Capacity (vph)	225	239		281	315		265	1992		387	2307	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.12	0.38		0.44	0.49		0.03	0.47		0.18	0.49	

Intersection Summary

Cycle Length: 150
Actuated Cycle Length: 150
Offset: 24 (16%), Referenced to phase 2:SBTL and 6:NBTL, Start of Yellow
Natural Cycle: 75
Control Type: Actuated-Coordinated
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 5: S Volusia Ave/N Volusia Ave & E Graves Ave



HCM 6th Signalized Intersection Summary
5: S Volusia Ave/N Volusia Ave & E Graves Ave

2020 Buildout Conditions
Timing Plan: AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	24	50	34	115	46	95	6	805	62	65	1026	8
Future Volume (veh/h)	24	50	34	115	46	95	6	805	62	65	1026	8
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1826	1826	1826	1796	1796	1796
Adj Flow Rate, veh/h	26	54	20	125	50	48	7	875	60	71	1115	8
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	5	5	5	7	7	7
Cap, veh/h	116	85	31	154	76	73	337	2113	145	397	2505	18
Arrive On Green	0.07	0.07	0.07	0.09	0.09	0.09	0.64	0.64	0.64	0.03	0.72	0.72
Sat Flow, veh/h	1767	1291	478	1767	870	835	490	3294	226	1711	3473	25
Grp Volume(v), veh/h	26	0	74	125	0	98	7	461	474	71	548	575
Grp Sat Flow(s),veh/h/ln	1767	0	1769	1767	0	1705	490	1735	1785	1711	1706	1792
Q Serve(g_s), s	2.1	0.0	6.1	10.4	0.0	8.3	0.9	19.4	19.4	2.0	19.8	19.8
Cycle Q Clear(g_c), s	2.1	0.0	6.1	10.4	0.0	8.3	8.7	19.4	19.4	2.0	19.8	19.8
Prop In Lane	1.00		0.27	1.00		0.49	1.00		0.13	1.00		0.01
Lane Grp Cap(c), veh/h	116	0	116	154	0	149	337	1113	1145	397	1231	1292
V/C Ratio(X)	0.22	0.00	0.64	0.81	0.00	0.66	0.02	0.41	0.41	0.18	0.45	0.45
Avail Cap(c_a), veh/h	227	0	228	284	0	274	337	1113	1145	488	1231	1292
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.85	0.85	0.85	1.00	1.00	1.00
Uniform Delay (d), s/veh	66.5	0.0	68.3	67.2	0.0	66.3	12.8	13.1	13.1	9.4	8.6	8.6
Incr Delay (d2), s/veh	1.0	0.0	5.7	9.7	0.0	4.9	0.1	1.0	0.9	0.2	1.2	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.0	3.0	5.1	0.0	3.9	0.1	7.6	7.8	0.7	7.1	7.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	67.4	0.0	74.0	77.0	0.0	71.2	12.9	14.1	14.1	9.7	9.8	9.7
LnGrp LOS	E	A	E	E	A	E	B	B	B	A	A	A
Approach Vol, veh/h	100			223			942			1194		
Approach Delay, s/veh	72.3			74.4			14.1			9.7		
Approach LOS	E			E			B			A		
Timer - Assigned Phs	2			4		5	6		8			
Phs Duration (G+Y+Rc), s	115.5			19.0		11.9	103.5		15.5			
Change Period (Y+Rc), s	* 7.3			* 5.9		* 7.2	* 7.3		5.7			
Max Green Setting (Gmax), s	* 88			* 24		* 13	* 68		19.3			
Max Q Clear Time (g_c+I1), s	21.8			12.4		4.0	21.4		8.1			
Green Ext Time (p_c), s	9.0			0.7		0.1	6.8		0.3			

Intersection Summary

HCM 6th Ctrl Delay 19.8
HCM 6th LOS B

Notes

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

Lanes, Volumes, Timings
6: Veterans Memorial Pkwy & E Graves Ave

2020 Buildout Conditions
Timing Plan: AM Peak Hour

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗	↘	↑	↘	↗
Traffic Volume (vph)	239	35	810	344	51	538
Future Volume (vph)	239	35	810	344	51	538
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	6%	6%	6%	6%	12%	12%
Adj. Flow (vph)	260	38	880	374	55	585
Shared Lane Traffic (%)						
Lane Group Flow (vph)	260	38	880	374	55	585
Turn Type	NA	Perm	pm+pt	NA	Prot	pm+ov
Protected Phases	2		1	6	8	1
Permitted Phases		2	6			8
Detector Phase	2	2	1	6	8	1
Switch Phase						
Minimum Initial (s)	11.0	11.0	7.0	11.0	7.0	7.0
Minimum Split (s)	18.0	18.0	14.0	18.0	14.0	14.0
Total Split (s)	20.0	20.0	41.0	61.0	14.0	41.0
Total Split (%)	26.7%	26.7%	54.7%	81.3%	18.7%	54.7%
Yellow Time (s)	4.5	4.5	4.5	4.5	5.0	4.5
All-Red Time (s)	2.5	2.5	2.5	2.5	2.0	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag	Lag	Lag	Lead			Lead
Lead-Lag Optimize?	Yes	Yes	Yes			Yes
Recall Mode	Min	Min	None	Min	None	None
v/c Ratio	0.72	0.11	0.91	0.25	0.30	0.66
Control Delay	41.7	10.7	25.7	3.4	36.0	10.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.7	10.7	25.7	3.4	36.0	10.1
Queue Length 50th (ft)	118	0	273	49	25	96
Queue Length 95th (ft)	#241	24	#545	80	59	184
Internal Link Dist (ft)	7674			1636	7026	
Turn Bay Length (ft)		400	300		1000	
Base Capacity (vph)	375	349	1067	1489	181	1003
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.69	0.11	0.82	0.25	0.30	0.58

Intersection Summary

Cycle Length: 75

Actuated Cycle Length: 64.9

Natural Cycle: 80

Control Type: Actuated-Uncoordinated

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

Queue shown is maximum after two cycles.

Splits and Phases: 6: Veterans Memorial Pkwy & E Graves Ave



HCM 6th Signalized Intersection Summary
6: Veterans Memorial Pkwy & E Graves Ave

2020 Buildout Conditions
Timing Plan: AM Peak Hour

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗	↘	↑	↘	↗
Traffic Volume (veh/h)	239	35	810	344	51	538
Future Volume (veh/h)	239	35	810	344	51	538
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1811	1811	1811	1811	1722	1722
Adj Flow Rate, veh/h	260	16	880	374	55	420
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	6	6	6	6	12	12
Cap, veh/h	305	258	908	1296	156	798
Arrive On Green	0.17	0.17	0.45	0.72	0.09	0.09
Sat Flow, veh/h	1811	1535	1725	1811	1640	1459
Grp Volume(v), veh/h	260	16	880	374	55	420
Grp Sat Flow(s),veh/h/ln	1811	1535	1725	1811	1640	1459
Q Serve(g_s), s	10.3	0.6	30.9	5.5	2.3	7.0
Cycle Q Clear(g_c), s	10.3	0.6	30.9	5.5	2.3	7.0
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	305	258	908	1296	156	798
V/C Ratio(X)	0.85	0.06	0.97	0.29	0.35	0.53
Avail Cap(c_a), veh/h	319	270	923	1326	156	798
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.8	25.8	13.4	3.8	31.3	10.6
Incr Delay (d2), s/veh	19.6	0.1	22.1	0.2	1.4	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.8	0.2	14.0	1.1	0.9	3.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	49.4	25.9	35.6	3.9	32.6	11.3
LnGrp LOS	D	C	D	A	C	B
Approach Vol, veh/h	276			1254	475	
Approach Delay, s/veh	48.0			26.1	13.7	
Approach LOS	D			C	B	
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	40.4	19.4			59.8	14.0
Change Period (Y+Rc), s	7.0	7.0			7.0	7.0
Max Green Setting (Gmax), s	34.0	13.0			54.0	7.0
Max Q Clear Time (g_c+I1), s	32.9	12.3			7.5	9.0
Green Ext Time (p_c), s	0.5	0.1			3.4	0.0
Intersection Summary						
HCM 6th Ctrl Delay			26.2			
HCM 6th LOS			C			

Lanes, Volumes, Timings
7: S Kentucky Ave/N Kentucky Ave & E Graves Ave

2020 Buildout Conditions
Timing Plan: AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	201	614	8	11	862	486	17	12	5	380	7	339
Future Volume (vph)	201	614	8	11	862	486	17	12	5	380	7	339
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	11%	11%	11%	4%	4%	4%	2%	2%	2%	6%	6%	6%
Adj. Flow (vph)	231	706	9	13	991	559	20	14	6	437	8	390
Shared Lane Traffic (%)												
Lane Group Flow (vph)	231	715	0	13	1550	0	0	40	0	437	398	0
Turn Type	Prot	NA		Perm	NA		Split	NA		Split	NA	
Protected Phases	5	2			6		4	4		8	8	
Permitted Phases				6								
Detector Phase	5	2		6	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	5.0	11.0		11.0	11.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	11.0	18.0		18.0	18.0		14.0	14.0		14.0	14.0	
Total Split (s)	28.0	91.0		63.0	63.0		20.0	20.0		29.0	29.0	
Total Split (%)	20.0%	65.0%		45.0%	45.0%		14.3%	14.3%		20.7%	20.7%	
Yellow Time (s)	4.0	5.0		5.0	5.0		4.0	4.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		3.0	3.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Lead/Lag	Lead			Lag	Lag							
Lead-Lag Optimize?	Yes			Yes	Yes							
Recall Mode	None	Min		Min	Min		None	None		None	None	
v/c Ratio	0.89	0.35		0.04	1.06		0.33			0.83	0.70	
Control Delay	87.6	12.4		25.2	74.4		62.1			67.9	12.6	
Queue Delay	0.0	0.0		0.0	0.0		0.0			0.0	0.0	
Total Delay	87.6	12.4		25.2	74.4		62.1			67.9	12.6	
Queue Length 50th (ft)	200	150		7	~782		30			193	6	
Queue Length 95th (ft)	#340	191		21	#901		67			#255	91	
Internal Link Dist (ft)		1636			3200		455				4140	
Turn Bay Length (ft)	200			235						320		
Base Capacity (vph)	275	2100		299	1469		182			559	583	
Starvation Cap Reductn	0	0		0	0		0			0	0	
Spillback Cap Reductn	0	0		0	0		0			0	0	
Storage Cap Reductn	0	0		0	0		0			0	0	
Reduced v/c Ratio	0.84	0.34		0.04	1.06		0.22			0.78	0.68	

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 130.8

Natural Cycle: 120

Control Type: Actuated-Uncoordinated

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

Splits and Phases: 7: S Kentucky Ave/N Kentucky Ave & E Graves Ave



HCM 6th Signalized Intersection Summary
 7: S Kentucky Ave/N Kentucky Ave & E Graves Ave

2020 Buildout Conditions
 Timing Plan: AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	201	614	8	11	862	486	17	12	5	380	7	339
Future Volume (veh/h)	201	614	8	11	862	486	17	12	5	380	7	339
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1737	1737	1737	1841	1841	1841	1870	1870	1870	1811	1811	1811
Adj Flow Rate, veh/h	231	706	9	13	991	434	20	14	3	437	8	208
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	11	11	11	4	4	4	2	2	2	6	6	6
Cap, veh/h	255	2127	27	372	1038	447	39	27	6	531	9	236
Arrive On Green	0.15	0.64	0.64	0.44	0.44	0.44	0.04	0.04	0.04	0.16	0.16	0.16
Sat Flow, veh/h	1654	3337	43	724	2379	1025	971	679	146	3346	57	1486
Grp Volume(v), veh/h	231	349	366	13	724	701	37	0	0	437	0	216
Grp Sat Flow(s),veh/h/ln	1654	1650	1729	724	1749	1656	1796	0	0	1673	0	1544
Q Serve(g_s), s	17.6	12.5	12.5	1.3	51.0	52.9	2.6	0.0	0.0	16.2	0.0	17.5
Cycle Q Clear(g_c), s	17.6	12.5	12.5	1.3	51.0	52.9	2.6	0.0	0.0	16.2	0.0	17.5
Prop In Lane	1.00		0.02	1.00		0.62	0.54		0.08	1.00		0.96
Lane Grp Cap(c), veh/h	255	1052	1102	372	763	723	72	0	0	531	0	245
V/C Ratio(X)	0.91	0.33	0.33	0.03	0.95	0.97	0.51	0.00	0.00	0.82	0.00	0.88
Avail Cap(c_a), veh/h	284	1083	1135	373	765	725	182	0	0	575	0	265
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	53.2	10.7	10.7	20.7	34.7	35.2	60.2	0.0	0.0	52.1	0.0	52.7
Incr Delay (d2), s/veh	28.7	0.3	0.2	0.1	21.1	26.1	5.6	0.0	0.0	8.9	0.0	26.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.2	4.2	4.4	0.2	24.9	25.3	1.3	0.0	0.0	7.3	0.0	8.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	81.9	10.9	10.9	20.8	55.8	61.4	65.8	0.0	0.0	61.0	0.0	78.9
LnGrp LOS	F	B	B	C	E	E	E	A	A	E	A	E
Approach Vol, veh/h	946			1438			37			653		
Approach Delay, s/veh	28.3			58.2			65.8			66.9		
Approach LOS	C			E			E			E		
Timer - Assigned Phs	2			4		5	6		8			
Phs Duration (G+Y+Rc), s	88.6			12.1		25.7	62.9		27.3			
Change Period (Y+Rc), s	7.0			7.0		6.0	7.0		7.0			
Max Green Setting (Gmax), s	84.0			13.0		22.0	56.0		22.0			
Max Q Clear Time (g_c+I1), s	14.5			4.6		19.6	54.9		19.5			
Green Ext Time (p_c), s	7.0			0.1		0.2	0.9		0.8			
Intersection Summary												
HCM 6th Ctrl Delay	50.9											
HCM 6th LOS	D											

Lanes, Volumes, Timings
8: N Normandy Blvd & E Graves Ave

2020 Buildout Conditions
Timing Plan: AM Peak Hour

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↘↙	↑	↘↙	↑
Traffic Volume (vph)	450	783	626	617	703	608
Future Volume (vph)	450	783	626	617	703	608
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	10%	10%	5%	5%	2%	2%
Adj. Flow (vph)	489	851	680	671	764	661
Shared Lane Traffic (%)						
Lane Group Flow (vph)	489	851	680	671	764	661
Turn Type	NA	pm+ov	Prot	NA	Prot	Perm
Protected Phases	6	4	5	2	4	
Permitted Phases		6				4
Detector Phase	6	4	5	2	4	4
Switch Phase						
Minimum Initial (s)	12.0	7.0	5.0	12.0	7.0	7.0
Minimum Split (s)	19.0	13.0	12.0	19.0	13.0	13.0
Total Split (s)	27.0	37.0	26.0	53.0	37.0	37.0
Total Split (%)	30.0%	41.1%	28.9%	58.9%	41.1%	41.1%
Yellow Time (s)	5.0	4.0	5.0	5.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	6.0	7.0	7.0	6.0	6.0
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Recall Mode	Min	None	None	Min	None	None
v/c Ratio	0.73	0.91	0.94	0.74	0.64	0.72
Control Delay	39.6	29.4	57.8	23.4	27.0	9.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.6	29.4	57.8	23.4	27.0	9.5
Queue Length 50th (ft)	134	359	198	282	186	39
Queue Length 95th (ft)	188	#674	#310	420	247	165
Internal Link Dist (ft)	3200			471	1184	
Turn Bay Length (ft)		630	400		200	
Base Capacity (vph)	750	942	724	952	1216	923
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.65	0.90	0.94	0.70	0.63	0.72

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 87.6

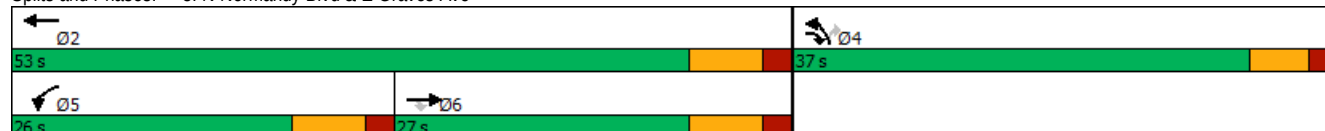
Natural Cycle: 80

Control Type: Actuated-Uncoordinated

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

Queue shown is maximum after two cycles.

Splits and Phases: 8: N Normandy Blvd & E Graves Ave



HCM 6th Signalized Intersection Summary
8: N Normandy Blvd & E Graves Ave

2020 Buildout Conditions
Timing Plan: AM Peak Hour

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↘↙	↑	↘↙	↑
Traffic Volume (veh/h)	450	783	626	617	703	608
Future Volume (veh/h)	450	783	626	617	703	608
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1752	1752	1826	1826	1870	1870
Adj Flow Rate, veh/h	489	851	680	671	764	252
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	10	10	5	5	2	2
Cap, veh/h	836	776	763	1032	939	431
Arrive On Green	0.25	0.25	0.23	0.57	0.27	0.27
Sat Flow, veh/h	3416	1485	3374	1826	3456	1585
Grp Volume(v), veh/h	489	851	680	671	764	252
Grp Sat Flow(s),veh/h/ln	1664	1485	1687	1826	1728	1585
Q Serve(g_s), s	10.3	20.0	15.6	20.1	16.5	11.0
Cycle Q Clear(g_c), s	10.3	20.0	15.6	20.1	16.5	11.0
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	836	776	763	1032	939	431
V/C Ratio(X)	0.59	1.10	0.89	0.65	0.81	0.59
Avail Cap(c_a), veh/h	836	776	805	1055	1345	617
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.2	13.8	29.9	11.9	27.1	25.1
Incr Delay (d2), s/veh	1.3	61.9	11.8	1.6	2.6	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.9	27.7	7.0	6.9	6.5	0.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	27.5	75.8	41.7	13.5	29.7	26.4
LnGrp LOS	C	F	D	B	C	C
Approach Vol, veh/h	1340			1351	1016	
Approach Delay, s/veh	58.1			27.7	28.9	
Approach LOS	E			C	C	
Timer - Assigned Phs	2			4	5	6
Phs Duration (G+Y+Rc), s	52.0			27.6	25.0	27.0
Change Period (Y+Rc), s	7.0			6.0	7.0	7.0
Max Green Setting (Gmax), s	46.0			31.0	19.0	20.0
Max Q Clear Time (g_c+I1), s	22.1			18.5	17.6	22.0
Green Ext Time (p_c), s	6.3			3.2	0.4	0.0
Intersection Summary						
HCM 6th Ctrl Delay			39.0			
HCM 6th LOS			D			

Lanes, Volumes, Timings
9: E Graves Ave & Howland Blvd

2020 Buildout Conditions
Timing Plan: AM Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↑	↔↔	↔↔	↑	↔↔	↔↔	↑↑	↔	↔↔	↑↑↑	↔
Traffic Volume (vph)	536	62	518	19	51	122	710	1802	13	75	670	213
Future Volume (vph)	536	62	518	19	51	122	710	1802	13	75	670	213
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	6%	6%	6%	4%	4%	4%	3%	3%	3%	8%	8%	8%
Adj. Flow (vph)	583	67	563	21	55	133	772	1959	14	82	728	232
Shared Lane Traffic (%)												
Lane Group Flow (vph)	583	67	563	21	55	133	772	1959	14	82	960	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	5.0	17.0	17.0	7.0	17.0	
Minimum Split (s)	15.0	15.0	15.0	14.5	14.5	14.5	12.0	24.5	24.5	14.0	24.5	
Total Split (s)	35.4	33.1	33.1	16.9	14.6	14.6	46.0	86.0	86.0	14.0	54.0	
Total Split (%)	23.6%	22.1%	22.1%	11.3%	9.7%	9.7%	30.7%	57.3%	57.3%	9.3%	36.0%	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.5	5.5	5.0	5.5	
All-Red Time (s)	3.0	3.0	3.0	2.5	2.5	2.5	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	8.0	8.0	8.0	7.5	7.5	7.5	7.0	7.5	7.5	7.0	7.5	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	None	None	None	None	None	None	C-Min	C-Min	None	C-Min	
v/c Ratio	0.97	0.17	0.78	0.13	0.64	0.43	0.92	1.07	0.02	0.54	0.63	
Control Delay	98.3	65.9	35.4	78.2	53.4	3.1	71.0	76.6	0.0	83.6	43.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	98.3	65.9	35.4	78.2	53.4	3.1	71.0	76.6	0.0	83.6	43.0	
Queue Length 50th (ft)	303	62	260	9	51	2	375	~1112	0	41	281	
Queue Length 95th (ft)	#422	110	322	m9	m47	m0	#465	#1245	0	71	334	
Internal Link Dist (ft)		1373			8563			569			283	
Turn Bay Length (ft)	330			565			280			185		
Base Capacity (vph)	603	396	724	210	86	308	884	1834	915	151	1529	
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.97	0.17	0.78	0.10	0.64	0.43	0.87	1.07	0.02	0.54	0.63	

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 82 (55%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow

Natural Cycle: 150

Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 9: E Graves Ave & Howland Blvd



HCM 6th Signalized Intersection Summary
9: E Graves Ave & Howland Blvd

2020 Buildout Conditions
Timing Plan: AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	536	62	518	19	51	122	710	1802	13	75	670	213
Future Volume (veh/h)	536	62	518	19	51	122	710	1802	13	75	670	213
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1811	1811	1811	1841	1841	1841	1856	1856	1856	1781	1781	1781
Adj Flow Rate, veh/h	583	67	0	21	55	30	772	1959	13	82	728	199
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	6	6	6	4	4	4	3	3	3	8	8	8
Cap, veh/h	611	337		159	86	73	829	2142	955	154	1570	424
Arrive On Green	0.18	0.19	0.00	0.05	0.05	0.05	0.24	0.61	0.61	0.05	0.41	0.41
Sat Flow, veh/h	3346	1811	1535	3401	1841	1560	3428	3526	1572	3291	3809	1029
Grp Volume(v), veh/h	583	67	0	21	55	30	772	1959	13	82	618	309
Grp Sat Flow(s),veh/h/ln	1673	1811	1535	1700	1841	1560	1714	1763	1572	1646	1621	1596
Q Serve(g_s), s	25.9	4.7	0.0	0.9	4.4	2.8	33.0	73.6	0.5	3.7	20.8	21.1
Cycle Q Clear(g_c), s	25.9	4.7	0.0	0.9	4.4	2.8	33.0	73.6	0.5	3.7	20.8	21.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.64
Lane Grp Cap(c), veh/h	611	337		159	86	73	829	2142	955	154	1337	658
V/C Ratio(X)	0.95	0.20		0.13	0.64	0.41	0.93	0.91	0.01	0.53	0.46	0.47
Avail Cap(c_a), veh/h	611	337		213	87	74	891	2142	955	154	1337	658
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.94	0.94	0.00	0.09	0.09	0.09	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	60.7	51.6	0.0	68.6	70.3	69.5	55.6	26.0	11.6	69.9	32.0	32.1
Incr Delay (d2), s/veh	24.4	0.3	0.0	0.0	1.4	0.3	15.4	7.5	0.0	3.6	1.2	2.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.8	2.1	0.0	0.4	2.1	1.1	16.0	31.4	0.2	1.6	8.5	8.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	85.1	51.9	0.0	68.6	71.7	69.8	71.0	33.5	11.7	73.5	33.2	34.5
LnGrp LOS	F	D		E	E	E	E	C	B	E	C	C
Approach Vol, veh/h	650			106			2744			1009		
Approach Delay, s/veh	81.6			70.6			44.0			36.9		
Approach LOS	F			E			D			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	14.0	98.9	14.5	35.9	43.3	69.6	35.4	15.0				
Change Period (Y+Rc), s	7.0	7.5	7.5	8.0	7.0	7.5	8.0	* 8				
Max Green Setting (Gmax), s	7.0	78.5	9.4	25.1	39.0	46.5	27.4	* 7.1				
Max Q Clear Time (g_c+I1), s	5.7	75.6	2.9	6.7	35.0	23.1	27.9	6.4				
Green Ext Time (p_c), s	0.0	2.7	0.0	0.2	1.2	9.2	0.0	0.0				

Intersection Summary												
HCM 6th Ctrl Delay	48.4											
HCM 6th LOS	D											

Notes
 * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
 Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
10: Catalina Blvd & Howland Blvd

2020 Buildout Conditions
Timing Plan: AM Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	233	678	59	31	1348	11	142	23	13	39	35	628
Future Volume (vph)	233	678	59	31	1348	11	142	23	13	39	35	628
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
Heavy Vehicles (%)	7%	7%	7%	4%	4%	4%	4%	4%	4%	2%	2%	2%
Adj. Flow (vph)	245	714	62	33	1419	12	149	24	14	41	37	661
Shared Lane Traffic (%)												
Lane Group Flow (vph)	245	776	0	33	1431	0	149	38	0	41	37	661
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		Perm	NA	Perm
Protected Phases	1	6		5	2		7	4			8	
Permitted Phases	6			2			4			8		8
Detector Phase	1	6		5	2		7	4		8	8	8
Switch Phase												
Minimum Initial (s)	5.0	11.0		5.0	11.0		5.0	7.0		7.0	7.0	7.0
Minimum Split (s)	13.5	19.5		13.5	19.5		12.0	14.0		14.0	14.0	14.0
Total Split (s)	26.0	71.0		18.0	63.0		25.0	61.0		36.0	36.0	36.0
Total Split (%)	17.3%	47.3%		12.0%	42.0%		16.7%	40.7%		24.0%	24.0%	24.0%
Yellow Time (s)	5.0	5.0		5.0	5.0		4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	3.5	3.5		3.5	3.5		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)	8.5	8.5		8.5	8.5		7.0	7.0		7.0	7.0	7.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead			Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes			Yes	Yes	Yes
Recall Mode	None	C-Min		None	C-Min		None	None		None	None	None
v/c Ratio	1.01	0.51		0.11	1.14		0.32	0.06		0.15	0.10	1.27
Control Delay	106.6	27.1		18.5	114.5		35.9	22.5		51.9	50.6	164.3
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	106.6	27.1		18.5	114.5		35.9	22.5		51.9	50.6	164.3
Queue Length 50th (ft)	~191	268		15	~856		102	15		34	30	~623
Queue Length 95th (ft)	#386	331		33	#998		159	42		72	64	#870
Internal Link Dist (ft)		8563			1815			941			4969	
Turn Bay Length (ft)	375			270			180			235		415
Base Capacity (vph)	243	1513		329	1260		470	630		279	381	521
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	1.01	0.51		0.10	1.14		0.32	0.06		0.15	0.10	1.27

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

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

Natural Cycle: 150

Control Type: Actuated-Coordinated

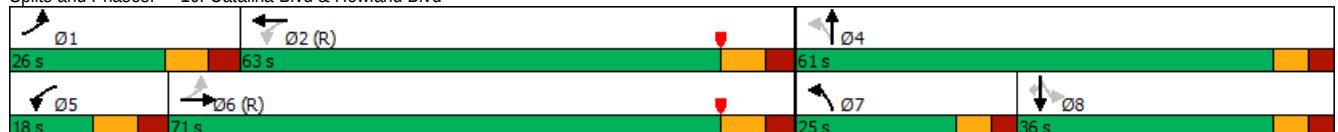
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

Splits and Phases: 10: Catalina Blvd & Howland Blvd



HCM 6th Signalized Intersection Summary
10: Catalina Blvd & Howland Blvd

2020 Buildout Conditions
Timing Plan: AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	233	678	59	31	1348	11	142	23	13	39	35	628
Future Volume (veh/h)	233	678	59	31	1348	11	142	23	13	39	35	628
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1796	1796	1796	1841	1841	1841	1841	1841	1841	1870	1870	1870
Adj Flow Rate, veh/h	245	714	59	33	1419	12	149	24	9	41	37	292
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, %	7	7	7	4	4	4	4	4	4	2	2	2
Cap, veh/h	250	1578	130	331	1431	12	372	409	153	314	362	306
Arrive On Green	0.12	0.49	0.49	0.02	0.40	0.40	0.08	0.32	0.32	0.19	0.19	0.19
Sat Flow, veh/h	1711	3192	264	1753	3554	30	1753	1276	479	1376	1870	1585
Grp Volume(v), veh/h	245	382	391	33	698	733	149	0	33	41	37	292
Grp Sat Flow(s),veh/h/ln	1711	1706	1749	1753	1749	1835	1753	0	1755	1376	1870	1585
Q Serve(g_s), s	17.0	21.8	21.9	1.6	59.5	59.6	9.9	0.0	2.0	3.7	2.4	27.3
Cycle Q Clear(g_c), s	17.0	21.8	21.9	1.6	59.5	59.6	9.9	0.0	2.0	3.7	2.4	27.3
Prop In Lane	1.00		0.15	1.00		0.02	1.00		0.27	1.00		1.00
Lane Grp Cap(c), veh/h	250	844	865	331	704	739	372	0	562	314	362	306
V/C Ratio(X)	0.98	0.45	0.45	0.10	0.99	0.99	0.40	0.00	0.06	0.13	0.10	0.95
Avail Cap(c_a), veh/h	250	844	865	398	704	739	442	0	632	314	362	306
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.95	0.95	0.95	0.52	0.52	0.52	1.00	0.00	1.00	0.57	0.57	0.57
Uniform Delay (d), s/veh	50.0	24.7	24.7	25.3	44.5	44.5	41.7	0.0	35.3	50.3	49.8	59.8
Incr Delay (d2), s/veh	50.2	1.7	1.6	0.1	22.4	22.0	0.7	0.0	0.0	0.2	0.1	27.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.6	9.0	9.2	0.7	29.2	30.5	4.4	0.0	0.9	1.3	1.2	13.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	100.2	26.3	26.3	25.3	66.9	66.5	42.4	0.0	35.3	50.5	49.9	87.4
LnGrp LOS	F	C	C	C	E	E	D	A	D	D	D	F
Approach Vol, veh/h	1018			1464			182			370		
Approach Delay, s/veh	44.1			65.8			41.1			79.5		
Approach LOS	D			E			D			E		
Timer - Assigned Phs	1	2		4	5	6	7	8				
Phs Duration (G+Y+Rc), s	26.0	68.9		55.1	12.2	82.7	19.1	36.0				
Change Period (Y+Rc), s	8.5	8.5		7.0	8.5	8.5	7.0	7.0				
Max Green Setting (Gmax), s	17.5	54.5		54.0	9.5	62.5	18.0	29.0				
Max Q Clear Time (g_c+I1), s	19.0	61.6		4.0	3.6	23.9	11.9	29.3				
Green Ext Time (p_c), s	0.0	0.0		0.2	0.0	7.5	0.2	0.0				
Intersection Summary												
HCM 6th Ctrl Delay	58.7											
HCM 6th LOS	E											

Lanes, Volumes, Timings
11: Lake Helen Osteen Rd & Catalina Blvd

2020 Buildout Conditions
Timing Plan: AM Peak Hour

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	49	116	467	282	84	180
Future Volume (vph)	49	116	467	282	84	180
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	5%	5%
Adj. Flow (vph)	54	129	519	313	93	200
Shared Lane Traffic (%)						
Lane Group Flow (vph)	54	129	519	313	293	0
Turn Type	Prot	Perm	pm+pt	NA	NA	
Protected Phases	8		1	6	2	
Permitted Phases		8	6			
Detector Phase	8	8	1	6	2	
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	15.0	15.0	
Minimum Split (s)	11.5	11.5	12.5	22.5	22.5	
Total Split (s)	20.0	20.0	20.0	50.0	30.0	
Total Split (%)	28.6%	28.6%	28.6%	71.4%	42.9%	
Yellow Time (s)	3.5	3.5	5.0	5.0	5.0	
All-Red Time (s)	3.0	3.0	2.5	2.5	2.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.5	6.5	7.5	7.5	7.5	
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	None	None	None	Min	Min	
v/c Ratio	0.18	0.34	0.75	0.25	0.49	
Control Delay	23.8	8.2	16.1	6.1	11.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	23.8	8.2	16.1	6.1	11.9	
Queue Length 50th (ft)	17	0	87	45	36	
Queue Length 95th (ft)	46	40	#210	88	101	
Internal Link Dist (ft)	4969			10882	661	
Turn Bay Length (ft)	185		240			
Base Capacity (vph)	443	493	710	1430	781	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.12	0.26	0.73	0.22	0.38	

Intersection Summary

Cycle Length: 70

Actuated Cycle Length: 55.7

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

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

Queue shown is maximum after two cycles.

Splits and Phases: 11: Lake Helen Osteen Rd & Catalina Blvd



HCM 6th Signalized Intersection Summary
11: Lake Helen Osteen Rd & Catalina Blvd

2020 Buildout Conditions
Timing Plan: AM Peak Hour

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	49	116	467	282	84	180
Future Volume (veh/h)	49	116	467	282	84	180
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1826	1826
Adj Flow Rate, veh/h	54	18	519	313	93	173
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	5	5
Cap, veh/h	111	99	718	1245	166	310
Arrive On Green	0.06	0.06	0.23	0.67	0.29	0.29
Sat Flow, veh/h	1781	1585	1781	1870	571	1063
Grp Volume(v), veh/h	54	18	519	313	0	266
Grp Sat Flow(s),veh/h/ln	1781	1585	1781	1870	0	1635
Q Serve(g_s), s	1.5	0.6	9.3	3.5	0.0	7.1
Cycle Q Clear(g_c), s	1.5	0.6	9.3	3.5	0.0	7.1
Prop In Lane	1.00	1.00	1.00			0.65
Lane Grp Cap(c), veh/h	111	99	718	1245	0	476
V/C Ratio(X)	0.49	0.18	0.72	0.25	0.00	0.56
Avail Cap(c_a), veh/h	467	416	743	1544	0	714
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	23.3	22.9	8.6	3.5	0.0	15.4
Incr Delay (d2), s/veh	6.9	1.9	4.3	0.2	0.0	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.2	2.9	0.5	0.0	2.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	30.2	24.8	12.8	3.7	0.0	17.6
LnGrp LOS	C	C	B	A	A	B
Approach Vol, veh/h	72			832	266	
Approach Delay, s/veh	28.8			9.4	17.6	
Approach LOS	C			A	B	
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	19.3	22.5			41.8	9.7
Change Period (Y+Rc), s	7.5	7.5			7.5	6.5
Max Green Setting (Gmax), s	12.5	22.5			42.5	13.5
Max Q Clear Time (g_c+I1), s	11.3	9.1			5.5	3.5
Green Ext Time (p_c), s	0.4	2.1			3.7	0.2
Intersection Summary						
HCM 6th Ctrl Delay			12.5			
HCM 6th LOS			B			

Lanes, Volumes, Timings
12: Providence Blvd & Howland Blvd

2020 Buildout Conditions
Timing Plan: AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	522	265	31	945	0	266	0	22	1	0	2
Future Volume (vph)	0	522	265	31	945	0	266	0	22	1	0	2
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
Heavy Vehicles (%)	9%	9%	9%	5%	5%	5%	3%	3%	3%	2%	2%	2%
Adj. Flow (vph)	0	549	279	33	995	0	280	0	23	1	0	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	549	279	33	995	0	280	23	0	0	3	0
Turn Type	Perm	NA	Perm	pm+pt	NA		pm+pt	NA		Perm	NA	
Protected Phases		6		5	2		7	4			8	
Permitted Phases	6		6	2			4			8		
Detector Phase	6	6	6	5	2		7	4		8	8	
Switch Phase												
Minimum Initial (s)	11.0	11.0	11.0	5.0	11.0		5.0	7.0		7.0	7.0	
Minimum Split (s)	18.0	18.0	18.0	12.0	18.0		12.0	14.0		14.0	14.0	
Total Split (s)	85.0	85.0	85.0	20.0	105.0		25.0	50.0		25.0	25.0	
Total Split (%)	54.8%	54.8%	54.8%	12.9%	67.7%		16.1%	32.3%		16.1%	16.1%	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		4.5	4.5		4.5	4.5	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.5	2.5		2.5	2.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0			7.0	
Lead/Lag	Lag	Lag	Lag	Lead			Lead			Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes			Yes	Yes	
Recall Mode	Min	Min	Min	None	C-Min		None	None		None	None	
v/c Ratio		0.49	0.27	0.07	0.77		0.85	0.04			0.02	
Control Delay		17.7	2.5	7.7	20.2		82.1	0.1			0.0	
Queue Delay		0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Total Delay		17.7	2.5	7.7	20.2		82.1	0.1			0.0	
Queue Length 50th (ft)		295	7	9	608		272	0			0	
Queue Length 95th (ft)		403	44	21	819		#394	0			0	
Internal Link Dist (ft)		1815			1369			8692			129	
Turn Bay Length (ft)				160			280					
Base Capacity (vph)		1121	1046	523	1291		328	711			309	
Starvation Cap Reductn		0	0	0	0		0	0			0	
Spillback Cap Reductn		0	0	0	0		0	0			0	
Storage Cap Reductn		0	0	0	0		0	0			0	
Reduced v/c Ratio		0.49	0.27	0.06	0.77		0.85	0.03			0.01	

Intersection Summary

Cycle Length: 155

Actuated Cycle Length: 155

Offset: 0 (0%), Referenced to phase 2:WBTL, Start of Yellow

Natural Cycle: 90

Control Type: Actuated-Coordinated

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

Queue shown is maximum after two cycles.

Splits and Phases: 12: Providence Blvd & Howland Blvd



HCM 6th Signalized Intersection Summary
12: Providence Blvd & Howland Blvd

2020 Buildout Conditions
Timing Plan: AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	522	265	31	945	0	266	0	22	1	0	2
Future Volume (veh/h)	0	522	265	31	945	0	266	0	22	1	0	2
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1767	1767	1767	1826	1826	1826	1856	1856	1856	1870	1870	1870
Adj Flow Rate, veh/h	0	549	235	33	995	0	280	0	6	1	0	1
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, %	9	9	9	5	5	5	3	3	3	2	2	2
Cap, veh/h	46	1176	996	436	1342	0	293	0	274	45	0	10
Arrive On Green	0.00	0.67	0.67	0.02	0.74	0.00	0.12	0.00	0.17	0.01	0.00	0.01
Sat Flow, veh/h	535	1767	1497	1739	1826	0	1767	0	1572	746	0	746
Grp Volume(v), veh/h	0	549	235	33	995	0	280	0	6	2	0	0
Grp Sat Flow(s),veh/h/ln	535	1767	1497	1739	1826	0	1767	0	1572	1492	0	0
Q Serve(g_s), s	0.0	23.4	9.7	0.9	49.1	0.0	18.0	0.0	0.5	0.2	0.0	0.0
Cycle Q Clear(g_c), s	0.0	23.4	9.7	0.9	49.1	0.0	18.0	0.0	0.5	0.2	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	0.50		0.50
Lane Grp Cap(c), veh/h	46	1176	996	436	1342	0	293	0	274	54	0	0
V/C Ratio(X)	0.00	0.47	0.24	0.08	0.74	0.00	0.95	0.00	0.02	0.04	0.00	0.00
Avail Cap(c_a), veh/h	46	1176	996	539	1342	0	293	0	436	208	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.86	0.86	1.00	1.00	0.00	0.84	0.00	0.84	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	12.6	10.3	9.2	11.9	0.0	67.6	0.0	53.0	75.6	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.4	0.1	0.1	3.7	0.0	36.4	0.0	0.0	0.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	8.7	3.2	0.3	18.5	0.0	14.1	0.0	0.2	0.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	12.9	10.4	9.2	15.7	0.0	104.0	0.0	53.0	75.8	0.0	0.0
LnGrp LOS	A	B	B	A	B	A	F	A	D	E	A	A
Approach Vol, veh/h	784			1028			286			2		
Approach Delay, s/veh	12.2			15.5			102.9			75.8		
Approach LOS	B			B			F			E		
Timer - Assigned Phs	2			4			5			6		
Phs Duration (G+Y+Rc), s	121.0			34.0			10.8			110.2		
Change Period (Y+Rc), s	7.0			7.0			7.0			7.0		
Max Green Setting (Gmax), s	98.0			43.0			13.0			78.0		
Max Q Clear Time (g_c+I1), s	51.1			2.5			2.9			25.4		
Green Ext Time (p_c), s	14.9			0.0			0.0			7.3		
Intersection Summary												
HCM 6th Ctrl Delay	26.2											
HCM 6th LOS	C											

13: S Volusia Ave & W Rhode Island Road Ave/E Rhode Island Road Ave

Timing Plan: AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	36	66	241	174	108	78	134	790	105	85	1054	43
Future Volume (vph)	36	66	241	174	108	78	134	790	105	85	1054	43
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	2%	2%	2%	8%	8%	8%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	40	73	265	191	119	86	147	868	115	93	1158	47
Shared Lane Traffic (%)												
Lane Group Flow (vph)	40	73	265	191	205	0	147	983	0	93	1205	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8		8	4			6			2		
Detector Phase	3	8	8	7	4		1	6		5	2	
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0		5.0	15.0		5.0	15.0	
Minimum Split (s)	11.9	16.9	16.9	11.7	16.9		12.1	22.1		11.8	22.1	
Total Split (s)	18.0	40.0	40.0	18.0	40.0		32.0	72.0		20.0	60.0	
Total Split (%)	12.0%	26.7%	26.7%	12.0%	26.7%		21.3%	48.0%		13.3%	40.0%	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.9	4.9		4.8	4.9	
All-Red Time (s)	2.9	2.9	2.9	2.7	2.9		2.2	2.2		2.0	2.2	
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)	6.9	6.9	6.9	6.7	6.9		7.1	7.1		6.8	7.1	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	None	None	None	None		None	C-Min		None	C-Min	
v/c Ratio	0.19	0.30	0.61	0.67	0.69		0.53	0.53		0.29	0.68	
Control Delay	42.4	60.0	12.0	59.5	64.7		18.0	23.6		10.9	31.6	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	42.4	60.0	12.0	59.5	64.7		18.0	23.6		10.9	31.6	
Queue Length 50th (ft)	30	66	0	160	176		51	302		35	493	
Queue Length 95th (ft)	58	109	79	217	254		98	442		28	680	
Internal Link Dist (ft)		835			5352			877			5260	
Turn Bay Length (ft)	330		755	300			240			285		
Base Capacity (vph)	251	411	555	287	380		393	1862		369	1760	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.16	0.18	0.48	0.67	0.54		0.37	0.53		0.25	0.68	

Intersection Summary

Cycle Length: 150

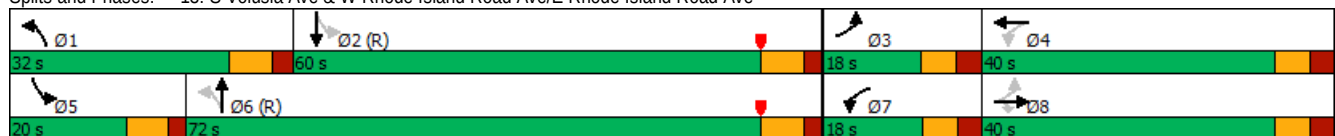
Actuated Cycle Length: 150

Offset: 86 (57%), Referenced to phase 2:SBTL and 6:NBTL, Start of Yellow

Natural Cycle: 90

Control Type: Actuated-Coordinated

Splits and Phases: 13: S Volusia Ave & W Rhode Island Road Ave/E Rhode Island Road Ave



HCM 6th Signalized Intersection Summary

13: S Volusia Ave & W Rhode Island Road Ave/E Rhode Island Road Ave

2020 Buildout Conditions

Timing Plan: AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	36	66	241	174	108	78	134	790	105	85	1054	43
Future Volume (veh/h)	36	66	241	174	108	78	134	790	105	85	1054	43
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1781	1781	1781	1826	1826	1826	1826	1826	1826
Adj Flow Rate, veh/h	40	73	44	191	119	53	147	868	103	93	1158	42
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	8	8	8	5	5	5	5	5	5
Cap, veh/h	120	135	114	218	138	62	322	1987	236	386	2120	77
Arrive On Green	0.03	0.07	0.07	0.08	0.12	0.12	0.05	0.64	0.64	0.03	0.62	0.62
Sat Flow, veh/h	1781	1870	1585	1697	1168	520	1739	3123	371	1739	3414	124
Grp Volume(v), veh/h	40	73	44	191	0	172	147	482	489	93	588	612
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1697	0	1688	1739	1735	1759	1739	1735	1804
Q Serve(g_s), s	3.1	5.7	4.0	11.3	0.0	15.0	4.6	21.0	21.0	2.9	29.2	29.2
Cycle Q Clear(g_c), s	3.1	5.7	4.0	11.3	0.0	15.0	4.6	21.0	21.0	2.9	29.2	29.2
Prop In Lane	1.00		1.00	1.00		0.31	1.00		0.21	1.00		0.07
Lane Grp Cap(c), veh/h	120	135	114	218	0	200	322	1104	1119	386	1077	1120
V/C Ratio(X)	0.33	0.54	0.38	0.88	0.00	0.86	0.46	0.44	0.44	0.24	0.55	0.55
Avail Cap(c_a), veh/h	202	413	350	218	0	372	531	1104	1119	481	1077	1120
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.65	0.00	0.65	1.00	1.00	1.00	0.85	0.85	0.85
Uniform Delay (d), s/veh	62.4	67.2	66.4	62.1	0.0	64.9	13.3	13.7	13.7	10.9	16.3	16.3
Incr Delay (d2), s/veh	1.6	3.3	2.1	22.1	0.0	7.0	1.0	1.3	1.2	0.3	1.7	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	2.8	1.7	3.4	0.0	6.8	1.7	8.1	8.2	1.1	11.4	11.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	64.0	70.5	68.5	84.2	0.0	71.9	14.3	15.0	15.0	11.2	18.0	17.9
LnGrp LOS	E	E	E	F	A	E	B	B	B	B	B	B
Approach Vol, veh/h	157			363			1118			1293		
Approach Delay, s/veh	68.3			78.4			14.9			17.5		
Approach LOS	E			E			B			B		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	14.0	100.3	11.1	24.7	11.7	102.5	18.0	17.7				
Change Period (Y+Rc), s	* 7.1	* 7.1	6.9	6.9	6.8	* 7.1	* 6.7	6.9				
Max Green Setting (Gmax), s	* 25	* 53	11.1	33.1	13.2	* 65	* 11	33.1				
Max Q Clear Time (g_c+I1), s	6.6	31.2	5.1	17.0	4.9	23.0	13.3	7.7				
Green Ext Time (p_c), s	0.3	10.7	0.0	0.8	0.1	10.4	0.0	0.5				

Intersection Summary

HCM 6th Ctrl Delay 26.8

HCM 6th LOS C

Notes

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

Lanes, Volumes, Timings
14: Veterans Memorial Pkwy & E Rhode Island Road Ave

2020 Buildout Conditions
Timing Plan: AM Peak Hour

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	219	171	333	369	646	349
Future Volume (vph)	219	171	333	369	646	349
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	2%	2%	5%	5%	5%	5%
Adj. Flow (vph)	241	188	366	405	710	384
Shared Lane Traffic (%)						
Lane Group Flow (vph)	241	188	366	405	710	384
Turn Type	Prot	Perm	Prot	NA	NA	Perm
Protected Phases	4		1	6	2	
Permitted Phases		4				2
Detector Phase	4	4	1	6	2	2
Switch Phase						
Minimum Initial (s)	7.0	7.0	5.0	11.0	11.0	11.0
Minimum Split (s)	13.5	13.5	13.5	20.5	20.5	20.5
Total Split (s)	16.5	16.5	16.5	53.5	37.0	37.0
Total Split (%)	23.6%	23.6%	23.6%	76.4%	52.9%	52.9%
Yellow Time (s)	3.5	3.5	5.5	5.5	5.5	5.5
All-Red Time (s)	3.0	3.0	3.0	4.0	4.0	4.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	8.5	9.5	9.5	9.5
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Recall Mode	None	None	None	Min	Min	Min
v/c Ratio	0.96	0.49	0.96	0.36	1.00	0.46
Control Delay	80.4	9.6	71.2	7.3	57.6	3.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	80.4	9.6	71.2	7.3	57.6	3.8
Queue Length 50th (ft)	105	0	82	72	297	0
Queue Length 95th (ft)	#235	52	#161	118	#520	48
Internal Link Dist (ft)	5352			4702	7026	
Turn Bay Length (ft)	450		385			385
Base Capacity (vph)	252	387	381	1137	711	837
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.96	0.49	0.96	0.36	1.00	0.46

Intersection Summary

Cycle Length: 70

Actuated Cycle Length: 70

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

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

Queue shown is maximum after two cycles.

Splits and Phases: 14: Veterans Memorial Pkwy & E Rhode Island Road Ave



HCM 6th Signalized Intersection Summary
 14: Veterans Memorial Pkwy & E Rhode Island Road Ave

2020 Buildout Conditions
 Timing Plan: AM Peak Hour

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	219	171	333	369	646	349
Future Volume (veh/h)	219	171	333	369	646	349
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1826	1826	1826	1826
Adj Flow Rate, veh/h	241	78	366	405	710	384
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	5	5	5	5
Cap, veh/h	254	226	386	1148	717	608
Arrive On Green	0.14	0.14	0.11	0.63	0.39	0.39
Sat Flow, veh/h	1781	1585	3374	1826	1826	1547
Grp Volume(v), veh/h	241	78	366	405	710	384
Grp Sat Flow(s),veh/h/ln	1781	1585	1687	1826	1826	1547
Q Serve(g_s), s	9.4	3.1	7.5	7.4	27.0	14.0
Cycle Q Clear(g_c), s	9.4	3.1	7.5	7.4	27.0	14.0
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	254	226	386	1148	717	608
V/C Ratio(X)	0.95	0.34	0.95	0.35	0.99	0.63
Avail Cap(c_a), veh/h	254	226	386	1148	717	608
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.7	27.0	30.8	6.2	21.1	17.2
Incr Delay (d2), s/veh	42.0	0.9	32.9	0.2	30.9	2.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.7	1.1	4.5	1.8	15.5	4.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	71.7	27.9	63.7	6.4	52.1	19.3
LnGrp LOS	E	C	E	A	D	B
Approach Vol, veh/h	319			771	1094	
Approach Delay, s/veh	61.0			33.6	40.6	
Approach LOS	E			C	D	
Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	16.5	37.0		16.5		53.5
Change Period (Y+Rc), s	8.5	9.5		6.5		9.5
Max Green Setting (Gmax), s	8.0	27.5		10.0		44.0
Max Q Clear Time (g_c+I1), s	9.5	29.0		11.4		9.4
Green Ext Time (p_c), s	0.0	0.0		0.0		2.3
Intersection Summary						
HCM 6th Ctrl Delay			41.1			
HCM 6th LOS			D			

Lanes, Volumes, Timings
15: N Normandy Blvd & Elkcam Blvd

2020 Buildout Conditions
Timing Plan: AM Peak Hour

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	324	383	778	94	193	589
Future Volume (vph)	324	383	778	94	193	589
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	3%	3%	3%	3%	6%	6%
Adj. Flow (vph)	345	407	828	100	205	627
Shared Lane Traffic (%)						
Lane Group Flow (vph)	345	407	928	0	205	627
Turn Type	Prot	Perm	NA		pm+pt	NA
Protected Phases	4		6		5	2
Permitted Phases		4			2	
Detector Phase	4	4	6		5	2
Switch Phase						
Minimum Initial (s)	5.0	5.0	12.0		5.0	12.0
Minimum Split (s)	11.5	11.5	19.0		11.5	18.5
Total Split (s)	20.0	20.0	35.0		15.0	50.0
Total Split (%)	28.6%	28.6%	50.0%		21.4%	71.4%
Yellow Time (s)	4.0	4.0	4.5		4.0	4.0
All-Red Time (s)	2.5	2.5	2.5		2.5	2.5
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	6.5	6.5	7.0		6.5	6.5
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	None	None	Min		None	Min
v/c Ratio	0.95	0.72	0.75		0.60	0.31
Control Delay	66.3	15.8	22.0		15.1	7.0
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	66.3	15.8	22.0		15.1	7.0
Queue Length 50th (ft)	140	35	162		33	57
Queue Length 95th (ft)	#311	#161	224		78	82
Internal Link Dist (ft)	7820		5060			4912
Turn Bay Length (ft)	460				275	
Base Capacity (vph)	364	569	1502		350	2286
Starvation Cap Reductn	0	0	0		0	0
Spillback Cap Reductn	0	0	0		0	0
Storage Cap Reductn	0	0	0		0	0
Reduced v/c Ratio	0.95	0.72	0.62		0.59	0.27

Intersection Summary

Cycle Length: 70

Actuated Cycle Length: 65.2

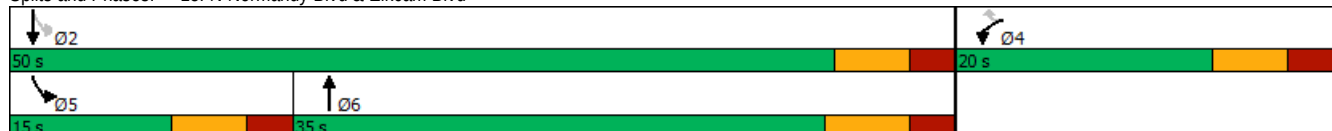
Natural Cycle: 65

Control Type: Actuated-Uncoordinated

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

Queue shown is maximum after two cycles.

Splits and Phases: 15: N Normandy Blvd & Elkcam Blvd



HCM 6th Signalized Intersection Summary
15: N Normandy Blvd & Elkcam Blvd

2020 Buildout Conditions
Timing Plan: AM Peak Hour

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	324	383	778	94	193	589
Future Volume (veh/h)	324	383	778	94	193	589
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1811	1811
Adj Flow Rate, veh/h	345	227	828	61	205	627
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	3	3	3	3	6	6
Cap, veh/h	396	352	1106	81	369	1881
Arrive On Green	0.22	0.22	0.33	0.33	0.10	0.55
Sat Flow, veh/h	1767	1572	3422	245	1725	3532
Grp Volume(v), veh/h	345	227	438	451	205	627
Grp Sat Flow(s),veh/h/ln	1767	1572	1763	1811	1725	1721
Q Serve(g_s), s	11.1	7.7	13.0	13.0	4.2	5.9
Cycle Q Clear(g_c), s	11.1	7.7	13.0	13.0	4.2	5.9
Prop In Lane	1.00	1.00		0.14	1.00	
Lane Grp Cap(c), veh/h	396	352	586	602	369	1881
V/C Ratio(X)	0.87	0.64	0.75	0.75	0.56	0.33
Avail Cap(c_a), veh/h	405	361	839	862	439	2544
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.0	20.7	17.5	17.5	12.2	7.4
Incr Delay (d2), s/veh	18.0	3.8	2.3	2.2	1.3	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.1	0.4	4.9	5.0	1.3	1.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	40.0	24.5	19.7	19.7	13.6	7.5
LnGrp LOS	D	C	B	B	B	A
Approach Vol, veh/h	572		889			832
Approach Delay, s/veh	33.8		19.7			9.0
Approach LOS	C		B			A
Timer - Assigned Phs	2		4	5	6	
Phs Duration (G+Y+Rc), s	39.2		19.7	12.6	26.6	
Change Period (Y+Rc), s	* 7		6.5	6.5	7.0	
Max Green Setting (Gmax), s	* 44		13.5	8.5	28.0	
Max Q Clear Time (g_c+I1), s	7.9		13.1	6.2	15.0	
Green Ext Time (p_c), s	4.3		0.1	0.1	4.5	
Intersection Summary						
HCM 6th Ctrl Delay			19.3			
HCM 6th LOS			B			
Notes						

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

Lanes, Volumes, Timings
16: Fort Smith Blvd & Elkcam Blvd

2020 Buildout Conditions
Timing Plan: AM Peak Hour

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations					 	
Traffic Volume (vph)	148	116	7	311	202	5
Future Volume (vph)	148	116	7	311	202	5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	3%	3%	3%	3%
Adj. Flow (vph)	164	129	8	346	224	6
Shared Lane Traffic (%)						
Lane Group Flow (vph)	293	0	0	354	230	0
Sign Control	Free			Free	Stop	

Intersection Summary

Control Type: Unsignalized

Intersection						
Int Delay, s/veh	5.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	148	116	7	311	202	5
Future Vol, veh/h	148	116	7	311	202	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	5	5	3	3	3	3
Mvmt Flow	164	129	8	346	224	6
Major/Minor	Major1	Major2		Minor1		
Conflicting Flow All	0	0	293	0	591	229
Stage 1	-	-	-	-	229	-
Stage 2	-	-	-	-	362	-
Critical Hdwy	-	-	4.13	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.227	-	3.527	3.327
Pot Cap-1 Maneuver	-	-	1263	-	468	808
Stage 1	-	-	-	-	807	-
Stage 2	-	-	-	-	702	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1263	-	464	808
Mov Cap-2 Maneuver	-	-	-	-	464	-
Stage 1	-	-	-	-	801	-
Stage 2	-	-	-	-	702	-
Approach	EB	WB		NB		
HCM Control Delay, s	0	0.2		19.8		
HCM LOS	C					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	469	-	-	1263	-	
HCM Lane V/C Ratio	0.49	-	-	0.006	-	
HCM Control Delay (s)	19.8	-	-	7.9	0	
HCM Lane LOS	C	-	-	A	A	
HCM 95th %tile Q(veh)	2.7	-	-	0	-	

Lanes, Volumes, Timings
17: Providence Blvd & Elkcam Blvd

2020 Buildout Conditions
Timing Plan: AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	58	77	33	124	151	73	40	281	103	44	210	50
Future Volume (vph)	58	77	33	124	151	73	40	281	103	44	210	50
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	4%	4%	4%	3%	3%	3%	5%	5%	5%	7%	7%	7%
Adj. Flow (vph)	62	82	35	132	161	78	43	299	110	47	223	53
Shared Lane Traffic (%)												
Lane Group Flow (vph)	62	117	0	132	239	0	43	299	110	47	223	53
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6			8		8	4		4
Detector Phase	5	2		1	6		3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	5.0	6.0		5.0	6.0		5.0	6.0	6.0	5.0	6.0	6.0
Minimum Split (s)	12.5	13.5		12.5	13.5		12.0	13.0	13.0	12.5	13.5	13.5
Total Split (s)	15.0	30.0		15.0	30.0		20.0	35.0	35.0	20.0	35.0	35.0
Total Split (%)	15.0%	30.0%		15.0%	30.0%		20.0%	35.0%	35.0%	20.0%	35.0%	35.0%
Yellow Time (s)	4.5	4.5		4.5	4.5		4.0	4.0	4.0	4.5	4.5	4.5
All-Red Time (s)	3.0	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	0.0
Total Lost Time (s)	7.5	7.5		7.5	7.5		7.0	7.0	7.0	7.5	7.5	7.5
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Min		None	Min		None	None	None	None	None	None
v/c Ratio	0.16	0.30		0.30	0.48		0.10	0.60	0.19	0.13	0.46	0.09
Control Delay	18.1	26.2		19.6	28.6		15.1	31.4	0.7	15.6	28.2	0.3
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.1	26.2		19.6	28.6		15.1	31.4	0.7	15.6	28.2	0.3
Queue Length 50th (ft)	19	41		42	98		12	134	0	14	95	0
Queue Length 95th (ft)	50	97		94	195		33	242	0	36	178	0
Internal Link Dist (ft)		4411			6336			3885			8692	
Turn Bay Length (ft)	375			225			235		365	220		295
Base Capacity (vph)	406	671		442	680		557	850	835	482	823	814
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.17		0.30	0.35		0.08	0.35	0.13	0.10	0.27	0.07

Intersection Summary

Cycle Length: 100

Actuated Cycle Length: 69.7

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Splits and Phases: 17: Providence Blvd & Elkcam Blvd

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

HCM 6th Signalized Intersection Summary
17: Providence Blvd & Elkcam Blvd

2020 Buildout Conditions
Timing Plan: AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	58	77	33	124	151	73	40	281	103	44	210	50
Future Volume (veh/h)	58	77	33	124	151	73	40	281	103	44	210	50
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1841	1841	1841	1856	1856	1856	1826	1826	1826	1796	1796	1796
Adj Flow Rate, veh/h	62	82	22	132	161	57	43	299	50	47	223	25
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	4	4	4	3	3	3	5	5	5	7	7	7
Cap, veh/h	279	195	52	383	225	80	337	411	349	271	424	360
Arrive On Green	0.05	0.14	0.14	0.09	0.17	0.17	0.04	0.23	0.23	0.05	0.24	0.24
Sat Flow, veh/h	1753	1398	375	1767	1309	463	1739	1826	1547	1711	1796	1522
Grp Volume(v), veh/h	62	0	104	132	0	218	43	299	50	47	223	25
Grp Sat Flow(s),veh/h/ln	1753	0	1773	1767	0	1772	1739	1826	1547	1711	1796	1522
Q Serve(g_s), s	1.8	0.0	3.2	3.7	0.0	6.9	1.1	9.0	1.5	1.2	6.4	0.8
Cycle Q Clear(g_c), s	1.8	0.0	3.2	3.7	0.0	6.9	1.1	9.0	1.5	1.2	6.4	0.8
Prop In Lane	1.00		0.21	1.00		0.26	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	279	0	247	383	0	304	337	411	349	271	424	360
V/C Ratio(X)	0.22	0.00	0.42	0.34	0.00	0.72	0.13	0.73	0.14	0.17	0.53	0.07
Avail Cap(c_a), veh/h	405	0	670	453	0	670	642	859	728	553	830	703
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	20.3	0.0	23.4	19.4	0.0	23.3	16.6	21.4	18.5	17.0	19.8	17.7
Incr Delay (d2), s/veh	0.4	0.0	1.6	0.5	0.0	4.5	0.2	3.5	0.3	0.3	1.4	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.0	1.3	1.4	0.0	3.0	0.4	3.9	0.5	0.5	2.6	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	20.7	0.0	25.0	19.9	0.0	27.7	16.8	24.9	18.7	17.3	21.3	17.8
LnGrp LOS	C	A	C	B	A	C	B	C	B	B	C	B
Approach Vol, veh/h	166			350			392			295		
Approach Delay, s/veh	23.4			24.8			23.2			20.3		
Approach LOS	C			C			C			C		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.6	15.8	9.5	21.6	10.7	17.7	10.2	20.9				
Change Period (Y+Rc), s	7.5	7.5	7.0	7.5	7.5	7.5	7.5	* 7.5				
Max Green Setting (Gmax), s	7.5	22.5	13.0	27.5	7.5	22.5	12.5	* 28				
Max Q Clear Time (g_c+I1), s	5.7	5.2	3.1	8.4	3.8	8.9	3.2	11.0				
Green Ext Time (p_c), s	0.1	0.6	0.0	1.7	0.0	1.3	0.0	2.4				

Intersection Summary

HCM 6th Ctrl Delay 23.0
HCM 6th LOS C

Notes

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

Lanes, Volumes, Timings
18: Lake Helen Osteen Rd & Elkcarn Blvd

2020 Buildout Conditions
Timing Plan: AM Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	69	102	13	100	264	18	20	156	41	5	172	64
Future Volume (vph)	69	102	13	100	264	18	20	156	41	5	172	64
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	5%	5%	5%	4%	4%	4%	3%	3%	3%	5%	5%	5%
Adj. Flow (vph)	75	111	14	109	287	20	22	170	45	5	187	70
Shared Lane Traffic (%)												
Lane Group Flow (vph)	75	125	0	109	307	0	22	215	0	5	257	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		5	2		6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		5.0	7.0		7.0	7.0	
Minimum Split (s)	13.5	13.5		13.5	13.5		11.5	14.0		13.5	13.5	
Total Split (s)	20.0	20.0		20.0	20.0		20.0	45.0		25.0	25.0	
Total Split (%)	30.8%	30.8%		30.8%	30.8%		30.8%	69.2%		38.5%	38.5%	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.5		4.0	4.0	
All-Red Time (s)	2.5	2.5		2.5	2.5		2.5	2.5		2.5	2.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.5	6.5		6.5	6.5		6.5	7.0		6.5	6.5	
Lead/Lag							Lead			Lag	Lag	
Lead-Lag Optimize?							Yes			Yes	Yes	
Recall Mode	None	None		None	None		None	Min		Min	Min	
v/c Ratio	0.23	0.22		0.28	0.54		0.06	0.37		0.02	0.50	
Control Delay	15.0	12.9		15.1	18.2		8.1	9.7		12.4	15.2	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	15.0	12.9		15.1	18.2		8.1	9.7		12.4	15.2	
Queue Length 50th (ft)	10	15		14	43		3	28		1	36	
Queue Length 95th (ft)	53	72		72	#200		11	59		8	121	
Internal Link Dist (ft)		10882			412			5142			782	
Turn Bay Length (ft)	405			105			100			170		
Base Capacity (vph)	384	666		458	674		692	1667		574	896	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.20	0.19		0.24	0.46		0.03	0.13		0.01	0.29	

Intersection Summary

Cycle Length: 65

Actuated Cycle Length: 38.5

Natural Cycle: 55

Control Type: Actuated-Uncoordinated

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

Queue shown is maximum after two cycles.

Splits and Phases: 18: Lake Helen Osteen Rd & Elkcarn Blvd



HCM 6th Signalized Intersection Summary
18: Lake Helen Osteen Rd & Elkcaml Blvd

2020 Buildout Conditions
Timing Plan: AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	69	102	13	100	264	18	20	156	41	5	172	64
Future Volume (veh/h)	69	102	13	100	264	18	20	156	41	5	172	64
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1826	1826	1826	1841	1841	1841	1856	1856	1856	1826	1826	1826
Adj Flow Rate, veh/h	75	111	10	109	287	18	22	170	24	5	187	42
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	5	5	5	4	4	4	3	3	3	5	5	5
Cap, veh/h	313	447	40	456	464	29	316	615	87	408	281	63
Arrive On Green	0.27	0.27	0.27	0.27	0.27	0.27	0.03	0.39	0.39	0.19	0.19	0.19
Sat Flow, veh/h	1049	1650	149	1250	1714	107	1767	1591	225	1161	1443	324
Grp Volume(v), veh/h	75	0	121	109	0	305	22	0	194	5	0	229
Grp Sat Flow(s),veh/h/ln	1049	0	1799	1250	0	1821	1767	0	1815	1161	0	1768
Q Serve(g_s), s	2.7	0.0	2.1	2.9	0.0	5.8	0.4	0.0	2.9	0.1	0.0	4.7
Cycle Q Clear(g_c), s	8.4	0.0	2.1	5.0	0.0	5.8	0.4	0.0	2.9	0.1	0.0	4.7
Prop In Lane	1.00		0.08	1.00		0.06	1.00		0.12	1.00		0.18
Lane Grp Cap(c), veh/h	313	0	487	456	0	493	316	0	702	408	0	344
V/C Ratio(X)	0.24	0.00	0.25	0.24	0.00	0.62	0.07	0.00	0.28	0.01	0.00	0.67
Avail Cap(c_a), veh/h	388	0	617	546	0	624	874	0	1751	728	0	830
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	16.3	0.0	11.2	13.2	0.0	12.6	11.1	0.0	8.3	12.8	0.0	14.7
Incr Delay (d2), s/veh	0.4	0.0	0.3	0.3	0.0	1.3	0.1	0.0	0.2	0.0	0.0	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	0.7	0.7	0.0	2.0	0.1	0.0	0.8	0.0	0.0	1.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	16.7	0.0	11.5	13.5	0.0	13.9	11.2	0.0	8.5	12.8	0.0	16.9
LnGrp LOS	B	A	B	B	A	B	B	A	A	B	A	B
Approach Vol, veh/h	196			414			216			234		
Approach Delay, s/veh	13.5			13.7			8.8			16.8		
Approach LOS	B			B			A			B		
Timer - Assigned Phs	2			4		5	6		8			
Phs Duration (G+Y+Rc), s	22.2			17.2		7.6	14.7		17.2			
Change Period (Y+Rc), s	7.0			6.5		6.5	* 7		6.5			
Max Green Setting (Gmax), s	38.0			13.5		13.5	* 19		13.5			
Max Q Clear Time (g_c+I1), s	4.9			10.4		2.4	6.7		7.8			
Green Ext Time (p_c), s	1.1			0.2		0.0	0.9		1.0			

Intersection Summary

HCM 6th Ctrl Delay 13.4
HCM 6th LOS B

Notes

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

Lanes, Volumes, Timings
19: Providence Blvd & Fort Smith Blvd

2020 Buildout Conditions
Timing Plan: AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	99	33	316	140	94	38	181	84	40	313	6
Future Volume (vph)	8	99	33	316	140	94	38	181	84	40	313	6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	8%	8%	8%	4%	4%	4%	8%	8%	8%	4%	4%	4%
Adj. Flow (vph)	9	108	36	343	152	102	41	197	91	43	340	7
Shared Lane Traffic (%)												
Lane Group Flow (vph)	9	144	0	343	254	0	41	197	91	43	347	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2		2	6		
Detector Phase	4	4		8	8		2	2	2	1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		12.0	12.0	12.0	5.0	12.0	
Minimum Split (s)	14.0	14.0		13.5	13.5		18.5	18.5	18.5	13.0	20.0	
Total Split (s)	30.0	30.0		30.0	30.0		35.0	35.0	35.0	20.0	55.0	
Total Split (%)	35.3%	35.3%		35.3%	35.3%		41.2%	41.2%	41.2%	23.5%	64.7%	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.5	4.5	
All-Red Time (s)	3.0	3.0		2.5	2.5		2.5	2.5	2.5	3.5	3.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	7.0	7.0		6.5	6.5		6.5	6.5	6.5	8.0	8.0	
Lead/Lag							Lag	Lag	Lag	Lead		
Lead-Lag Optimize?							Yes	Yes	Yes	Yes		
Recall Mode	None	None		None	None		Min	Min	Min	None	None	
v/c Ratio	0.02	0.22		0.72	0.36		0.16	0.43	0.18	0.11	0.52	
Control Delay	16.2	14.9		30.3	15.3		21.9	24.2	1.8	11.7	17.2	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	16.2	14.9		30.3	15.3		21.9	24.2	1.8	11.7	17.2	
Queue Length 50th (ft)	2	33		115	59		13	69	0	10	95	
Queue Length 95th (ft)	13	83		#290	136		37	128	9	25	156	
Internal Link Dist (ft)		5102			547			839			3885	
Turn Bay Length (ft)	100			440			200			221		
Base Capacity (vph)	403	661		476	697		463	837	792	470	1429	
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	
Reduced v/c Ratio	0.02	0.22		0.72	0.36		0.09	0.24	0.11	0.09	0.24	

Intersection Summary

Cycle Length: 85

Actuated Cycle Length: 61.2

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

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

Queue shown is maximum after two cycles.

Splits and Phases: 19: Providence Blvd & Fort Smith Blvd



HCM 6th Signalized Intersection Summary
19: Providence Blvd & Fort Smith Blvd

2020 Buildout Conditions
Timing Plan: AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	99	33	316	140	94	38	181	84	40	313	6
Future Volume (veh/h)	8	99	33	316	140	94	38	181	84	40	313	6
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1781	1781	1781	1841	1841	1841	1781	1781	1781	1841	1841	1841
Adj Flow Rate, veh/h	9	108	19	343	152	66	41	197	55	43	340	7
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	8	8	8	4	4	4	8	8	8	4	4	4
Cap, veh/h	422	533	94	509	440	191	324	364	308	315	689	14
Arrive On Green	0.36	0.36	0.36	0.36	0.36	0.36	0.20	0.20	0.20	0.04	0.38	0.38
Sat Flow, veh/h	1108	1475	260	1244	1217	528	985	1781	1510	1753	1797	37
Grp Volume(v), veh/h	9	0	127	343	0	218	41	197	55	43	0	347
Grp Sat Flow(s),veh/h/ln	1108	0	1735	1244	0	1746	985	1781	1510	1753	0	1834
Q Serve(g_s), s	0.4	0.0	3.0	15.4	0.0	5.4	2.0	5.8	1.8	1.1	0.0	8.4
Cycle Q Clear(g_c), s	5.7	0.0	3.0	18.4	0.0	5.4	2.0	5.8	1.8	1.1	0.0	8.4
Prop In Lane	1.00		0.15	1.00		0.30	1.00		1.00	1.00		0.02
Lane Grp Cap(c), veh/h	422	0	626	509	0	630	324	364	308	315	0	703
V/C Ratio(X)	0.02	0.00	0.20	0.67	0.00	0.35	0.13	0.54	0.18	0.14	0.00	0.49
Avail Cap(c_a), veh/h	455	0	679	557	0	698	600	864	733	598	0	1468
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	15.8	0.0	12.9	19.3	0.0	13.7	19.4	20.9	19.3	16.1	0.0	13.8
Incr Delay (d2), s/veh	0.0	0.0	0.2	2.8	0.0	0.3	0.2	1.8	0.4	0.2	0.0	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	1.1	4.3	0.0	1.9	0.4	2.4	0.6	0.4	0.0	3.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	15.8	0.0	13.1	22.1	0.0	14.0	19.6	22.7	19.7	16.3	0.0	14.5
LnGrp LOS	B	A	B	C	A	B	B	C	B	B	A	B
Approach Vol, veh/h	136			561			293			390		
Approach Delay, s/veh	13.3			19.0			21.7			14.7		
Approach LOS	B			B			C			B		
Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	10.5	20.0		28.2		30.5		28.2				
Change Period (Y+Rc), s	8.0	* 8		7.0		8.0		* 7				
Max Green Setting (Gmax), s	12.0	* 29		23.0		47.0		* 24				
Max Q Clear Time (g_c+I1), s	3.1	7.8		7.7		10.4		20.4				
Green Ext Time (p_c), s	0.0	2.0		0.6		3.2		0.8				

Intersection Summary

HCM 6th Ctrl Delay 17.8
HCM 6th LOS B

Notes

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

Lanes, Volumes, Timings
20: Veterans Memorial Pkwy & Harley Strickland Blvd

2020 Buildout Conditions
Timing Plan: AM Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	87	25	125	36	30	37	161	259	4	71	448	244
Future Volume (vph)	87	25	125	36	30	37	161	259	4	71	448	244
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	3%	3%	3%	7%	7%	7%	5%	5%	5%	4%	4%	4%
Adj. Flow (vph)	97	28	139	40	33	41	179	288	4	79	498	271
Shared Lane Traffic (%)												
Lane Group Flow (vph)	97	28	139	40	74	0	179	292	0	79	769	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8		8	4			6			2		
Detector Phase	3	8	8	7	4		1	6		5	2	
Switch Phase												
Minimum Initial (s)	5.0	7.0	7.0	5.0	7.0		5.0	16.0		5.0	16.0	
Minimum Split (s)	12.5	14.5	14.5	12.5	14.5		12.5	23.5		12.5	23.5	
Total Split (s)	25.0	40.0	40.0	20.0	35.0		30.0	50.0		20.0	40.0	
Total Split (%)	19.2%	30.8%	30.8%	15.4%	26.9%		23.1%	38.5%		15.4%	30.8%	
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	
All-Red Time (s)	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)	7.5	7.5	7.5	7.5	7.5		7.5	7.5		7.5	7.5	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	None	None	None	None		None	C-Min		None	C-Min	
v/c Ratio	0.44	0.16	0.39	0.22	0.49		0.38	0.14		0.12	0.44	
Control Delay	48.4	54.3	3.3	42.4	40.4		4.9	6.0		9.8	20.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	48.4	54.3	3.3	42.4	40.4		4.9	6.0		9.8	20.5	
Queue Length 50th (ft)	69	22	0	28	27		15	24		21	190	
Queue Length 95th (ft)	111	51	0	56	76		m36	m55		47	304	
Internal Link Dist (ft)		562			593			1843			1501	
Turn Bay Length (ft)	235		235	250			435			340		
Base Capacity (vph)	294	461	562	238	376		551	2047		712	1749	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.33	0.06	0.25	0.17	0.20		0.32	0.14		0.11	0.44	

Intersection Summary

Cycle Length: 130

Actuated Cycle Length: 130

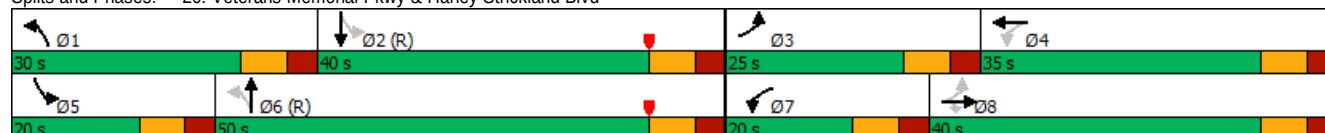
Offset: 40 (31%), Referenced to phase 2:SBTL and 6:NBTL, Start of Yellow

Natural Cycle: 65

Control Type: Actuated-Coordinated

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

Splits and Phases: 20: Veterans Memorial Pkwy & Harley Strickland Blvd



HCM 6th Signalized Intersection Summary
20: Veterans Memorial Pkwy & Harley Strickland Blvd

2020 Buildout Conditions
Timing Plan: AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	87	25	125	36	30	37	161	259	4	71	448	244
Future Volume (veh/h)	87	25	125	36	30	37	161	259	4	71	448	244
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1796	1796	1796	1826	1826	1826	1841	1841	1841
Adj Flow Rate, veh/h	97	28	35	40	33	15	179	288	3	79	498	238
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	3	3	3	7	7	7	5	5	5	4	4	4
Cap, veh/h	206	166	141	175	63	28	496	2159	22	750	1355	645
Arrive On Green	0.07	0.09	0.09	0.03	0.05	0.05	0.12	1.00	1.00	0.04	0.59	0.59
Sat Flow, veh/h	1767	1856	1572	1711	1169	531	1739	3517	37	1753	2299	1093
Grp Volume(v), veh/h	97	28	35	40	0	48	179	142	149	79	378	358
Grp Sat Flow(s),veh/h/ln	1767	1856	1572	1711	0	1701	1739	1735	1819	1753	1749	1644
Q Serve(g_s), s	6.7	1.8	2.7	2.9	0.0	3.6	5.5	0.0	0.0	2.3	14.7	14.8
Cycle Q Clear(g_c), s	6.7	1.8	2.7	2.9	0.0	3.6	5.5	0.0	0.0	2.3	14.7	14.8
Prop In Lane	1.00		1.00	1.00		0.31	1.00		0.02	1.00		0.67
Lane Grp Cap(c), veh/h	206	166	141	175	0	91	496	1065	1117	750	1031	969
V/C Ratio(X)	0.47	0.17	0.25	0.23	0.00	0.53	0.36	0.13	0.13	0.11	0.37	0.37
Avail Cap(c_a), veh/h	328	464	393	289	0	360	691	1065	1117	855	1031	969
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	0.77	0.77	0.77	1.00	1.00	1.00
Uniform Delay (d), s/veh	53.4	54.7	55.1	56.0	0.0	59.9	9.4	0.0	0.0	9.5	14.0	14.0
Incr Delay (d2), s/veh	1.7	0.5	0.9	0.7	0.0	4.6	0.3	0.2	0.2	0.1	1.0	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.0	0.9	1.1	1.3	0.0	1.7	1.8	0.1	0.1	0.9	5.8	5.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	55.1	55.2	56.0	56.6	0.0	64.5	9.7	0.2	0.2	9.6	15.0	15.1
LnGrp LOS	E	E	E	E	A	E	A	A	A	A	B	B
Approach Vol, veh/h	160			88			470			815		
Approach Delay, s/veh	55.3			60.9			3.8			14.5		
Approach LOS	E			E			A			B		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	15.4	84.1	16.0	14.5	12.2	87.3	11.3	19.2				
Change Period (Y+Rc), s	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5				
Max Green Setting (Gmax), s	22.5	32.5	17.5	27.5	12.5	42.5	12.5	32.5				
Max Q Clear Time (g_c+I1), s	7.5	16.8	8.7	5.6	4.3	2.0	4.9	4.7				
Green Ext Time (p_c), s	0.4	5.4	0.1	0.2	0.1	2.4	0.0	0.2				
Intersection Summary												
HCM 6th Ctrl Delay	18.2											
HCM 6th LOS	B											

Lanes, Volumes, Timings
21: Broward Ave/Veterans Memorial Pkwy & Saxon Blvd

2020 Buildout Conditions
Timing Plan: AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	124	700	12	126	1274	468	48	52	67	304	45	140
Future Volume (vph)	124	700	12	126	1274	468	48	52	67	304	45	140
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	5%	5%	5%	3%	3%	3%	2%	2%	2%	5%	5%	5%
Adj. Flow (vph)	133	753	13	135	1370	503	52	56	72	327	48	151
Shared Lane Traffic (%)										43%		
Lane Group Flow (vph)	133	766	0	135	1873	0	52	56	72	186	189	151
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases	1	6		5	2		4		4	3	8	
Permitted Phases	6			2			4		4	8		8
Detector Phase	1	6		5	2		4	4	4	3	8	8
Switch Phase												
Minimum Initial (s)	5.0	12.0		5.0	12.0		7.0	7.0	7.0	5.0	7.0	7.0
Minimum Split (s)	12.9	18.8		12.8	18.8		14.5	14.5	14.5	12.9	15.3	15.3
Total Split (s)	20.0	72.0		20.0	72.0		18.0	18.0	18.0	20.0	30.0	30.0
Total Split (%)	15.4%	55.4%		15.4%	55.4%		13.8%	13.8%	13.8%	15.4%	23.1%	23.1%
Yellow Time (s)	4.8	4.8		4.8	4.8		3.7	3.7	3.7	4.8	4.5	4.5
All-Red Time (s)	3.1	2.0		3.0	2.0		3.8	3.8	3.8	3.1	3.8	3.8
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.9	6.8		7.8	6.8		7.5	7.5	7.5	7.9	8.3	8.3
Lead/Lag	Lead	Lag		Lead	Lag		Lag	Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes		
Recall Mode	None	C-Min		None	C-Min		None	None	None	None	None	None
v/c Ratio	0.69	0.30		0.31	0.75		0.57	0.39	0.26	0.73	0.74	0.32
Control Delay	45.4	18.5		11.5	26.4		81.8	64.9	2.3	46.9	48.0	4.2
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.4	18.5		11.5	26.4		81.8	64.9	2.3	46.9	48.0	4.2
Queue Length 50th (ft)	61	135		43	445		43	46	0	142	145	37
Queue Length 95th (ft)	131	164		67	491		#97	91	0	#190	#197	6
Internal Link Dist (ft)		957			1787			543			1843	
Turn Bay Length (ft)	460			400			200		445	410		
Base Capacity (vph)	214	2554		469	2537		97	154	281	256	260	482
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.62	0.30		0.29	0.74		0.54	0.36	0.26	0.73	0.73	0.31

Intersection Summary

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 18 (14%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow

Natural Cycle: 90

Control Type: Actuated-Coordinated

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

Queue shown is maximum after two cycles.

Splits and Phases: 21: Broward Ave/Veterans Memorial Pkwy & Saxon Blvd

 Ø1	 Ø2 (R)	 Ø3	 Ø4
20 s	72 s	20 s	18 s
 Ø5	 Ø6 (R)	 Ø7	 Ø8
20 s	72 s	30 s	

HCM 6th Signalized Intersection Summary
21: Broward Ave/Veterans Memorial Pkwy & Saxon Blvd

2020 Buildout Conditions
Timing Plan: AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	124	700	12	126	1274	468	48	52	67	304	45	140
Future Volume (veh/h)	124	700	12	126	1274	468	48	52	67	304	45	140
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1826	1826	1826	1856	1856	1856	1870	1870	1870	1826	1826	1826
Adj Flow Rate, veh/h	133	753	9	135	1370	501	52	56	18	361	0	64
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	5	5	5	3	3	3	2	2	2	5	5	5
Cap, veh/h	211	2881	34	484	2078	753	128	102	86	500	0	322
Arrive On Green	0.05	0.57	0.57	0.05	0.57	0.57	0.05	0.05	0.05	0.16	0.00	0.35
Sat Flow, veh/h	1739	5077	61	1767	3666	1328	1338	1870	1585	3478	0	1547
Grp Volume(v), veh/h	133	493	269	135	1261	610	52	56	18	361	0	64
Grp Sat Flow(s),veh/h/ln	1739	1662	1815	1767	1689	1617	1338	1870	1585	1739	0	1547
Q Serve(g_s), s	4.1	9.8	9.8	4.1	33.6	34.1	5.0	3.8	1.4	12.1	0.0	3.8
Cycle Q Clear(g_c), s	4.1	9.8	9.8	4.1	33.6	34.1	5.0	3.8	1.4	12.1	0.0	3.8
Prop In Lane	1.00		0.03	1.00		0.82	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	211	1886	1030	484	1914	916	128	102	86	500	0	322
V/C Ratio(X)	0.63	0.26	0.26	0.28	0.66	0.67	0.41	0.55	0.21	0.72	0.00	0.20
Avail Cap(c_a), veh/h	290	1886	1030	565	1914	916	163	151	128	500	0	322
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.67	1.67	1.67
Upstream Filter(I)	1.00	1.00	1.00	0.79	0.79	0.79	1.00	1.00	1.00	0.91	0.00	0.91
Uniform Delay (d), s/veh	20.5	14.3	14.3	10.9	19.5	19.6	60.5	59.9	58.8	47.8	0.0	34.8
Incr Delay (d2), s/veh	3.1	0.3	0.6	0.2	1.4	3.0	2.1	4.5	1.2	4.6	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	3.6	4.0	1.5	12.5	12.6	1.8	1.9	0.6	5.3	0.0	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.6	14.6	14.9	11.1	20.9	22.6	62.5	64.4	60.0	52.4	0.0	35.1
LnGrp LOS	C	B	B	B	C	C	E	E	E	D	A	D
Approach Vol, veh/h	895			2006			126			425		
Approach Delay, s/veh	16.0			20.8			63.0			49.8		
Approach LOS	B			C			E			D		
Timer - Assigned Phs	1	2	3	4	5	6	8					
Phs Duration (G+Y+Rc), s	14.1	80.5	20.0	15.4	14.0	80.6	35.4					
Change Period (Y+Rc), s	7.9	6.8	7.9	* 8.3	7.8	6.8	* 8.3					
Max Green Setting (Gmax), s	12.1	65.2	12.1	* 11	12.2	65.2	* 22					
Max Q Clear Time (g_c+I1), s	6.1	36.1	14.1	7.0	6.1	11.8	5.8					
Green Ext Time (p_c), s	0.1	16.0	0.0	0.1	0.1	5.1	0.1					

Intersection Summary

HCM 6th Ctrl Delay 24.7
HCM 6th LOS C

Notes

User approved volume balancing among the lanes for turning movement.

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

Lanes, Volumes, Timings
22: FDOT Park & Ride & Saxon Blvd

2020 Buildout Conditions
Timing Plan: AM Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	19	1262	51	93	1926	24	48	1	82	10	4	8
Future Volume (vph)	19	1262	51	93	1926	24	48	1	82	10	4	8
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	5%	5%	5%	4%	4%	4%	4%	4%	4%	5%	5%	5%
Adj. Flow (vph)	21	1418	57	104	2164	27	54	1	92	11	4	9
Shared Lane Traffic (%)												
Lane Group Flow (vph)	21	1475	0	104	2191	0	54	93	0	0	24	0
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	1	6		5	2		4	4			8	
Permitted Phases	6			2			4			8		
Detector Phase	1	6		5	2		4	4		8	8	
Switch Phase												
Minimum Initial (s)	5.0	11.0		5.0	11.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	12.7	17.9		12.8	17.9		14.6	14.6		14.6	14.6	
Total Split (s)	18.0	102.0		20.0	104.0		18.0	18.0		18.0	18.0	
Total Split (%)	12.9%	72.9%		14.3%	74.3%		12.9%	12.9%		12.9%	12.9%	
Yellow Time (s)	4.8	4.9		4.9	4.9		4.2	4.2		4.2	4.2	
All-Red Time (s)	2.9	2.0		2.9	2.0		3.4	3.4		3.4	3.4	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0			0.0	
Total Lost Time (s)	7.7	6.9		7.8	6.9		7.6	7.6			7.6	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Recall Mode	None	C-Min		None	C-Min		None	None		None	None	
v/c Ratio	0.14	0.42		0.37	0.57		0.56	0.47			0.22	
Control Delay	4.9	8.5		6.5	8.5		83.9	20.0			48.3	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0			0.0	
Total Delay	4.9	8.5		6.5	8.5		83.9	20.0			48.3	
Queue Length 50th (ft)	3	183		16	328		48	1			13	
Queue Length 95th (ft)	8	209		26	355		#96	56			44	
Internal Link Dist (ft)		1787			407			186			166	
Turn Bay Length (ft)	365			390			105					
Base Capacity (vph)	207	3525		341	3812		106	207			118	
Starvation Cap Reductn	0	0		0	0		0	0			0	
Spillback Cap Reductn	0	0		0	0		0	0			0	
Storage Cap Reductn	0	0		0	0		0	0			0	
Reduced v/c Ratio	0.10	0.42		0.30	0.57		0.51	0.45			0.20	

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 21 (15%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow

Natural Cycle: 65

Control Type: Actuated-Coordinated

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

Queue shown is maximum after two cycles.

Splits and Phases: 22: FDOT Park & Ride & Saxon Blvd

	Ø1		Ø2 (R)		Ø4
18 s		104 s			18 s
	Ø5		Ø6 (R)		Ø8
20 s		102 s			18 s

HCM 6th Signalized Intersection Summary
22: FDOT Park & Ride & Saxon Blvd

2020 Buildout Conditions
Timing Plan: AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	19	1262	51	93	1926	24	48	1	82	10	4	8
Future Volume (veh/h)	19	1262	51	93	1926	24	48	1	82	10	4	8
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1826	1826	1826	1841	1841	1841	1841	1841	1841	1826	1826	1826
Adj Flow Rate, veh/h	21	1418	54	104	2164	25	54	1	14	11	4	2
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	5	5	5	4	4	4	4	4	4	5	5	5
Cap, veh/h	192	3732	142	346	3960	46	123	5	71	80	26	8
Arrive On Green	0.02	0.76	0.76	0.04	0.77	0.77	0.05	0.05	0.05	0.05	0.05	0.05
Sat Flow, veh/h	1739	4928	188	1753	5121	59	1388	105	1471	773	528	173
Grp Volume(v), veh/h	21	956	516	104	1415	774	54	0	15	17	0	0
Grp Sat Flow(s),veh/h/ln	1739	1662	1792	1753	1675	1830	1388	0	1576	1474	0	0
Q Serve(g_s), s	0.4	13.7	13.7	1.8	23.2	23.3	3.4	0.0	1.3	0.3	0.0	0.0
Cycle Q Clear(g_c), s	0.4	13.7	13.7	1.8	23.2	23.3	5.0	0.0	1.3	1.6	0.0	0.0
Prop In Lane	1.00		0.10	1.00		0.03	1.00		0.93	0.65		0.12
Lane Grp Cap(c), veh/h	192	2517	1357	346	2590	1415	123	0	76	114	0	0
V/C Ratio(X)	0.11	0.38	0.38	0.30	0.55	0.55	0.44	0.00	0.20	0.15	0.00	0.00
Avail Cap(c_a), veh/h	285	2517	1357	437	2590	1415	159	0	117	152	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.93	0.93	0.93	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	5.3	5.8	5.8	4.2	6.2	6.2	65.6	0.0	64.0	64.0	0.0	0.0
Incr Delay (d2), s/veh	0.2	0.4	0.8	0.5	0.8	1.5	2.5	0.0	1.2	0.6	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	4.1	4.5	0.5	6.7	7.7	2.0	0.0	0.5	0.6	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	5.5	6.2	6.5	4.6	7.1	7.8	68.1	0.0	65.3	64.7	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	E	A	E	E	A	A
Approach Vol, veh/h	1493			2293			69			17		
Approach Delay, s/veh	6.3			7.2			67.5			64.7		
Approach LOS	A			A			E			E		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.5	115.1		14.4	12.7	112.9		14.4				
Change Period (Y+Rc), s	* 7.7	6.9		7.6	7.8	6.9		7.6				
Max Green Setting (Gmax), s	* 10	97.1		10.4	12.2	95.1		10.4				
Max Q Clear Time (g_c+I1), s	2.4	25.3		7.0	3.8	15.7		3.6				
Green Ext Time (p_c), s	0.0	45.0		0.0	0.1	22.6		0.0				
Intersection Summary												
HCM 6th Ctrl Delay	8.2											
HCM 6th LOS	A											
Notes												

Lanes, Volumes, Timings
24: I-4 & Saxon Blvd

2020 Buildout Conditions
Timing Plan: AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	325	894	0	0	2019	401	0	0	450	0	0	334
Future Volume (vph)	325	894	0	0	2019	401	0	0	450	0	0	334
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	7%	7%	7%	2%	2%	2%	7%	7%	7%	5%	5%	5%
Adj. Flow (vph)	361	993	0	0	2243	446	0	0	500	0	0	371
Shared Lane Traffic (%)												
Lane Group Flow (vph)	361	993	0	0	2243	446	0	0	500	0	0	371
Turn Type	Prot	NA			NA	Perm			Prot			Perm
Protected Phases	1	6			2				5			
Permitted Phases						2						6
Detector Phase	1	6			2	2			5			6
Switch Phase												
Minimum Initial (s)	5.0	15.0			17.0	17.0			6.0			15.0
Minimum Split (s)	12.7	21.8			23.8	23.8			12.0			21.8
Total Split (s)	40.0	118.0			100.0	100.0			22.0			118.0
Total Split (%)	28.6%	84.3%			71.4%	71.4%			15.7%			84.3%
Yellow Time (s)	5.4	4.8			4.8	4.8			4.0			4.8
All-Red Time (s)	2.3	2.0			2.0	2.0			2.0			2.0
Lost Time Adjust (s)	0.0	0.0			0.0	0.0			0.0			0.0
Total Lost Time (s)	7.7	6.8			6.8	6.8			6.0			6.8
Lead/Lag	Lead	Lag			Lag	Lag			Lead			Lag
Lead-Lag Optimize?	Yes	Yes			Yes	Yes			Yes			Yes
Recall Mode	None	C-Min			C-Min	C-Min			None			C-Min
v/c Ratio	0.95	0.19			0.94	0.40			0.77			0.25
Control Delay	84.2	2.9			19.4	4.1			14.5			0.4
Queue Delay	0.0	0.0			0.0	0.0			0.0			0.0
Total Delay	84.2	2.9			19.4	4.1			14.5			0.4
Queue Length 50th (ft)	325	31			490	69			5			0
Queue Length 95th (ft)	#519	85			m376	m57			50			0
Internal Link Dist (ft)		1519			3036			820			423	
Turn Bay Length (ft)	700					160						
Base Capacity (vph)	389	5201			2374	1108			822			1494
Starvation Cap Reductn	0	0			0	0			0			0
Spillback Cap Reductn	0	0			0	0			0			0
Storage Cap Reductn	0	0			0	0			0			0
Reduced v/c Ratio	0.93	0.19			0.94	0.40			0.61			0.25

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 104 (74%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow

Natural Cycle: 100

Control Type: Actuated-Coordinated

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 24: I-4 & Saxon Blvd



HCM Signalized Intersection Capacity Analysis
24: I-4 & Saxon Blvd

2020 Buildout Conditions
Timing Plan: AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			 				  			
Traffic Volume (vph)	325	894	0	0	2019	401	0	0	450	0	0	334
Future Volume (vph)	325	894	0	0	2019	401	0	0	450	0	0	334
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.7	6.8			6.8	6.8			6.0			6.8
Lane Util. Factor	1.00	0.86			0.95	1.00			0.76			1.00
Frt	1.00	1.00			1.00	0.85			0.85			0.86
Flt Protected	0.95	1.00			1.00	1.00			1.00			1.00
Satd. Flow (prot)	1687	6108			3539	1583			3441			1565
Flt Permitted	0.95	1.00			1.00	1.00			1.00			1.00
Satd. Flow (perm)	1687	6108			3539	1583			3441			1565
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	361	993	0	0	2243	446	0	0	500	0	0	371
RTOR Reduction (vph)	0	0	0	0	0	46	0	0	457	0	0	55
Lane Group Flow (vph)	361	993	0	0	2243	400	0	0	43	0	0	316
Heavy Vehicles (%)	7%	7%	7%	2%	2%	2%	7%	7%	7%	5%	5%	5%
Turn Type	Prot	NA			NA	Perm			Prot			Perm
Protected Phases	1	6			2				5			
Permitted Phases						2						6
Actuated Green, G (s)	31.6	119.2			93.9	93.9			8.0			119.2
Effective Green, g (s)	31.6	119.2			93.9	93.9			8.0			119.2
Actuated g/C Ratio	0.23	0.85			0.67	0.67			0.06			0.85
Clearance Time (s)	7.7	6.8			6.8	6.8			6.0			6.8
Vehicle Extension (s)	3.0	3.0			3.0	3.0			3.0			3.0
Lane Grp Cap (vph)	380	5200			2373	1061			196			1332
v/s Ratio Prot	c0.21	0.16			c0.63				0.01			
v/s Ratio Perm						0.25						0.20
v/c Ratio	0.95	0.19			0.95	0.38			0.22			0.24
Uniform Delay, d1	53.4	1.8			20.7	10.2			63.0			1.9
Progression Factor	0.92	1.44			0.72	0.54			1.00			1.00
Incremental Delay, d2	32.7	0.1			3.7	0.3			0.6			0.4
Delay (s)	81.9	2.7			18.6	5.8			63.6			2.4
Level of Service	F	A			B	A			E			A
Approach Delay (s)		23.9			16.5			63.6			2.4	
Approach LOS		C			B			E			A	
Intersection Summary												
HCM 2000 Control Delay		22.2			HCM 2000 Level of Service			C				
HCM 2000 Volume to Capacity ratio		0.95										
Actuated Cycle Length (s)		140.0			Sum of lost time (s)			14.5				
Intersection Capacity Utilization		87.8%			ICU Level of Service			E				
Analysis Period (min)		15										
c Critical Lane Group												

Lanes, Volumes, Timings
25: N Normandy Blvd & Saxon Blvd

2020 Buildout Conditions
Timing Plan: AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 		 	 		 	 		 	 	
Traffic Volume (vph)	355	442	110	29	1169	235	214	221	18	195	216	606
Future Volume (vph)	355	442	110	29	1169	235	214	221	18	195	216	606
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	8%	8%	8%	2%	2%	2%	3%	3%	3%	2%	2%	2%
Adj. Flow (vph)	408	508	126	33	1344	270	246	254	21	224	248	697
Shared Lane Traffic (%)												
Lane Group Flow (vph)	408	508	126	33	1344	270	246	275	0	224	248	697
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	pm+ov
Protected Phases	1	6		5	2		7	4		3	8	1
Permitted Phases	6		6	2		2	4			8		8
Detector Phase	1	6	6	5	2	2	7	4		3	8	1
Switch Phase												
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	5.0	10.0		5.0	10.0	5.0
Minimum Split (s)	12.6	21.9	21.9	13.1	21.9	21.9	11.8	16.9		12.5	16.9	12.6
Total Split (s)	36.4	70.0	70.0	13.2	46.8	46.8	19.0	30.8		26.0	37.8	36.4
Total Split (%)	26.0%	50.0%	50.0%	9.4%	33.4%	33.4%	13.6%	22.0%		18.6%	27.0%	26.0%
Yellow Time (s)	4.4	4.9	4.9	4.9	4.9	4.9	4.0	4.8		4.8	4.8	4.4
All-Red Time (s)	3.2	2.0	2.0	3.2	2.0	2.0	2.8	2.1		2.7	2.1	3.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	7.6	6.9	6.9	8.1	6.9	6.9	6.8	6.9		7.5	6.9	7.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None		None	None	None
v/c Ratio	0.53	0.30	0.15	0.10	1.29	0.44	0.83	0.89		0.78	0.64	0.89
Control Delay	34.9	21.2	3.2	19.8	176.8	12.9	61.7	85.8		53.7	58.6	45.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	34.9	21.2	3.2	19.8	176.8	12.9	61.7	85.8		53.7	58.6	45.0
Queue Length 50th (ft)	118	125	0	14	~835	44	167	245		151	205	507
Queue Length 95th (ft)	185	175	24	30	#926	114	#266	#381		216	287	#671
Internal Link Dist (ft)		3036			7092			3666			5060	
Turn Bay Length (ft)	520		220	470			260					385
Base Capacity (vph)	772	1675	822	315	1044	612	298	317		307	411	781
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.53	0.30	0.15	0.10	1.29	0.44	0.83	0.87		0.73	0.60	0.89

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 48 (34%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow

Natural Cycle: 100

Control Type: Actuated-Coordinated

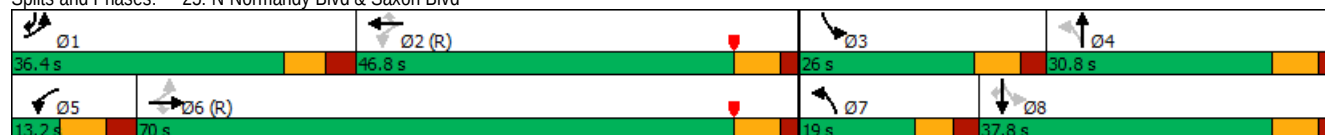
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

Splits and Phases: 25: N Normandy Blvd & Saxon Blvd



HCM 6th Signalized Intersection Summary
25: N Normandy Blvd & Saxon Blvd

2020 Buildout Conditions
Timing Plan: AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	355	442	110	29	1169	235	214	221	18	195	216	606
Future Volume (veh/h)	355	442	110	29	1169	235	214	221	18	195	216	606
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1781	1781	1781	1870	1870	1870	1856	1856	1856	1870	1870	1870
Adj Flow Rate, veh/h	408	508	69	33	1344	239	246	254	16	224	248	465
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	8	8	8	2	2	2	3	3	3	2	2	2
Cap, veh/h	481	1561	696	371	1336	596	280	323	20	310	413	532
Arrive On Green	0.04	0.15	0.15	0.03	0.38	0.38	0.09	0.19	0.19	0.12	0.22	0.22
Sat Flow, veh/h	3291	3385	1510	1781	3554	1585	1767	1727	109	1781	1870	1585
Grp Volume(v), veh/h	408	508	69	33	1344	239	246	0	270	224	248	465
Grp Sat Flow(s),veh/h/ln	1646	1692	1510	1781	1777	1585	1767	0	1836	1781	1870	1585
Q Serve(g_s), s	12.8	18.7	5.5	1.6	52.6	15.5	12.2	0.0	19.6	14.0	16.7	30.9
Cycle Q Clear(g_c), s	12.8	18.7	5.5	1.6	52.6	15.5	12.2	0.0	19.6	14.0	16.7	30.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.06	1.00		1.00
Lane Grp Cap(c), veh/h	481	1561	696	371	1336	596	280	0	344	310	413	532
V/C Ratio(X)	0.85	0.33	0.10	0.09	1.01	0.40	0.88	0.00	0.79	0.72	0.60	0.87
Avail Cap(c_a), veh/h	780	1561	696	390	1336	596	280	0	344	339	413	532
HCM Platoon Ratio	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.93	0.93	0.93	0.63	0.63	0.63	0.94	0.00	0.94	0.83	0.83	0.83
Uniform Delay (d), s/veh	46.7	39.9	34.3	25.7	43.7	32.1	47.6	0.0	54.2	40.6	49.0	43.7
Incr Delay (d2), s/veh	4.6	0.5	0.3	0.1	21.0	1.3	24.6	0.0	11.3	5.6	2.4	13.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.9	8.6	2.1	0.7	26.3	6.2	4.7	0.0	10.1	6.6	8.0	16.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	51.3	40.4	34.6	25.8	64.7	33.4	72.2	0.0	65.6	46.3	51.4	56.8
LnGrp LOS	D	D	C	C	F	C	E	A	E	D	D	E
Approach Vol, veh/h	985			1616			516			937		
Approach Delay, s/veh	44.5			59.3			68.7			52.9		
Approach LOS	D			E			E			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	23.7	59.5	23.7	33.1	11.7	71.5	19.0	37.8				
Change Period (Y+Rc), s	* 7.6	6.9	* 7.5	6.9	* 8.1	6.9	* 6.8	6.9				
Max Green Setting (Gmax), s	* 29	39.9	* 19	23.9	* 5.1	63.1	* 12	30.9				
Max Q Clear Time (g_c+I1), s	14.8	54.6	16.0	21.6	3.6	20.7	14.2	32.9				
Green Ext Time (p_c), s	1.2	0.0	0.2	0.4	0.0	5.6	0.0	0.0				

Intersection Summary

HCM 6th Ctrl Delay 55.4
HCM 6th LOS E

Notes

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

Lanes, Volumes, Timings
26: Tivoli Dr & Saxon Blvd

2020 Buildout Conditions
Timing Plan: AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	143	266	133	6	548	3	76	51	9	8	99	329
Future Volume (vph)	143	266	133	6	548	3	76	51	9	8	99	329
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	3%	3%	3%	4%	4%	4%	5%	5%	5%	4%	4%	4%
Adj. Flow (vph)	155	289	145	7	596	3	83	55	10	9	108	358
Shared Lane Traffic (%)												
Lane Group Flow (vph)	155	289	145	7	599	0	83	65	0	9	108	358
Turn Type	pm+pt	NA	Perm	Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases	5	2			6			4			8	
Permitted Phases	2		2	6			4			8		8
Detector Phase	5	2	2	6	6		4	4		8	8	8
Switch Phase												
Minimum Initial (s)	5.0	11.0	11.0	11.0	11.0		5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	12.0	17.5	17.5	17.5	17.5		11.5	11.5		11.5	11.5	11.5
Total Split (s)	15.0	45.0	45.0	30.0	30.0		30.0	30.0		30.0	30.0	30.0
Total Split (%)	20.0%	60.0%	60.0%	40.0%	40.0%		40.0%	40.0%		40.0%	40.0%	40.0%
Yellow Time (s)	4.5	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	2.5	2.5	2.5	2.5	2.5		2.5	2.5		2.5	2.5	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	7.0	6.5	6.5	6.5	6.5		6.5	6.5		6.5	6.5	6.5
Lead/Lag	Lead			Lag	Lag							
Lead-Lag Optimize?	Yes			Yes	Yes							
Recall Mode	None	Min	Min	Min	Min		None	None		None	None	None
v/c Ratio	0.40	0.26	0.14	0.02	0.80		0.39	0.21		0.04	0.35	0.65
Control Delay	9.2	6.8	1.8	14.0	29.1		28.3	20.6		21.0	25.6	9.9
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	9.2	6.8	1.8	14.0	29.1		28.3	20.6		21.0	25.6	9.9
Queue Length 50th (ft)	20	40	0	2	197		28	18		3	36	5
Queue Length 95th (ft)	55	98	21	10	#439		64	46		13	75	66
Internal Link Dist (ft)		7092			564			624			1001	
Turn Bay Length (ft)	390			120			265			150		
Base Capacity (vph)	393	1240	1102	437	749		510	731		536	749	839
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	0
Reduced v/c Ratio	0.39	0.23	0.13	0.02	0.80		0.16	0.09		0.02	0.14	0.43

Intersection Summary

Cycle Length: 75

Actuated Cycle Length: 58.8

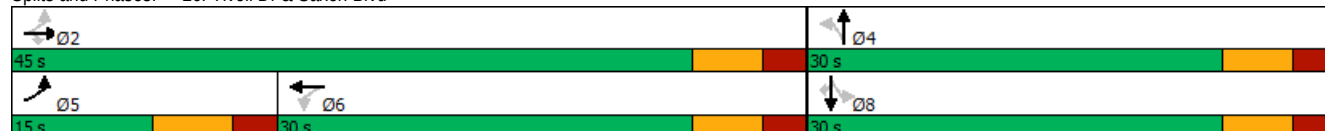
Natural Cycle: 60

Control Type: Actuated-Uncoordinated

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

Queue shown is maximum after two cycles.

Splits and Phases: 26: Tivoli Dr & Saxon Blvd



HCM 6th Signalized Intersection Summary
26: Tivoli Dr & Saxon Blvd

2020 Buildout Conditions
Timing Plan: AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	143	266	133	6	548	3	76	51	9	8	99	329
Future Volume (veh/h)	143	266	133	6	548	3	76	51	9	8	99	329
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1841	1841	1841	1826	1826	1826	1841	1841	1841
Adj Flow Rate, veh/h	155	289	20	7	596	3	83	55	10	9	108	358
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	4	4	4	5	5	5	4	4	4
Cap, veh/h	279	994	842	479	642	3	309	401	73	424	491	416
Arrive On Green	0.08	0.54	0.54	0.35	0.35	0.35	0.27	0.27	0.27	0.27	0.27	0.27
Sat Flow, veh/h	1767	1856	1572	1053	1830	9	905	1503	273	1315	1841	1560
Grp Volume(v), veh/h	155	289	20	7	0	599	83	0	65	9	108	358
Grp Sat Flow(s),veh/h/ln	1767	1856	1572	1053	0	1839	905	0	1777	1315	1841	1560
Q Serve(g_s), s	3.4	5.6	0.4	0.3	0.0	20.6	5.2	0.0	1.8	0.3	3.0	14.4
Cycle Q Clear(g_c), s	3.4	5.6	0.4	0.3	0.0	20.6	8.2	0.0	1.8	2.2	3.0	14.4
Prop In Lane	1.00		1.00	1.00		0.01	1.00		0.15	1.00		1.00
Lane Grp Cap(c), veh/h	279	994	842	479	0	645	309	0	474	424	491	416
V/C Ratio(X)	0.56	0.29	0.02	0.01	0.00	0.93	0.27	0.00	0.14	0.02	0.22	0.86
Avail Cap(c_a), veh/h	354	1086	920	486	0	657	391	0	634	543	657	557
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	15.1	8.4	7.2	14.0	0.0	20.6	22.0	0.0	18.4	19.2	18.8	23.0
Incr Delay (d2), s/veh	1.7	0.2	0.0	0.0	0.0	19.8	0.5	0.0	0.1	0.0	0.2	10.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	1.8	0.1	0.1	0.0	11.3	1.1	0.0	0.7	0.1	1.2	6.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	16.8	8.6	7.2	14.0	0.0	40.4	22.4	0.0	18.5	19.2	19.0	33.1
LnGrp LOS	B	A	A	B	A	D	C	A	B	B	B	C
Approach Vol, veh/h	464			606			148			475		
Approach Delay, s/veh	11.3			40.1			20.7			29.6		
Approach LOS	B			D			C			C		
Timer - Assigned Phs												
	2			4		5	6		8			
Phs Duration (G+Y+Rc), s	41.8			24.0		12.2	29.6		24.0			
Change Period (Y+Rc), s	6.5			6.5		7.0	6.5		6.5			
Max Green Setting (Gmax), s	38.5			23.5		8.0	23.5		23.5			
Max Q Clear Time (g_c+I1), s	7.6			10.2		5.4	22.6		16.4			
Green Ext Time (p_c), s	2.5			0.6		0.1	0.4		1.2			
Intersection Summary												
HCM 6th Ctrl Delay	27.6											
HCM 6th LOS	C											

Lanes, Volumes, Timings
27: N Normandy Blvd & Deltona Blvd

2020 Buildout Conditions
Timing Plan: AM Peak Hour

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	194	71	276	184	87	259
Future Volume (vph)	194	71	276	184	87	259
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%
Adj. Flow (vph)	206	76	294	196	93	276
Shared Lane Traffic (%)						
Lane Group Flow (vph)	206	76	294	196	93	276
Turn Type	Prot	Perm	pm+pt	NA	NA	Perm
Protected Phases	4		5	2	6	
Permitted Phases		4	2			6
Detector Phase	4	4	5	2	6	6
Switch Phase						
Minimum Initial (s)	4.0	4.0	3.0	10.0	10.0	10.0
Minimum Split (s)	10.0	10.0	9.5	16.5	17.0	17.0
Total Split (s)	20.0	20.0	15.0	40.0	25.0	25.0
Total Split (%)	33.3%	33.3%	25.0%	66.7%	41.7%	41.7%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.5	4.5
All-Red Time (s)	2.0	2.0	2.5	2.5	2.5	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.5	6.5	7.0	7.0
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Recall Mode	None	None	None	Min	Min	Min
v/c Ratio	0.54	0.19	0.46	0.17	0.22	0.48
Control Delay	22.9	6.2	9.4	7.0	18.2	6.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.9	6.2	9.4	7.0	18.2	6.1
Queue Length 50th (ft)	52	0	42	26	22	0
Queue Length 95th (ft)	110	25	92	60	56	48
Internal Link Dist (ft)	828			759	3666	
Turn Bay Length (ft)			230			350
Base Capacity (vph)	546	540	648	1346	739	792
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.38	0.14	0.45	0.15	0.13	0.35

Intersection Summary

Cycle Length: 60

Actuated Cycle Length: 46.3

Natural Cycle: 50

Control Type: Actuated-Uncoordinated

Splits and Phases: 27: N Normandy Blvd & Deltona Blvd



HCM 6th Signalized Intersection Summary
27: N Normandy Blvd & Deltona Blvd

2020 Buildout Conditions
Timing Plan: AM Peak Hour

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	194	71	276	184	87	259
Future Volume (veh/h)	194	71	276	184	87	259
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1841	1841	1841	1841	1841	1841
Adj Flow Rate, veh/h	206	22	294	196	93	148
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	4	4	4	4	4	4
Cap, veh/h	271	241	660	998	429	364
Arrive On Green	0.15	0.15	0.16	0.54	0.23	0.23
Sat Flow, veh/h	1753	1560	1753	1841	1841	1560
Grp Volume(v), veh/h	206	22	294	196	93	148
Grp Sat Flow(s),veh/h/ln	1753	1560	1753	1841	1841	1560
Q Serve(g_s), s	4.8	0.5	4.9	2.3	1.8	3.4
Cycle Q Clear(g_c), s	4.8	0.5	4.9	2.3	1.8	3.4
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	271	241	660	998	429	364
V/C Ratio(X)	0.76	0.09	0.45	0.20	0.22	0.41
Avail Cap(c_a), veh/h	572	509	731	1437	772	654
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.4	15.6	8.4	5.0	13.3	13.9
Incr Delay (d2), s/veh	3.3	0.1	0.4	0.1	0.3	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	0.0	1.4	0.6	0.6	1.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	20.6	15.7	8.7	5.1	13.5	14.7
LnGrp LOS	C	B	A	A	B	B
Approach Vol, veh/h	228			490	241	
Approach Delay, s/veh	20.2			7.3	14.2	
Approach LOS	C			A	B	
Timer - Assigned Phs	2			4	5	6
Phs Duration (G+Y+Rc), s	30.3			12.6	13.3	17.0
Change Period (Y+Rc), s	* 7			6.0	6.5	7.0
Max Green Setting (Gmax), s	* 34			14.0	8.5	18.0
Max Q Clear Time (g_c+I1), s	4.3			6.8	6.9	5.4
Green Ext Time (p_c), s	1.1			0.3	0.1	0.7
Intersection Summary						
HCM 6th Ctrl Delay			12.1			
HCM 6th LOS			B			
Notes						
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.						

Lanes, Volumes, Timings
28: N Normandy Blvd & Driveway 1

2020 Buildout Conditions
Timing Plan: AM Peak Hour

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	3	0	0	979	1088	1
Future Volume (vph)	3	0	0	979	1088	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	3	0	0	1064	1183	1
Shared Lane Traffic (%)						
Lane Group Flow (vph)	3	0	0	1064	1184	0
Sign Control	Stop			Free	Free	
Intersection Summary						
Control Type: Unsignalized						

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	3	0	0	979	1088	1
Future Vol, veh/h	3	0	0	979	1088	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	0	-	-	-
Veh in Median Storage, #	1	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	0	0	1064	1183	1
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	2248	1184	1184	0	-	0
Stage 1	1184	-	-	-	-	-
Stage 2	1064	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	46	230	590	-	-	-
Stage 1	290	-	-	-	-	-
Stage 2	332	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	46	230	590	-	-	-
Mov Cap-2 Maneuver	162	-	-	-	-	-
Stage 1	290	-	-	-	-	-
Stage 2	332	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	27.7	0		0		
HCM LOS	D					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	590	-	162	-	-	-
HCM Lane V/C Ratio	-	-	0.02	-	-	-
HCM Control Delay (s)	0	-	27.7	0	-	-
HCM Lane LOS	A	-	D	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-	-

Lanes, Volumes, Timings
29: N Normandy Blvd & Driveway 2

2020 Buildout Conditions
Timing Plan: AM Peak Hour

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	1	0	23	977	832	257
Future Volume (vph)	1	0	23	977	832	257
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1	0	25	1062	904	279
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1	0	25	1062	904	279
Turn Type	Prot	Perm	Perm	NA	NA	Perm
Protected Phases	4			2	6	
Permitted Phases		4	2			6
Detector Phase	4	4	2	2	6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	20.0	20.0	20.0	20.0
Minimum Split (s)	24.0	24.0	27.5	27.5	27.5	27.5
Total Split (s)	24.0	24.0	56.0	56.0	56.0	56.0
Total Split (%)	30.0%	30.0%	70.0%	70.0%	70.0%	70.0%
Yellow Time (s)	4.0	4.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.5	2.5	2.5	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	7.5	7.5	7.5	7.5
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None	Min	Min	Min	Min
v/c Ratio	0.01		0.05	0.60	0.51	0.18
Control Delay	31.0		1.4	3.6	2.6	0.5
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	31.0		1.4	3.6	2.6	0.5
Queue Length 50th (ft)	0		0	0	0	0
Queue Length 95th (ft)	5		8	376	255	14
Internal Link Dist (ft)	802			1009	1577	
Turn Bay Length (ft)						
Base Capacity (vph)	569		485	1713	1713	1478
Starvation Cap Reductn	0		0	0	0	0
Spillback Cap Reductn	0		0	0	0	0
Storage Cap Reductn	0		0	0	0	0
Reduced v/c Ratio	0.00		0.05	0.62	0.53	0.19
Intersection Summary						
Cycle Length: 80						
Actuated Cycle Length: 58.4						
Natural Cycle: 80						
Control Type: Actuated-Uncoordinated						

Splits and Phases: 29: N Normandy Blvd & Driveway 2



HCM 6th Signalized Intersection Summary
29: N Normandy Blvd & Driveway 2

2020 Buildout Conditions
Timing Plan: AM Peak Hour

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	1	0	23	977	832	257
Future Volume (veh/h)	1	0	23	977	832	257
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1	0	25	1062	904	279
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	4	4	353	1286	1286	1090
Arrive On Green	0.00	0.00	0.69	0.69	0.69	0.69
Sat Flow, veh/h	1781	1585	474	1870	1870	1585
Grp Volume(v), veh/h	1	0	25	1062	904	279
Grp Sat Flow(s),veh/h/ln	1781	1585	474	1870	1870	1585
Q Serve(g_s), s	0.0	0.0	1.5	17.8	12.7	2.9
Cycle Q Clear(g_c), s	0.0	0.0	14.1	17.8	12.7	2.9
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	4	4	353	1286	1286	1090
V/C Ratio(X)	0.24	0.00	0.07	0.83	0.70	0.26
Avail Cap(c_a), veh/h	739	657	557	2090	2090	1771
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	21.6	0.0	8.4	4.9	4.1	2.6
Incr Delay (d2), s/veh	28.2	0.0	0.1	1.5	0.7	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.1	1.0	0.6	0.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	49.8	0.0	8.5	6.4	4.8	2.7
LnGrp LOS	D	A	A	A	A	A
Approach Vol, veh/h	1			1087	1183	
Approach Delay, s/veh	49.8			6.4	4.3	
Approach LOS	D			A	A	
Timer - Assigned Phs	2			4		6
Phs Duration (G+Y+Rc), s	37.3			6.1		37.3
Change Period (Y+Rc), s	7.5			6.0		7.5
Max Green Setting (Gmax), s	48.5			18.0		48.5
Max Q Clear Time (g_c+I1), s	19.8			2.0		14.7
Green Ext Time (p_c), s	10.0			0.0		8.7
Intersection Summary						
HCM 6th Ctrl Delay			5.4			
HCM 6th LOS			A			

Lanes, Volumes, Timings
30: N Normandy Blvd & Driveway 3

2020 Buildout Conditions
Timing Plan: AM Peak Hour

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	1	200	945	824	63
Future Volume (vph)	0	1	200	945	824	63
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	5%	5%	3%	3%	5%	5%
Adj. Flow (vph)	0	1	217	1027	896	68
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1	217	1027	896	68
Turn Type	Prot	Perm	Perm	NA	NA	Perm
Protected Phases	4			2	6	
Permitted Phases		4	2			6
Detector Phase	4	4	2	2	6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	20.0	20.0	20.0	20.0
Minimum Split (s)	24.0	24.0	27.5	27.5	27.5	27.5
Total Split (s)	24.0	24.0	66.0	66.0	66.0	66.0
Total Split (%)	26.7%	26.7%	73.3%	73.3%	73.3%	73.3%
Yellow Time (s)	4.0	4.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.5	2.5	2.5	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	7.5	7.5	7.5	7.5
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None	Min	Min	Min	Min
v/c Ratio		0.00	0.41	0.58	0.52	0.05
Control Delay		0.0	4.0	3.0	2.5	0.5
Queue Delay		0.0	0.0	0.0	0.0	0.0
Total Delay		0.0	4.0	3.0	2.5	0.5
Queue Length 50th (ft)		0	0	0	0	0
Queue Length 95th (ft)		0	76	326	245	7
Internal Link Dist (ft)	962			808	1009	
Turn Bay Length (ft)						
Base Capacity (vph)		520	525	1769	1736	1478
Starvation Cap Reductn		0	0	0	0	0
Spillback Cap Reductn		0	0	0	0	0
Storage Cap Reductn		0	0	0	0	0
Reduced v/c Ratio		0.00	0.41	0.58	0.52	0.05

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 74.2

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Splits and Phases: 30: N Normandy Blvd & Driveway 3

	Ø2			Ø4
	66 s			24 s
	Ø6			
	66 s			

HCM 6th Signalized Intersection Summary
30: N Normandy Blvd & Driveway 3

2020 Buildout Conditions
Timing Plan: AM Peak Hour

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	1	200	945	824	63
Future Volume (veh/h)	0	1	200	945	824	63
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1826	1826	1856	1856	1826	1826
Adj Flow Rate, veh/h	0	1	217	1027	896	68
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	5	5	3	3	5	5
Cap, veh/h	3	3	433	1410	1387	1176
Arrive On Green	0.00	0.00	0.76	0.76	0.76	0.76
Sat Flow, veh/h	1739	1547	578	1856	1826	1547
Grp Volume(v), veh/h	0	1	217	1027	896	68
Grp Sat Flow(s),veh/h/ln	1739	1547	578	1856	1826	1547
Q Serve(g_s), s	0.0	0.0	16.0	16.8	13.1	0.6
Cycle Q Clear(g_c), s	0.0	0.0	29.1	16.8	13.1	0.6
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	3	3	433	1410	1387	1176
V/C Ratio(X)	0.00	0.37	0.50	0.73	0.65	0.06
Avail Cap(c_a), veh/h	554	493	592	1920	1889	1601
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	28.2	10.1	3.7	3.2	1.7
Incr Delay (d2), s/veh	0.0	66.4	0.9	0.9	0.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.1	1.4	0.8	0.5	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.0	94.6	11.0	4.6	3.7	1.7
LnGrp LOS	A	F	B	A	A	A
Approach Vol, veh/h	1			1244	964	
Approach Delay, s/veh	94.6			5.7	3.6	
Approach LOS	F			A	A	
Timer - Assigned Phs	2		4		6	
Phs Duration (G+Y+Rc), s	50.5		6.1		50.5	
Change Period (Y+Rc), s	7.5		6.0		7.5	
Max Green Setting (Gmax), s	58.5		18.0		58.5	
Max Q Clear Time (g_c+I1), s	31.1		2.0		15.1	
Green Ext Time (p_c), s	11.9		0.0		7.9	
Intersection Summary						
HCM 6th Ctrl Delay			4.8			
HCM 6th LOS			A			

Lanes, Volumes, Timings
31: N Normandy Blvd & Driveway 4

2020 Buildout Conditions
Timing Plan: AM Peak Hour

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	1	29	1121	816	0
Future Volume (vph)	0	1	29	1121	816	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1	32	1218	887	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1	0	32	1218	887	0
Sign Control	Stop			Free	Free	
Intersection Summary						
Control Type: Unsignalized						

Intersection						
Int Delay, s/veh	0.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W		W	↑	↑↑	
Traffic Vol, veh/h	0	1	29	1121	816	0
Future Vol, veh/h	0	1	29	1121	816	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	0	-	-	-
Veh in Median Storage, #	1	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	1	32	1218	887	0
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	2169	444	887	0	-	0
Stage 1	887	-	-	-	-	-
Stage 2	1282	-	-	-	-	-
Critical Hdwy	6.63	6.93	4.13	-	-	-
Critical Hdwy Stg 1	5.83	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.519	3.319	2.219	-	-	-
Pot Cap-1 Maneuver	45	562	761	-	-	-
Stage 1	364	-	-	-	-	-
Stage 2	260	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	43	562	761	-	-	-
Mov Cap-2 Maneuver	145	-	-	-	-	-
Stage 1	349	-	-	-	-	-
Stage 2	260	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	11.4	0.3		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	761	-	562	-	-	
HCM Lane V/C Ratio	0.041	-	0.002	-	-	
HCM Control Delay (s)	9.9	-	11.4	-	-	
HCM Lane LOS	A	-	B	-	-	
HCM 95th %tile Q(veh)	0.1	-	0	-	-	

Arterial Level of Service: EB E Saxon Blvd

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
N Normandy Blvd	II	40	53.1	21.2	74.3	0.59	28.6	B
Tivoli Dr	II	40	122.3	6.8	129.1	1.36	37.9	A
Total	II		175.4	28.0	203.4	1.95	34.5	B

Arterial Level of Service: WB E Saxon Blvd

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Tivoli Dr	II	35	15.2	29.1	44.3	0.12	9.9	F
N Normandy Blvd	II	40	122.3	176.8	299.1	1.36	16.3	E
I-4	II	45	47.2	19.4	66.6	0.59	31.9	B
Total	II		184.7	225.3	410.0	2.07	18.2	D

Arterial Level of Service: EB SR 472

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
N Kentucky Ave	I	55	17.7	44.8	62.5	0.18	10.5	F
I-4 WB	I	55	36.3	30.6	66.9	0.55	29.8	C
I-4 EB	I	50	30.3	22.9	53.2	0.32	21.6	D
E Graves Ave	I	50	26.1	65.9	92.0	0.28	10.8	F
Total	I		110.4	164.2	274.6	1.33	17.5	E

Arterial Level of Service: WB SR 472

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
I-4 EB	I	50	26.1	15.9	42.0	0.28	23.6	D
I-4 WB	I	50	30.3	4.6	34.9	0.32	32.9	C
Dr. Martin Luther Ki	I	55	36.3	28.3	64.6	0.55	30.9	C
Total	I		92.7	48.8	141.5	1.15	29.2	C

Arterial Level of Service: EB W Saxon Blvd

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Broward Ave	II	45	21.4	18.5	39.9	0.20	17.7	D
FDOT Park & Ride	II	45	33.9	8.5	42.4	0.35	30.0	B
Total	II		55.3	27.0	82.3	0.55	24.1	C

Arterial Level of Service: WB W Saxon Blvd

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
FDOT Park & Ride	II	45	10.1	8.5	18.6	0.09	17.9	D
Veterans Memorial Pk	II	45	33.9	26.4	60.3	0.35	21.1	D
Total	II		44.0	34.9	78.9	0.45	20.3	D

H5: AM Peak Hour Buildout Traffic Conditions with Mitigation

Lanes, Volumes, Timings
6: Veterans Memorial Pkwy & E Graves Ave

2020 Buildout Conditions w/Imp
Timing Plan: AM Peak Hour

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗	↘	↑	↖	↗
Traffic Volume (vph)	239	35	810	344	51	538
Future Volume (vph)	239	35	810	344	51	538
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	6%	6%	6%	6%	12%	12%
Adj. Flow (vph)	260	38	880	374	55	585
Shared Lane Traffic (%)						
Lane Group Flow (vph)	260	38	880	374	55	585
Turn Type	NA	Perm	pm+pt	NA	Prot	pm+ov
Protected Phases	2		1	6	8	1
Permitted Phases		2	6			8
Detector Phase	2	2	1	6	8	1
Switch Phase						
Minimum Initial (s)	11.0	11.0	7.0	11.0	7.0	7.0
Minimum Split (s)	18.0	18.0	14.0	18.0	14.0	14.0
Total Split (s)	20.0	20.0	41.0	61.0	14.0	41.0
Total Split (%)	26.7%	26.7%	54.7%	81.3%	18.7%	54.7%
Yellow Time (s)	4.5	4.5	4.5	4.5	5.0	4.5
All-Red Time (s)	2.5	2.5	2.5	2.5	2.0	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag	Lag	Lag	Lead			Lead
Lead-Lag Optimize?	Yes	Yes	Yes			Yes
Recall Mode	Min	Min	None	Min	None	None
v/c Ratio	0.56	0.09	0.57	0.26	0.23	0.46
Control Delay	26.6	8.9	5.5	4.2	27.1	5.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.6	8.9	5.5	4.2	27.1	5.4
Queue Length 50th (ft)	80	0	64	49	17	30
Queue Length 95th (ft)	#197	21	91	83	52	55
Internal Link Dist (ft)	7674			1636	7026	
Turn Bay Length (ft)		400	300		1000	
Base Capacity (vph)	500	453	2462	1679	242	2225
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.52	0.08	0.36	0.22	0.23	0.26

Intersection Summary

Cycle Length: 75

Actuated Cycle Length: 50.2

Natural Cycle: 55

Control Type: Actuated-Uncoordinated

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

Queue shown is maximum after two cycles.

Splits and Phases: 6: Veterans Memorial Pkwy & E Graves Ave



HCM 6th Signalized Intersection Summary
6: Veterans Memorial Pkwy & E Graves Ave

2020 Buildout Conditions w/Imp
Timing Plan: AM Peak Hour

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗	↘	↑	↘	↗
Traffic Volume (veh/h)	239	35	810	344	51	538
Future Volume (veh/h)	239	35	810	344	51	538
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1811	1811	1811	1811	1722	1722
Adj Flow Rate, veh/h	260	16	880	374	55	420
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	6	6	6	6	12	12
Cap, veh/h	371	315	1331	1102	214	1036
Arrive On Green	0.21	0.21	0.27	0.61	0.13	0.13
Sat Flow, veh/h	1811	1535	3346	1811	1640	2569
Grp Volume(v), veh/h	260	16	880	374	55	420
Grp Sat Flow(s),veh/h/ln	1811	1535	1673	1811	1640	1284
Q Serve(g_s), s	7.1	0.4	9.3	5.5	1.6	6.3
Cycle Q Clear(g_c), s	7.1	0.4	9.3	5.5	1.6	6.3
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	371	315	1331	1102	214	1036
V/C Ratio(X)	0.70	0.05	0.66	0.34	0.26	0.41
Avail Cap(c_a), veh/h	439	372	2538	1823	214	1036
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	19.8	17.1	9.8	5.2	21.0	11.4
Incr Delay (d2), s/veh	4.8	0.1	0.6	0.3	0.6	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.1	0.1	2.3	1.1	0.6	1.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	24.6	17.2	10.4	5.4	21.6	11.7
LnGrp LOS	C	B	B	A	C	B
Approach Vol, veh/h	276			1254	475	
Approach Delay, s/veh	24.1			8.9	12.8	
Approach LOS	C			A	B	
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	21.6	18.0			39.6	14.0
Change Period (Y+Rc), s	7.0	7.0			7.0	7.0
Max Green Setting (Gmax), s	34.0	13.0			54.0	7.0
Max Q Clear Time (g_c+I1), s	11.3	9.1			7.5	8.3
Green Ext Time (p_c), s	3.4	0.6			3.4	0.0
Intersection Summary						
HCM 6th Ctrl Delay			11.9			
HCM 6th LOS			B			

Lanes, Volumes, Timings
7: S Kentucky Ave/N Kentucky Ave & E Graves Ave

2020 Buildout Conditions w/Imp
Timing Plan: AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	201	614	8	11	862	486	17	12	5	380	7	339
Future Volume (vph)	201	614	8	11	862	486	17	12	5	380	7	339
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	11%	11%	11%	4%	4%	4%	2%	2%	2%	6%	6%	6%
Adj. Flow (vph)	231	706	9	13	991	559	20	14	6	437	8	390
Shared Lane Traffic (%)												
Lane Group Flow (vph)	231	715	0	13	1550	0	0	40	0	437	398	0
Turn Type	Prot	NA		Perm	NA		Split	NA		Split	NA	
Protected Phases	5	2			6		4	4		8	8	
Permitted Phases				6								
Detector Phase	5	2		6	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	5.0	11.0		11.0	11.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	11.0	18.0		18.0	18.0		14.0	14.0		14.0	14.0	
Total Split (s)	27.0	100.0		73.0	73.0		14.0	14.0		26.0	26.0	
Total Split (%)	19.3%	71.4%		52.1%	52.1%		10.0%	10.0%		18.6%	18.6%	
Yellow Time (s)	4.0	5.0		5.0	5.0		4.0	4.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		3.0	3.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Lead/Lag	Lead			Lag	Lag							
Lead-Lag Optimize?	Yes			Yes	Yes							
Recall Mode	None	Min		Min	Min		None	None		None	None	
v/c Ratio	0.93	0.33		0.04	0.95		0.42	0.42		0.94	0.79	
Control Delay	98.8	10.0		20.5	46.1		71.4	71.4		87.6	22.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	98.8	10.0		20.5	46.1		71.4	71.4		87.6	22.5	
Queue Length 50th (ft)	211	136		6	675		32	32		207	49	
Queue Length 95th (ft)	#357	163		18	#798		70	70		#300	158	
Internal Link Dist (ft)		1636			3200		455	455			4140	
Turn Bay Length (ft)	200			235						320		
Base Capacity (vph)	252	2234		339	1658		96	96		464	506	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.92	0.32		0.04	0.93		0.42	0.42		0.94	0.79	

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 135.7

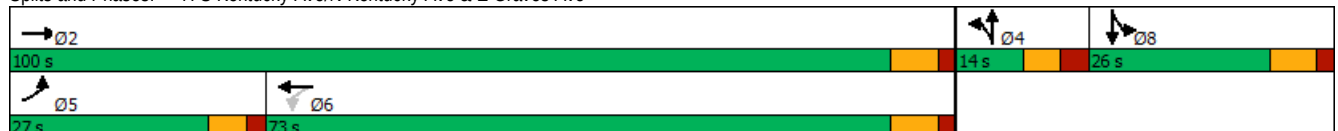
Natural Cycle: 120

Control Type: Actuated-Uncoordinated

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

Queue shown is maximum after two cycles.

Splits and Phases: 7: S Kentucky Ave/N Kentucky Ave & E Graves Ave



HCM 6th Signalized Intersection Summary
 7: S Kentucky Ave/N Kentucky Ave & E Graves Ave

2020 Buildout Conditions w/Imp
 Timing Plan: AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	201	614	8	11	862	486	17	12	5	380	7	339
Future Volume (veh/h)	201	614	8	11	862	486	17	12	5	380	7	339
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1737	1737	1737	1841	1841	1841	1870	1870	1870	1811	1811	1811
Adj Flow Rate, veh/h	231	706	9	13	991	434	20	14	3	437	8	208
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	11	11	11	4	4	4	2	2	2	6	6	6
Cap, veh/h	252	2217	28	392	1111	479	38	26	6	472	8	210
Arrive On Green	0.15	0.66	0.66	0.47	0.47	0.47	0.04	0.04	0.04	0.14	0.14	0.14
Sat Flow, veh/h	1654	3337	43	724	2379	1025	971	679	146	3346	57	1486
Grp Volume(v), veh/h	231	349	366	13	724	701	37	0	0	437	0	216
Grp Sat Flow(s),veh/h/ln	1654	1650	1729	724	1749	1656	1796	0	0	1673	0	1544
Q Serve(g_s), s	18.5	12.1	12.1	1.3	50.7	52.7	2.7	0.0	0.0	17.4	0.0	18.8
Cycle Q Clear(g_c), s	18.5	12.1	12.1	1.3	50.7	52.7	2.7	0.0	0.0	17.4	0.0	18.8
Prop In Lane	1.00		0.02	1.00		0.62	0.54		0.08	1.00		0.96
Lane Grp Cap(c), veh/h	252	1096	1149	392	817	774	70	0	0	472	0	218
V/C Ratio(X)	0.92	0.32	0.32	0.03	0.89	0.91	0.53	0.00	0.00	0.93	0.00	0.99
Avail Cap(c_a), veh/h	258	1139	1193	408	856	811	93	0	0	472	0	218
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	56.2	9.6	9.6	19.5	32.7	33.2	63.5	0.0	0.0	57.2	0.0	57.8
Incr Delay (d2), s/veh	34.0	0.2	0.2	0.0	11.1	13.7	6.1	0.0	0.0	24.4	0.0	58.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.9	4.1	4.2	0.2	22.8	22.9	1.4	0.0	0.0	8.8	0.0	10.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	90.3	9.9	9.9	19.5	43.8	46.9	69.6	0.0	0.0	81.6	0.0	116.6
LnGrp LOS	F	A	A	B	D	D	E	A	A	F	A	F
Approach Vol, veh/h	946			1438			37			653		
Approach Delay, s/veh	29.5			45.1			69.6			93.2		
Approach LOS	C			D			E			F		
Timer - Assigned Phs	2			4			5			6		
Phs Duration (G+Y+Rc), s	96.5			12.2			26.6			70.0		
Change Period (Y+Rc), s	7.0			7.0			6.0			7.0		
Max Green Setting (Gmax), s	93.0			7.0			21.0			66.0		
Max Q Clear Time (g_c+I1), s	14.1			4.7			20.5			54.7		
Green Ext Time (p_c), s	7.1			0.0			0.0			8.3		
Intersection Summary												
HCM 6th Ctrl Delay	50.8											
HCM 6th LOS	D											

Lanes, Volumes, Timings
8: N Normandy Blvd & E Graves Ave

2020 Buildout Conditions w/Imp
Timing Plan: AM Peak Hour

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑↑	↑↑	↑	↑↑	↑
Traffic Volume (vph)	450	783	626	617	703	608
Future Volume (vph)	450	783	626	617	703	608
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	10%	10%	5%	5%	2%	2%
Adj. Flow (vph)	489	851	680	671	764	661
Shared Lane Traffic (%)						
Lane Group Flow (vph)	489	851	680	671	764	661
Turn Type	NA	pm+ov	Prot	NA	Prot	Perm
Protected Phases	6	4	5	2	4	
Permitted Phases		6				4
Detector Phase	6	4	5	2	4	4
Switch Phase						
Minimum Initial (s)	12.0	7.0	5.0	12.0	7.0	7.0
Minimum Split (s)	19.0	13.0	12.0	19.0	13.0	13.0
Total Split (s)	27.0	37.0	26.0	53.0	37.0	37.0
Total Split (%)	30.0%	41.1%	28.9%	58.9%	41.1%	41.1%
Yellow Time (s)	5.0	4.0	5.0	5.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	6.0	7.0	7.0	6.0	6.0
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Recall Mode	Min	None	None	Min	None	None
v/c Ratio	0.71	0.53	0.91	0.72	0.68	0.74
Control Delay	37.9	10.0	51.3	21.6	28.3	10.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.9	10.0	51.3	21.6	28.3	10.1
Queue Length 50th (ft)	134	126	198	282	186	39
Queue Length 95th (ft)	188	173	#310	420	247	165
Internal Link Dist (ft)	3200			471	1184	
Turn Bay Length (ft)		630	400		200	
Base Capacity (vph)	781	1719	754	991	1266	938
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.63	0.50	0.90	0.68	0.60	0.70

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 84.7

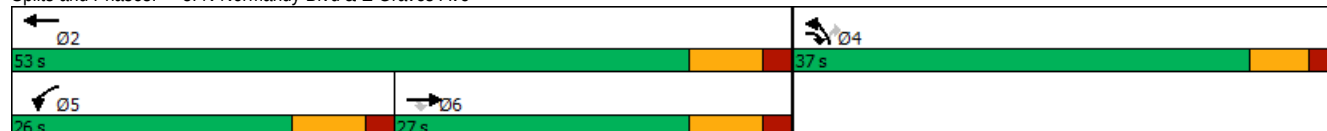
Natural Cycle: 60

Control Type: Actuated-Uncoordinated

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

Queue shown is maximum after two cycles.

Splits and Phases: 8: N Normandy Blvd & E Graves Ave



HCM 6th Signalized Intersection Summary
8: N Normandy Blvd & E Graves Ave

2020 Buildout Conditions w/Imp
Timing Plan: AM Peak Hour

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑↑	↑↑	↑	↑↑	↑
Traffic Volume (veh/h)	450	783	626	617	703	608
Future Volume (veh/h)	450	783	626	617	703	608
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1752	1752	1826	1826	1870	1870
Adj Flow Rate, veh/h	489	851	680	671	764	252
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	10	10	5	5	2	2
Cap, veh/h	836	1366	763	1032	939	431
Arrive On Green	0.25	0.25	0.23	0.57	0.27	0.27
Sat Flow, veh/h	3416	2613	3374	1826	3456	1585
Grp Volume(v), veh/h	489	851	680	671	764	252
Grp Sat Flow(s),veh/h/ln	1664	1306	1687	1826	1728	1585
Q Serve(g_s), s	10.3	18.4	15.6	20.1	16.5	11.0
Cycle Q Clear(g_c), s	10.3	18.4	15.6	20.1	16.5	11.0
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	836	1366	763	1032	939	431
V/C Ratio(X)	0.59	0.62	0.89	0.65	0.81	0.59
Avail Cap(c_a), veh/h	836	1366	805	1055	1345	617
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.2	13.5	29.9	11.9	27.1	25.1
Incr Delay (d2), s/veh	1.3	1.0	11.8	1.6	2.6	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.9	8.1	7.0	6.9	6.5	0.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	27.5	14.5	41.7	13.5	29.7	26.4
LnGrp LOS	C	B	D	B	C	C
Approach Vol, veh/h	1340			1351	1016	
Approach Delay, s/veh	19.2			27.7	28.9	
Approach LOS	B			C	C	
Timer - Assigned Phs	2			4	5	6
Phs Duration (G+Y+Rc), s	52.0			27.6	25.0	27.0
Change Period (Y+Rc), s	7.0			6.0	7.0	7.0
Max Green Setting (Gmax), s	46.0			31.0	19.0	20.0
Max Q Clear Time (g_c+I1), s	22.1			18.5	17.6	20.4
Green Ext Time (p_c), s	6.3			3.2	0.4	0.0
Intersection Summary						
HCM 6th Ctrl Delay			25.0			
HCM 6th LOS			C			

Lanes, Volumes, Timings
9: E Graves Ave & Howland Blvd

2020 Buildout Conditions w/Imp
Timing Plan: AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	536	62	518	19	51	122	710	1802	13	75	670	213
Future Volume (vph)	536	62	518	19	51	122	710	1802	13	75	670	213
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	6%	6%	6%	4%	4%	4%	3%	3%	3%	8%	8%	8%
Adj. Flow (vph)	583	67	563	21	55	133	772	1959	14	82	728	232
Shared Lane Traffic (%)												
Lane Group Flow (vph)	583	67	563	21	55	133	772	1959	14	82	728	232
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	5.0	17.0	17.0	7.0	17.0	17.0
Minimum Split (s)	15.0	15.0	15.0	14.5	14.5	14.5	12.0	24.5	24.5	14.0	24.5	24.5
Total Split (s)	34.4	33.1	33.1	15.9	14.6	14.6	51.0	87.0	87.0	14.0	50.0	50.0
Total Split (%)	22.9%	22.1%	22.1%	10.6%	9.7%	9.7%	34.0%	58.0%	58.0%	9.3%	33.3%	33.3%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.5	5.5	5.0	5.5	5.5
All-Red Time (s)	3.0	3.0	3.0	2.5	2.5	2.5	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	8.0	8.0	8.0	7.5	7.5	7.5	7.0	7.5	7.5	7.0	7.5	7.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Min	C-Min	None	C-Min	C-Min
v/c Ratio	1.00	0.17	0.75	0.13	0.64	0.43	0.87	1.05	0.02	0.54	0.48	0.36
Control Delay	107.1	66.5	31.5	80.9	51.1	3.3	64.6	71.5	0.0	83.6	43.3	4.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	107.1	66.5	31.5	80.9	51.1	3.3	64.6	71.5	0.0	83.6	43.3	4.9
Queue Length 50th (ft)	~305	62	251	9	50	6	372	~1100	0	41	212	0
Queue Length 95th (ft)	#432	111	311	m8	m46	m0	435	#1233	0	71	267	51
Internal Link Dist (ft)		1373			8563			569			283	
Turn Bay Length (ft)	330			565			280			185		
Base Capacity (vph)	581	384	750	188	86	308	997	1857	925	151	1522	645
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.00	0.17	0.75	0.11	0.64	0.43	0.77	1.05	0.02	0.54	0.48	0.36

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 82 (55%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow

Natural Cycle: 150

Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 9: E Graves Ave & Howland Blvd



HCM 6th Signalized Intersection Summary
9: E Graves Ave & Howland Blvd

2020 Buildout Conditions w/Imp
Timing Plan: AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	536	62	518	19	51	122	710	1802	13	75	670	213
Future Volume (veh/h)	536	62	518	19	51	122	710	1802	13	75	670	213
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1811	1811	1811	1841	1841	1841	1856	1856	1856	1781	1781	1781
Adj Flow Rate, veh/h	583	67	0	21	55	30	772	1959	13	82	728	199
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	6	6	6	4	4	4	3	3	3	8	8	8
Cap, veh/h	589	325		159	86	73	846	2146	957	154	1988	617
Arrive On Green	0.18	0.18	0.00	0.05	0.05	0.05	0.25	0.61	0.61	0.05	0.41	0.41
Sat Flow, veh/h	3346	1811	1535	3401	1841	1560	3428	3526	1572	3291	4863	1510
Grp Volume(v), veh/h	583	67	0	21	55	30	772	1959	13	82	728	199
Grp Sat Flow(s),veh/h/ln	1673	1811	1535	1700	1841	1560	1714	1763	1572	1646	1621	1510
Q Serve(g_s), s	26.1	4.7	0.0	0.9	4.4	2.8	32.8	73.4	0.5	3.7	15.6	13.5
Cycle Q Clear(g_c), s	26.1	4.7	0.0	0.9	4.4	2.8	32.8	73.4	0.5	3.7	15.6	13.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	589	325		159	86	73	846	2146	957	154	1988	617
V/C Ratio(X)	0.99	0.21		0.13	0.64	0.41	0.91	0.91	0.01	0.53	0.37	0.32
Avail Cap(c_a), veh/h	589	325		190	87	74	1006	2146	957	154	1988	617
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.94	0.94	0.00	0.09	0.09	0.09	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	61.7	52.5	0.0	68.6	70.3	69.5	54.9	25.8	11.6	69.9	30.8	30.2
Incr Delay (d2), s/veh	33.3	0.3	0.0	0.0	1.4	0.3	11.0	7.4	0.0	3.6	0.5	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	13.5	2.1	0.0	0.4	2.1	1.1	15.4	31.3	0.2	1.6	6.3	5.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	95.0	52.7	0.0	68.6	71.7	69.8	66.0	33.2	11.6	73.5	31.4	31.6
LnGrp LOS	F	D		E	E	E	E	C	B	E	C	C
Approach Vol, veh/h	650			A			106			2744		
Approach Delay, s/veh	90.6			70.6			42.3			34.8		
Approach LOS	F			E			D			C		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	14.0	99.0	14.5	34.9	44.0	69.0	34.4	15.0				
Change Period (Y+Rc), s	7.0	7.5	7.5	8.0	7.0	7.5	8.0	* 8				
Max Green Setting (Gmax), s	7.0	79.5	8.4	25.1	44.0	42.5	26.4	* 7.1				
Max Q Clear Time (g_c+I1), s	5.7	75.4	2.9	6.7	34.8	17.6	28.1	6.4				
Green Ext Time (p_c), s	0.0	3.9	0.0	0.2	2.2	8.7	0.0	0.0				

Intersection Summary												
HCM 6th Ctrl Delay	48.3											
HCM 6th LOS	D											

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
25: N Normandy Blvd & Saxon Blvd

2020 Buildout Conditions w/Imp
Timing Plan: AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	355	442	110	29	1169	235	214	221	18	195	216	606
Future Volume (vph)	355	442	110	29	1169	235	214	221	18	195	216	606
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	8%	8%	8%	2%	2%	2%	3%	3%	3%	2%	2%	2%
Adj. Flow (vph)	408	508	126	33	1344	270	246	254	21	224	248	697
Shared Lane Traffic (%)												
Lane Group Flow (vph)	408	508	126	33	1344	270	246	275	0	224	248	697
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA		Prot	NA	pm+ov
Protected Phases	1	6		5	2		7	4		3	8	1
Permitted Phases	6		6	2		2						8
Detector Phase	1	6	6	5	2	2	7	4		3	8	1
Switch Phase												
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	5.0	10.0		5.0	10.0	5.0
Minimum Split (s)	12.6	21.9	21.9	13.1	21.9	21.9	11.8	16.9		12.5	16.9	12.6
Total Split (s)	24.0	70.0	70.0	13.2	59.2	59.2	27.0	33.8		23.0	29.8	24.0
Total Split (%)	17.1%	50.0%	50.0%	9.4%	42.3%	42.3%	19.3%	24.1%		16.4%	21.3%	17.1%
Yellow Time (s)	4.4	4.9	4.9	4.9	4.9	4.9	4.0	4.8		4.8	4.8	4.4
All-Red Time (s)	3.2	2.0	2.0	3.2	2.0	2.0	2.8	2.1		2.7	2.1	3.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	7.6	6.9	6.9	8.1	6.9	6.9	6.8	6.9		7.5	6.9	7.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None		None	None	None
v/c Ratio	0.87	0.31	0.15	0.08	0.99	0.37	0.98	0.76		0.66	0.86	0.73
Control Delay	57.2	26.1	6.9	17.2	65.2	9.1	110.0	67.2		70.7	83.7	41.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	57.2	26.1	6.9	17.2	65.2	9.1	110.0	67.2		70.7	83.7	41.5
Queue Length 50th (ft)	149	132	0	14	-679	35	226	236		102	221	277
Queue Length 95th (ft)	#214	197	m31	30	#770	93	#381	#343		141	#336	341
Internal Link Dist (ft)		3036			7092			3666			5060	
Turn Bay Length (ft)	520		220	470			260					385
Base Capacity (vph)	477	1658	818	391	1357	737	252	361		380	304	960
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.86	0.31	0.15	0.08	0.99	0.37	0.98	0.76		0.59	0.82	0.73

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 48 (34%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow

Natural Cycle: 120

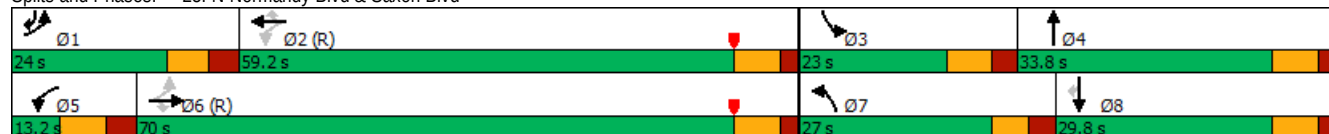
Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

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

Splits and Phases: 25: N Normandy Blvd & Saxon Blvd



HCM 6th Signalized Intersection Summary
25: N Normandy Blvd & Saxon Blvd

2020 Buildout Conditions w/Imp
Timing Plan: AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	355	442	110	29	1169	235	214	221	18	195	216	606
Future Volume (veh/h)	355	442	110	29	1169	235	214	221	18	195	216	606
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1781	1781	1781	1870	1870	1870	1856	1856	1856	1870	1870	1870
Adj Flow Rate, veh/h	408	508	69	33	1344	239	246	254	16	224	248	465
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	8	8	8	2	2	2	3	3	3	2	2	2
Cap, veh/h	460	1566	699	373	1372	612	255	382	24	277	303	749
Arrive On Green	0.04	0.15	0.15	0.03	0.39	0.39	0.14	0.22	0.22	0.08	0.16	0.16
Sat Flow, veh/h	3291	3385	1510	1781	3554	1585	1767	1727	109	3456	1870	2790
Grp Volume(v), veh/h	408	508	69	33	1344	239	246	0	270	224	248	465
Grp Sat Flow(s),veh/h/ln	1646	1692	1510	1781	1777	1585	1767	0	1836	1728	1870	1395
Q Serve(g_s), s	12.6	18.7	5.5	1.6	52.3	15.3	19.4	0.0	18.8	8.9	17.9	20.5
Cycle Q Clear(g_c), s	12.6	18.7	5.5	1.6	52.3	15.3	19.4	0.0	18.8	8.9	17.9	20.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.06	1.00		1.00
Lane Grp Cap(c), veh/h	460	1566	699	373	1372	612	255	0	406	277	303	749
V/C Ratio(X)	0.89	0.32	0.10	0.09	0.98	0.39	0.96	0.00	0.66	0.81	0.82	0.62
Avail Cap(c_a), veh/h	496	1566	699	391	1372	612	255	0	406	383	306	753
HCM Platoon Ratio	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.83	0.83	0.83	0.63	0.63	0.63	0.94	0.00	0.94	0.83	0.83	0.83
Uniform Delay (d), s/veh	46.0	39.8	34.2	24.9	42.4	31.1	59.5	0.0	49.8	63.3	56.7	45.0
Incr Delay (d2), s/veh	14.4	0.5	0.2	0.1	15.1	1.2	44.8	0.0	4.3	7.4	14.0	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.6	8.6	2.1	0.7	25.1	6.0	11.8	0.0	9.1	4.2	9.6	7.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	60.4	40.3	34.4	25.0	57.6	32.3	104.4	0.0	54.1	70.7	70.6	46.5
LnGrp LOS	E	D	C	C	E	C	F	A	D	E	E	D
Approach Vol, veh/h	985			1616			516			937		
Approach Delay, s/veh	48.2			53.1			78.1			58.7		
Approach LOS	D			D			E			E		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	22.5	60.9	18.7	37.9	11.7	71.7	27.0	29.6				
Change Period (Y+Rc), s	* 7.6	6.9	* 7.5	6.9	* 8.1	6.9	* 6.8	6.9				
Max Green Setting (Gmax), s	* 16	52.3	* 16	26.9	* 5.1	63.1	* 20	22.9				
Max Q Clear Time (g_c+I1), s	14.6	54.3	10.9	20.8	3.6	20.7	21.4	22.5				
Green Ext Time (p_c), s	0.3	0.0	0.3	1.0	0.0	5.6	0.0	0.2				

Intersection Summary

HCM 6th Ctrl Delay 56.4
HCM 6th LOS E

Notes

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

Arterial Level of Service: EB E Saxon Blvd

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
N Normandy Blvd	II	40	53.1	26.1	79.2	0.59	26.8	C
Tivoli Dr	II	40	122.3	6.8	129.1	1.36	37.9	A
Total	II		175.4	32.9	208.3	1.95	33.7	B

Arterial Level of Service: WB E Saxon Blvd

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Tivoli Dr	II	35	15.2	29.1	44.3	0.12	9.9	F
N Normandy Blvd	II	40	122.3	65.2	187.5	1.36	26.1	C
I-4	II	45	47.2	15.5	62.7	0.59	33.9	B
Total	II		184.7	109.8	294.5	2.07	25.3	C

Arterial Level of Service: EB SR 472

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
N Kentucky Ave	I	55	17.7	44.8	62.5	0.18	10.5	F
I-4 WB	I	55	36.3	30.6	66.9	0.55	29.8	C
I-4 EB	I	50	30.3	22.9	53.2	0.32	21.6	D
E Graves Ave	I	50	26.1	66.5	92.6	0.28	10.7	F
Total	I		110.4	164.8	275.2	1.33	17.4	E

Arterial Level of Service: WB SR 472

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
I-4 EB	I	50	26.1	16.8	42.9	0.28	23.1	D
I-4 WB	I	50	30.3	4.4	34.7	0.32	33.1	C
Dr. Martin Luther Ki	I	55	36.3	28.3	64.6	0.55	30.9	C
Total	I		92.7	49.5	142.2	1.15	29.1	C

Arterial Level of Service: EB W Saxon Blvd

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Broward Ave	II	45	21.4	18.5	39.9	0.20	17.7	D
FDOT Park & Ride	II	45	33.9	8.5	42.4	0.35	30.0	B
Total	II		55.3	27.0	82.3	0.55	24.1	C

Arterial Level of Service: WB W Saxon Blvd

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
FDOT Park & Ride	II	45	10.1	8.5	18.6	0.09	17.9	D
Veterans Memorial Pk	II	45	33.9	26.4	60.3	0.35	21.1	D
Total	II		44.0	34.9	78.9	0.45	20.3	D

H6: PM Peak Hour Existing Traffic Conditions

Lanes, Volumes, Timings
1: Dr Martin Luther King Jr Beltway & Orange Camp Rd

2019 Existing Conditions
Timing Plan: PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	47	341	96	42	484	174	185	330	28	239	380	64
Future Volume (vph)	47	341	96	42	484	174	185	330	28	239	380	64
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
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	49	359	101	44	509	183	195	347	29	252	400	67
Shared Lane Traffic (%)												
Lane Group Flow (vph)	49	460	0	44	692	0	195	347	29	252	400	67
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8			4			6		6	2		2
Detector Phase	3	8		7	4		1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	7.0		5.0	17.0	17.0	5.0	17.0	17.0
Minimum Split (s)	11.5	14.5		11.5	14.5		11.5	24.5	24.5	11.5	24.5	24.5
Total Split (s)	30.0	60.0		30.0	60.0		30.0	60.0	60.0	30.0	60.0	60.0
Total Split (%)	16.7%	33.3%		16.7%	33.3%		16.7%	33.3%	33.3%	16.7%	33.3%	33.3%
Yellow Time (s)	3.5	5.5		3.5	5.5		3.5	5.5	5.5	3.5	5.5	5.5
All-Red Time (s)	3.0	2.0		3.0	2.0		3.0	2.0	2.0	3.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	7.5		6.5	7.5		6.5	7.5	7.5	6.5	7.5	7.5
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None		None	None		None	Min	Min	None	Min	Min
v/c Ratio	0.32	0.66		0.15	1.01		0.65	0.80	0.06	0.71	0.82	0.14
Control Delay	29.4	43.9		24.7	79.0		36.3	64.4	0.3	37.5	62.5	1.8
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.4	43.9		24.7	79.0		36.3	64.4	0.3	37.5	62.5	1.8
Queue Length 50th (ft)	24	346		21	-676		114	304	0	152	346	0
Queue Length 95th (ft)	60	592		55	#1155		173	436	0	224	503	8
Internal Link Dist (ft)		536			746			5808			524	
Turn Bay Length (ft)	385			550			340		375	335		380
Base Capacity (vph)	347	699		464	688		407	710	669	406	710	669
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.14	0.66		0.09	1.01		0.48	0.49	0.04	0.62	0.56	0.10

Intersection Summary

Cycle Length: 180

Actuated Cycle Length: 139.1

Natural Cycle: 100

Control Type: Actuated-Uncoordinated

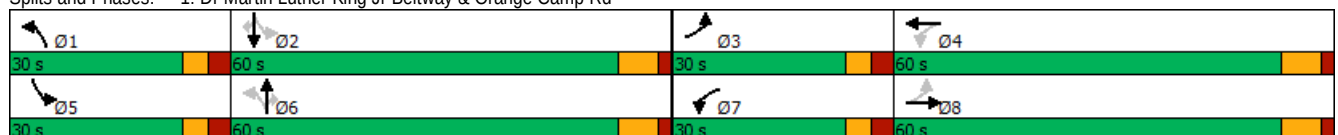
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

Splits and Phases: 1: Dr Martin Luther King Jr Beltway & Orange Camp Rd



HCM 6th Signalized Intersection Summary
1: Dr Martin Luther King Jr Beltway & Orange Camp Rd

2019 Existing Conditions
Timing Plan: PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	47	341	96	42	484	174	185	330	28	239	380	64
Future Volume (veh/h)	47	341	96	42	484	174	185	330	28	239	380	64
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	49	359	87	44	509	171	195	347	16	252	400	42
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	3	3	3	3	3	3	3	3	3
Cap, veh/h	134	583	141	302	531	178	275	414	350	325	460	390
Arrive On Green	0.03	0.40	0.40	0.03	0.40	0.40	0.10	0.22	0.22	0.13	0.25	0.25
Sat Flow, veh/h	1781	1454	352	1767	1329	446	1767	1856	1572	1767	1856	1572
Grp Volume(v), veh/h	49	0	446	44	0	680	195	347	16	252	400	42
Grp Sat Flow(s),veh/h/ln	1781	0	1807	1767	0	1775	1767	1856	1572	1767	1856	1572
Q Serve(g_s), s	2.1	0.0	25.2	1.9	0.0	47.8	10.7	22.9	1.0	13.9	26.5	2.6
Cycle Q Clear(g_c), s	2.1	0.0	25.2	1.9	0.0	47.8	10.7	22.9	1.0	13.9	26.5	2.6
Prop In Lane	1.00		0.20	1.00		0.25	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	134	0	724	302	0	709	275	414	350	325	460	390
V/C Ratio(X)	0.37	0.00	0.62	0.15	0.00	0.96	0.71	0.84	0.05	0.78	0.87	0.11
Avail Cap(c_a), veh/h	403	0	741	572	0	728	419	761	645	425	761	645
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.8	0.0	30.5	23.9	0.0	37.4	35.5	47.6	39.1	34.3	46.2	37.2
Incr Delay (d2), s/veh	1.7	0.0	1.8	0.2	0.0	23.7	3.4	6.4	0.1	6.5	7.9	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.0	10.7	0.8	0.0	24.0	4.6	10.8	0.4	6.2	12.6	1.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	32.5	0.0	32.3	24.1	0.0	61.1	38.8	54.0	39.1	40.8	54.1	37.4
LnGrp LOS	C	A	C	C	A	E	D	D	D	D	D	D
Approach Vol, veh/h	495			724			558			694		
Approach Delay, s/veh	32.3			58.9			48.3			48.3		
Approach LOS	C			E			D			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	19.6	39.2	10.6	58.7	22.8	36.0	10.5	58.8				
Change Period (Y+Rc), s	6.5	7.5	6.5	7.5	6.5	7.5	6.5	7.5				
Max Green Setting (Gmax), s	23.5	52.5	23.5	52.5	23.5	52.5	23.5	52.5				
Max Q Clear Time (g_c+I1), s	12.7	28.5	4.1	49.8	15.9	24.9	3.9	27.2				
Green Ext Time (p_c), s	0.4	3.3	0.1	1.4	0.4	2.7	0.1	3.7				
Intersection Summary												
HCM 6th Ctrl Delay	48.2											
HCM 6th LOS	D											

Lanes, Volumes, Timings
2: N Kentucky Ave/Dr. Martin Luther King Jr Beltway & SR 472

2019 Existing Conditions
Timing Plan: PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	57	1040	205	143	968	321	80	232	38	227	255	36
Future Volume (vph)	57	1040	205	143	968	321	80	232	38	227	255	36
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	4%	4%	4%	2%	2%	2%
Adj. Flow (vph)	61	1118	220	154	1041	345	86	249	41	244	274	39
Shared Lane Traffic (%)												
Lane Group Flow (vph)	61	1118	220	154	1041	345	0	335	41	244	274	39
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Split	NA	Perm	Split	NA	Perm
Protected Phases	1	6		5	2		4	4		8	8	
Permitted Phases			6			2			4			8
Detector Phase	1	6	6	5	2	2	4	4	4	8	8	8
Switch Phase												
Minimum Initial (s)	5.0	17.0	17.0	5.0	17.0	17.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	13.3	25.3	25.3	13.3	25.3	25.3	15.8	15.8	15.8	16.4	16.4	16.4
Total Split (s)	19.0	58.0	58.0	20.0	59.0	59.0	37.0	37.0	37.0	35.0	35.0	35.0
Total Split (%)	12.7%	38.7%	38.7%	13.3%	39.3%	39.3%	24.7%	24.7%	24.7%	23.3%	23.3%	23.3%
Yellow Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.6	5.6	5.6
All-Red Time (s)	2.8	2.8	2.8	2.8	2.8	2.8	3.3	3.3	3.3	3.8	3.8	3.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	8.3	8.3	8.3	8.3	8.3	8.3		8.8	8.8	9.4	9.4	9.4
Lead/Lag	Lead	Lead	Lead	Lag	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes						
Recall Mode	None	Min	Min	None	C-Min	C-Min	None	None	None	None	None	None
v/c Ratio	0.55	0.94	0.32	1.12	0.80	0.43		0.99	0.09	0.84	0.89	0.09
Control Delay	86.3	63.6	5.5	168.4	48.9	6.9		106.6	0.3	84.2	91.0	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Delay	86.3	63.6	5.5	168.4	48.9	6.9		106.6	0.3	84.2	91.0	0.4
Queue Length 50th (ft)	59	563	0	~171	505	28		331	0	233	264	0
Queue Length 95th (ft)	111	#706	60	m#323	582	87		#539	0	#369	#420	0
Internal Link Dist (ft)		884			2846			4140			2874	
Turn Bay Length (ft)	400		395	425		400			485	350		350
Base Capacity (vph)	126	1189	678	137	1301	799		338	477	302	317	455
Starvation Cap Reductn	0	0	0	0	0	0		0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0		0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0		0	0	0	0	0
Reduced v/c Ratio	0.48	0.94	0.32	1.12	0.80	0.43		0.99	0.09	0.81	0.86	0.09

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 0 (0%), Referenced to phase 2:WBT, Start of Yellow

Natural Cycle: 140

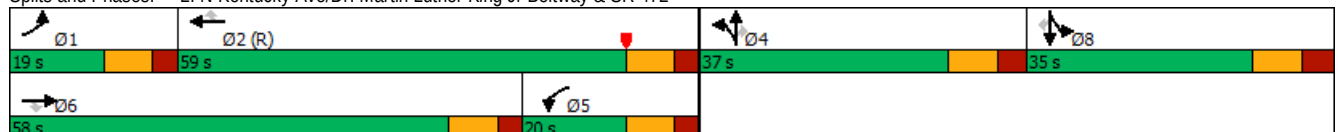
Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

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

Splits and Phases: 2: N Kentucky Ave/Dr. Martin Luther King Jr Beltway & SR 472



HCM 6th Signalized Intersection Summary
 2: N Kentucky Ave/Dr. Martin Luther King Jr Beltway & SR 472

2019 Existing Conditions
 Timing Plan: PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	57	1040	205	143	968	321	80	232	38	227	255	36
Future Volume (veh/h)	57	1040	205	143	968	321	80	232	38	227	255	36
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No				No				No			
Adj Sat Flow, veh/h/ln	1870	1870	1870	1856	1856	1856	1841	1841	1841	1870	1870	1870
Adj Flow Rate, veh/h	61	1118	103	154	1041	163	86	249	0	244	274	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	3	3	3	4	4	4	2	2	2
Cap, veh/h	78	1169	522	158	1322	589	88	254		288	302	
Arrive On Green	0.04	0.33	0.33	0.03	0.12	0.12	0.19	0.19	0.00	0.16	0.16	0.00
Sat Flow, veh/h	1781	3554	1585	1767	3526	1572	467	1351	1560	1781	1870	1585
Grp Volume(v), veh/h	61	1118	103	154	1041	163	335	0	0	244	274	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1767	1763	1572	1817	0	1560	1781	1870	1585
Q Serve(g_s), s	5.1	46.2	7.0	13.1	43.0	14.1	27.5	0.0	0.0	20.0	21.6	0.0
Cycle Q Clear(g_c), s	5.1	46.2	7.0	13.1	43.0	14.1	27.5	0.0	0.0	20.0	21.6	0.0
Prop In Lane	1.00		1.00	1.00		1.00	0.26		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	78	1169	522	158	1322	589	342	0		288	302	
V/C Ratio(X)	0.78	0.96	0.20	0.97	0.79	0.28	0.98	0.00		0.85	0.91	
Avail Cap(c_a), veh/h	127	1177	525	158	1322	589	342	0		304	319	
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.83	0.83	0.83	0.64	0.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	71.0	49.3	36.1	72.6	59.9	47.3	60.6	0.0	0.0	61.1	61.8	0.0
Incr Delay (d2), s/veh	15.6	16.8	0.3	57.3	4.0	1.0	33.9	0.0	0.0	19.7	28.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.6	22.3	2.7	8.7	21.0	6.0	15.7	0.0	0.0	10.3	12.3	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	86.6	66.1	36.4	129.9	64.0	48.2	94.5	0.0	0.0	80.8	89.8	0.0
LnGrp LOS	F	E	D	F	E	D	F	A		F	F	
Approach Vol, veh/h	1282				1358				335			
Approach Delay, s/veh	64.7				69.5				94.5			
Approach LOS	E				E				F			
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	14.9	64.5		37.0	21.7	57.7		33.6				
Change Period (Y+Rc), s	* 8.3	* 8.3		* 8.8	* 8.3	* 8.3		9.4				
Max Green Setting (Gmax), s	* 11	* 51		* 28	* 12	* 50		25.6				
Max Q Clear Time (g_c+I1), s	7.1	45.0		29.5	15.1	48.2		23.6				
Green Ext Time (p_c), s	0.0	3.9		0.0	0.0	1.2		0.6				

Intersection Summary

HCM 6th Ctrl Delay 72.5
 HCM 6th LOS E

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
 Unsignalized Delay for [NBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
3: SR 472 & I-4

2019 Existing Conditions
Timing Plan: PM Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↓	↑↑					↓↓		↓
Traffic Volume (vph)	0	693	635	339	1159	0	0	0	0	331	0	267
Future Volume (vph)	0	693	635	339	1159	0	0	0	0	331	0	267
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	0	737	676	361	1233	0	0	0	0	352	0	284
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	737	676	361	1233	0	0	0	0	352	0	284
Turn Type		NA	Perm	Prot	NA					Prot		Prot
Protected Phases		6		5	2					8		8
Permitted Phases			6									8
Detector Phase		6	6	5	2					8		8
Switch Phase												
Minimum Initial (s)		17.0	17.0	6.0	17.0					7.0		7.0
Minimum Split (s)		24.1	24.1	13.1	24.1					15.0		15.0
Total Split (s)		66.0	66.0	45.0	111.0					39.0		39.0
Total Split (%)		44.0%	44.0%	30.0%	74.0%					26.0%		26.0%
Yellow Time (s)		5.1	5.1	5.1	5.1					5.1		5.1
All-Red Time (s)		2.0	2.0	2.0	2.0					2.9		2.9
Lost Time Adjust (s)		0.0	0.0	0.0	0.0					0.0		0.0
Total Lost Time (s)		7.1	7.1	7.1	7.1					8.0		8.0
Lead/Lag		Lag	Lag	Lead								
Lead-Lag Optimize?		Yes	Yes	Yes								
Recall Mode		C-Min	C-Min	None	C-Min					None		None
v/c Ratio		0.46	0.65	0.86	0.47					0.64		0.83
Control Delay		8.3	6.9	80.0	10.8					63.3		58.3
Queue Delay		0.0	0.0	0.0	0.0					0.0		0.0
Total Delay		8.3	6.9	80.0	10.8					63.3		58.3
Queue Length 50th (ft)		56	42	359	298					169		179
Queue Length 95th (ft)		m290	m567	406	176					204		269
Internal Link Dist (ft)		2846			1605			330			679	
Turn Bay Length (ft)			500							550		550
Base Capacity (vph)		1645	1048	463	2629					725		415
Starvation Cap Reductn		0	0	0	0					0		0
Spillback Cap Reductn		0	0	0	0					0		0
Storage Cap Reductn		0	0	0	0					0		0
Reduced v/c Ratio		0.45	0.65	0.78	0.47					0.49		0.68

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 38 (25%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow

Natural Cycle: 75

Control Type: Actuated-Coordinated

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

Splits and Phases: 3: SR 472 & I-4



HCM 6th Signalized Intersection Summary
3: SR 472 & I-4

2019 Existing Conditions
Timing Plan: PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↓	↑↑					↓↓		↓
Traffic Volume (veh/h)	0	693	635	339	1159	0	0	0	0	331	0	267
Future Volume (veh/h)	0	693	635	339	1159	0	0	0	0	331	0	267
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0				1870	0	1870
Adj Flow Rate, veh/h	0	737	0	361	1233	0				352	0	116
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94				0.94	0.94	0.94
Percent Heavy Veh, %	0	2	2	2	2	0				2	0	2
Cap, veh/h	0	1837		379	2762	0				422	0	193
Arrive On Green	0.00	0.52	0.00	0.43	1.00	0.00				0.12	0.00	0.12
Sat Flow, veh/h	0	3647	1585	1781	3647	0				3456	0	1585
Grp Volume(v), veh/h	0	737	0	361	1233	0				352	0	116
Grp Sat Flow(s),veh/h/ln	0	1777	1585	1781	1777	0				1728	0	1585
Q Serve(g_s), s	0.0	19.0	0.0	29.3	0.0	0.0				14.9	0.0	10.4
Cycle Q Clear(g_c), s	0.0	19.0	0.0	29.3	0.0	0.0				14.9	0.0	10.4
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1837		379	2762	0				422	0	193
V/C Ratio(X)	0.00	0.40		0.95	0.45	0.00				0.83	0.00	0.60
Avail Cap(c_a), veh/h	0	1837		450	2762	0				714	0	328
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.32	0.00	0.85	0.85	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	22.1	0.0	42.3	0.0	0.0				64.4	0.0	62.4
Incr Delay (d2), s/veh	0.0	0.2	0.0	25.3	0.4	0.0				4.4	0.0	3.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	7.5	0.0	12.6	0.2	0.0				6.7	0.0	4.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	22.3	0.0	67.6	0.4	0.0				68.8	0.0	65.3
LnGrp LOS	A	C		E	A	A				E	A	E
Approach Vol, veh/h		737	A		1594						468	
Approach Delay, s/veh		22.3			15.7						67.9	
Approach LOS		C			B						E	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		123.7			39.0	84.7		26.3				
Change Period (Y+Rc), s		7.1			7.1	7.1		8.0				
Max Green Setting (Gmax), s		103.9			37.9	58.9		31.0				
Max Q Clear Time (g_c+I1), s		2.0			31.3	21.0		16.9				
Green Ext Time (p_c), s		11.0			0.6	4.8		1.4				
Intersection Summary												
HCM 6th Ctrl Delay			26.1									
HCM 6th LOS			C									
Notes												
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.												

Lanes, Volumes, Timings
4: I-4 & Howland Blvd/Graves Avenue

2019 Existing Conditions
Timing Plan: PM Peak Hour

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑		↑↑↑	↘↘	↗
Traffic Volume (vph)	973	74	0	914	764	817
Future Volume (vph)	973	74	0	914	764	817
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	2%	2%	4%	4%	3%	3%
Adj. Flow (vph)	1035	79	0	972	813	869
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1035	79	0	972	813	869
Turn Type	NA	Perm		NA	Prot	Perm
Protected Phases	2			6	4	
Permitted Phases		2				4
Detector Phase	2	2		6	4	4
Switch Phase						
Minimum Initial (s)	17.0	17.0		7.0	7.0	7.0
Minimum Split (s)	24.5	24.5		14.2	14.2	14.2
Total Split (s)	91.0	91.0		91.0	59.0	59.0
Total Split (%)	60.7%	60.7%		60.7%	39.3%	39.3%
Yellow Time (s)	5.5	5.5		4.8	4.8	4.8
All-Red Time (s)	2.0	2.0		2.4	2.4	2.4
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	7.5	7.5		7.2	7.2	7.2
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	Min	Min		C-Max	None	None
v/c Ratio	0.53	0.09		0.35	0.69	1.45
Control Delay	7.1	1.0		18.6	46.0	242.6
Queue Delay	0.0	0.0		0.0	0.0	0.0
Total Delay	7.1	1.0		18.6	46.0	242.6
Queue Length 50th (ft)	98	1		184	352	~1097
Queue Length 95th (ft)	84	0		216	427	#1358
Internal Link Dist (ft)	1605			1373	1105	
Turn Bay Length (ft)		620				1000
Base Capacity (vph)	1970	916		2786	1174	601
Starvation Cap Reductn	0	0		0	0	0
Spillback Cap Reductn	0	0		0	0	0
Storage Cap Reductn	0	0		0	0	0
Reduced v/c Ratio	0.53	0.09		0.35	0.69	1.45

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 73 (49%), Referenced to phase 6:WBT, Start of Yellow

Natural Cycle: 100

Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 4: I-4 & Howland Blvd/Graves Avenue

→ Ø2		↖ Ø4
91 s		59 s
← Ø6 (R)		
91 s		

HCM 6th Signalized Intersection Summary
4: I-4 & Howland Blvd/Graves Avenue

2019 Existing Conditions
Timing Plan: PM Peak Hour

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑		↑↑↑	↘↗	↗
Traffic Volume (veh/h)	973	74	0	914	764	817
Future Volume (veh/h)	973	74	0	914	764	817
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	0	1841	1856	1856
Adj Flow Rate, veh/h	1035	0	0	972	813	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	0	4	3	3
Cap, veh/h	1985		0	2807	923	
Arrive On Green	0.56	0.00	0.00	0.56	0.27	0.00
Sat Flow, veh/h	3647	1585	0	5356	3428	1572
Grp Volume(v), veh/h	1035	0	0	972	813	0
Grp Sat Flow(s),veh/h/ln	1777	1585	0	1675	1714	1572
Q Serve(g_s), s	27.2	0.0	0.0	15.9	34.1	0.0
Cycle Q Clear(g_c), s	27.2	0.0	0.0	15.9	34.1	0.0
Prop In Lane		1.00	0.00		1.00	1.00
Lane Grp Cap(c), veh/h	1985		0	2807	923	
V/C Ratio(X)	0.52		0.00	0.35	0.88	
Avail Cap(c_a), veh/h	1985		0	2807	1184	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.85	0.00	0.00	0.26	1.00	0.00
Uniform Delay (d), s/veh	20.6	0.0	0.0	18.1	52.5	0.0
Incr Delay (d2), s/veh	0.3	0.0	0.0	0.1	7.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.7	0.0	0.0	5.9	15.3	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	20.9	0.0	0.0	18.2	59.7	0.0
LnGrp LOS	C		A	B	E	
Approach Vol, veh/h	1035	A		972	813	A
Approach Delay, s/veh	20.9			18.2	59.7	
Approach LOS	C			B	E	
Timer - Assigned Phs	2			4		6
Phs Duration (G+Y+Rc), s	91.3			47.6		91.3
Change Period (Y+Rc), s	7.5			* 7.2		* 7.5
Max Green Setting (Gmax), s	83.5			* 52		* 84
Max Q Clear Time (g_c+I1), s	29.2			36.1		17.9
Green Ext Time (p_c), s	12.7			4.3		11.4

Intersection Summary

HCM 6th Ctrl Delay 31.2
HCM 6th LOS C

Notes

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

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

Lanes, Volumes, Timings
5: S Volusia Ave/N Volusia Ave & E Graves Ave

2019 Existing Conditions
Timing Plan: PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	33	18	116	58	128	14	1209	117	105	1029	38
Future Volume (vph)	25	33	18	116	58	128	14	1209	117	105	1029	38
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
Heavy Vehicles (%)	2%	2%	2%	4%	4%	4%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	26	34	19	121	60	133	15	1259	122	109	1072	40
Shared Lane Traffic (%)												
Lane Group Flow (vph)	26	53	0	121	193	0	15	1381	0	109	1112	0
Turn Type	Split	NA		Split	NA		Perm	NA		pm+pt	NA	
Protected Phases	8	8		4	4			6		5	2	
Permitted Phases							6			2		
Detector Phase	8	8		4	4		6	6		5	2	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		15.0	15.0		5.0	15.0	
Minimum Split (s)	15.7	15.7		15.9	15.9		22.3	22.3		12.2	22.3	
Total Split (s)	20.0	20.0		30.0	30.0		80.0	80.0		20.0	100.0	
Total Split (%)	13.3%	13.3%		20.0%	20.0%		53.3%	53.3%		13.3%	66.7%	
Yellow Time (s)	3.4	3.4		3.8	3.8		4.5	4.5		4.4	4.5	
All-Red Time (s)	2.3	2.3		2.1	2.1		2.8	2.8		2.8	2.8	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.7	5.7		5.9	5.9		7.3	7.3		7.2	7.3	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?							Yes	Yes		Yes		
Recall Mode	None	None		None	None		C-Min	C-Min		None	C-Min	
v/c Ratio	0.21	0.39		0.60	0.79		0.05	0.67		0.45	0.45	
Control Delay	69.6	57.7		74.6	64.4		5.6	10.8		14.6	11.3	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	69.6	57.7		74.6	64.4		5.6	10.8		14.6	11.3	
Queue Length 50th (ft)	25	36		114	126		1	50		33	240	
Queue Length 95th (ft)	57	83		177	209		m5	818		66	347	
Internal Link Dist (ft)		249			1033			5260			358	
Turn Bay Length (ft)							245			280		
Base Capacity (vph)	168	181		278	316		282	2073		280	2472	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.15	0.29		0.44	0.61		0.05	0.67		0.39	0.45	

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

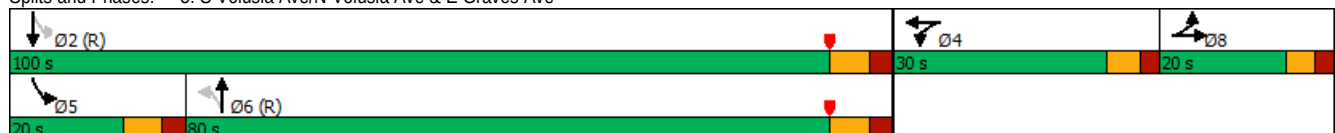
Offset: 117 (78%), Referenced to phase 2:SBTL and 6:NBTL, Start of Yellow

Natural Cycle: 90

Control Type: Actuated-Coordinated

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

Splits and Phases: 5: S Volusia Ave/N Volusia Ave & E Graves Ave



HCM 6th Signalized Intersection Summary
5: S Volusia Ave/N Volusia Ave & E Graves Ave

2019 Existing Conditions
Timing Plan: PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	33	18	116	58	128	14	1209	117	105	1029	38
Future Volume (veh/h)	25	33	18	116	58	128	14	1209	117	105	1029	38
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1841	1841	1841	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	26	34	9	121	60	86	15	1259	116	109	1072	36
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	4	4	4	3	3	3	3	3	3
Cap, veh/h	112	90	24	183	72	103	339	2034	187	261	2459	83
Arrive On Green	0.06	0.06	0.06	0.10	0.10	0.10	0.62	0.62	0.62	0.04	0.71	0.71
Sat Flow, veh/h	1781	1425	377	1753	684	980	505	3264	300	1767	3480	117
Grp Volume(v), veh/h	26	0	43	121	0	146	15	678	697	109	543	565
Grp Sat Flow(s),veh/h/ln	1781	0	1802	1753	0	1664	505	1763	1802	1767	1763	1835
Q Serve(g_s), s	2.1	0.0	3.4	10.0	0.0	12.9	1.9	35.4	35.7	3.2	19.6	19.6
Cycle Q Clear(g_c), s	2.1	0.0	3.4	10.0	0.0	12.9	9.0	35.4	35.7	3.2	19.6	19.6
Prop In Lane	1.00		0.21	1.00		0.59	1.00		0.17	1.00		0.06
Lane Grp Cap(c), veh/h	112	0	113	183	0	174	339	1098	1123	261	1245	1296
V/C Ratio(X)	0.23	0.00	0.38	0.66	0.00	0.84	0.04	0.62	0.62	0.42	0.44	0.44
Avail Cap(c_a), veh/h	170	0	172	282	0	267	339	1098	1123	350	1245	1296
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.46	0.46	0.46	1.00	1.00	1.00
Uniform Delay (d), s/veh	66.8	0.0	67.5	64.6	0.0	65.9	13.9	17.3	17.4	15.2	9.3	9.3
Incr Delay (d2), s/veh	1.0	0.0	2.1	4.0	0.0	13.1	0.1	1.2	1.2	1.1	1.1	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.0	1.7	4.7	0.0	6.1	0.2	14.0	14.4	1.3	7.4	7.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	67.9	0.0	69.6	68.6	0.0	79.0	14.0	18.5	18.6	16.2	10.4	10.4
LnGrp LOS	E	A	E	E	A	E	B	B	B	B	B	B
Approach Vol, veh/h	69			267			1390			1217		
Approach Delay, s/veh	68.9			74.3			18.5			10.9		
Approach LOS	E			E			B			B		
Timer - Assigned Phs												
	2		4		5	6	8					
Phs Duration (G+Y+Rc), s	113.3			21.6		12.5	100.8		15.1			
Change Period (Y+Rc), s	* 7.3			* 5.9		* 7.2	* 7.3		5.7			
Max Green Setting (Gmax), s	* 93			* 24		* 13	* 73		14.3			
Max Q Clear Time (g_c+I1), s	21.6			14.9		5.2	37.7		5.4			
Green Ext Time (p_c), s	8.8			0.8		0.1	11.9		0.1			

Intersection Summary	
HCM 6th Ctrl Delay	21.6
HCM 6th LOS	C
Notes	

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

Lanes, Volumes, Timings
6: Veterans Memorial Pkwy & E Graves Ave

2019 Existing Conditions
Timing Plan: PM Peak Hour

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗	↘	↑	↘	↗
Traffic Volume (vph)	266	43	447	303	54	654
Future Volume (vph)	266	43	447	303	54	654
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	3%	3%	4%	4%	2%	2%
Adj. Flow (vph)	280	45	471	319	57	688
Shared Lane Traffic (%)						
Lane Group Flow (vph)	280	45	471	319	57	688
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	2		1	6	8	
Permitted Phases		2	6			8
Detector Phase	2	2	1	6	8	8
Switch Phase						
Minimum Initial (s)	11.0	11.0	7.0	11.0	7.0	7.0
Minimum Split (s)	18.0	18.0	14.0	18.0	14.0	14.0
Total Split (s)	30.0	30.0	20.0	50.0	25.0	25.0
Total Split (%)	40.0%	40.0%	26.7%	66.7%	33.3%	33.3%
Yellow Time (s)	4.5	4.5	4.5	4.5	5.0	5.0
All-Red Time (s)	2.5	2.5	2.5	2.5	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Recall Mode	Min	Min	None	Min	None	None
v/c Ratio	0.60	0.10	0.78	0.30	0.17	0.87
Control Delay	26.8	7.3	20.2	8.4	22.8	17.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.8	7.3	20.2	8.4	22.8	17.3
Queue Length 50th (ft)	92	0	90	54	18	26
Queue Length 95th (ft)	176	21	#235	115	49	#222
Internal Link Dist (ft)	7674			1636	7026	
Turn Bay Length (ft)		400	300		1000	
Base Capacity (vph)	704	626	619	1303	528	898
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.40	0.07	0.76	0.24	0.11	0.77

Intersection Summary

Cycle Length: 75

Actuated Cycle Length: 61.8

Natural Cycle: 65

Control Type: Actuated-Uncoordinated

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

Queue shown is maximum after two cycles.

Splits and Phases: 6: Veterans Memorial Pkwy & E Graves Ave



HCM 6th Signalized Intersection Summary
6: Veterans Memorial Pkwy & E Graves Ave

2019 Existing Conditions
Timing Plan: PM Peak Hour

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗	↘	↑	↘	↗
Traffic Volume (veh/h)	266	43	447	303	54	654
Future Volume (veh/h)	266	43	447	303	54	654
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1856	1856	1841	1841	1870	1870
Adj Flow Rate, veh/h	280	18	471	319	57	579
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	4	4	2	2
Cap, veh/h	368	312	522	933	494	440
Arrive On Green	0.20	0.20	0.20	0.51	0.28	0.28
Sat Flow, veh/h	1856	1572	1753	1841	1781	1585
Grp Volume(v), veh/h	280	18	471	319	57	579
Grp Sat Flow(s),veh/h/ln	1856	1572	1753	1841	1781	1585
Q Serve(g_s), s	9.2	0.6	13.0	6.7	1.5	18.0
Cycle Q Clear(g_c), s	9.2	0.6	13.0	6.7	1.5	18.0
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	368	312	522	933	494	440
V/C Ratio(X)	0.76	0.06	0.90	0.34	0.12	1.32
Avail Cap(c_a), veh/h	658	558	522	1220	494	440
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.5	21.1	16.3	9.5	17.5	23.4
Incr Delay (d2), s/veh	4.6	0.1	18.9	0.3	0.1	157.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.1	0.2	7.0	2.1	0.6	24.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	29.1	21.2	35.2	9.9	17.6	181.2
LnGrp LOS	C	C	D	A	B	F
Approach Vol, veh/h	298			790	636	
Approach Delay, s/veh	28.7			25.0	166.5	
Approach LOS	C			C	F	
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	20.0	19.9			39.9	25.0
Change Period (Y+Rc), s	7.0	7.0			7.0	7.0
Max Green Setting (Gmax), s	13.0	23.0			43.0	18.0
Max Q Clear Time (g_c+I1), s	15.0	11.2			8.7	20.0
Green Ext Time (p_c), s	0.0	1.6			2.7	0.0
Intersection Summary						
HCM 6th Ctrl Delay			77.8			
HCM 6th LOS			E			

Lanes, Volumes, Timings
7: S Kentucky Ave/N Kentucky Ave & E Graves Ave

2019 Existing Conditions
Timing Plan: PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	238	678	19	18	422	117	15	9	17	271	18	313
Future Volume (vph)	238	678	19	18	422	117	15	9	17	271	18	313
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	262	745	21	20	464	129	16	10	19	298	20	344
Shared Lane Traffic (%)												
Lane Group Flow (vph)	262	766	0	20	464	129	0	45	0	298	20	344
Turn Type	Prot	NA		Perm	NA	pm+ov	Split	NA		Split	NA	pm+ov
Protected Phases	5	2			6	8	4	4		8	8	5
Permitted Phases				6		6						8
Detector Phase	5	2		6	6	8	4	4		8	8	5
Switch Phase												
Minimum Initial (s)	5.0	11.0		11.0	11.0	7.0	7.0	7.0		7.0	7.0	5.0
Minimum Split (s)	11.0	18.0		18.0	18.0	14.0	14.0	14.0		14.0	14.0	11.0
Total Split (s)	20.0	70.0		50.0	50.0	50.0	20.0	20.0		50.0	50.0	20.0
Total Split (%)	14.3%	50.0%		35.7%	35.7%	35.7%	14.3%	14.3%		35.7%	35.7%	14.3%
Yellow Time (s)	4.0	5.0		5.0	5.0	5.0	4.0	4.0		5.0	5.0	4.0
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	3.0	3.0		2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0		0.0		0.0	0.0	0.0
Total Lost Time (s)	6.0	7.0		7.0	7.0	7.0		7.0		7.0	7.0	6.0
Lead/Lag	Lead			Lag	Lag							Lead
Lead-Lag Optimize?	Yes			Yes	Yes							Yes
Recall Mode	None	Min		Min	Min	None	None	None		None	None	None
v/c Ratio	1.06	0.80		0.13	0.79	0.14		0.29		0.73	0.05	0.39
Control Delay	119.9	30.9		31.0	45.1	1.3		40.3		50.7	34.9	4.8
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0		0.0	0.0	0.0
Total Delay	119.9	30.9		31.0	45.1	1.3		40.3		50.7	34.9	4.8
Queue Length 50th (ft)	~216	426		10	287	0		17		194	11	10
Queue Length 95th (ft)	#471	#811		34	485	12		61		320	34	71
Internal Link Dist (ft)		1636			3200			455			4140	
Turn Bay Length (ft)	200			235		460				320		175
Base Capacity (vph)	248	1173		210	803	1231		244		771	811	878
Starvation Cap Reductn	0	0		0	0	0		0		0	0	0
Spillback Cap Reductn	0	0		0	0	0		0		0	0	0
Storage Cap Reductn	0	0		0	0	0		0		0	0	0
Reduced v/c Ratio	1.06	0.65		0.10	0.58	0.10		0.18		0.39	0.02	0.39

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 104.5

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

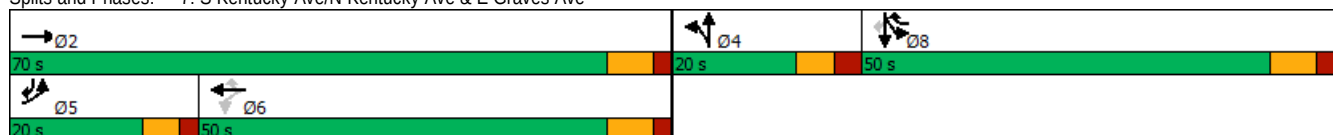
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

Splits and Phases: 7: S Kentucky Ave/N Kentucky Ave & E Graves Ave



HCM 6th Signalized Intersection Summary
7: S Kentucky Ave/N Kentucky Ave & E Graves Ave

2019 Existing Conditions
Timing Plan: PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	238	678	19	18	422	117	15	9	17	271	18	313
Future Volume (veh/h)	238	678	19	18	422	117	15	9	17	271	18	313
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	262	745	20	20	464	102	16	10	6	298	20	213
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	3	3	3	3	3	3	2	2	2	2	2	2
Cap, veh/h	274	943	25	210	562	792	38	24	14	358	376	564
Arrive On Green	0.15	0.52	0.52	0.30	0.30	0.30	0.04	0.04	0.04	0.20	0.20	0.20
Sat Flow, veh/h	1767	1799	48	697	1856	1572	883	552	331	1781	1870	1585
Grp Volume(v), veh/h	262	0	765	20	464	102	32	0	0	298	20	213
Grp Sat Flow(s),veh/h/ln	1767	0	1847	697	1856	1572	1767	0	0	1781	1870	1585
Q Serve(g_s), s	13.3	0.0	30.4	2.2	21.0	3.1	1.6	0.0	0.0	14.5	0.8	9.0
Cycle Q Clear(g_c), s	13.3	0.0	30.4	12.6	21.0	3.1	1.6	0.0	0.0	14.5	0.8	9.0
Prop In Lane	1.00		0.03	1.00		1.00	0.50		0.19	1.00		1.00
Lane Grp Cap(c), veh/h	274	0	968	210	562	792	76	0	0	358	376	564
V/C Ratio(X)	0.96	0.00	0.79	0.10	0.83	0.13	0.42	0.00	0.00	0.83	0.05	0.38
Avail Cap(c_a), veh/h	274	0	1286	330	882	1064	254	0	0	847	889	999
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.9	0.0	17.5	30.7	29.3	11.9	42.2	0.0	0.0	34.7	29.2	21.7
Incr Delay (d2), s/veh	42.9	0.0	3.0	0.3	4.9	0.1	3.7	0.0	0.0	5.1	0.1	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.7	0.0	11.8	0.4	9.4	1.5	0.8	0.0	0.0	6.4	0.3	3.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	80.8	0.0	20.5	31.0	34.2	12.0	45.9	0.0	0.0	39.7	29.2	22.1
LnGrp LOS	F	A	C	C	C	B	D	A	A	D	C	C
Approach Vol, veh/h	1027			586			32			531		
Approach Delay, s/veh	35.9			30.2			45.9			32.3		
Approach LOS	D			C			D			C		
Timer - Assigned Phs												
	2			4		5	6		8			
Phs Duration (G+Y+Rc), s	54.4			10.9		20.0	34.4		25.2			
Change Period (Y+Rc), s	7.0			7.0		6.0	7.0		7.0			
Max Green Setting (Gmax), s	63.0			13.0		14.0	43.0		43.0			
Max Q Clear Time (g_c+I1), s	32.4			3.6		15.3	23.0		16.5			
Green Ext Time (p_c), s	8.3			0.0		0.0	4.4		1.7			
Intersection Summary												
HCM 6th Ctrl Delay	33.6											
HCM 6th LOS	C											

Lanes, Volumes, Timings
8: N Normandy Blvd & E Graves Ave

2019 Existing Conditions
Timing Plan: PM Peak Hour

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↘	↑	↘	↗
Traffic Volume (vph)	525	387	190	376	162	162
Future Volume (vph)	525	387	190	376	162	162
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	2%	2%	4%	4%	2%	2%
Adj. Flow (vph)	559	412	202	400	172	172
Shared Lane Traffic (%)						
Lane Group Flow (vph)	971	0	202	400	172	172
Turn Type	NA		pm+pt	NA	Prot	Perm
Protected Phases	6		5	2	4	
Permitted Phases			2			4
Detector Phase	6		5	2	4	4
Switch Phase						
Minimum Initial (s)	12.0		5.0	12.0	7.0	7.0
Minimum Split (s)	19.0		12.0	19.0	13.0	13.0
Total Split (s)	45.0		20.0	65.0	25.0	25.0
Total Split (%)	50.0%		22.2%	72.2%	27.8%	27.8%
Yellow Time (s)	5.0		5.0	5.0	4.0	4.0
All-Red Time (s)	2.0		2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0		7.0	7.0	6.0	6.0
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Recall Mode	Min		None	Min	None	None
v/c Ratio	0.71		0.50	0.35	0.56	0.41
Control Delay	17.0		12.1	7.3	35.9	8.4
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	17.0		12.1	7.3	35.9	8.4
Queue Length 50th (ft)	135		30	67	69	0
Queue Length 95th (ft)	227		92	141	148	51
Internal Link Dist (ft)	3200			471	9642	
Turn Bay Length (ft)			400		200	
Base Capacity (vph)	1986		448	1520	500	571
Starvation Cap Reductn	0		0	0	0	0
Spillback Cap Reductn	0		0	0	0	0
Storage Cap Reductn	0		0	0	0	0
Reduced v/c Ratio	0.49		0.45	0.26	0.34	0.30

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 69.9

Natural Cycle: 50

Control Type: Actuated-Uncoordinated

Splits and Phases: 8: N Normandy Blvd & E Graves Ave



HCM 6th Signalized Intersection Summary
8: N Normandy Blvd & E Graves Ave

2019 Existing Conditions
Timing Plan: PM Peak Hour

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↘	↑	↘	↗
Traffic Volume (veh/h)	525	387	190	376	162	162
Future Volume (veh/h)	525	387	190	376	162	162
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1841	1841	1870	1870
Adj Flow Rate, veh/h	559	324	202	400	172	50
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	4	4	2	2
Cap, veh/h	860	498	422	1151	237	211
Arrive On Green	0.40	0.40	0.10	0.63	0.13	0.13
Sat Flow, veh/h	2260	1255	1753	1841	1781	1585
Grp Volume(v), veh/h	458	425	202	400	172	50
Grp Sat Flow(s),veh/h/ln	1777	1645	1753	1841	1781	1585
Q Serve(g_s), s	11.3	11.3	3.3	5.6	5.0	1.5
Cycle Q Clear(g_c), s	11.3	11.3	3.3	5.6	5.0	1.5
Prop In Lane		0.76	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	705	653	422	1151	237	211
V/C Ratio(X)	0.65	0.65	0.48	0.35	0.72	0.24
Avail Cap(c_a), veh/h	1253	1160	672	1981	628	559
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	13.2	13.2	9.1	4.8	22.4	20.9
Incr Delay (d2), s/veh	1.4	1.6	0.8	0.3	4.2	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.7	3.4	0.9	1.1	2.1	1.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	14.7	14.8	9.9	5.1	26.6	21.5
LnGrp LOS	B	B	A	A	C	C
Approach Vol, veh/h	883			602	222	
Approach Delay, s/veh	14.7			6.7	25.4	
Approach LOS	B			A	C	
Timer - Assigned Phs	2			4	5	6
Phs Duration (G+Y+Rc), s	40.7			13.2	12.3	28.4
Change Period (Y+Rc), s	7.0			6.0	7.0	7.0
Max Green Setting (Gmax), s	58.0			19.0	13.0	38.0
Max Q Clear Time (g_c+I1), s	7.6			7.0	5.3	13.3
Green Ext Time (p_c), s	3.7			0.5	0.3	8.1
Intersection Summary						
HCM 6th Ctrl Delay			13.3			
HCM 6th LOS			B			

Lanes, Volumes, Timings
9: Howland Boulevard/SR 472 & Graves Avenue

2019 Existing Conditions
Timing Plan: PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	82	19	586	51	27	105	337	799	14	53	1532	201
Future Volume (vph)	82	19	586	51	27	105	337	799	14	53	1532	201
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
Heavy Vehicles (%)	3%	3%	3%	2%	2%	2%	3%	3%	3%	2%	2%	2%
Adj. Flow (vph)	86	20	617	54	28	111	355	841	15	56	1613	212
Shared Lane Traffic (%)	39%											
Lane Group Flow (vph)	52	54	617	54	28	111	355	856	0	56	1825	0
Turn Type	Split	NA	Perm	Split	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases			4			8	2			6		
Detector Phase	4	4	4	8	8	8	5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	5.0	17.0		7.0	17.0	
Minimum Split (s)	15.0	15.0	15.0	14.5	14.5	14.5	12.0	24.0		14.5	24.0	
Total Split (s)	18.0	18.0	18.0	14.5	14.5	14.5	34.0	104.0		14.5	84.5	
Total Split (%)	11.9%	11.9%	11.9%	9.6%	9.6%	9.6%	22.5%	68.9%		9.6%	56.0%	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	
All-Red Time (s)	3.0	3.0	3.0	2.5	2.5	2.5	2.0	2.0		2.5	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	8.0	8.0	8.0	7.5	7.5	7.5	7.0	7.0		7.5	7.0	
Lead/Lag							Lead	Lead		Lag	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Recall Mode	None	None	None	None	None	None	None	C-Min		None	C-Min	
v/c Ratio	0.47	0.48	1.57	0.66	0.33	0.44	0.98	0.57		0.09	1.02	
Control Delay	82.6	82.9	290.2	105.1	80.1	5.3	86.8	37.8		20.8	61.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	82.6	82.9	290.2	105.1	80.1	5.3	86.8	37.8		20.8	61.9	
Queue Length 50th (ft)	52	54	~563	53	27	0	~340	389		27	~995	
Queue Length 95th (ft)	104	107	#807	#125	64	0	#516	413		52	#1132	
Internal Link Dist (ft)	1373				8563				569		283	
Turn Bay Length (ft)	330			565			280			185		
Base Capacity (vph)	110	112	392	82	86	255	364	2312		638	1792	
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	0.47	0.48	1.57	0.66	0.33	0.44	0.98	0.37		0.09	1.02	

Intersection Summary

Cycle Length: 151

Actuated Cycle Length: 151

Offset: 89 (59%), Referenced to phase 2:NBT and 6:SBTL, Start of Yellow

Natural Cycle: 150

Control Type: Actuated-Coordinated

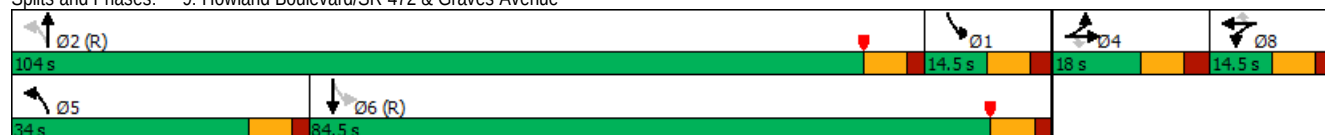
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

Splits and Phases: 9: Howland Boulevard/SR 472 & Graves Avenue



HCM 6th Signalized Intersection Summary
9: Howland Boulevard/SR 472 & Graves Avenue

2019 Existing Conditions
Timing Plan: PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	82	19	586	51	27	105	337	799	14	53	1532	201
Future Volume (veh/h)	82	19	586	51	27	105	337	799	14	53	1532	201
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1870	1870	1870	1856	1856	1856	1870	1870	1870
Adj Flow Rate, veh/h	53	66	0	54	28	22	355	841	15	56	1613	204
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, %	3	3	3	2	2	2	3	3	3	2	2	2
Cap, veh/h	86	90		82	86	73	364	1052	19	816	1680	209
Arrive On Green	0.05	0.05	0.00	0.05	0.05	0.05	0.18	0.30	0.30	0.41	0.53	0.53
Sat Flow, veh/h	1767	1856	1572	1781	1870	1585	1767	3544	63	1781	3180	396
Grp Volume(v), veh/h	53	66	0	54	28	22	355	418	438	56	890	927
Grp Sat Flow(s),veh/h/ln	1767	1856	1572	1781	1870	1585	1767	1763	1844	1781	1777	1799
Q Serve(g_s), s	4.4	5.3	0.0	4.5	2.2	2.0	27.0	33.0	33.0	0.0	71.4	75.8
Cycle Q Clear(g_c), s	4.4	5.3	0.0	4.5	2.2	2.0	27.0	33.0	33.0	0.0	71.4	75.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.03	1.00		0.22
Lane Grp Cap(c), veh/h	86	90		82	86	73	364	523	547	816	939	950
V/C Ratio(X)	0.62	0.73		0.66	0.33	0.30	0.98	0.80	0.80	0.07	0.95	0.98
Avail Cap(c_a), veh/h	117	123		83	87	73	364	1132	1185	816	939	950
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.22	0.22	0.00	0.81	0.81	0.81	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	70.5	70.9	0.0	70.9	69.8	69.7	52.1	48.9	48.9	23.3	33.7	34.7
Incr Delay (d2), s/veh	1.6	3.2	0.0	14.6	1.8	1.9	40.7	12.1	11.6	0.0	19.2	23.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	2.6	0.0	2.4	1.1	0.9	16.4	16.2	16.9	1.2	35.1	38.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	72.1	74.1	0.0	85.5	71.6	71.6	92.8	61.0	60.6	23.4	52.8	58.6
LnGrp LOS	E	E		F	E	E	F	E	E	C	D	E
Approach Vol, veh/h	119			A			104			1211		
Approach Delay, s/veh	73.2			78.8			70.2			54.8		
Approach LOS	E			E			E			D		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	69.4	51.8		15.3	34.0	87.3		14.4				
Change Period (Y+Rc), s	7.5	7.0		8.0	7.0	* 7.5		7.5				
Max Green Setting (Gmax), s	7.0	97.0		10.0	27.0	* 78		7.0				
Max Q Clear Time (g_c+I1), s	2.0	35.0		7.3	29.0	77.8		6.5				
Green Ext Time (p_c), s	0.0	9.8		0.1	0.0	0.0		0.0				

Intersection Summary

HCM 6th Ctrl Delay 61.9

HCM 6th LOS E

Notes

User approved volume balancing among the lanes for turning movement.

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

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

Lanes, Volumes, Timings
10: Catalina Blvd & Graves Avenue/Howland Blvd

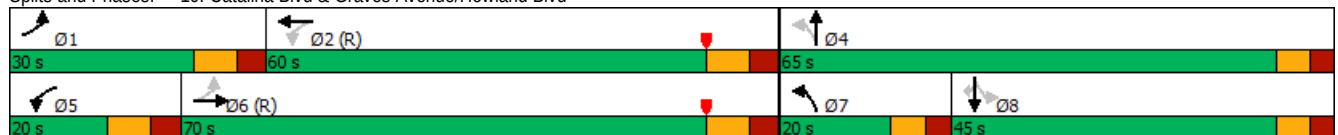
2019 Existing Conditions
Timing Plan: PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	470	1077	53	40	583	62	50	70	30	90	70	261
Future Volume (vph)	470	1077	53	40	583	62	50	70	30	90	70	261
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	480	1099	54	41	595	63	51	71	31	92	71	266
Shared Lane Traffic (%)												
Lane Group Flow (vph)	480	1153	0	41	658	0	51	102	0	92	71	266
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		Perm	NA	Perm
Protected Phases	1	6		5	2		7	4			8	
Permitted Phases	6			2			4			8		8
Detector Phase	1	6		5	2		7	4		8	8	8
Switch Phase												
Minimum Initial (s)	5.0	11.0		5.0	11.0		5.0	7.0		7.0	7.0	7.0
Minimum Split (s)	13.5	19.5		13.5	19.5		12.0	14.0		14.0	14.0	14.0
Total Split (s)	30.0	70.0		20.0	60.0		20.0	65.0		45.0	45.0	45.0
Total Split (%)	19.4%	45.2%		12.9%	38.7%		12.9%	41.9%		29.0%	29.0%	29.0%
Yellow Time (s)	5.0	5.0		5.0	5.0		4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	3.5	3.5		3.5	3.5		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)	8.5	8.5		8.5	8.5		7.0	7.0		7.0	7.0	7.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead			Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes			Yes	Yes	Yes
Recall Mode	None	C-Min		None	C-Min		None	None		None	None	None
v/c Ratio	0.69	0.54		0.18	0.55		0.21	0.27		0.61	0.33	0.63
Control Delay	22.8	21.6		18.7	40.0		47.1	41.6		81.3	65.0	13.4
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	22.8	21.6		18.7	40.0		47.1	41.6		81.3	65.0	13.4
Queue Length 50th (ft)	225	373		16	246		42	72		90	67	0
Queue Length 95th (ft)	#473	532		m20	383		73	116		146	113	85
Internal Link Dist (ft)		8563			1815			941			4969	
Turn Bay Length (ft)	375			270			180			235		415
Base Capacity (vph)	697	2153		285	1200		269	674		315	456	588
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.69	0.54		0.14	0.55		0.19	0.15		0.29	0.16	0.45

Intersection Summary

Cycle Length: 155
 Actuated Cycle Length: 155
 Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow
 Natural Cycle: 80
 Control Type: Actuated-Coordinated
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 10: Catalina Blvd & Graves Avenue/Howland Blvd



HCM 6th Signalized Intersection Summary
10: Catalina Blvd & Graves Avenue/Howland Blvd

2019 Existing Conditions
Timing Plan: PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	470	1077	53	40	583	62	50	70	30	90	70	261
Future Volume (veh/h)	470	1077	53	40	583	62	50	70	30	90	70	261
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1856	1856	1856	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	480	1099	53	41	595	62	51	71	24	92	71	93
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	3	3	3	2	2	2	2	2	2
Cap, veh/h	621	2235	108	327	1754	182	175	228	77	165	171	145
Arrive On Green	0.13	0.65	0.65	0.03	0.54	0.54	0.03	0.17	0.17	0.09	0.09	0.09
Sat Flow, veh/h	1781	3451	166	1767	3223	335	1781	1337	452	1301	1870	1585
Grp Volume(v), veh/h	480	566	586	41	325	332	51	0	95	92	71	93
Grp Sat Flow(s),veh/h/ln	1781	1777	1840	1767	1763	1795	1781	0	1789	1301	1870	1585
Q Serve(g_s), s	17.9	25.5	25.5	1.6	16.0	16.0	3.9	0.0	7.2	10.7	5.6	8.8
Cycle Q Clear(g_c), s	17.9	25.5	25.5	1.6	16.0	16.0	3.9	0.0	7.2	10.7	5.6	8.8
Prop In Lane	1.00		0.09	1.00		0.19	1.00		0.25	1.00		1.00
Lane Grp Cap(c), veh/h	621	1151	1192	327	959	977	175	0	306	165	171	145
V/C Ratio(X)	0.77	0.49	0.49	0.13	0.34	0.34	0.29	0.00	0.31	0.56	0.42	0.64
Avail Cap(c_a), veh/h	636	1151	1192	411	959	977	264	0	669	365	459	389
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.97	0.97	0.97	0.87	0.87	0.87	1.00	0.00	1.00	0.92	0.92	0.92
Uniform Delay (d), s/veh	13.1	14.1	14.1	14.9	19.7	19.8	59.4	0.0	56.3	68.8	66.5	68.0
Incr Delay (d2), s/veh	5.6	1.5	1.4	0.1	0.8	0.8	0.9	0.0	0.6	3.8	2.1	6.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.5	10.1	10.4	0.6	6.6	6.8	1.8	0.0	3.3	3.7	2.8	3.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	18.7	15.6	15.5	15.1	20.6	20.6	60.3	0.0	56.8	72.6	68.6	74.0
LnGrp LOS	B	B	B	B	C	C	E	A	E	E	E	E
Approach Vol, veh/h	1632			698			146			256		
Approach Delay, s/veh	16.5			20.3			58.1			72.0		
Approach LOS	B			C			E			E		
Timer - Assigned Phs	1	2		4	5	6	7	8				
Phs Duration (G+Y+Rc), s	28.7	92.8		33.5	12.6	108.9	12.3	21.2				
Change Period (Y+Rc), s	8.5	8.5		7.0	8.5	8.5	7.0	7.0				
Max Green Setting (Gmax), s	21.5	51.5		58.0	11.5	61.5	13.0	38.0				
Max Q Clear Time (g_c+I1), s	19.9	18.0		9.2	3.6	27.5	5.9	12.7				
Green Ext Time (p_c), s	0.3	5.9		0.6	0.0	12.5	0.0	1.4				
Intersection Summary												
HCM 6th Ctrl Delay	24.9											
HCM 6th LOS	C											

Lanes, Volumes, Timings
11: Lake Helen Osteen Rd & Catalina Blvd

2019 Existing Conditions
Timing Plan: PM Peak Hour

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	145	403	188	168	311	85
Future Volume (vph)	145	403	188	168	311	85
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	158	438	204	183	338	92
Shared Lane Traffic (%)						
Lane Group Flow (vph)	158	438	204	183	430	0
Turn Type	Prot	Perm	pm+pt	NA	NA	
Protected Phases	8		1	6	2	
Permitted Phases		8	6			
Detector Phase	8	8	1	6	2	
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	15.0	15.0	
Minimum Split (s)	11.5	11.5	12.5	22.5	22.5	
Total Split (s)	20.0	20.0	20.0	50.0	30.0	
Total Split (%)	28.6%	28.6%	28.6%	71.4%	42.9%	
Yellow Time (s)	3.5	3.5	5.0	5.0	5.0	
All-Red Time (s)	3.0	3.0	2.5	2.5	2.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.5	6.5	7.5	7.5	7.5	
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	None	None	None	Min	Min	
v/c Ratio	0.48	0.67	0.41	0.17	0.75	
Control Delay	29.8	8.8	8.8	6.5	29.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	29.8	8.8	8.8	6.5	29.0	
Queue Length 50th (ft)	59	0	34	30	148	
Queue Length 95th (ft)	114	73	62	55	#263	
Internal Link Dist (ft)	4969			10882	661	
Turn Bay Length (ft)	185		240			
Base Capacity (vph)	373	679	534	1237	649	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.42	0.65	0.38	0.15	0.66	

Intersection Summary

Cycle Length: 70

Actuated Cycle Length: 64.7

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 11: Lake Helen Osteen Rd & Catalina Blvd



HCM 6th Signalized Intersection Summary
11: Lake Helen Osteen Rd & Catalina Blvd

2019 Existing Conditions
Timing Plan: PM Peak Hour

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	145	403	188	168	311	85
Future Volume (veh/h)	145	403	188	168	311	85
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	158	195	204	183	338	72
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	311	277	433	1041	444	95
Arrive On Green	0.17	0.17	0.12	0.56	0.30	0.30
Sat Flow, veh/h	1781	1585	1781	1870	1495	318
Grp Volume(v), veh/h	158	195	204	183	0	410
Grp Sat Flow(s),veh/h/ln	1781	1585	1781	1870	0	1813
Q Serve(g_s), s	4.2	6.0	3.7	2.5	0.0	10.7
Cycle Q Clear(g_c), s	4.2	6.0	3.7	2.5	0.0	10.7
Prop In Lane	1.00	1.00	1.00			0.18
Lane Grp Cap(c), veh/h	311	277	433	1041	0	539
V/C Ratio(X)	0.51	0.70	0.47	0.18	0.00	0.76
Avail Cap(c_a), veh/h	462	411	655	1526	0	783
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	19.5	20.2	10.8	5.7	0.0	16.6
Incr Delay (d2), s/veh	2.7	6.8	1.7	0.2	0.0	5.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	2.5	1.2	0.6	0.0	4.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	22.2	27.0	12.5	5.8	0.0	21.6
LnGrp LOS	C	C	B	A	A	C
Approach Vol, veh/h	353			387	410	
Approach Delay, s/veh	24.9			9.4	21.6	
Approach LOS	C			A	C	
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	13.5	23.0			36.5	15.6
Change Period (Y+Rc), s	7.5	7.5			7.5	6.5
Max Green Setting (Gmax), s	12.5	22.5			42.5	13.5
Max Q Clear Time (g_c+I1), s	5.7	12.7			4.5	8.0
Green Ext Time (p_c), s	0.6	2.8			2.0	1.1
Intersection Summary						
HCM 6th Ctrl Delay			18.5			
HCM 6th LOS			B			

Lanes, Volumes, Timings
12: Providence Blvd & Howland Blvd

2019 Existing Conditions
Timing Plan: PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	865	315	36	455	1	202	1	53	1	0	2
Future Volume (vph)	1	865	315	36	455	1	202	1	53	1	0	2
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
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	1	911	332	38	479	1	213	1	56	1	0	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	1	911	332	38	480	0	213	57	0	0	3	0
Turn Type	Perm	NA	Perm	pm+pt	NA		pm+pt	NA		Perm	NA	
Protected Phases		6		5	2		7	4			8	
Permitted Phases	6		6	2			4			8		
Detector Phase	6	6	6	5	2		7	4		8	8	
Switch Phase												
Minimum Initial (s)	11.0	11.0	11.0	5.0	11.0		5.0	7.0		7.0	7.0	
Minimum Split (s)	18.0	18.0	18.0	12.0	18.0		12.0	14.0		14.0	14.0	
Total Split (s)	90.0	90.0	90.0	20.0	110.0		25.0	45.0		20.0	20.0	
Total Split (%)	58.1%	58.1%	58.1%	12.9%	71.0%		16.1%	29.0%		12.9%	12.9%	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		4.5	4.5		4.5	4.5	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.5	2.5		2.5	2.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0			7.0	
Lead/Lag	Lag	Lag	Lag	Lead			Lead			Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes			Yes	Yes	
Recall Mode	Min	Min	Min	None	C-Min		None	None		None	None	
v/c Ratio	0.00	0.72	0.29	0.14	0.35		0.81	0.19			0.02	
Control Delay	3.0	11.9	0.9	6.9	7.7		85.6	14.0			0.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Total Delay	3.0	11.9	0.9	6.9	7.7		85.6	14.0			0.0	
Queue Length 50th (ft)	0	183	6	9	151		208	1			0	
Queue Length 95th (ft)	m0	280	8	23	240		#298	41			0	
Internal Link Dist (ft)		1815			1369			8692			129	
Turn Bay Length (ft)	160			160			280					
Base Capacity (vph)	621	1271	1144	330	1388		263	431			258	
Starvation Cap Reductn	0	0	0	0	0		0	0			0	
Spillback Cap Reductn	0	0	0	0	0		0	0			0	
Storage Cap Reductn	0	0	0	0	0		0	0			0	
Reduced v/c Ratio	0.00	0.72	0.29	0.12	0.35		0.81	0.13			0.01	

Intersection Summary

Cycle Length: 155

Actuated Cycle Length: 155

Offset: 28 (18%), Referenced to phase 2:WBTL, Start of Yellow

Natural Cycle: 90

Control Type: Actuated-Coordinated

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 12: Providence Blvd & Howland Blvd



HCM 6th Signalized Intersection Summary
12: Providence Blvd & Howland Blvd

2019 Existing Conditions
Timing Plan: PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	865	315	36	455	1	202	1	53	1	0	2
Future Volume (veh/h)	1	865	315	36	455	1	202	1	53	1	0	2
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1856	1856	1856	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1	911	313	38	479	1	213	1	25	1	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
Percent Heavy Veh, %	2	2	2	3	3	3	2	2	2	2	2	2
Cap, veh/h	612	1209	1024	384	1328	3	321	12	295	89	0	0
Arrive On Green	1.00	1.00	1.00	0.03	0.72	0.72	0.12	0.19	0.19	0.03	0.00	0.00
Sat Flow, veh/h	915	1870	1585	1767	1851	4	1781	61	1533	1384	0	0
Grp Volume(v), veh/h	1	911	313	38	0	480	213	0	26	1	0	0
Grp Sat Flow(s),veh/h/ln	915	1870	1585	1767	0	1855	1781	0	1594	1385	0	0
Q Serve(g_s), s	0.0	0.0	0.0	1.1	0.0	15.3	17.7	0.0	2.1	0.1	0.0	0.0
Cycle Q Clear(g_c), s	4.3	0.0	0.0	1.1	0.0	15.3	17.7	0.0	2.1	0.1	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.00	1.00		0.96	1.00		0.00
Lane Grp Cap(c), veh/h	612	1209	1024	384	0	1331	321	0	307	89	0	0
V/C Ratio(X)	0.00	0.75	0.31	0.10	0.00	0.36	0.66	0.00	0.08	0.01	0.00	0.00
Avail Cap(c_a), veh/h	612	1209	1024	487	0	1331	321	0	391	163	0	0
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.82	0.82	0.82	1.00	0.00	1.00	0.86	0.00	0.86	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.1	0.0	0.0	7.9	0.0	8.4	62.1	0.0	51.4	72.8	0.0	0.0
Incr Delay (d2), s/veh	0.0	2.4	0.2	0.1	0.0	0.8	5.0	0.0	0.1	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.8	0.1	0.4	0.0	5.9	8.4	0.0	0.8	0.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.1	2.4	0.2	8.0	0.0	9.1	67.1	0.0	51.5	72.9	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	E	A	D	E	A	A
Approach Vol, veh/h	1225			518			239			1		
Approach Delay, s/veh	1.8			9.0			65.4			72.9		
Approach LOS	A			A			E			E		
Timer - Assigned Phs	2			4			5			6		
Phs Duration (G+Y+Rc), s	118.2			36.8			11.0			107.2		
Change Period (Y+Rc), s	7.0			7.0			7.0			7.0		
Max Green Setting (Gmax), s	103.0			38.0			13.0			83.0		
Max Q Clear Time (g_c+I1), s	17.3			4.1			3.1			6.3		
Green Ext Time (p_c), s	4.7			0.1			0.0			17.0		
Intersection Summary												
HCM 6th Ctrl Delay	11.4											
HCM 6th LOS	B											

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	18	46	91	149	69	93	149	1437	152	82	1151	24
Future Volume (vph)	18	46	91	149	69	93	149	1437	152	82	1151	24
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
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	19	48	96	157	73	98	157	1513	160	86	1212	25
Shared Lane Traffic (%)												
Lane Group Flow (vph)	19	48	96	157	171	0	157	1673	0	86	1237	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8		8	4			6			2		
Detector Phase	3	8	8	7	4		1	6		5	2	
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0		5.0	15.0		5.0	15.0	
Minimum Split (s)	11.9	16.9	16.9	11.7	16.9		12.1	22.1		11.8	22.1	
Total Split (s)	25.0	30.0	30.0	25.0	30.0		28.0	75.0		20.0	67.0	
Total Split (%)	16.7%	20.0%	20.0%	16.7%	20.0%		18.7%	50.0%		13.3%	44.7%	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.9	4.9		4.8	4.9	
All-Red Time (s)	2.9	2.9	2.9	2.7	2.9		2.2	2.2		2.0	2.2	
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)	6.9	6.9	6.9	6.7	6.9		7.1	7.1		6.8	7.1	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	None	None	None	None		None	C-Min		None	C-Min	
v/c Ratio	0.11	0.35	0.34	0.53	0.54		0.53	0.83		0.57	0.65	
Control Delay	45.7	72.6	3.2	54.9	51.7		16.8	31.1		47.3	22.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	45.7	72.6	3.2	54.9	51.7		16.8	31.1		47.3	22.8	
Queue Length 50th (ft)	15	46	0	132	125		50	661		34	476	
Queue Length 95th (ft)	36	89	0	193	202		95	#923		102	462	
Internal Link Dist (ft)		835			5352			877			5260	
Turn Bay Length (ft)	330		755	300			240			285		
Base Capacity (vph)	303	286	396	310	328		366	2016		207	1894	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.06	0.17	0.24	0.51	0.52		0.43	0.83		0.42	0.65	

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 8 (5%), Referenced to phase 2:SBTL and 6:NBTL, Start of Yellow

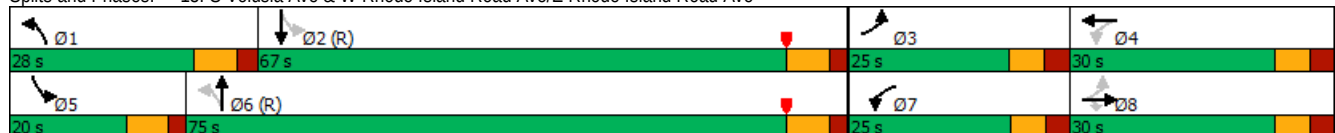
Natural Cycle: 90

Control Type: Actuated-Coordinated

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

Queue shown is maximum after two cycles.

Splits and Phases: 13: S Volusia Ave & W Rhode Island Road Ave/E Rhode Island Road Ave



HCM 6th Signalized Intersection Summary

13: S Volusia Ave & W Rhode Island Road Ave/E Rhode Island Road Ave

2019 Existing Conditions

Timing Plan: PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	18	46	91	149	69	93	149	1437	152	82	1151	24
Future Volume (veh/h)	18	46	91	149	69	93	149	1437	152	82	1151	24
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1856	1856	1856	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	19	48	20	157	73	69	157	1513	158	86	1212	23
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	3	3	3	2	2	2	2	2	2
Cap, veh/h	160	125	106	271	124	118	316	2025	210	191	2157	41
Arrive On Green	0.02	0.07	0.07	0.09	0.14	0.14	0.05	0.62	0.62	0.03	0.60	0.60
Sat Flow, veh/h	1781	1870	1585	1767	877	829	1781	3250	336	1781	3567	68
Grp Volume(v), veh/h	19	48	20	157	0	142	157	821	850	86	604	631
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1767	0	1706	1781	1777	1810	1781	1777	1858
Q Serve(g_s), s	1.5	3.7	1.8	12.1	0.0	11.7	5.0	48.6	50.1	2.8	30.5	30.5
Cycle Q Clear(g_c), s	1.5	3.7	1.8	12.1	0.0	11.7	5.0	48.6	50.1	2.8	30.5	30.5
Prop In Lane	1.00		1.00	1.00		0.49	1.00		0.19	1.00		0.04
Lane Grp Cap(c), veh/h	160	125	106	271	0	242	316	1107	1127	191	1074	1123
V/C Ratio(X)	0.12	0.38	0.19	0.58	0.00	0.59	0.50	0.74	0.75	0.45	0.56	0.56
Avail Cap(c_a), veh/h	342	288	244	319	0	263	477	1107	1127	290	1074	1123
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.82	0.00	0.82	1.00	1.00	1.00	0.88	0.88	0.88
Uniform Delay (d), s/veh	63.5	67.1	66.2	56.2	0.0	60.3	14.7	19.8	20.1	20.9	17.8	17.8
Incr Delay (d2), s/veh	0.3	1.9	0.9	1.6	0.0	2.4	1.2	4.5	4.7	1.4	1.9	1.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	1.8	0.7	5.5	0.0	5.2	2.0	19.9	21.0	1.2	12.4	12.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	63.8	69.0	67.0	57.8	0.0	62.7	15.9	24.3	24.8	22.4	19.6	19.6
LnGrp LOS	E	E	E	E	A	E	B	C	C	C	B	B
Approach Vol, veh/h	87			299			1828			1321		
Approach Delay, s/veh	67.4			60.1			23.8			19.8		
Approach LOS	E			E			C			B		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	14.4	97.8	9.6	28.2	11.7	100.5	20.9	16.9				
Change Period (Y+Rc), s	* 7.1	* 7.1	6.9	6.9	6.8	* 7.1	* 6.7	6.9				
Max Green Setting (Gmax), s	* 21	* 60	18.1	23.1	13.2	* 68	* 18	23.1				
Max Q Clear Time (g_c+I1), s	7.0	32.5	3.5	13.7	4.8	52.1	14.1	5.7				
Green Ext Time (p_c), s	0.3	12.5	0.0	0.4	0.1	12.1	0.1	0.2				

Intersection Summary

HCM 6th Ctrl Delay 26.4

HCM 6th LOS C

Notes

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

Lanes, Volumes, Timings
14: Veterans Memorial Pkwy & E Rhode Island Road Ave

2019 Existing Conditions
Timing Plan: PM Peak Hour

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	174	255	271	639	440	130
Future Volume (vph)	174	255	271	639	440	130
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	185	271	288	680	468	138
Shared Lane Traffic (%)						
Lane Group Flow (vph)	185	271	288	680	468	138
Turn Type	Prot	Perm	pm+pt	NA	NA	Perm
Protected Phases	4		1	6	2	
Permitted Phases		4	6			2
Detector Phase	4	4	1	6	2	2
Switch Phase						
Minimum Initial (s)	7.0	7.0	5.0	11.0	11.0	11.0
Minimum Split (s)	13.5	13.5	13.5	20.5	20.5	20.5
Total Split (s)	20.0	20.0	15.0	50.0	35.0	35.0
Total Split (%)	28.6%	28.6%	21.4%	71.4%	50.0%	50.0%
Yellow Time (s)	3.5	3.5	5.5	5.5	5.5	5.5
All-Red Time (s)	3.0	3.0	3.0	4.0	4.0	4.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	8.5	9.5	9.5	9.5
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Recall Mode	None	None	None	Min	Min	Min
v/c Ratio	0.59	0.54	0.70	0.65	0.78	0.23
Control Delay	33.4	8.2	18.2	13.1	29.6	4.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	33.4	8.2	18.2	13.1	29.6	4.3
Queue Length 50th (ft)	67	0	50	164	161	0
Queue Length 95th (ft)	132	57	#109	278	268	32
Internal Link Dist (ft)	5352			4702	7026	
Turn Bay Length (ft)	450		385			385
Base Capacity (vph)	387	558	414	1224	771	736
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.48	0.49	0.70	0.56	0.61	0.19

Intersection Summary

Cycle Length: 70

Actuated Cycle Length: 62.6

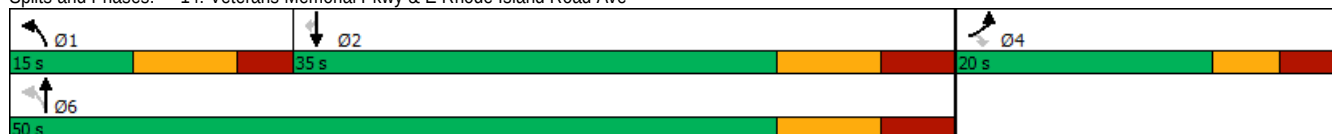
Natural Cycle: 60

Control Type: Actuated-Uncoordinated

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

Queue shown is maximum after two cycles.

Splits and Phases: 14: Veterans Memorial Pkwy & E Rhode Island Road Ave



HCM 6th Signalized Intersection Summary
 14: Veterans Memorial Pkwy & E Rhode Island Road Ave

2019 Existing Conditions
 Timing Plan: PM Peak Hour

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	174	255	271	639	440	130
Future Volume (veh/h)	174	255	271	639	440	130
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	185	114	288	680	468	87
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	253	225	397	1071	570	483
Arrive On Green	0.14	0.14	0.12	0.57	0.30	0.30
Sat Flow, veh/h	1781	1585	1781	1870	1870	1585
Grp Volume(v), veh/h	185	114	288	680	468	87
Grp Sat Flow(s),veh/h/ln	1781	1585	1781	1870	1870	1585
Q Serve(g_s), s	5.6	3.7	5.9	13.7	13.0	2.3
Cycle Q Clear(g_c), s	5.6	3.7	5.9	13.7	13.0	2.3
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	253	225	397	1071	570	483
V/C Ratio(X)	0.73	0.51	0.72	0.63	0.82	0.18
Avail Cap(c_a), veh/h	429	382	397	1351	851	721
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.0	22.2	12.7	8.0	18.1	14.3
Incr Delay (d2), s/veh	4.1	1.8	6.4	0.6	4.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	1.3	2.3	3.3	5.0	0.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	27.1	24.0	19.1	8.7	22.1	14.5
LnGrp LOS	C	C	B	A	C	B
Approach Vol, veh/h	299			968	555	
Approach Delay, s/veh	25.9			11.8	20.9	
Approach LOS	C			B	C	
Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	15.0	26.6		14.5		41.6
Change Period (Y+Rc), s	8.5	9.5		6.5		9.5
Max Green Setting (Gmax), s	6.5	25.5		13.5		40.5
Max Q Clear Time (g_c+I1), s	7.9	15.0		7.6		15.7
Green Ext Time (p_c), s	0.0	2.1		0.5		4.2
Intersection Summary						
HCM 6th Ctrl Delay			16.9			
HCM 6th LOS			B			

Lanes, Volumes, Timings
15: N Normandy Blvd & Elkcam Blvd

2019 Existing Conditions
Timing Plan: PM Peak Hour

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	195	99	216	386	215	319
Future Volume (vph)	195	99	216	386	215	319
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	205	104	227	406	226	336
Shared Lane Traffic (%)						
Lane Group Flow (vph)	205	104	633	0	226	336
Turn Type	Prot	Perm	NA		pm+pt	NA
Protected Phases	4		6		5	2
Permitted Phases		4			2	
Detector Phase	4	4	6		5	2
Switch Phase						
Minimum Initial (s)	5.0	5.0	12.0		5.0	12.0
Minimum Split (s)	11.5	11.5	19.0		11.5	18.5
Total Split (s)	20.0	20.0	35.0		15.0	50.0
Total Split (%)	28.6%	28.6%	50.0%		21.4%	71.4%
Yellow Time (s)	4.0	4.0	4.5		4.0	4.0
All-Red Time (s)	2.5	2.5	2.5		2.5	2.5
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	6.5	6.5	7.0		6.5	6.5
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	None	None	Min		None	Min
v/c Ratio	0.57	0.26	0.57		0.50	0.17
Control Delay	25.8	6.6	8.5		10.7	6.6
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	25.8	6.6	8.5		10.7	6.6
Queue Length 50th (ft)	56	0	30		33	24
Queue Length 95th (ft)	120	32	69		68	45
Internal Link Dist (ft)	7820		5060			9642
Turn Bay Length (ft)	460				275	
Base Capacity (vph)	459	487	1909		461	2958
Starvation Cap Reductn	0	0	0		0	0
Spillback Cap Reductn	0	0	0		0	0
Storage Cap Reductn	0	0	0		0	0
Reduced v/c Ratio	0.45	0.21	0.33		0.49	0.11

Intersection Summary

Cycle Length: 70

Actuated Cycle Length: 52.4

Natural Cycle: 50

Control Type: Actuated-Uncoordinated

Splits and Phases: 15: N Normandy Blvd & Elkcam Blvd



HCM 6th Signalized Intersection Summary
15: N Normandy Blvd & Elkcam Blvd

2019 Existing Conditions
Timing Plan: PM Peak Hour

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	195	99	216	386	215	319
Future Volume (veh/h)	195	99	216	386	215	319
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	205	48	227	249	226	336
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	279	248	480	429	504	1917
Arrive On Green	0.16	0.16	0.27	0.27	0.12	0.54
Sat Flow, veh/h	1781	1585	1870	1585	1781	3647
Grp Volume(v), veh/h	205	48	227	249	226	336
Grp Sat Flow(s),veh/h/ln	1781	1585	1777	1585	1781	1777
Q Serve(g_s), s	4.9	1.2	4.7	6.0	3.6	2.1
Cycle Q Clear(g_c), s	4.9	1.2	4.7	6.0	3.6	2.1
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	279	248	480	429	504	1917
V/C Ratio(X)	0.74	0.19	0.47	0.58	0.45	0.18
Avail Cap(c_a), veh/h	542	482	1121	1000	627	3483
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.8	16.3	13.5	14.0	9.0	5.2
Incr Delay (d2), s/veh	3.8	0.4	0.7	1.3	0.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	1.1	1.6	1.9	1.0	0.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	21.6	16.7	14.3	15.3	9.6	5.2
LnGrp LOS	C	B	B	B	A	A
Approach Vol, veh/h	253		476			562
Approach Delay, s/veh	20.7		14.8			7.0
Approach LOS	C		B			A
Timer - Assigned Phs	2		4		5	6
Phs Duration (G+Y+Rc), s	30.9		13.4		11.9	19.0
Change Period (Y+Rc), s	* 7		6.5		6.5	7.0
Max Green Setting (Gmax), s	* 44		13.5		8.5	28.0
Max Q Clear Time (g_c+I1), s	4.1		6.9		5.6	8.0
Green Ext Time (p_c), s	2.1		0.4		0.2	2.8
Intersection Summary						
HCM 6th Ctrl Delay			12.6			
HCM 6th LOS			B			
Notes						

Lanes, Volumes, Timings
16: Fort Smith Blvd & Elkcaml Blvd

2019 Existing Conditions
Timing Plan: PM Peak Hour

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	293	162	5	167	104	11
Future Volume (vph)	293	162	5	167	104	11
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	2%	2%	4%	4%
Adj. Flow (vph)	318	176	5	182	113	12
Shared Lane Traffic (%)						
Lane Group Flow (vph)	494	0	0	187	125	0
Sign Control	Free			Free	Stop	

Intersection Summary

Control Type: Unsignalized

Intersection						
Int Delay, s/veh	2.4					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	293	162	5	167	104	11
Future Vol, veh/h	293	162	5	167	104	11
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	4	4
Mvmt Flow	318	176	5	182	113	12
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	494	0	598	406
Stage 1	-	-	-	-	406	-
Stage 2	-	-	-	-	192	-
Critical Hdwy	-	-	4.12	-	6.44	6.24
Critical Hdwy Stg 1	-	-	-	-	5.44	-
Critical Hdwy Stg 2	-	-	-	-	5.44	-
Follow-up Hdwy	-	-	2.218	-	3.536	3.336
Pot Cap-1 Maneuver	-	-	1070	-	462	641
Stage 1	-	-	-	-	668	-
Stage 2	-	-	-	-	836	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1070	-	460	641
Mov Cap-2 Maneuver	-	-	-	-	460	-
Stage 1	-	-	-	-	665	-
Stage 2	-	-	-	-	836	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0.2		15.3	
HCM LOS					C	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	473	-	-	1070	-	
HCM Lane V/C Ratio	0.264	-	-	0.005	-	
HCM Control Delay (s)	15.3	-	-	8.4	0	
HCM Lane LOS	C	-	-	A	A	
HCM 95th %tile Q(veh)	1.1	-	-	0	-	

Lanes, Volumes, Timings
17: Providence Blvd & Elkcaml Blvd

2019 Existing Conditions
Timing Plan: PM Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	65	208	65	179	152	41	46	252	186	66	318	35
Future Volume (vph)	65	208	65	179	152	41	46	252	186	66	318	35
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	69	221	69	190	162	44	49	268	198	70	338	37
Shared Lane Traffic (%)												
Lane Group Flow (vph)	69	290	0	190	206	0	49	268	198	70	338	37
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6			8		8	4		4
Detector Phase	5	2		1	6		3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	5.0	6.0		5.0	6.0		5.0	6.0	6.0	5.0	6.0	6.0
Minimum Split (s)	12.5	13.5		12.5	13.5		12.0	13.0	13.0	12.5	13.5	13.5
Total Split (s)	15.0	30.0		15.0	30.0		20.0	35.0	35.0	20.0	35.0	35.0
Total Split (%)	15.0%	30.0%		15.0%	30.0%		20.0%	35.0%	35.0%	20.0%	35.0%	35.0%
Yellow Time (s)	4.5	4.5		4.5	4.5		4.0	4.0	4.0	4.5	4.5	4.5
All-Red Time (s)	3.0	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	0.0
Total Lost Time (s)	7.5	7.5		7.5	7.5		7.0	7.0	7.0	7.5	7.5	7.5
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Min		None	Min		None	None	None	None	None	None
v/c Ratio	0.17	0.71		0.53	0.40		0.14	0.58	0.36	0.19	0.63	0.06
Control Delay	18.8	39.6		25.9	30.0		16.0	33.7	5.3	16.5	32.5	0.2
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.8	39.6		25.9	30.0		16.0	33.7	5.3	16.5	32.5	0.2
Queue Length 50th (ft)	22	134		65	89		15	126	0	22	163	0
Queue Length 95th (ft)	56	247		132	174		36	217	43	49	272	0
Internal Link Dist (ft)		4411			6336			3885			8692	
Turn Bay Length (ft)	375			225			235		365	220		295
Base Capacity (vph)	434	539		359	559		469	683	715	455	684	716
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.16	0.54		0.53	0.37		0.10	0.39	0.28	0.15	0.49	0.05

Intersection Summary

Cycle Length: 100

Actuated Cycle Length: 80.3

Natural Cycle: 70

Control Type: Actuated-Uncoordinated

Splits and Phases: 17: Providence Blvd & Elkcaml Blvd

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

HCM 6th Signalized Intersection Summary
17: Providence Blvd & Elkcam Blvd

2019 Existing Conditions
Timing Plan: PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	65	208	65	179	152	41	46	252	186	66	318	35
Future Volume (veh/h)	65	208	65	179	152	41	46	252	186	66	318	35
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	69	221	54	190	162	35	49	268	107	70	338	16
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	384	282	69	350	371	80	245	401	340	282	432	366
Arrive On Green	0.05	0.19	0.19	0.11	0.25	0.25	0.04	0.21	0.21	0.05	0.23	0.23
Sat Flow, veh/h	1781	1452	355	1781	1490	322	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	69	0	275	190	0	197	49	268	107	70	338	16
Grp Sat Flow(s),veh/h/ln	1781	0	1807	1781	0	1812	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	2.1	0.0	10.1	5.8	0.0	6.4	1.5	9.2	4.0	2.1	11.8	0.5
Cycle Q Clear(g_c), s	2.1	0.0	10.1	5.8	0.0	6.4	1.5	9.2	4.0	2.1	11.8	0.5
Prop In Lane	1.00		0.20	1.00		0.18	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	384	0	351	350	0	452	245	401	340	282	432	366
V/C Ratio(X)	0.18	0.00	0.78	0.54	0.00	0.44	0.20	0.67	0.31	0.25	0.78	0.04
Avail Cap(c_a), veh/h	482	0	583	350	0	585	498	751	637	506	738	625
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	20.6	0.0	26.7	19.9	0.0	22.1	20.6	25.1	23.1	20.1	25.2	20.8
Incr Delay (d2), s/veh	0.2	0.0	5.4	1.7	0.0	0.9	0.4	2.7	0.7	0.5	4.4	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.0	4.6	2.4	0.0	2.6	0.6	4.1	1.5	0.8	5.4	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	20.8	0.0	32.1	21.6	0.0	23.0	21.0	27.8	23.8	20.6	29.6	20.9
LnGrp LOS	C	A	C	C	A	C	C	C	C	C	C	C
Approach Vol, veh/h	344			387			424			424		
Approach Delay, s/veh	29.8			22.3			26.0			27.8		
Approach LOS	C			C			C			C		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	15.0	21.1	10.1	23.6	11.2	24.9	11.2	22.5				
Change Period (Y+Rc), s	7.5	7.5	7.0	7.5	7.5	7.5	7.5	* 7.5				
Max Green Setting (Gmax), s	7.5	22.5	13.0	27.5	7.5	22.5	12.5	* 28				
Max Q Clear Time (g_c+I1), s	7.8	12.1	3.5	13.8	4.1	8.4	4.1	11.2				
Green Ext Time (p_c), s	0.0	1.5	0.0	2.3	0.0	1.2	0.1	2.4				

Intersection Summary

HCM 6th Ctrl Delay	26.4
HCM 6th LOS	C

Notes

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

Lanes, Volumes, Timings
18: Lake Helen Osteen Rd & Elkcarn Blvd

2019 Existing Conditions
Timing Plan: PM Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	136	318	10	71	228	16	15	167	136	29	211	126
Future Volume (vph)	136	318	10	71	228	16	15	167	136	29	211	126
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	3%	3%	3%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	149	349	11	78	251	18	16	184	149	32	232	138
Shared Lane Traffic (%)												
Lane Group Flow (vph)	149	360	0	78	269	0	16	333	0	32	370	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		5	2		6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		5.0	7.0		7.0	7.0	
Minimum Split (s)	13.5	13.5		13.5	13.5		11.5	14.0		13.5	13.5	
Total Split (s)	20.0	20.0		20.0	20.0		20.0	45.0		25.0	25.0	
Total Split (%)	30.8%	30.8%		30.8%	30.8%		30.8%	69.2%		38.5%	38.5%	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.5		4.0	4.0	
All-Red Time (s)	2.5	2.5		2.5	2.5		2.5	2.5		2.5	2.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.5	6.5		6.5	6.5		6.5	7.0		6.5	6.5	
Lead/Lag							Lead			Lag	Lag	
Lead-Lag Optimize?							Yes			Yes	Yes	
Recall Mode	None	None		None	None		None	Min		Min	Min	
v/c Ratio	0.42	0.60		0.27	0.45		0.04	0.51		0.10	0.65	
Control Delay	19.3	21.1		16.8	16.2		7.7	9.4		12.5	17.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	19.3	21.1		16.8	16.2		7.7	9.4		12.5	17.7	
Queue Length 50th (ft)	23	60		12	42		2	38		5	57	
Queue Length 95th (ft)	#112	#252		58	#151		9	77		24	172	
Internal Link Dist (ft)		10882			412			5142			782	
Turn Bay Length (ft)	405			105			100			170		
Base Capacity (vph)	368	617		296	622		630	1592		479	833	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.40	0.58		0.26	0.43		0.03	0.21		0.07	0.44	

Intersection Summary

Cycle Length: 65

Actuated Cycle Length: 41.7

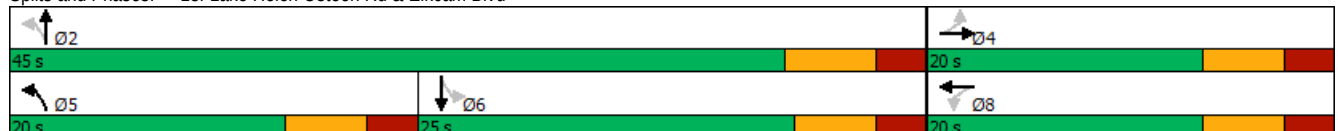
Natural Cycle: 60

Control Type: Actuated-Uncoordinated

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

Queue shown is maximum after two cycles.

Splits and Phases: 18: Lake Helen Osteen Rd & Elkcarn Blvd



HCM 6th Signalized Intersection Summary
18: Lake Helen Osteen Rd & Elkcarn Blvd

2019 Existing Conditions
Timing Plan: PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	136	318	10	71	228	16	15	167	136	29	211	126
Future Volume (veh/h)	136	318	10	71	228	16	15	167	136	29	211	126
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	149	349	9	78	251	14	16	184	105	32	232	96
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	3	3	3	2	2	2	2	2	2	2	2	2
Cap, veh/h	353	528	14	285	514	29	272	457	261	426	307	127
Arrive On Green	0.29	0.29	0.29	0.29	0.29	0.29	0.02	0.41	0.41	0.24	0.24	0.24
Sat Flow, veh/h	1106	1801	46	1023	1755	98	1781	1118	638	1090	1257	520
Grp Volume(v), veh/h	149	0	358	78	0	265	16	0	289	32	0	328
Grp Sat Flow(s),veh/h/ln	1106	0	1847	1023	0	1853	1781	0	1756	1090	0	1777
Q Serve(g_s), s	5.8	0.0	7.7	3.3	0.0	5.3	0.3	0.0	5.3	1.0	0.0	7.7
Cycle Q Clear(g_c), s	11.1	0.0	7.7	11.0	0.0	5.3	0.3	0.0	5.3	1.0	0.0	7.7
Prop In Lane	1.00		0.03	1.00		0.05	1.00		0.36	1.00		0.29
Lane Grp Cap(c), veh/h	353	0	541	285	0	543	272	0	717	426	0	435
V/C Ratio(X)	0.42	0.00	0.66	0.27	0.00	0.49	0.06	0.00	0.40	0.08	0.00	0.75
Avail Cap(c_a), veh/h	359	0	551	291	0	553	768	0	1475	605	0	727
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	17.8	0.0	14.0	18.8	0.0	13.2	12.0	0.0	9.5	13.3	0.0	15.8
Incr Delay (d2), s/veh	0.8	0.0	2.9	0.5	0.0	0.7	0.1	0.0	0.4	0.1	0.0	2.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	0.0	3.0	0.7	0.0	1.9	0.1	0.0	1.6	0.2	0.0	2.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	18.6	0.0	16.9	19.3	0.0	13.9	12.1	0.0	9.8	13.4	0.0	18.5
LnGrp LOS	B	A	B	B	A	B	B	A	A	B	A	B
Approach Vol, veh/h	507			343			305			360		
Approach Delay, s/veh	17.4			15.1			10.0			18.1		
Approach LOS	B			B			A			B		
Timer - Assigned Phs	2			4		5	6		8			
Phs Duration (G+Y+Rc), s	25.5			19.8		7.4	18.1		19.8			
Change Period (Y+Rc), s	7.0			6.5		6.5	* 7		6.5			
Max Green Setting (Gmax), s	38.0			13.5		13.5	* 19		13.5			
Max Q Clear Time (g_c+I1), s	7.3			13.1		2.3	9.7		13.0			
Green Ext Time (p_c), s	1.8			0.1		0.0	1.3		0.1			
Intersection Summary												
HCM 6th Ctrl Delay	15.5											
HCM 6th LOS	B											
Notes												

Lanes, Volumes, Timings
19: Providence Blvd & Fort Smith Blvd

2019 Existing Conditions
Timing Plan: PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	9	100	42	219	82	107	39	408	391	120	361	4
Future Volume (vph)	9	100	42	219	82	107	39	408	391	120	361	4
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
Heavy Vehicles (%)	4%	4%	4%	2%	2%	2%	2%	2%	2%	3%	3%	3%
Adj. Flow (vph)	9	105	44	231	86	113	41	429	412	126	380	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	9	149	0	231	199	0	41	429	412	126	384	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2		2	6		
Detector Phase	4	4		8	8		2	2	2	1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		12.0	12.0	12.0	5.0	12.0	
Minimum Split (s)	14.0	14.0		13.5	13.5		18.5	18.5	18.5	13.0	20.0	
Total Split (s)	30.0	30.0		30.0	30.0		35.0	35.0	35.0	20.0	55.0	
Total Split (%)	35.3%	35.3%		35.3%	35.3%		41.2%	41.2%	41.2%	23.5%	64.7%	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.5	4.5	
All-Red Time (s)	3.0	3.0		2.5	2.5		2.5	2.5	2.5	3.5	3.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	7.0	7.0		6.5	6.5		6.5	6.5	6.5	8.0	8.0	
Lead/Lag							Lag	Lag	Lag	Lead		
Lead-Lag Optimize?							Yes	Yes	Yes	Yes		
Recall Mode	None	None		None	None		Min	Min	Min	None	None	
v/c Ratio	0.03	0.32		0.72	0.39		0.12	0.66	0.50	0.32	0.42	
Control Delay	22.3	22.1		39.3	17.4		19.4	27.0	4.7	11.3	11.9	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	22.3	22.1		39.3	17.4		19.4	27.0	4.7	11.3	11.9	
Queue Length 50th (ft)	3	47		98	45		13	166	0	27	95	
Queue Length 95th (ft)	15	101		#204	107		38	294	59	57	168	
Internal Link Dist (ft)		5102			547			764			3885	
Turn Bay Length (ft)	100			440			200			221		
Base Capacity (vph)	432	668		471	699		461	863	954	481	1285	
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	
Reduced v/c Ratio	0.02	0.22		0.49	0.28		0.09	0.50	0.43	0.26	0.30	

Intersection Summary

Cycle Length: 85

Actuated Cycle Length: 68.1

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

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

Queue shown is maximum after two cycles.

Splits and Phases: 19: Providence Blvd & Fort Smith Blvd



HCM 6th Signalized Intersection Summary
19: Providence Blvd & Fort Smith Blvd

2019 Existing Conditions
Timing Plan: PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	9	100	42	219	82	107	39	408	391	120	361	4
Future Volume (veh/h)	9	100	42	219	82	107	39	408	391	120	361	4
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1841	1841	1841	1870	1870	1870	1870	1870	1870	1856	1856	1856
Adj Flow Rate, veh/h	9	105	27	231	86	73	41	429	285	126	380	4
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, %	4	4	4	2	2	2	2	2	2	3	3	3
Cap, veh/h	356	392	101	385	259	220	413	569	482	304	908	10
Arrive On Green	0.28	0.28	0.28	0.28	0.28	0.28	0.30	0.30	0.30	0.07	0.50	0.50
Sat Flow, veh/h	1208	1412	363	1258	934	793	999	1870	1585	1767	1833	19
Grp Volume(v), veh/h	9	0	132	231	0	159	41	429	285	126	0	384
Grp Sat Flow(s),veh/h/ln	1208	0	1775	1258	0	1728	999	1870	1585	1767	0	1852
Q Serve(g_s), s	0.4	0.0	3.8	11.6	0.0	4.8	2.0	13.7	10.1	3.0	0.0	8.7
Cycle Q Clear(g_c), s	5.2	0.0	3.8	15.4	0.0	4.8	2.0	13.7	10.1	3.0	0.0	8.7
Prop In Lane	1.00		0.20	1.00		0.46	1.00		1.00	1.00		0.01
Lane Grp Cap(c), veh/h	356	0	492	385	0	479	413	569	482	304	0	918
V/C Ratio(X)	0.03	0.00	0.27	0.60	0.00	0.33	0.10	0.75	0.59	0.41	0.00	0.42
Avail Cap(c_a), veh/h	441	0	618	483	0	614	540	806	683	501	0	1317
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	21.1	0.0	18.6	24.7	0.0	19.0	16.7	20.8	19.5	14.9	0.0	10.6
Incr Delay (d2), s/veh	0.0	0.0	0.3	1.5	0.0	0.4	0.1	3.3	1.6	0.9	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	1.5	3.3	0.0	1.8	0.4	5.9	3.6	1.1	0.0	3.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.1	0.0	18.9	26.2	0.0	19.4	16.8	24.1	21.2	15.8	0.0	11.0
LnGrp LOS	C	A	B	C	A	B	B	C	C	B	A	B
Approach Vol, veh/h	141			390			755			510		
Approach Delay, s/veh	19.1			23.4			22.6			12.2		
Approach LOS	B			C			C			B		
Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	12.7	28.1		25.3		40.8		25.3				
Change Period (Y+Rc), s	8.0	* 8		7.0		8.0		* 7				
Max Green Setting (Gmax), s	12.0	* 29		23.0		47.0		* 24				
Max Q Clear Time (g_c+I1), s	5.0	15.7		7.2		10.7		17.4				
Green Ext Time (p_c), s	0.2	4.4		0.6		3.6		0.9				

Intersection Summary

HCM 6th Ctrl Delay 19.5
HCM 6th LOS B

Notes

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

Lanes, Volumes, Timings
20: Veterans Memorial Pkwy & Harley Strickland Blvd

2019 Existing Conditions
Timing Plan: PM Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	320	56	247	75	41	107	216	427	2	105	424	151
Future Volume (vph)	320	56	247	75	41	107	216	427	2	105	424	151
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
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	3%	3%	3%	2%	2%	2%
Adj. Flow (vph)	333	58	257	78	43	111	225	445	2	109	442	157
Shared Lane Traffic (%)												
Lane Group Flow (vph)	333	58	257	78	154	0	225	447	0	109	599	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8		8	4			6			2		
Detector Phase	3	8	8	7	4		1	6		5	2	
Switch Phase												
Minimum Initial (s)	5.0	7.0	7.0	5.0	7.0		5.0	16.0		5.0	16.0	
Minimum Split (s)	12.5	14.5	14.5	12.5	14.5		12.5	23.5		12.5	23.5	
Total Split (s)	25.0	40.0	40.0	20.0	35.0		30.0	50.0		20.0	40.0	
Total Split (%)	19.2%	30.8%	30.8%	15.4%	26.9%		23.1%	38.5%		15.4%	30.8%	
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	
All-Red Time (s)	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)	7.5	7.5	7.5	7.5	7.5		7.5	7.5		7.5	7.5	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	None	None	None	None		None	C-Min		None	C-Min	
v/c Ratio	0.90	0.16	0.49	0.32	0.68		0.49	0.29		0.22	0.43	
Control Delay	65.5	45.6	8.8	36.4	39.4		18.2	24.5		15.4	28.7	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	65.5	45.6	8.8	36.4	39.4		18.2	24.5		15.4	28.7	
Queue Length 50th (ft)	229	40	0	46	52		94	130		42	185	
Queue Length 95th (ft)	#393	84	76	86	120		140	175		71	253	
Internal Link Dist (ft)		562			593			1843			1501	
Turn Bay Length (ft)	235		235	250			435			340		
Base Capacity (vph)	372	467	589	286	423		534	1560		540	1393	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.90	0.12	0.44	0.27	0.36		0.42	0.29		0.20	0.43	

Intersection Summary

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 40 (31%), Referenced to phase 2:SBTL and 6:NBTL, Start of Yellow

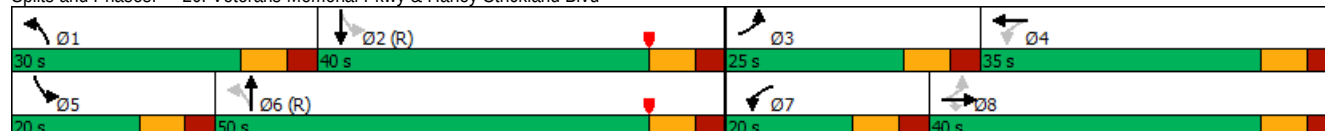
Natural Cycle: 75

Control Type: Actuated-Coordinated

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

Queue shown is maximum after two cycles.

Splits and Phases: 20: Veterans Memorial Pkwy & Harley Strickland Blvd



HCM 6th Signalized Intersection Summary
20: Veterans Memorial Pkwy & Harley Strickland Blvd

2019 Existing Conditions
Timing Plan: PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	320	56	247	75	41	107	216	427	2	105	424	151
Future Volume (veh/h)	320	56	247	75	41	107	216	427	2	105	424	151
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1856	1856	1856	1870	1870	1870
Adj Flow Rate, veh/h	333	58	117	78	43	75	225	445	2	109	442	125
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	3	3	3	2	2	2
Cap, veh/h	320	320	271	255	54	94	504	1796	8	544	1264	354
Arrive On Green	0.13	0.17	0.17	0.05	0.09	0.09	0.09	0.50	0.50	0.05	0.46	0.46
Sat Flow, veh/h	1781	1870	1585	1781	612	1067	1767	3599	16	1781	2740	769
Grp Volume(v), veh/h	333	58	117	78	0	118	225	218	229	109	285	282
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	0	1678	1767	1763	1853	1781	1777	1732
Q Serve(g_s), s	17.5	3.4	8.6	5.1	0.0	9.0	8.6	9.2	9.2	4.2	13.4	13.6
Cycle Q Clear(g_c), s	17.5	3.4	8.6	5.1	0.0	9.0	8.6	9.2	9.2	4.2	13.4	13.6
Prop In Lane	1.00		1.00	1.00		0.64	1.00		0.01	1.00		0.44
Lane Grp Cap(c), veh/h	320	320	271	255	0	148	504	880	924	544	819	799
V/C Ratio(X)	1.04	0.18	0.43	0.31	0.00	0.80	0.45	0.25	0.25	0.20	0.35	0.35
Avail Cap(c_a), veh/h	320	468	396	333	0	355	660	880	924	631	819	799
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	0.09	0.09	0.09	1.00	1.00	1.00
Uniform Delay (d), s/veh	48.2	46.1	48.2	50.2	0.0	58.1	16.3	18.6	18.6	16.8	22.5	22.5
Incr Delay (d2), s/veh	61.4	0.3	1.1	0.7	0.0	9.3	0.1	0.1	0.1	0.2	1.2	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.3	1.6	3.4	2.3	0.0	4.2	3.4	3.7	3.9	1.7	5.7	5.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	109.7	46.4	49.3	50.9	0.0	67.4	16.4	18.7	18.7	17.0	23.7	23.8
LnGrp LOS	F	D	D	D	A	E	B	B	B	B	C	C
Approach Vol, veh/h		508			196			672			676	
Approach Delay, s/veh		88.6			60.9			17.9			22.6	
Approach LOS		F			E			B			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	18.6	67.4	25.0	19.0	13.7	72.4	14.3	29.7				
Change Period (Y+Rc), s	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5				
Max Green Setting (Gmax), s	22.5	32.5	17.5	27.5	12.5	42.5	12.5	32.5				
Max Q Clear Time (g_c+I1), s	10.6	15.6	19.5	11.0	6.2	11.2	7.1	10.6				
Green Ext Time (p_c), s	0.5	4.2	0.0	0.5	0.1	3.8	0.1	0.6				
Intersection Summary												
HCM 6th Ctrl Delay			41.1									
HCM 6th LOS			D									

Lanes, Volumes, Timings
21: Broward Ave/Veterans Memorial Pkwy & Saxon Blvd

2019 Existing Conditions
Timing Plan: PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	202	1236	29	138	1040	443	47	48	100	660	67	187
Future Volume (vph)	202	1236	29	138	1040	443	47	48	100	660	67	187
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
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	213	1301	31	145	1095	466	49	51	105	695	71	197
Shared Lane Traffic (%)										45%		
Lane Group Flow (vph)	213	1332	0	145	1561	0	49	51	105	382	384	197
Turn Type	pm+pt	NA		pm+pt	NA		Split	NA	Perm	Split	NA	Perm
Protected Phases	1	6		5	2		4	4		8	8	
Permitted Phases	6			2					4			8
Detector Phase	1	6		5	2		4	4	4	8	8	8
Switch Phase												
Minimum Initial (s)	5.0	12.0		5.0	12.0		7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	12.9	18.8		12.8	18.8		14.5	14.5	14.5	15.3	15.3	15.3
Total Split (s)	19.0	106.0		13.0	100.0		14.5	14.5	14.5	36.0	36.0	36.0
Total Split (%)	11.2%	62.5%		7.7%	59.0%		8.6%	8.6%	8.6%	21.2%	21.2%	21.2%
Yellow Time (s)	4.8	4.8		4.8	4.8		3.7	3.7	3.7	4.5	4.5	4.5
All-Red Time (s)	3.1	2.0		3.0	2.0		3.8	3.8	3.8	3.8	3.8	3.8
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.9	6.8		7.8	6.8		7.5	7.5	7.5	8.3	8.3	8.3
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Recall Mode	None	C-Min		None	C-Min		None	None	None	None	None	None
v/c Ratio	1.31	0.60		0.97	0.78		0.45	0.45	0.48	0.79	0.79	0.36
Control Delay	214.2	36.6		96.6	43.1		88.9	88.1	13.1	69.2	68.8	19.1
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	214.2	36.6		96.6	43.1		88.9	88.1	13.1	69.2	68.8	19.1
Queue Length 50th (ft)	~249	408		84	518		54	56	0	414	416	50
Queue Length 95th (ft)	#417	403		#168	514		101	104	39	#738	#741	140
Internal Link Dist (ft)		957			1787			543			1843	
Turn Bay Length (ft)	460			400			200		445	410		
Base Capacity (vph)	162	2939		150	2689		109	114	218	481	486	550
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	1.31	0.45		0.97	0.58		0.45	0.45	0.48	0.79	0.79	0.36

Intersection Summary

Cycle Length: 169.5

Actuated Cycle Length: 169.5

Offset: 124 (73%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow

Natural Cycle: 100

Control Type: Actuated-Coordinated

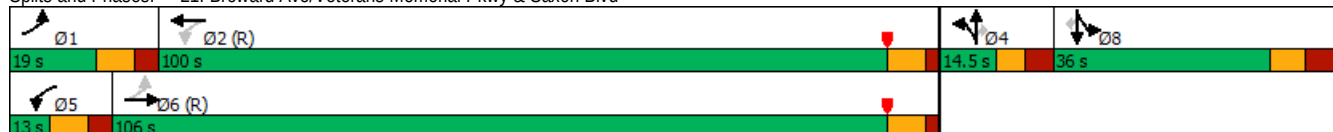
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

Splits and Phases: 21: Broward Ave/Veterans Memorial Pkwy & Saxon Blvd



HCM 6th Signalized Intersection Summary
21: Broward Ave/Veterans Memorial Pkwy & Saxon Blvd

2019 Existing Conditions
Timing Plan: PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	202	1236	29	138	1040	443	47	48	100	660	67	187
Future Volume (veh/h)	202	1236	29	138	1040	443	47	48	100	660	67	187
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	213	1301	22	145	1095	466	49	51	37	746	0	102
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, %	3	3	3	3	3	3	2	2	2	2	2	2
Cap, veh/h	270	3009	51	280	1924	818	73	77	65	580	0	258
Arrive On Green	0.06	0.59	0.59	0.03	0.55	0.55	0.04	0.04	0.04	0.16	0.00	0.16
Sat Flow, veh/h	1767	5130	87	1767	3484	1482	1781	1870	1585	3563	0	1585
Grp Volume(v), veh/h	213	856	467	145	1061	500	49	51	37	746	0	102
Grp Sat Flow(s), veh/h/ln	1767	1689	1840	1767	1689	1589	1781	1870	1585	1781	0	1585
Q Serve(g_s), s	8.9	23.9	23.9	5.2	34.9	34.9	4.6	4.6	3.9	27.7	0.0	9.8
Cycle Q Clear(g_c), s	8.9	23.9	23.9	5.2	34.9	34.9	4.6	4.6	3.9	27.7	0.0	9.8
Prop In Lane	1.00		0.05	1.00		0.93	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	270	1981	1079	280	1865	877	73	77	65	580	0	258
V/C Ratio(X)	0.79	0.43	0.43	0.52	0.57	0.57	0.67	0.66	0.57	1.29	0.00	0.39
Avail Cap(c_a), veh/h	271	1981	1079	280	1865	877	73	77	65	580	0	258
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.91	0.91	0.91	1.00	1.00	1.00	0.90	0.00	0.90
Uniform Delay (d), s/veh	24.4	19.5	19.5	19.9	24.9	24.9	80.4	80.3	80.0	71.2	0.0	63.7
Incr Delay (d2), s/veh	14.5	0.7	1.3	1.5	1.2	2.4	20.9	19.2	11.0	139.8	0.0	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.8	9.3	10.4	2.7	13.9	13.4	2.6	2.6	1.8	23.8	0.0	4.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	38.9	20.2	20.7	21.4	26.0	27.3	101.3	99.6	91.0	211.0	0.0	64.5
LnGrp LOS	D	C	C	C	C	C	F	F	F	F	A	E
Approach Vol, veh/h	1536			1706			137			848		
Approach Delay, s/veh	22.9			26.0			97.9			193.4		
Approach LOS	C			C			F			F		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	18.8	100.7		14.5	13.0	106.5		36.0				
Change Period (Y+Rc), s	7.9	6.8		7.5	7.8	6.8		8.3				
Max Green Setting (Gmax), s	11.1	93.2		7.0	5.2	99.2		27.7				
Max Q Clear Time (g_c+I1), s	10.9	36.9		6.6	7.2	25.9		29.7				
Green Ext Time (p_c), s	0.0	15.4		0.0	0.0	11.2		0.0				

Intersection Summary

HCM 6th Ctrl Delay 60.8

HCM 6th LOS E

Notes

User approved volume balancing among the lanes for turning movement.

Lanes, Volumes, Timings
22: FDOT Park & Ride & Saxon Blvd

2019 Existing Conditions
Timing Plan: PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	34	1733	81	92	1417	24	60	0	99	35	5	15
Future Volume (vph)	34	1733	81	92	1417	24	60	0	99	35	5	15
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	37	1863	87	99	1524	26	65	0	106	38	5	16
Shared Lane Traffic (%)												
Lane Group Flow (vph)	37	1950	0	99	1550	0	65	106	0	0	59	0
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	1	6		5	2			4			8	
Permitted Phases	6			2			4			8		
Detector Phase	1	6		5	2		4	4		8	8	
Switch Phase												
Minimum Initial (s)	5.0	11.0		5.0	11.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	12.7	17.9		12.8	17.9		14.6	14.6		14.6	14.6	
Total Split (s)	12.7	110.0		15.0	112.3		21.0	21.0		21.0	21.0	
Total Split (%)	8.7%	75.3%		10.3%	76.9%		14.4%	14.4%		14.4%	14.4%	
Yellow Time (s)	4.8	4.9		4.9	4.9		4.2	4.2		4.2	4.2	
All-Red Time (s)	2.9	2.0		2.9	2.0		3.4	3.4		3.4	3.4	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0			0.0	
Total Lost Time (s)	7.7	6.9		7.8	6.9		7.6	7.6			7.6	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Recall Mode	None	C-Min		None	C-Min		None	None		None	None	
v/c Ratio	0.14	0.54		0.51	0.41		0.55	0.51			0.54	
Control Delay	4.7	10.8		15.7	8.1		80.6	26.0			70.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0			0.0	
Total Delay	4.7	10.8		15.7	8.1		80.6	26.0			70.1	
Queue Length 50th (ft)	6	282		16	192		61	17			45	
Queue Length 95th (ft)	15	388		51	255		110	77			93	
Internal Link Dist (ft)		1787			407			186			166	
Turn Bay Length (ft)	365			390			105					
Base Capacity (vph)	260	3664		201	3817		142	232			129	
Starvation Cap Reductn	0	0		0	0		0	0			0	
Spillback Cap Reductn	0	0		0	0		0	0			0	
Storage Cap Reductn	0	0		0	0		0	0			0	
Reduced v/c Ratio	0.14	0.53		0.49	0.41		0.46	0.46			0.46	

Intersection Summary

Cycle Length: 146

Actuated Cycle Length: 146

Offset: 31 (21%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow

Natural Cycle: 60

Control Type: Actuated-Coordinated

Splits and Phases: 22: FDOT Park & Ride & Saxon Blvd

 Ø1	 Ø2 (R)	 Ø4
12.7 s	112.3 s	21 s
 Ø5	 Ø6 (R)	 Ø8
15 s	110 s	21 s

HCM 6th Signalized Intersection Summary
22: FDOT Park & Ride & Saxon Blvd

2019 Existing Conditions
Timing Plan: PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	34	1733	81	92	1417	24	60	0	99	35	5	15
Future Volume (veh/h)	34	1733	81	92	1417	24	60	0	99	35	5	15
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	37	1863	83	99	1524	25	65	0	40	38	5	5
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	314	3744	167	245	3906	64	150	0	105	92	12	7
Arrive On Green	0.03	0.75	0.75	0.03	0.75	0.75	0.07	0.00	0.07	0.07	0.07	0.07
Sat Flow, veh/h	1781	5011	223	1781	5174	85	1405	0	1585	720	184	105
Grp Volume(v), veh/h	37	1264	682	99	1003	546	65	0	40	48	0	0
Grp Sat Flow(s),veh/h/ln	1781	1702	1830	1781	1702	1855	1405	0	1585	1008	0	0
Q Serve(g_s), s	0.7	21.8	21.9	1.9	14.9	14.9	0.0	0.0	3.5	4.2	0.0	0.0
Cycle Q Clear(g_c), s	0.7	21.8	21.9	1.9	14.9	14.9	6.0	0.0	3.5	7.7	0.0	0.0
Prop In Lane	1.00		0.12	1.00		0.05	1.00		1.00	0.79		0.10
Lane Grp Cap(c), veh/h	314	2543	1367	245	2569	1400	150	0	105	111	0	0
V/C Ratio(X)	0.12	0.50	0.50	0.40	0.39	0.39	0.43	0.00	0.38	0.43	0.00	0.00
Avail Cap(c_a), veh/h	328	2543	1367	273	2569	1400	185	0	145	147	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.73	0.73	0.73	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	4.6	7.4	7.4	6.6	6.2	6.2	66.4	0.0	65.3	68.2	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.5	1.0	1.1	0.4	0.8	2.0	0.0	2.2	2.6	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	6.9	7.6	0.6	4.7	5.3	2.5	0.0	1.5	1.9	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	4.7	7.9	8.4	7.7	6.7	7.0	68.4	0.0	67.5	70.8	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	E	A	E	E	A	A
Approach Vol, veh/h	1983			1648			105			48		
Approach Delay, s/veh	8.0			6.9			68.1			70.8		
Approach LOS	A			A			E			E		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.6	117.1		17.3	12.7	116.0		17.3				
Change Period (Y+Rc), s	* 7.7	6.9		7.6	7.8	6.9		7.6				
Max Green Setting (Gmax), s	* 5	105.4		13.4	7.2	103.1		13.4				
Max Q Clear Time (g_c+I1), s	2.7	16.9		8.0	3.9	23.9		9.7				
Green Ext Time (p_c), s	0.0	25.2		0.1	0.1	38.6		0.0				

Intersection Summary

HCM 6th Ctrl Delay	10.0
HCM 6th LOS	A

Notes

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

Lanes, Volumes, Timings
23: I-4 & Saxon Blvd

2019 Existing Conditions
Timing Plan: PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑		↑↑	↑			↑			↑
Traffic Volume (vph)	0	1629	447	0	1341	278	0	0	344	0	0	379
Future Volume (vph)	0	1629	447	0	1341	278	0	0	344	0	0	379
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
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	3%	3%	3%
Adj. Flow (vph)	0	1715	471	0	1412	293	0	0	362	0	0	399
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1715	471	0	1412	293	0	0	362	0	0	399
Sign Control		Free			Free			Yield			Stop	

Intersection Summary

Control Type: Unsignalized

Intersection												
Int Delay, s/veh	11											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑		↑↑	↑			↑			↑
Traffic Vol, veh/h	0	1629	447	0	1341	278	0	0	344	0	0	379
Future Vol, veh/h	0	1629	447	0	1341	278	0	0	344	0	0	379
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Yield	Yield	Yield	Stop	Stop	Stop
RT Channelized	-	-	Free	-	-	Free	-	-	Yield	-	-	Stop
Storage Length	-	-	450	-	-	900	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	16965	-	-	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	3	3	3
Mvmt Flow	0	1715	471	0	1412	293	0	0	362	0	0	399
Major/Minor	Major1		Major2				Minor2					
Conflicting Flow All	-	0	-	-	-	0				-	-	706
Stage 1	-	-	-	-	-	-				-	-	-
Stage 2	-	-	-	-	-	-				-	-	-
Critical Hdwy	-	-	-	-	-	-				-	-	6.96
Critical Hdwy Stg 1	-	-	-	-	-	-				-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-				-	-	-
Follow-up Hdwy	-	-	-	-	-	-				-	-	3.33
Pot Cap-1 Maneuver	0	-	0	0	-	0				0	0	~ 376
Stage 1	0	-	0	0	-	0				0	0	-
Stage 2	0	-	0	0	-	0				0	0	-
Platoon blocked, %		-			-							
Mov Cap-1 Maneuver	-	-	-	-	-	-				-	0	~ 376
Mov Cap-2 Maneuver	-	-	-	-	-	-				-	0	-
Stage 1	-	-	-	-	-	-				-	0	-
Stage 2	-	-	-	-	-	-				-	0	-
Approach	EB		WB				SB					
HCM Control Delay, s	0		0				97.3					
HCM LOS							F					
Minor Lane/Major Mvmt	EBT		WBT	SBLn1								
Capacity (veh/h)	-		-	376								
HCM Lane V/C Ratio	-		-	1.061								
HCM Control Delay (s)	-		-	97.3								
HCM Lane LOS	-		-	F								
HCM 95th %tile Q(veh)	-		-	13.7								
Notes												
~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon												

Lanes, Volumes, Timings
24: I-4 & Saxon Blvd

2019 Existing Conditions
Timing Plan: PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	377	2561	0	0	1113	202	0	0	948	0	0	520
Future Volume (vph)	377	2561	0	0	1113	202	0	0	948	0	0	520
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	401	2724	0	0	1184	215	0	0	1009	0	0	553
Shared Lane Traffic (%)												
Lane Group Flow (vph)	401	2724	0	0	1184	215	0	0	1009	0	0	553
Turn Type	Prot	NA			NA	Perm			Prot			Perm
Protected Phases	1	6			2				5			
Permitted Phases						2						6
Detector Phase	1	6			2	2			5			6
Switch Phase												
Minimum Initial (s)	5.0	15.0			17.0	17.0			6.0			15.0
Minimum Split (s)	12.7	21.8			23.8	23.8			12.0			21.8
Total Split (s)	50.0	93.0			100.0	100.0			57.0			93.0
Total Split (%)	33.3%	62.0%			66.7%	66.7%			38.0%			62.0%
Yellow Time (s)	5.4	4.8			4.8	4.8			4.0			4.8
All-Red Time (s)	2.3	2.0			2.0	2.0			2.0			2.0
Lost Time Adjust (s)	0.0	0.0			0.0	0.0			0.0			0.0
Total Lost Time (s)	7.7	6.8			6.8	6.8			6.0			6.8
Lead/Lag	Lead	Lag			Lag	Lag			Lead			Lag
Lead-Lag Optimize?	Yes	Yes			Yes	Yes			Yes			Yes
Recall Mode	None	C-Min			C-Min	C-Min			None			C-Min
v/c Ratio	0.90	1.34			0.51	0.20			1.04			0.40
Control Delay	77.6	185.5			10.8	1.9			87.4			0.9
Queue Delay	0.0	0.0			0.0	0.0			0.0			0.0
Total Delay	77.6	185.5			10.8	1.9			87.4			0.9
Queue Length 50th (ft)	376	~1822			140	4			~596			0
Queue Length 95th (ft)	#510	#1936			328	21			#747			0
Internal Link Dist (ft)		1519			3036			820			423	
Turn Bay Length (ft)	700					160						
Base Capacity (vph)	499	2033			2304	1087			966			1380
Starvation Cap Reductn	0	0			0	0			0			0
Spillback Cap Reductn	0	0			0	0			0			0
Storage Cap Reductn	0	0			0	0			0			0
Reduced v/c Ratio	0.80	1.34			0.51	0.20			1.04			0.40

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 26 (17%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow

Natural Cycle: 140

Control Type: Actuated-Coordinated

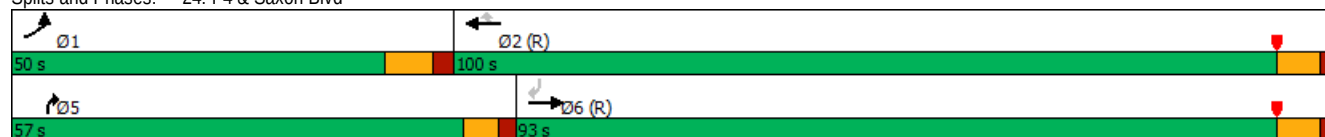
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

Splits and Phases: 24: I-4 & Saxon Blvd



HCM Signalized Intersection Capacity Analysis
24: I-4 & Saxon Blvd

2019 Existing Conditions
Timing Plan: PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	377	2561	0	0	1113	202	0	0	948	0	0	520
Future Volume (vph)	377	2561	0	0	1113	202	0	0	948	0	0	520
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.7	6.8			6.8	6.8			6.0			6.8
Lane Util. Factor	1.00	0.95			0.95	1.00			0.88			1.00
Frt	1.00	1.00			1.00	0.85			0.85			0.86
Flt Protected	0.95	1.00			1.00	1.00			1.00			1.00
Satd. Flow (prot)	1770	3539			3539	1583			2787			1611
Flt Permitted	0.95	1.00			1.00	1.00			1.00			1.00
Satd. Flow (perm)	1770	3539			3539	1583			2787			1611
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)	401	2724	0	0	1184	215	0	0	1009	0	0	553
RTOR Reduction (vph)	0	0	0	0	0	56	0	0	18	0	0	235
Lane Group Flow (vph)	401	2724	0	0	1184	159	0	0	991	0	0	318
Turn Type	Prot	NA			NA	Perm			Prot			Perm
Protected Phases	1	6			2				5			
Permitted Phases						2						6
Actuated Green, G (s)	37.8	86.2			97.7	97.7			51.0			86.2
Effective Green, g (s)	37.8	86.2			97.7	97.7			51.0			86.2
Actuated g/C Ratio	0.25	0.57			0.65	0.65			0.34			0.57
Clearance Time (s)	7.7	6.8			6.8	6.8			6.0			6.8
Vehicle Extension (s)	3.0	3.0			3.0	3.0			3.0			3.0
Lane Grp Cap (vph)	446	2033			2305	1031			947			925
v/s Ratio Prot	0.23	c0.77			0.33				c0.36			
v/s Ratio Perm						0.10						0.20
v/c Ratio	0.90	1.34			0.51	0.15			1.05			0.34
Uniform Delay, d1	54.3	31.9			13.7	10.1			49.5			16.9
Progression Factor	1.00	1.00			0.70	0.47			1.00			1.00
Incremental Delay, d2	20.4	156.4			0.7	0.3			42.0			1.0
Delay (s)	74.7	188.3			10.3	5.0			91.5			17.9
Level of Service	E	F			B	A			F			B
Approach Delay (s)		173.7			9.5			91.5			17.9	
Approach LOS		F			A			F			B	
Intersection Summary												
HCM 2000 Control Delay		108.2			HCM 2000 Level of Service			F				
HCM 2000 Volume to Capacity ratio		1.25										
Actuated Cycle Length (s)		150.0			Sum of lost time (s)			14.5				
Intersection Capacity Utilization		114.6%			ICU Level of Service			H				
Analysis Period (min)		15										

c Critical Lane Group

Lanes, Volumes, Timings
25: N Normandy Blvd & Saxon Blvd

2019 Existing Conditions
Timing Plan: PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	486	1407	332	33	667	63	189	190	47	107	182	280
Future Volume (vph)	486	1407	332	33	667	63	189	190	47	107	182	280
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
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	3%	3%	3%	2%	2%	2%
Adj. Flow (vph)	506	1466	346	34	695	66	197	198	49	111	190	292
Shared Lane Traffic (%)												
Lane Group Flow (vph)	506	1466	346	34	761	0	197	247	0	111	190	292
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA	pm+ov
Protected Phases	1	6		5	2		7	4		3	8	1
Permitted Phases	6		6	2			4			8		8
Detector Phase	1	6	6	5	2		7	4		3	8	1
Switch Phase												
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0		5.0	10.0		5.0	10.0	5.0
Minimum Split (s)	12.6	21.9	21.9	13.1	21.9		11.8	16.9		12.5	16.9	12.6
Total Split (s)	38.0	82.0	82.0	18.0	62.0		25.0	32.0		18.0	25.0	38.0
Total Split (%)	25.3%	54.7%	54.7%	12.0%	41.3%		16.7%	21.3%		12.0%	16.7%	25.3%
Yellow Time (s)	4.4	4.9	4.9	4.9	4.9		4.0	4.8		4.8	4.8	4.4
All-Red Time (s)	3.2	2.0	2.0	3.2	2.0		2.8	2.1		2.7	2.1	3.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	7.6	6.9	6.9	8.1	6.9		6.8	6.9		7.5	6.9	7.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	Yes
Recall Mode	None	C-Min	C-Min	None	C-Min		None	None		None	None	None
v/c Ratio	0.95	0.75	0.36	0.22	0.59		0.73	0.84		0.56	0.85	0.43
Control Delay	34.1	24.3	4.3	19.0	40.5		60.1	83.4		54.4	95.3	20.5
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	34.1	24.3	4.3	19.0	40.5		60.1	83.4		54.4	95.3	20.5
Queue Length 50th (ft)	321	631	42	13	312		156	230		83	185	114
Queue Length 95th (ft)	m187	m427	m21	28	382		232	#369		138	#322	200
Internal Link Dist (ft)		3036			7092			3666			5060	
Turn Bay Length (ft)	520		220	470			260					385
Base Capacity (vph)	531	1945	965	195	1291		285	305		204	229	683
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	0
Reduced v/c Ratio	0.95	0.75	0.36	0.17	0.59		0.69	0.81		0.54	0.83	0.43

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 95 (63%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow

Natural Cycle: 90

Control Type: Actuated-Coordinated

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 25: N Normandy Blvd & Saxon Blvd



HCM 6th Signalized Intersection Summary
25: N Normandy Blvd & Saxon Blvd

2019 Existing Conditions
Timing Plan: PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	486	1407	332	33	667	63	189	190	47	107	182	280
Future Volume (veh/h)	486	1407	332	33	667	63	189	190	47	107	182	280
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1856	1856	1856	1870	1870	1870
Adj Flow Rate, veh/h	506	1466	286	34	695	64	197	198	41	111	190	166
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	3	3	3	2	2	2
Cap, veh/h	537	1983	885	139	1363	125	258	229	47	195	215	456
Arrive On Green	0.06	0.18	0.18	0.03	0.41	0.41	0.11	0.15	0.15	0.07	0.12	0.12
Sat Flow, veh/h	1781	3554	1585	1781	3290	303	1767	1491	309	1781	1870	1585
Grp Volume(v), veh/h	506	1466	286	34	375	384	197	0	239	111	190	166
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1816	1767	0	1800	1781	1870	1585
Q Serve(g_s), s	23.0	58.4	23.5	1.6	23.5	23.6	14.5	0.0	19.4	8.2	15.0	12.5
Cycle Q Clear(g_c), s	23.0	58.4	23.5	1.6	23.5	23.6	14.5	0.0	19.4	8.2	15.0	12.5
Prop In Lane	1.00		1.00	1.00		0.17	1.00		0.17	1.00		1.00
Lane Grp Cap(c), veh/h	537	1983	885	139	736	752	258	0	277	195	215	456
V/C Ratio(X)	0.94	0.74	0.32	0.24	0.51	0.51	0.76	0.00	0.86	0.57	0.88	0.36
Avail Cap(c_a), veh/h	591	1983	885	212	736	752	278	0	301	200	226	465
HCM Platoon Ratio	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.09	0.09	0.09	0.71	0.71	0.71	0.85	0.00	0.85	0.96	0.96	0.96
Uniform Delay (d), s/veh	30.0	50.9	36.6	29.2	32.6	32.6	50.8	0.0	62.0	54.2	65.4	42.5
Incr Delay (d2), s/veh	3.4	0.2	0.1	0.6	1.8	1.8	9.5	0.0	19.2	3.5	30.1	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	11.3	28.0	10.0	0.7	10.4	10.6	7.1	0.0	10.3	3.9	8.9	5.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	33.4	51.1	36.7	29.8	34.4	34.4	60.4	0.0	81.1	57.7	95.4	43.2
LnGrp LOS	C	D	D	C	C	C	E	A	F	E	F	D
Approach Vol, veh/h	2258			793			436			467		
Approach Delay, s/veh	45.3			34.2			71.7			67.9		
Approach LOS	D			C			E			E		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	33.5	69.0	17.6	29.9	11.9	90.6	23.3	24.2				
Change Period (Y+Rc), s	* 7.6	6.9	* 7.5	6.9	* 8.1	6.9	* 6.8	6.9				
Max Green Setting (Gmax), s	* 30	55.1	* 11	25.1	* 9.9	75.1	* 18	18.1				
Max Q Clear Time (g_c+I1), s	25.0	25.6	10.2	21.4	3.6	60.4	16.5	17.0				
Green Ext Time (p_c), s	0.9	7.1	0.0	0.5	0.0	11.4	0.1	0.3				
Intersection Summary												
HCM 6th Ctrl Delay	48.7											
HCM 6th LOS	D											
Notes												

Lanes, Volumes, Timings
26: Tivoli Dr & Saxon Blvd

2019 Existing Conditions
Timing Plan: PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	460	516	83	6	323	14	63	108	8	5	84	279
Future Volume (vph)	460	516	83	6	323	14	63	108	8	5	84	279
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	495	555	89	6	347	15	68	116	9	5	90	300
Shared Lane Traffic (%)												
Lane Group Flow (vph)	495	555	89	6	362	0	68	125	0	5	390	0
Turn Type	pm+pt	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases	5	2			6			4			8	
Permitted Phases	2		2	6			4			8		
Detector Phase	5	2	2	6	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	5.0	11.0	11.0	11.0	11.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	12.0	17.5	17.5	17.5	17.5		11.5	11.5		11.5	11.5	
Total Split (s)	15.0	45.0	45.0	30.0	30.0		30.0	30.0		30.0	30.0	
Total Split (%)	20.0%	60.0%	60.0%	40.0%	40.0%		40.0%	40.0%		40.0%	40.0%	
Yellow Time (s)	4.5	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.5	2.5	2.5	2.5	2.5		2.5	2.5		2.5	2.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	7.0	6.5	6.5	6.5	6.5		6.5	6.5		6.5	6.5	
Lead/Lag	Lead			Lag	Lag							
Lead-Lag Optimize?	Yes			Yes	Yes							
Recall Mode	None	Min	Min	Min	Min		None	None		None	None	
v/c Ratio	1.03	0.54	0.10	0.02	0.67		0.54	0.31		0.02	0.73	
Control Delay	66.4	11.7	2.6	16.8	26.0		37.2	21.2		18.4	17.6	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	66.4	11.7	2.6	16.8	26.0		37.2	21.2		18.4	17.6	
Queue Length 50th (ft)	~96	103	0	1	105		21	35		1	47	
Queue Length 95th (ft)	#415	257	19	10	226		61	80		9	138	
Internal Link Dist (ft)		7092			564			624			981	
Turn Bay Length (ft)	390			120			265			150		
Base Capacity (vph)	480	1264	1103	348	761		246	766		522	819	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	1.03	0.44	0.08	0.02	0.48		0.28	0.16		0.01	0.48	

Intersection Summary

Cycle Length: 75

Actuated Cycle Length: 58.6

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

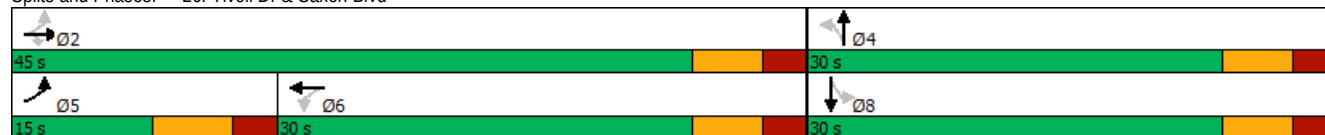
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

Splits and Phases: 26: Tivoli Dr & Saxon Blvd



HCM 6th Signalized Intersection Summary
26: Tivoli Dr & Saxon Blvd

2019 Existing Conditions
Timing Plan: PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	460	516	83	6	323	14	63	108	8	5	84	279
Future Volume (veh/h)	460	516	83	6	323	14	63	108	8	5	84	279
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1856	1856	1856	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	495	555	56	6	347	14	68	116	7	5	90	197
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	3	3	3	2	2	2	2	2	2
Cap, veh/h	447	964	817	330	450	18	239	451	27	386	135	295
Arrive On Green	0.14	0.52	0.52	0.25	0.25	0.25	0.26	0.26	0.26	0.26	0.26	0.26
Sat Flow, veh/h	1781	1870	1585	804	1771	71	1092	1746	105	1268	522	1143
Grp Volume(v), veh/h	495	555	56	6	0	361	68	0	123	5	0	287
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	804	0	1843	1092	0	1851	1268	0	1665
Q Serve(g_s), s	8.0	11.8	1.0	0.3	0.0	10.4	3.4	0.0	3.0	0.2	0.0	8.9
Cycle Q Clear(g_c), s	8.0	11.8	1.0	0.3	0.0	10.4	12.3	0.0	3.0	3.2	0.0	8.9
Prop In Lane	1.00		1.00	1.00		0.04	1.00		0.06	1.00		0.69
Lane Grp Cap(c), veh/h	447	964	817	330	0	468	239	0	479	386	0	430
V/C Ratio(X)	1.11	0.58	0.07	0.02	0.00	0.77	0.28	0.00	0.26	0.01	0.00	0.67
Avail Cap(c_a), veh/h	447	1254	1062	454	0	754	403	0	757	577	0	681
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	17.0	9.6	7.0	16.1	0.0	19.9	24.6	0.0	16.9	18.2	0.0	19.1
Incr Delay (d2), s/veh	74.8	0.8	0.0	0.0	0.0	3.8	0.6	0.0	0.3	0.0	0.0	1.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.8	3.7	0.3	0.1	0.0	4.5	0.9	0.0	1.2	0.1	0.0	3.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	91.8	10.4	7.0	16.1	0.0	23.7	25.2	0.0	17.2	18.2	0.0	20.9
LnGrp LOS	F	B	A	B	A	C	C	A	B	B	A	C
Approach Vol, veh/h	1106			367			191			292		
Approach Delay, s/veh	46.6			23.6			20.1			20.8		
Approach LOS	D			C			C			C		
Timer - Assigned Phs												
	2			4		5	6	8				
Phs Duration (G+Y+Rc), s	36.1			21.3		15.0	21.1	21.3				
Change Period (Y+Rc), s	6.5			6.5		7.0	6.5	6.5				
Max Green Setting (Gmax), s	38.5			23.5		8.0	23.5	23.5				
Max Q Clear Time (g_c+I1), s	13.8			14.3		10.0	12.4	10.9				
Green Ext Time (p_c), s	5.4			0.6		0.0	2.2	1.4				
Intersection Summary												
HCM 6th Ctrl Delay	35.9											
HCM 6th LOS	D											

Lanes, Volumes, Timings
27: N Normandy Blvd & Deltona Blvd

2019 Existing Conditions
Timing Plan: PM Peak Hour

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	285	354	192	161	255	257
Future Volume (vph)	285	354	192	161	255	257
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	303	377	204	171	271	273
Shared Lane Traffic (%)						
Lane Group Flow (vph)	303	377	204	171	271	273
Turn Type	Prot	Perm	pm+pt	NA	NA	Perm
Protected Phases	4		5	2	6	
Permitted Phases		4	2			6
Detector Phase	4	4	5	2	6	6
Switch Phase						
Minimum Initial (s)	4.0	4.0	3.0	10.0	10.0	10.0
Minimum Split (s)	10.0	10.0	9.5	16.5	17.0	17.0
Total Split (s)	20.0	20.0	15.0	40.0	25.0	25.0
Total Split (%)	33.3%	33.3%	25.0%	66.7%	41.7%	41.7%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.5	4.5
All-Red Time (s)	2.0	2.0	2.5	2.5	2.5	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.5	6.5	7.0	7.0
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Recall Mode	None	None	None	Min	Min	Min
v/c Ratio	0.70	0.56	0.38	0.18	0.54	0.43
Control Delay	30.6	6.4	9.0	7.2	22.0	5.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.6	6.4	9.0	7.2	22.0	5.1
Queue Length 50th (ft)	91	0	33	27	79	0
Queue Length 95th (ft)	#208	58	62	52	141	45
Internal Link Dist (ft)	828			759	3666	
Turn Bay Length (ft)			230			350
Base Capacity (vph)	512	726	554	1266	693	760
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.59	0.52	0.37	0.14	0.39	0.36

Intersection Summary

Cycle Length: 60

Actuated Cycle Length: 51.2

Natural Cycle: 55

Control Type: Actuated-Uncoordinated

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

Queue shown is maximum after two cycles.

Splits and Phases: 27: N Normandy Blvd & Deltona Blvd



HCM 6th Signalized Intersection Summary
27: N Normandy Blvd & Deltona Blvd

2019 Existing Conditions
Timing Plan: PM Peak Hour

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	285	354	192	161	255	257
Future Volume (veh/h)	285	354	192	161	255	257
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	303	156	204	171	271	173
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	387	344	460	915	422	358
Arrive On Green	0.22	0.22	0.12	0.49	0.23	0.23
Sat Flow, veh/h	1781	1585	1781	1870	1870	1585
Grp Volume(v), veh/h	303	156	204	171	271	173
Grp Sat Flow(s),veh/h/ln	1781	1585	1781	1870	1870	1585
Q Serve(g_s), s	7.1	3.8	3.5	2.3	5.8	4.2
Cycle Q Clear(g_c), s	7.1	3.8	3.5	2.3	5.8	4.2
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	387	344	460	915	422	358
V/C Ratio(X)	0.78	0.45	0.44	0.19	0.64	0.48
Avail Cap(c_a), veh/h	563	501	594	1415	760	644
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.4	15.1	10.3	6.4	15.5	14.9
Incr Delay (d2), s/veh	3.6	0.7	0.5	0.1	1.6	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	3.5	1.1	0.7	2.2	1.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	20.0	15.7	10.8	6.5	17.2	15.9
LnGrp LOS	B	B	B	A	B	B
Approach Vol, veh/h	459			375	444	
Approach Delay, s/veh	18.5			8.8	16.7	
Approach LOS	B			A	B	
Timer - Assigned Phs	2			4	5	6
Phs Duration (G+Y+Rc), s	28.7			15.6	11.7	17.0
Change Period (Y+Rc), s	* 7			6.0	6.5	7.0
Max Green Setting (Gmax), s	* 34			14.0	8.5	18.0
Max Q Clear Time (g_c+I1), s	4.3			9.1	5.5	7.8
Green Ext Time (p_c), s	1.0			0.5	0.1	1.5
Intersection Summary						
HCM 6th Ctrl Delay			15.0			
HCM 6th LOS			B			
Notes						
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.						

Arterial Level of Service: EB E Saxon Blvd

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
N Normandy Blvd	II	40	53.1	24.3	77.4	0.59	27.4	C
Tivoli Dr	II	40	122.3	11.7	134.0	1.36	36.5	A
Total	II		175.4	36.0	211.4	1.95	33.2	B

Arterial Level of Service: WB E Saxon Blvd

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Tivoli Dr	II	35	15.2	26.0	41.2	0.12	10.7	F
N Normandy Blvd	II	40	122.3	40.5	162.8	1.36	30.0	B
I-4	II	45	47.2	10.8	58.0	0.59	36.6	A
Total	II		184.7	77.3	262.0	2.07	28.4	B

Arterial Level of Service: EB SR 472

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
N Kentucky Ave	I	55	17.7	63.6	81.3	0.18	8.1	F
I-4 WB	I	55	36.3	8.3	44.6	0.55	44.7	A
I-4 EB	I	50	30.3	7.1	37.4	0.32	30.7	C
E Graves Avenue	I	50	26.1	82.9	109.0	0.28	9.1	F
Total	I		110.4	161.9	272.3	1.33	17.6	E

Arterial Level of Service: WB SR 472

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
I-4 EB	I	50	26.1	18.6	44.7	0.28	22.2	D
I-4 WB	I	50	30.3	10.8	41.1	0.32	28.0	C
Dr. Martin Luther Ki	I	55	36.3	48.9	85.2	0.55	23.4	D
Total	I		92.7	78.3	171.0	1.15	24.2	D

Arterial Level of Service: EB W Saxon Blvd

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Broward Ave	II	45	21.4	36.6	58.0	0.20	12.2	F
FDOT Park & Ride	II	45	33.9	10.8	44.7	0.35	28.5	B
Total	II		55.3	47.4	102.7	0.55	19.3	D

Arterial Level of Service: WB W Saxon Blvd

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
FDOT Park & Ride	II	45	37.1	8.1	45.2	0.40	31.5	B
Veterans Memorial Pk	II	45	33.9	43.1	77.0	0.35	16.5	E
Total	II		71.0	51.2	122.2	0.75	22.1	C

H7: PM Peak Hour Future Background Traffic Conditions

Lanes, Volumes, Timings
1: Dr Martin Luther King Jr Beltway & Orange Camp Rd

2020 Future Background Conditions
Timing Plan: PM Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	77	554	183	89	879	316	309	528	56	299	503	80
Future Volume (vph)	77	554	183	89	879	316	309	528	56	299	503	80
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
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	81	583	193	94	925	333	325	556	59	315	529	84
Shared Lane Traffic (%)												
Lane Group Flow (vph)	81	776	0	94	1258	0	325	556	59	315	529	84
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8			4			6		6	2		2
Detector Phase	3	8		7	4		1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	7.0		5.0	17.0	17.0	5.0	17.0	17.0
Minimum Split (s)	11.5	14.5		11.5	14.5		11.5	24.5	24.5	11.5	24.5	24.5
Total Split (s)	30.0	60.0		30.0	60.0		30.0	60.0	60.0	30.0	60.0	60.0
Total Split (%)	16.7%	33.3%		16.7%	33.3%		16.7%	33.3%	33.3%	16.7%	33.3%	33.3%
Yellow Time (s)	3.5	5.5		3.5	5.5		3.5	5.5	5.5	3.5	5.5	5.5
All-Red Time (s)	3.0	2.0		3.0	2.0		3.0	2.0	2.0	3.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	7.5		6.5	7.5		6.5	7.5	7.5	6.5	7.5	7.5
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None		None	None		None	Min	Min	None	Min	Min
v/c Ratio	0.53	1.37		0.58	2.20		1.06	0.96	0.10	1.09	0.92	0.15
Control Delay	43.8	218.6		46.7	573.2		110.4	85.4	0.4	126.5	77.2	3.8
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.8	218.6		46.7	573.2		110.4	85.4	0.4	126.5	77.2	3.8
Queue Length 50th (ft)	53	~1116		62	~2220		~315	603	0	~334	562	0
Queue Length 95th (ft)	96	#1428		114	#2562		#549	#885	0	#563	#820	26
Internal Link Dist (ft)		536			746			5808			524	
Turn Bay Length (ft)	385			550			340		375	335		380
Base Capacity (vph)	288	567		284	571		308	577	563	290	577	563
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.28	1.37		0.33	2.20		1.06	0.96	0.10	1.09	0.92	0.15

Intersection Summary

Cycle Length: 180

Actuated Cycle Length: 167.8

Natural Cycle: 150

Control Type: Actuated-Uncoordinated

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

Splits and Phases: 1: Dr Martin Luther King Jr Beltway & Orange Camp Rd

Ø1	Ø2	Ø3	Ø4
30 s	60 s	30 s	60 s
Ø5	Ø6	Ø7	Ø8
30 s	60 s	30 s	60 s

HCM 6th Signalized Intersection Summary
1: Dr Martin Luther King Jr Beltway & Orange Camp Rd

2020 Future Background Conditions
Timing Plan: PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	77	554	183	89	879	316	309	528	56	299	503	80
Future Volume (veh/h)	77	554	183	89	879	316	309	528	56	299	503	80
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	81	583	167	94	925	312	325	556	35	315	529	52
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	3	3	3	3	3	3	3	3	3
Cap, veh/h	120	451	129	129	436	147	332	581	492	315	581	492
Arrive On Green	0.04	0.32	0.32	0.05	0.33	0.33	0.14	0.31	0.31	0.14	0.31	0.31
Sat Flow, veh/h	1781	1398	400	1767	1327	448	1767	1856	1572	1767	1856	1572
Grp Volume(v), veh/h	81	0	750	94	0	1237	325	556	35	315	529	52
Grp Sat Flow(s),veh/h/ln	1781	0	1798	1767	0	1775	1767	1856	1572	1767	1856	1572
Q Serve(g_s), s	4.9	0.0	52.5	5.8	0.0	53.4	22.7	47.8	2.5	23.5	44.6	3.8
Cycle Q Clear(g_c), s	4.9	0.0	52.5	5.8	0.0	53.4	22.7	47.8	2.5	23.5	44.6	3.8
Prop In Lane	1.00		0.22	1.00		0.25	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	120	0	580	129	0	583	332	581	492	315	581	492
V/C Ratio(X)	0.68	0.00	1.29	0.73	0.00	2.12	0.98	0.96	0.07	1.00	0.91	0.11
Avail Cap(c_a), veh/h	301	0	580	299	0	583	332	599	507	315	599	507
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.9	0.0	55.1	42.5	0.0	54.7	45.5	54.8	39.3	50.5	53.7	39.7
Incr Delay (d2), s/veh	6.5	0.0	144.3	7.6	0.0	511.1	43.8	26.4	0.1	50.7	18.3	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	0.0	46.2	2.7	0.0	105.8	13.6	25.7	1.0	17.1	23.0	1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	49.4	0.0	199.4	50.1	0.0	565.8	89.3	81.2	39.4	101.2	72.0	39.9
LnGrp LOS	D	A	F	D	A	F	F	F	D	F	E	D
Approach Vol, veh/h	831			1331			916			896		
Approach Delay, s/veh	184.8			529.3			82.5			80.4		
Approach LOS	F			F			F			F		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	30.0	58.4	13.4	60.9	30.0	58.4	14.3	60.0				
Change Period (Y+Rc), s	6.5	7.5	6.5	7.5	6.5	7.5	6.5	7.5				
Max Green Setting (Gmax), s	23.5	52.5	23.5	52.5	23.5	52.5	23.5	52.5				
Max Q Clear Time (g_c+I1), s	24.7	46.6	6.9	55.4	25.5	49.8	7.8	54.5				
Green Ext Time (p_c), s	0.0	2.1	0.1	0.0	0.0	1.1	0.2	0.0				
Intersection Summary												
HCM 6th Ctrl Delay	253.1											
HCM 6th LOS	F											

Lanes, Volumes, Timings
2: N Kentucky Ave/Dr. Martin Luther King Jr Beltway & SR 472

2020 Future Background Conditions
Timing Plan: PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	60	1087	333	163	1018	338	220	351	57	315	434	50
Future Volume (vph)	60	1087	333	163	1018	338	220	351	57	315	434	50
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	4%	4%	4%	2%	2%	2%
Adj. Flow (vph)	65	1169	358	175	1095	363	237	377	61	339	467	54
Shared Lane Traffic (%)												
Lane Group Flow (vph)	65	1169	358	175	1095	363	0	614	61	339	467	54
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Split	NA	Perm	Split	NA	Perm
Protected Phases	1	6		5	2		4	4		8	8	
Permitted Phases			6			2			4			8
Detector Phase	1	6	6	5	2	2	4	4	4	8	8	8
Switch Phase												
Minimum Initial (s)	5.0	17.0	17.0	5.0	17.0	17.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	13.3	25.3	25.3	13.3	25.3	25.3	15.8	15.8	15.8	16.4	16.4	16.4
Total Split (s)	19.0	58.0	58.0	20.0	59.0	59.0	37.0	37.0	37.0	35.0	35.0	35.0
Total Split (%)	12.7%	38.7%	38.7%	13.3%	39.3%	39.3%	24.7%	24.7%	24.7%	23.3%	23.3%	23.3%
Yellow Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.6	5.6	5.6
All-Red Time (s)	2.8	2.8	2.8	2.8	2.8	2.8	3.3	3.3	3.3	3.8	3.8	3.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	8.3	8.3	8.3	8.3	8.3	8.3		8.8	8.8	9.4	9.4	9.4
Lead/Lag	Lead	Lead	Lead	Lag	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes						
Recall Mode	None	Min	Min	None	C-Min	C-Min	None	None	None	None	None	None
v/c Ratio	0.58	1.00	0.47	1.29	0.86	0.45		1.83	0.13	1.12	1.47	0.12
Control Delay	88.2	75.3	6.0	217.1	50.1	6.1		416.9	0.5	143.6	271.1	0.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Delay	88.2	75.3	6.0	217.1	50.1	6.1		416.9	0.5	143.6	271.1	0.5
Queue Length 50th (ft)	63	601	5	~217	547	18		~904	0	~381	~625	0
Queue Length 95th (ft)	116	#763	79	m#356	#676	m83		#1145	0	#582	#848	0
Internal Link Dist (ft)		884			2846			4140			2874	
Turn Bay Length (ft)	400		395	425		400			485	350		350
Base Capacity (vph)	126	1172	759	136	1280	803		336	477	302	317	455
Starvation Cap Reductn	0	0	0	0	0	0		0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0		0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0		0	0	0	0	0
Reduced v/c Ratio	0.52	1.00	0.47	1.29	0.86	0.45		1.83	0.13	1.12	1.47	0.12

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 0 (0%), Referenced to phase 2:WBT, Start of Yellow

Natural Cycle: 150

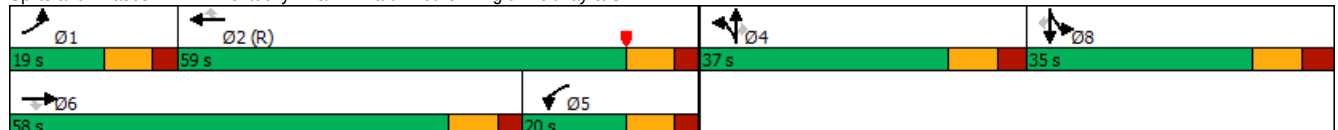
Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

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

Splits and Phases: 2: N Kentucky Ave/Dr. Martin Luther King Jr Beltway & SR 472



HCM 6th Signalized Intersection Summary
2: N Kentucky Ave/Dr. Martin Luther King Jr Beltway & SR 472

2020 Future Background Conditions
Timing Plan: PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	1087	333	163	1018	338	220	351	57	315	434	50
Future Volume (veh/h)	60	1087	333	163	1018	338	220	351	57	315	434	50
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1856	1856	1856	1841	1841	1841	1870	1870	1870
Adj Flow Rate, veh/h	65	1169	178	175	1095	172	237	377	0	339	467	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	3	3	3	4	4	4	2	2	2
Cap, veh/h	83	1177	525	138	1280	571	131	208		304	319	
Arrive On Green	0.05	0.33	0.33	0.03	0.12	0.12	0.19	0.19	0.00	0.17	0.17	0.00
Sat Flow, veh/h	1781	3554	1585	1767	3526	1572	697	1109	1560	1781	1870	1585
Grp Volume(v), veh/h	65	1169	178	175	1095	172	614	0	0	339	467	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1767	1763	1572	1806	0	1560	1781	1870	1585
Q Serve(g_s), s	5.4	49.2	12.7	11.7	45.7	15.0	28.2	0.0	0.0	25.6	25.6	0.0
Cycle Q Clear(g_c), s	5.4	49.2	12.7	11.7	45.7	15.0	28.2	0.0	0.0	25.6	25.6	0.0
Prop In Lane	1.00		1.00	1.00		1.00	0.39		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	83	1177	525	138	1280	571	340	0		304	319	
V/C Ratio(X)	0.79	0.99	0.34	1.27	0.86	0.30	1.81	0.00		1.12	1.46	
Avail Cap(c_a), veh/h	127	1177	525	138	1280	571	340	0		304	319	
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.75	0.75	0.75	0.27	0.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	70.8	50.0	37.8	73.1	62.2	48.6	60.9	0.0	0.0	62.2	62.2	0.0
Incr Delay (d2), s/veh	16.2	24.4	0.5	157.0	5.7	1.0	367.0	0.0	0.0	86.2	224.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	24.8	4.9	11.5	22.6	6.5	47.3	0.0	0.0	18.5	31.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	87.0	74.4	38.3	230.0	67.9	49.7	427.9	0.0	0.0	148.4	287.1	0.0
LnGrp LOS	F	E	D	F	E	D	F	A		F	F	
Approach Vol, veh/h	1412			1442			614			806		
Approach Delay, s/veh	70.4			85.4			427.9			228.8		
Approach LOS	E			F			F			F		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	15.2	62.8		37.0	20.0	58.0		35.0				
Change Period (Y+Rc), s	* 8.3	* 8.3		* 8.8	* 8.3	* 8.3		9.4				
Max Green Setting (Gmax), s	* 11	* 51		* 28	* 12	* 50		25.6				
Max Q Clear Time (g_c+I1), s	7.4	47.7		30.2	13.7	51.2		27.6				
Green Ext Time (p_c), s	0.0	2.3		0.0	0.0	0.0		0.0				

Intersection Summary

HCM 6th Ctrl Delay 156.7
HCM 6th LOS F

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [NBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
3: SR 472 & I-4

2020 Future Background Conditions
Timing Plan: PM Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↓	↑↑					↓↓		↓
Traffic Volume (vph)	0	742	667	413	1217	0	0	0	0	467	0	357
Future Volume (vph)	0	742	667	413	1217	0	0	0	0	467	0	357
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	0	789	710	439	1295	0	0	0	0	497	0	380
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	789	710	439	1295	0	0	0	0	497	0	380
Turn Type		NA	Perm	Prot	NA					Prot		Prot
Protected Phases		6		5	2					8		8
Permitted Phases			6									8
Detector Phase		6	6	5	2					8		8
Switch Phase												
Minimum Initial (s)		17.0	17.0	6.0	17.0					7.0		7.0
Minimum Split (s)		24.1	24.1	13.1	24.1					15.0		15.0
Total Split (s)		66.0	66.0	45.0	111.0					39.0		39.0
Total Split (%)		44.0%	44.0%	30.0%	74.0%					26.0%		26.0%
Yellow Time (s)		5.1	5.1	5.1	5.1					5.1		5.1
All-Red Time (s)		2.0	2.0	2.0	2.0					2.9		2.9
Lost Time Adjust (s)		0.0	0.0	0.0	0.0					0.0		0.0
Total Lost Time (s)		7.1	7.1	7.1	7.1					8.0		8.0
Lead/Lag		Lag	Lag	Lead								
Lead-Lag Optimize?		Yes	Yes	Yes								
Recall Mode		C-Min	C-Min	None	C-Min					None		None
v/c Ratio		0.64	0.78	0.91	0.55					0.62		0.87
Control Delay		15.2	13.0	81.9	12.4					55.5		61.6
Queue Delay		0.0	0.0	0.0	0.0					0.0		0.0
Total Delay		15.2	13.0	81.9	12.4					55.5		61.6
Queue Length 50th (ft)		302	547	368	244					219		273
Queue Length 95th (ft)		m288	m536	m#615	142					299		#502
Internal Link Dist (ft)		2846			1605			330			679	
Turn Bay Length (ft)			500							550		550
Base Capacity (vph)		1398	958	481	2467					813		444
Starvation Cap Reductn		0	0	0	0					0		0
Spillback Cap Reductn		0	0	0	0					0		0
Storage Cap Reductn		0	0	0	0					0		0
Reduced v/c Ratio		0.56	0.74	0.91	0.52					0.61		0.86

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 38 (25%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow

Natural Cycle: 80

Control Type: Actuated-Coordinated

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 3: SR 472 & I-4



HCM 6th Signalized Intersection Summary
3: SR 472 & I-4

2020 Future Background Conditions
Timing Plan: PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↑	↑↑					↑↑		↑
Traffic Volume (veh/h)	0	742	667	413	1217	0	0	0	0	467	0	357
Future Volume (veh/h)	0	742	667	413	1217	0	0	0	0	467	0	357
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0				1870	0	1870
Adj Flow Rate, veh/h	0	789	0	439	1295	0				497	0	156
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94				0.94	0.94	0.94
Percent Heavy Veh, %	0	2	2	2	2	0				2	0	2
Cap, veh/h	0	1547		450	2613	0				567	0	260
Arrive On Green	0.00	0.44	0.00	0.34	0.98	0.00				0.16	0.00	0.16
Sat Flow, veh/h	0	3647	1585	1781	3647	0				3456	0	1585
Grp Volume(v), veh/h	0	789	0	439	1295	0				497	0	156
Grp Sat Flow(s),veh/h/ln	0	1777	1585	1781	1777	0				1728	0	1585
Q Serve(g_s), s	0.0	24.2	0.0	36.5	2.3	0.0				21.1	0.0	13.7
Cycle Q Clear(g_c), s	0.0	24.2	0.0	36.5	2.3	0.0				21.1	0.0	13.7
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1547		450	2613	0				567	0	260
V/C Ratio(X)	0.00	0.51		0.98	0.50	0.00				0.88	0.00	0.60
Avail Cap(c_a), veh/h	0	1547		450	2613	0				714	0	328
HCM Platoon Ratio	1.00	1.00	1.00	1.33	1.33	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.11	0.00	0.74	0.74	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	30.7	0.0	49.3	0.5	0.0				61.2	0.0	58.1
Incr Delay (d2), s/veh	0.0	0.1	0.0	30.2	0.5	0.0				10.0	0.0	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	9.9	0.0	18.5	0.6	0.0				9.9	0.0	5.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	30.9	0.0	79.6	1.0	0.0				71.2	0.0	60.3
LnGrp LOS	A	C		E	A	A				E	A	E
Approach Vol, veh/h		789	A		1734						653	
Approach Delay, s/veh		30.9			20.9						68.6	
Approach LOS		C			C						E	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		117.4			45.0	72.4		32.6				
Change Period (Y+Rc), s		7.1			7.1	7.1		8.0				
Max Green Setting (Gmax), s		103.9			37.9	58.9		31.0				
Max Q Clear Time (g_c+I1), s		4.3			38.5	26.2		23.1				
Green Ext Time (p_c), s		12.0			0.0	5.2		1.5				

Intersection Summary

HCM 6th Ctrl Delay 33.2
HCM 6th LOS C

Notes

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

Lanes, Volumes, Timings
4: I-4 & Howland Blvd/Graves Avenue

2020 Future Background Conditions
Timing Plan: PM Peak Hour

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑		↑↑↑	↘↘	↗
Traffic Volume (vph)	1078	93	0	1097	955	1086
Future Volume (vph)	1078	93	0	1097	955	1086
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	2%	2%	4%	4%	3%	3%
Adj. Flow (vph)	1147	99	0	1167	1016	1155
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1147	99	0	1167	1016	1155
Turn Type	NA	Perm		NA	Prot	Perm
Protected Phases	2			6	4	
Permitted Phases		2				4
Detector Phase	2	2		6	4	4
Switch Phase						
Minimum Initial (s)	17.0	17.0		7.0	7.0	7.0
Minimum Split (s)	24.5	24.5		14.2	14.2	14.2
Total Split (s)	91.0	91.0		91.0	59.0	59.0
Total Split (%)	60.7%	60.7%		60.7%	39.3%	39.3%
Yellow Time (s)	5.5	5.5		4.8	4.8	4.8
All-Red Time (s)	2.0	2.0		2.4	2.4	2.4
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	7.5	7.5		7.2	7.2	7.2
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	Min	Min		C-Max	None	None
v/c Ratio	0.58	0.11		0.42	0.87	1.97
Control Delay	9.8	3.3		19.6	54.8	467.7
Queue Delay	0.0	0.0		0.0	0.0	0.0
Total Delay	9.8	3.3		19.6	54.8	467.7
Queue Length 50th (ft)	31	0		233	478	~1715
Queue Length 95th (ft)	226	32		268	570	#1984
Internal Link Dist (ft)	1605			1373	1105	
Turn Bay Length (ft)		620				1000
Base Capacity (vph)	1970	925		2786	1174	587
Starvation Cap Reductn	0	0		0	0	0
Spillback Cap Reductn	0	0		0	0	0
Storage Cap Reductn	0	0		0	0	0
Reduced v/c Ratio	0.58	0.11		0.42	0.87	1.97

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 73 (49%), Referenced to phase 6:WBT, Start of Yellow

Natural Cycle: 130

Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 4: I-4 & Howland Blvd/Graves Avenue

→ Ø2		↖ Ø4
91 s		59 s
← Ø6 (R)		
91 s		

HCM 6th Signalized Intersection Summary
4: I-4 & Howland Blvd/Graves Avenue

2020 Future Background Conditions
Timing Plan: PM Peak Hour

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↗		↑↑↑	↖↗	↗
Traffic Volume (veh/h)	1078	93	0	1097	955	1086
Future Volume (veh/h)	1078	93	0	1097	955	1086
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	0	1841	1856	1856
Adj Flow Rate, veh/h	1147	0	0	1167	1016	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	0	4	3	3
Cap, veh/h	1985		0	2807	1102	
Arrive On Green	0.56	0.00	0.00	0.56	0.32	0.00
Sat Flow, veh/h	3647	1585	0	5356	3428	1572
Grp Volume(v), veh/h	1147	0	0	1167	1016	0
Grp Sat Flow(s),veh/h/ln	1777	1585	0	1675	1714	1572
Q Serve(g_s), s	31.6	0.0	0.0	20.0	42.9	0.0
Cycle Q Clear(g_c), s	31.6	0.0	0.0	20.0	42.9	0.0
Prop In Lane		1.00	0.00		1.00	1.00
Lane Grp Cap(c), veh/h	1985		0	2807	1102	
V/C Ratio(X)	0.58		0.00	0.42	0.92	
Avail Cap(c_a), veh/h	1985		0	2807	1184	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.73	0.00	0.00	0.09	1.00	0.00
Uniform Delay (d), s/veh	21.6	0.0	0.0	19.0	49.1	0.0
Incr Delay (d2), s/veh	0.4	0.0	0.0	0.0	11.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.4	0.0	0.0	7.4	19.6	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	21.9	0.0	0.0	19.1	60.7	0.0
LnGrp LOS	C		A	B	E	
Approach Vol, veh/h	1147	A		1167	1016	A
Approach Delay, s/veh	21.9			19.1	60.7	
Approach LOS	C			B	E	
Timer - Assigned Phs	2			4		6
Phs Duration (G+Y+Rc), s	91.3			55.4		91.3
Change Period (Y+Rc), s	7.5			* 7.2		* 7.5
Max Green Setting (Gmax), s	83.5			* 52		* 84
Max Q Clear Time (g_c+I1), s	33.6			44.9		22.0
Green Ext Time (p_c), s	14.6			3.4		15.0

Intersection Summary

HCM 6th Ctrl Delay 32.8
HCM 6th LOS C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [NBR, EBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
5: S Volusia Ave/N Volusia Ave & E Graves Ave

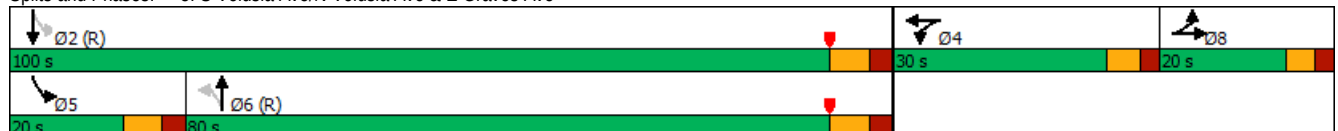
2020 Future Background Conditions
Timing Plan: PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	27	49	19	118	73	130	14	1242	120	107	1044	38
Future Volume (vph)	27	49	19	118	73	130	14	1242	120	107	1044	38
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
Heavy Vehicles (%)	2%	2%	2%	4%	4%	4%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	28	51	20	123	76	135	15	1294	125	111	1088	40
Shared Lane Traffic (%)												
Lane Group Flow (vph)	28	71	0	123	211	0	15	1419	0	111	1128	0
Turn Type	Split	NA		Split	NA		Perm	NA		pm+pt	NA	
Protected Phases	8	8		4	4			6		5	2	
Permitted Phases							6			2		
Detector Phase	8	8		4	4		6	6		5	2	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		15.0	15.0		5.0	15.0	
Minimum Split (s)	15.7	15.7		15.9	15.9		22.3	22.3		12.2	22.3	
Total Split (s)	20.0	20.0		30.0	30.0		80.0	80.0		20.0	100.0	
Total Split (%)	13.3%	13.3%		20.0%	20.0%		53.3%	53.3%		13.3%	66.7%	
Yellow Time (s)	3.4	3.4		3.8	3.8		4.5	4.5		4.4	4.5	
All-Red Time (s)	2.3	2.3		2.1	2.1		2.8	2.8		2.8	2.8	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.7	5.7		5.9	5.9		7.3	7.3		7.2	7.3	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?							Yes	Yes		Yes		
Recall Mode	None	None		None	None		C-Min	C-Min		None	C-Min	
v/c Ratio	0.21	0.49		0.55	0.82		0.06	0.73		0.52	0.48	
Control Delay	68.1	68.3		69.9	72.4		6.0	13.0		19.6	13.6	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	68.1	68.3		69.9	72.4		6.0	13.0		19.6	13.6	
Queue Length 50th (ft)	26	59		114	155		1	174		36	264	
Queue Length 95th (ft)	60	111		179	245		m4	m829		74	368	
Internal Link Dist (ft)		249			1033			5260			358	
Turn Bay Length (ft)							245			280		
Base Capacity (vph)	168	179		278	308		258	1933		247	2335	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.17	0.40		0.44	0.69		0.06	0.73		0.45	0.48	

Intersection Summary

Cycle Length: 150
 Actuated Cycle Length: 150
 Offset: 117 (78%), Referenced to phase 2:SBTL and 6:NBTL, Start of Yellow
 Natural Cycle: 90
 Control Type: Actuated-Coordinated
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 5: S Volusia Ave/N Volusia Ave & E Graves Ave



HCM 6th Signalized Intersection Summary
5: S Volusia Ave/N Volusia Ave & E Graves Ave

2020 Future Background Conditions
Timing Plan: PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	27	49	19	118	73	130	14	1242	120	107	1044	38
Future Volume (veh/h)	27	49	19	118	73	130	14	1242	120	107	1044	38
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1841	1841	1841	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	28	51	10	123	76	88	15	1294	119	111	1088	36
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	4	4	4	3	3	3	3	3	3
Cap, veh/h	116	99	19	201	89	103	324	1992	183	246	2419	80
Arrive On Green	0.07	0.07	0.07	0.11	0.11	0.11	0.61	0.61	0.61	0.04	0.69	0.69
Sat Flow, veh/h	1781	1519	298	1753	778	901	497	3265	299	1767	3482	115
Grp Volume(v), veh/h	28	0	61	123	0	164	15	697	716	111	551	573
Grp Sat Flow(s),veh/h/ln	1781	0	1817	1753	0	1679	497	1763	1802	1767	1763	1835
Q Serve(g_s), s	2.2	0.0	4.9	10.0	0.0	14.4	2.1	38.2	38.6	3.4	20.8	20.8
Cycle Q Clear(g_c), s	2.2	0.0	4.9	10.0	0.0	14.4	10.2	38.2	38.6	3.4	20.8	20.8
Prop In Lane	1.00		0.16	1.00		0.54	1.00		0.17	1.00		0.06
Lane Grp Cap(c), veh/h	116	0	118	201	0	192	324	1075	1099	246	1224	1274
V/C Ratio(X)	0.24	0.00	0.52	0.61	0.00	0.85	0.05	0.65	0.65	0.45	0.45	0.45
Avail Cap(c_a), veh/h	170	0	173	282	0	270	324	1075	1099	332	1224	1274
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.30	0.30	0.30	1.00	1.00	1.00
Uniform Delay (d), s/veh	66.6	0.0	67.8	63.3	0.0	65.2	15.3	18.9	18.9	17.0	10.2	10.2
Incr Delay (d2), s/veh	1.1	0.0	3.5	3.0	0.0	16.8	0.1	0.9	0.9	1.3	1.2	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.0	2.4	4.7	0.0	7.1	0.2	15.2	15.6	1.4	7.9	8.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	67.7	0.0	71.3	66.3	0.0	82.0	15.3	19.8	19.9	18.3	11.4	11.3
LnGrp LOS	E	A	E	E	A	F	B	B	B	B	B	B
Approach Vol, veh/h	89			287			1428			1235		
Approach Delay, s/veh	70.2			75.3			19.8			12.0		
Approach LOS	E			E			B			B		
Timer - Assigned Phs	2			4		5	6		8			
Phs Duration (G+Y+Rc), s	111.5			23.1		12.7	98.8		15.5			
Change Period (Y+Rc), s	* 7.3			* 5.9		* 7.2	* 7.3		5.7			
Max Green Setting (Gmax), s	* 93			* 24		* 13	* 73		14.3			
Max Q Clear Time (g_c+I1), s	22.8			16.4		5.4	40.6		6.9			
Green Ext Time (p_c), s	9.0			0.8		0.1	12.1		0.2			
Intersection Summary												
HCM 6th Ctrl Delay				23.3								
HCM 6th LOS				C								
Notes												

Lanes, Volumes, Timings
6: Veterans Memorial Pkwy & E Graves Ave

2020 Future Background Conditions
Timing Plan: PM Peak Hour

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗	↘	↑	↘	↗
Traffic Volume (vph)	318	45	715	441	68	943
Future Volume (vph)	318	45	715	441	68	943
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	3%	3%	4%	4%	2%	2%
Adj. Flow (vph)	335	47	753	464	72	993
Shared Lane Traffic (%)						
Lane Group Flow (vph)	335	47	753	464	72	993
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	2		1	6	8	
Permitted Phases		2	6			8
Detector Phase	2	2	1	6	8	8
Switch Phase						
Minimum Initial (s)	11.0	11.0	7.0	11.0	7.0	7.0
Minimum Split (s)	18.0	18.0	14.0	18.0	14.0	14.0
Total Split (s)	30.0	30.0	20.0	50.0	25.0	25.0
Total Split (%)	40.0%	40.0%	26.7%	66.7%	33.3%	33.3%
Yellow Time (s)	4.5	4.5	4.5	4.5	5.0	5.0
All-Red Time (s)	2.5	2.5	2.5	2.5	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Recall Mode	Min	Min	None	Min	None	None
v/c Ratio	0.70	0.11	1.46	0.47	0.16	1.21
Control Delay	32.1	7.0	236.2	11.5	22.9	118.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	32.1	7.0	236.2	11.5	22.9	118.8
Queue Length 50th (ft)	131	0	~368	112	24	~337
Queue Length 95th (ft)	214	22	#691	177	59	#592
Internal Link Dist (ft)	7674			1636	7026	
Turn Bay Length (ft)		400	300		1000	
Base Capacity (vph)	604	545	515	1120	454	824
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.55	0.09	1.46	0.41	0.16	1.21

Intersection Summary

Cycle Length: 75

Actuated Cycle Length: 70.4

Natural Cycle: 150

Control Type: Actuated-Uncoordinated

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

Splits and Phases: 6: Veterans Memorial Pkwy & E Graves Ave



HCM 6th Signalized Intersection Summary
6: Veterans Memorial Pkwy & E Graves Ave

2020 Future Background Conditions
Timing Plan: PM Peak Hour

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗	↘	↑	↘	↗
Traffic Volume (veh/h)	318	45	715	441	68	943
Future Volume (veh/h)	318	45	715	441	68	943
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1856	1856	1841	1841	1870	1870
Adj Flow Rate, veh/h	335	19	753	464	72	839
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	4	4	2	2
Cap, veh/h	420	356	503	965	477	424
Arrive On Green	0.23	0.23	0.19	0.52	0.27	0.27
Sat Flow, veh/h	1856	1572	1753	1841	1781	1585
Grp Volume(v), veh/h	335	19	753	464	72	839
Grp Sat Flow(s),veh/h/ln	1856	1572	1753	1841	1781	1585
Q Serve(g_s), s	11.5	0.6	13.0	10.8	2.1	18.0
Cycle Q Clear(g_c), s	11.5	0.6	13.0	10.8	2.1	18.0
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	420	356	503	965	477	424
V/C Ratio(X)	0.80	0.05	1.50	0.48	0.15	1.98
Avail Cap(c_a), veh/h	635	538	503	1177	477	424
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.5	20.4	17.4	10.2	18.8	24.6
Incr Delay (d2), s/veh	5.5	0.1	234.2	0.5	0.1	448.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.2	0.2	37.4	3.5	0.8	58.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	30.0	20.4	251.6	10.7	18.9	472.7
LnGrp LOS	C	C	F	B	B	F
Approach Vol, veh/h	354			1217	911	
Approach Delay, s/veh	29.5			159.8	436.8	
Approach LOS	C			F	F	
Timer - Assigned Phs	1	2		6	8	
Phs Duration (G+Y+Rc), s	20.0	22.2		42.2	25.0	
Change Period (Y+Rc), s	7.0	7.0		7.0	7.0	
Max Green Setting (Gmax), s	13.0	23.0		43.0	18.0	
Max Q Clear Time (g_c+I1), s	15.0	13.5		12.8	20.0	
Green Ext Time (p_c), s	0.0	1.8		4.1	0.0	
Intersection Summary						
HCM 6th Ctrl Delay			242.9			
HCM 6th LOS			F			

Lanes, Volumes, Timings
7: S Kentucky Ave/N Kentucky Ave & E Graves Ave

2020 Future Background Conditions
Timing Plan: PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	296	1001	24	28	839	415	15	9	17	504	19	337
Future Volume (vph)	296	1001	24	28	839	415	15	9	17	504	19	337
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	325	1100	26	31	922	456	16	10	19	554	21	370
Shared Lane Traffic (%)												
Lane Group Flow (vph)	325	1126	0	31	922	456	0	45	0	554	21	370
Turn Type	Prot	NA		Perm	NA	pm+ov	Split	NA		Split	NA	pm+ov
Protected Phases	5	2			6	8	4	4		8	8	5
Permitted Phases				6		6						8
Detector Phase	5	2		6	6	8	4	4		8	8	5
Switch Phase												
Minimum Initial (s)	5.0	11.0		11.0	11.0	7.0	7.0	7.0		7.0	7.0	5.0
Minimum Split (s)	11.0	18.0		18.0	18.0	14.0	14.0	14.0		14.0	14.0	11.0
Total Split (s)	20.0	70.0		50.0	50.0	50.0	20.0	20.0		50.0	50.0	20.0
Total Split (%)	14.3%	50.0%		35.7%	35.7%	35.7%	14.3%	14.3%		35.7%	35.7%	14.3%
Yellow Time (s)	4.0	5.0		5.0	5.0	5.0	4.0	4.0		5.0	5.0	4.0
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	3.0	3.0		2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0		0.0		0.0	0.0	0.0
Total Lost Time (s)	6.0	7.0		7.0	7.0	7.0		7.0		7.0	7.0	6.0
Lead/Lag	Lead			Lag	Lag							Lead
Lead-Lag Optimize?	Yes			Yes	Yes							Yes
Recall Mode	None	Min		Min	Min	None	None	None		None	None	None
v/c Ratio	1.76	1.28		0.56	1.54	0.38		0.36		0.96	0.03	0.42
Control Delay	394.8	167.8		79.2	282.5	1.4		48.1		74.1	32.7	10.7
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0		0.0	0.0	0.0
Total Delay	394.8	167.8		79.2	282.5	1.4		48.1		74.1	32.7	10.7
Queue Length 50th (ft)	~424	~1267		22	~1137	0		22		479	13	78
Queue Length 95th (ft)	#631	#1588		#80	#1437	18		63		#747	34	164
Internal Link Dist (ft)		1636			3200			455			4140	
Turn Bay Length (ft)	200			235		460				320		175
Base Capacity (vph)	185	877		55	600	1192		187		575	606	878
Starvation Cap Reductn	0	0		0	0	0		0		0	0	0
Spillback Cap Reductn	0	0		0	0	0		0		0	0	0
Storage Cap Reductn	0	0		0	0	0		0		0	0	0
Reduced v/c Ratio	1.76	1.28		0.56	1.54	0.38		0.24		0.96	0.03	0.42

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 132.5

Natural Cycle: 150

Control Type: Actuated-Uncoordinated

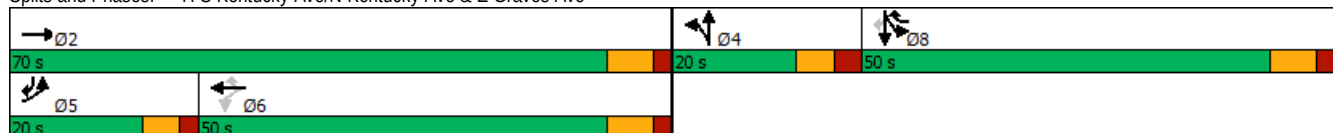
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

Splits and Phases: 7: S Kentucky Ave/N Kentucky Ave & E Graves Ave



HCM 6th Signalized Intersection Summary
7: S Kentucky Ave/N Kentucky Ave & E Graves Ave

2020 Future Background Conditions
Timing Plan: PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	296	1001	24	28	839	415	15	9	17	504	19	337
Future Volume (veh/h)	296	1001	24	28	839	415	15	9	17	504	19	337
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	325	1100	24	31	922	368	16	10	6	554	21	228
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	3	3	3	3	3	3	2	2	2	2	2	2
Cap, veh/h	189	868	19	55	608	1023	32	20	12	576	605	681
Arrive On Green	0.11	0.48	0.48	0.33	0.33	0.33	0.04	0.04	0.04	0.32	0.32	0.32
Sat Flow, veh/h	1767	1809	39	497	1856	1572	883	552	331	1781	1870	1585
Grp Volume(v), veh/h	325	0	1124	31	922	368	32	0	0	554	21	228
Grp Sat Flow(s),veh/h/ln	1767	0	1848	497	1856	1572	1767	0	0	1781	1870	1585
Q Serve(g_s), s	14.0	0.0	63.0	0.0	43.0	14.0	2.3	0.0	0.0	40.1	1.0	12.6
Cycle Q Clear(g_c), s	14.0	0.0	63.0	43.0	43.0	14.0	2.3	0.0	0.0	40.1	1.0	12.6
Prop In Lane	1.00		0.02	1.00		1.00	0.50		0.19	1.00		1.00
Lane Grp Cap(c), veh/h	189	0	887	55	608	1023	65	0	0	576	605	681
V/C Ratio(X)	1.72	0.00	1.27	0.57	1.52	0.36	0.49	0.00	0.00	0.96	0.03	0.33
Avail Cap(c_a), veh/h	189	0	887	55	608	1023	175	0	0	584	613	688
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	58.6	0.0	34.1	65.6	44.1	10.4	62.0	0.0	0.0	43.6	30.4	24.9
Incr Delay (d2), s/veh	347.2	0.0	129.0	15.7	240.8	0.3	5.7	0.0	0.0	27.8	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	24.3	0.0	58.1	1.3	59.6	10.1	1.2	0.0	0.0	21.4	0.5	4.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	405.8	0.0	163.1	81.3	285.0	10.7	67.7	0.0	0.0	71.4	30.4	25.2
LnGrp LOS	F	A	F	F	F	B	E	A	A	E	C	C
Approach Vol, veh/h	1449			1321			32			803		
Approach Delay, s/veh	217.5			203.8			67.7			57.2		
Approach LOS	F			F			E			E		
Timer - Assigned Phs	2			4			5			6		
Phs Duration (G+Y+Rc), s	70.0			11.8			20.0			50.0		
Change Period (Y+Rc), s	7.0			7.0			6.0			7.0		
Max Green Setting (Gmax), s	63.0			13.0			14.0			43.0		
Max Q Clear Time (g_c+I1), s	65.0			4.3			16.0			45.0		
Green Ext Time (p_c), s	0.0			0.0			0.0			0.3		
Intersection Summary												
HCM 6th Ctrl Delay	175.5											
HCM 6th LOS	F											

Lanes, Volumes, Timings
8: N Normandy Blvd & E Graves Ave

2020 Future Background Conditions
Timing Plan: PM Peak Hour

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↘	↑	↘	↗
Traffic Volume (vph)	734	926	651	607	597	554
Future Volume (vph)	734	926	651	607	597	554
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	2%	2%	4%	4%	2%	2%
Adj. Flow (vph)	781	985	693	646	635	589
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1766	0	693	646	635	589
Turn Type	NA		pm+pt	NA	Prot	Perm
Protected Phases	6		5	2	4	
Permitted Phases			2			4
Detector Phase	6		5	2	4	4
Switch Phase						
Minimum Initial (s)	12.0		5.0	12.0	7.0	7.0
Minimum Split (s)	19.0		12.0	19.0	13.0	13.0
Total Split (s)	45.0		20.0	65.0	25.0	25.0
Total Split (%)	50.0%		22.2%	72.2%	27.8%	27.8%
Yellow Time (s)	5.0		5.0	5.0	4.0	4.0
All-Red Time (s)	2.0		2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0		7.0	7.0	6.0	6.0
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Recall Mode	Min		None	Min	None	None
v/c Ratio	1.09		2.09	0.55	1.70	0.97
Control Delay	71.8		519.9	11.0	354.2	45.8
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	71.8		519.9	11.0	354.2	45.8
Queue Length 50th (ft)	~520		~589	181	~536	151
Queue Length 95th (ft)	#659		#805	269	#741	#373
Internal Link Dist (ft)	3200			471	9642	
Turn Bay Length (ft)			400		200	
Base Capacity (vph)	1621		332	1177	373	608
Starvation Cap Reductn	0		0	0	0	0
Spillback Cap Reductn	0		0	0	0	0
Storage Cap Reductn	0		0	0	0	0
Reduced v/c Ratio	1.09		2.09	0.55	1.70	0.97

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Natural Cycle: 120

Control Type: Actuated-Uncoordinated

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

Splits and Phases: 8: N Normandy Blvd & E Graves Ave



HCM 6th Signalized Intersection Summary
8: N Normandy Blvd & E Graves Ave

2020 Future Background Conditions
Timing Plan: PM Peak Hour

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↘	↑	↘	↗
Traffic Volume (veh/h)	734	926	651	607	597	554
Future Volume (veh/h)	734	926	651	607	597	554
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1841	1841	1870	1870
Adj Flow Rate, veh/h	781	791	693	646	635	235
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	4	4	2	2
Cap, veh/h	750	669	333	1186	376	335
Arrive On Green	0.42	0.42	0.14	0.64	0.21	0.21
Sat Flow, veh/h	1870	1585	1753	1841	1781	1585
Grp Volume(v), veh/h	781	791	693	646	635	235
Grp Sat Flow(s),veh/h/ln	1777	1585	1753	1841	1781	1585
Q Serve(g_s), s	38.0	38.0	13.0	17.3	19.0	12.4
Cycle Q Clear(g_c), s	38.0	38.0	13.0	17.3	19.0	12.4
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	750	669	333	1186	376	335
V/C Ratio(X)	1.04	1.18	2.08	0.54	1.69	0.70
Avail Cap(c_a), veh/h	750	669	333	1186	376	335
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.0	26.0	28.1	8.8	35.5	32.9
Incr Delay (d2), s/veh	44.0	96.7	496.1	0.7	321.2	6.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	23.3	30.6	48.7	5.5	41.3	11.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	70.0	122.7	524.1	9.4	356.7	39.3
LnGrp LOS	F	F	F	A	F	D
Approach Vol, veh/h	1572			1339	870	
Approach Delay, s/veh	96.5			275.8	271.0	
Approach LOS	F			F	F	
Timer - Assigned Phs	2			4	5	6
Phs Duration (G+Y+Rc), s	65.0			25.0	20.0	45.0
Change Period (Y+Rc), s	7.0			6.0	7.0	7.0
Max Green Setting (Gmax), s	58.0			19.0	13.0	38.0
Max Q Clear Time (g_c+I1), s	19.3			21.0	15.0	40.0
Green Ext Time (p_c), s	6.8			0.0	0.0	0.0
Intersection Summary						
HCM 6th Ctrl Delay			200.1			
HCM 6th LOS			F			

Lanes, Volumes, Timings
9: Howland Boulevard/SR 472 & Graves Avenue

2020 Future Background Conditions
Timing Plan: PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	228	41	1093	52	40	106	671	1014	18	62	1809	343
Future Volume (vph)	228	41	1093	52	40	106	671	1014	18	62	1809	343
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
Heavy Vehicles (%)	3%	3%	3%	2%	2%	2%	3%	3%	3%	2%	2%	2%
Adj. Flow (vph)	240	43	1151	55	42	112	706	1067	19	65	1904	361
Shared Lane Traffic (%)	41%											
Lane Group Flow (vph)	142	141	1151	55	42	112	706	1086	0	65	2265	0
Turn Type	Split	NA	Perm	Split	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases			4			8	2			6		
Detector Phase	4	4	4	8	8	8	5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	5.0	17.0		7.0	17.0	
Minimum Split (s)	15.0	15.0	15.0	14.5	14.5	14.5	12.0	24.0		14.5	24.0	
Total Split (s)	18.0	18.0	18.0	14.5	14.5	14.5	34.0	104.0		14.5	84.5	
Total Split (%)	11.9%	11.9%	11.9%	9.6%	9.6%	9.6%	22.5%	68.9%		9.6%	56.0%	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	
All-Red Time (s)	3.0	3.0	3.0	2.5	2.5	2.5	2.0	2.0		2.5	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	8.0	8.0	8.0	7.5	7.5	7.5	7.0	7.0		7.5	7.0	
Lead/Lag							Lead	Lead		Lag	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Recall Mode	None	None	None	None	None	None	None	C-Min		None	C-Min	
v/c Ratio	1.29	1.26	2.98	0.67	0.49	0.44	1.94	0.61		0.13	1.27	
Control Delay	235.0	223.6	913.9	106.4	89.5	5.4	463.0	30.4		22.4	159.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	235.0	223.6	913.9	106.4	89.5	5.4	463.0	30.4		22.4	159.1	
Queue Length 50th (ft)	~186	~182	~1680	54	41	0	~1053	460		32	~1477	
Queue Length 95th (ft)	#341	#334	#1949	#129	85	0	#1277	457		59	#1605	
Internal Link Dist (ft)		1373			8563			569			283	
Turn Bay Length (ft)	330			565			280			185		
Base Capacity (vph)	110	112	386	82	86	255	363	2312		504	1782	
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	1.29	1.26	2.98	0.67	0.49	0.44	1.94	0.47		0.13	1.27	

Intersection Summary

Cycle Length: 151

Actuated Cycle Length: 151

Offset: 89 (59%), Referenced to phase 2:NBT and 6:SBTL, Start of Yellow

Natural Cycle: 150

Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 9: Howland Boulevard/SR 472 & Graves Avenue



HCM 6th Signalized Intersection Summary
9: Howland Boulevard/SR 472 & Graves Avenue

2020 Future Background Conditions
Timing Plan: PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	228	41	1093	52	40	106	671	1014	18	62	1809	343
Future Volume (veh/h)	228	41	1093	52	40	106	671	1014	18	62	1809	343
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1870	1870	1870	1856	1856	1856	1870	1870	1870
Adj Flow Rate, veh/h	271	0	0	55	42	21	706	1067	12	65	1904	350
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, %	3	3	3	2	2	2	3	3	3	2	2	2
Cap, veh/h	234	0		82	86	73	364	1330	15	840	1843	329
Arrive On Green	0.07	0.00	0.00	0.05	0.05	0.05	0.18	0.37	0.37	0.42	0.61	0.61
Sat Flow, veh/h	3534	0	1572	1781	1870	1585	1767	3571	40	1781	3013	537
Grp Volume(v), veh/h	271	0	0	55	42	21	706	527	552	65	1098	1156
Grp Sat Flow(s),veh/h/ln	1767	0	1572	1781	1870	1585	1767	1763	1848	1781	1777	1774
Q Serve(g_s), s	10.0	0.0	0.0	4.6	3.3	1.9	27.0	40.4	40.4	0.0	92.4	92.4
Cycle Q Clear(g_c), s	10.0	0.0	0.0	4.6	3.3	1.9	27.0	40.4	40.4	0.0	92.4	92.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.02	1.00		0.30
Lane Grp Cap(c), veh/h	234	0		82	86	73	364	656	688	840	1087	1085
V/C Ratio(X)	1.16	0.00		0.67	0.49	0.29	1.94	0.80	0.80	0.08	1.01	1.07
Avail Cap(c_a), veh/h	234	0		83	87	73	364	1132	1187	840	1087	1085
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.09	0.00	0.00	0.56	0.56	0.56	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	70.5	0.0	0.0	70.9	70.3	69.6	47.1	42.4	42.4	20.7	29.3	29.3
Incr Delay (d2), s/veh	75.8	0.0	0.0	11.1	2.4	1.2	433.6	10.0	9.6	0.0	29.9	46.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.9	0.0	0.0	2.3	1.6	0.8	55.6	19.3	20.1	1.3	46.5	51.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	146.3	0.0	0.0	82.0	72.7	70.8	480.7	52.4	52.0	20.8	59.2	75.9
LnGrp LOS	F	A		F	E	E	F	D	D	C	F	F
Approach Vol, veh/h	271			A			118			1785		
Approach Delay, s/veh	146.3						76.7			221.7		
Approach LOS	F			E			F			E		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	71.1	63.2		18.0	34.0	100.3		14.5				
Change Period (Y+Rc), s	7.5	7.0		8.0	7.0	* 7.5		7.5				
Max Green Setting (Gmax), s	7.0	97.0		10.0	27.0	* 78		7.0				
Max Q Clear Time (g_c+I1), s	2.0	42.4		12.0	29.0	94.4		6.6				
Green Ext Time (p_c), s	0.0	13.9		0.0	0.0	0.0		0.0				

Intersection Summary

HCM 6th Ctrl Delay 133.2

HCM 6th LOS F

Notes

User approved volume balancing among the lanes for turning movement.

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

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

Lanes, Volumes, Timings
10: Catalina Blvd & Graves Avenue/Howland Blvd

2020 Future Background Conditions
Timing Plan: PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	626	1370	91	52	849	81	78	71	30	91	71	329
Future Volume (vph)	626	1370	91	52	849	81	78	71	30	91	71	329
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	639	1398	93	53	866	83	80	72	31	93	72	336
Shared Lane Traffic (%)												
Lane Group Flow (vph)	639	1491	0	53	949	0	80	103	0	93	72	336
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		Perm	NA	Perm
Protected Phases	1	6		5	2		7	4			8	
Permitted Phases	6			2			4			8		8
Detector Phase	1	6		5	2		7	4		8	8	8
Switch Phase												
Minimum Initial (s)	5.0	11.0		5.0	11.0		5.0	7.0		7.0	7.0	7.0
Minimum Split (s)	13.5	19.5		13.5	19.5		12.0	14.0		14.0	14.0	14.0
Total Split (s)	30.0	70.0		20.0	60.0		20.0	65.0		45.0	45.0	45.0
Total Split (%)	19.4%	45.2%		12.9%	38.7%		12.9%	41.9%		29.0%	29.0%	29.0%
Yellow Time (s)	5.0	5.0		5.0	5.0		4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	3.5	3.5		3.5	3.5		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)	8.5	8.5		8.5	8.5		7.0	7.0		7.0	7.0	7.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead			Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes			Yes	Yes	Yes
Recall Mode	None	C-Min		None	C-Min		None	None		None	None	None
v/c Ratio	1.14	0.73		0.30	0.82		0.28	0.24		0.60	0.32	0.71
Control Delay	120.6	29.3		22.0	49.3		47.3	39.3		79.7	64.3	15.5
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	120.6	29.3		22.0	49.3		47.3	39.3		79.7	64.3	15.5
Queue Length 50th (ft)	~685	592		23	485		65	71		91	68	11
Queue Length 95th (ft)	#1051	820		m26	m522		104	115		146	113	109
Internal Link Dist (ft)		8563			1815			941			4969	
Turn Bay Length (ft)	375			270			180			235		415
Base Capacity (vph)	561	2031		223	1153		295	675		315	456	632
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	1.14	0.73		0.24	0.82		0.27	0.15		0.30	0.16	0.53

Intersection Summary

Cycle Length: 155

Actuated Cycle Length: 155

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

Natural Cycle: 110

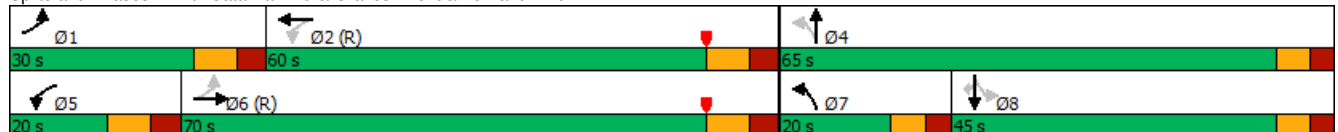
Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

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

Splits and Phases: 10: Catalina Blvd & Graves Avenue/Howland Blvd



HCM 6th Signalized Intersection Summary
10: Catalina Blvd & Graves Avenue/Howland Blvd

2020 Future Background Conditions
Timing Plan: PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	626	1370	91	52	849	81	78	71	30	91	71	329
Future Volume (veh/h)	626	1370	91	52	849	81	78	71	30	91	71	329
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1856	1856	1856	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	639	1398	91	53	866	82	80	72	24	93	72	125
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	3	3	3	2	2	2	2	2	2
Cap, veh/h	490	2099	136	221	1660	157	213	264	88	177	188	159
Arrive On Green	0.14	0.62	0.62	0.03	0.51	0.51	0.05	0.20	0.20	0.10	0.10	0.10
Sat Flow, veh/h	1781	3388	220	1767	3255	308	1781	1342	447	1300	1870	1585
Grp Volume(v), veh/h	639	731	758	53	469	479	80	0	96	93	72	125
Grp Sat Flow(s),veh/h/ln	1781	1777	1831	1767	1763	1800	1781	0	1790	1300	1870	1585
Q Serve(g_s), s	21.5	41.2	41.6	2.2	27.5	27.5	6.1	0.0	7.1	10.7	5.6	11.9
Cycle Q Clear(g_c), s	21.5	41.2	41.6	2.2	27.5	27.5	6.1	0.0	7.1	10.7	5.6	11.9
Prop In Lane	1.00		0.12	1.00		0.17	1.00		0.25	1.00		1.00
Lane Grp Cap(c), veh/h	490	1101	1135	221	899	918	213	0	352	177	188	159
V/C Ratio(X)	1.30	0.66	0.67	0.24	0.52	0.52	0.37	0.00	0.27	0.53	0.38	0.79
Avail Cap(c_a), veh/h	490	1101	1135	301	899	918	272	0	670	365	459	389
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.31	0.31	0.31	0.72	0.72	0.72	1.00	0.00	1.00	0.83	0.83	0.83
Uniform Delay (d), s/veh	25.1	19.0	19.1	19.3	25.4	25.4	56.9	0.0	52.9	67.5	65.2	68.1
Incr Delay (d2), s/veh	141.4	1.0	1.0	0.4	1.6	1.5	1.1	0.0	0.4	2.8	1.5	9.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	28.6	16.2	16.9	0.9	11.6	11.8	2.8	0.0	3.3	3.7	2.7	5.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	166.5	20.0	20.1	19.7	26.9	26.9	58.0	0.0	53.3	70.4	66.7	77.7
LnGrp LOS	F	C	C	B	C	C	E	A	D	E	E	E
Approach Vol, veh/h	2128			1001			176			290		
Approach Delay, s/veh	64.0			26.5			55.4			72.6		
Approach LOS	E			C			E			E		
Timer - Assigned Phs	1	2		4	5	6	7	8				
Phs Duration (G+Y+Rc), s	30.0	87.5		37.5	13.0	104.6	14.9	22.6				
Change Period (Y+Rc), s	8.5	8.5		7.0	8.5	8.5	7.0	7.0				
Max Green Setting (Gmax), s	21.5	51.5		58.0	11.5	61.5	13.0	38.0				
Max Q Clear Time (g_c+I1), s	23.5	29.5		9.1	4.2	43.6	8.1	13.9				
Green Ext Time (p_c), s	0.0	8.1		0.6	0.0	12.0	0.1	1.6				
Intersection Summary												
HCM 6th Ctrl Delay	53.9											
HCM 6th LOS	D											

Lanes, Volumes, Timings
11: Lake Helen Osteen Rd & Catalina Blvd

2020 Future Background Conditions
Timing Plan: PM Peak Hour

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	162	454	240	179	317	100
Future Volume (vph)	162	454	240	179	317	100
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	176	493	261	195	345	109
Shared Lane Traffic (%)						
Lane Group Flow (vph)	176	493	261	195	454	0
Turn Type	Prot	Perm	pm+pt	NA	NA	
Protected Phases	8		1	6	2	
Permitted Phases		8	6			
Detector Phase	8	8	1	6	2	
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	15.0	15.0	
Minimum Split (s)	11.5	11.5	12.5	22.5	22.5	
Total Split (s)	20.0	20.0	20.0	50.0	30.0	
Total Split (%)	28.6%	28.6%	28.6%	71.4%	42.9%	
Yellow Time (s)	3.5	3.5	5.0	5.0	5.0	
All-Red Time (s)	3.0	3.0	2.5	2.5	2.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.5	6.5	7.5	7.5	7.5	
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	None	None	None	Min	Min	
v/c Ratio	0.53	0.71	0.54	0.18	0.79	
Control Delay	31.5	9.2	10.7	6.5	31.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	31.5	9.2	10.7	6.5	31.9	
Queue Length 50th (ft)	68	0	46	33	163	
Queue Length 95th (ft)	127	79	79	59	#302	
Internal Link Dist (ft)	4969			10882	661	
Turn Bay Length (ft)	185		240			
Base Capacity (vph)	366	718	510	1213	637	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.48	0.69	0.51	0.16	0.71	

Intersection Summary

Cycle Length: 70

Actuated Cycle Length: 65.8

Natural Cycle: 55

Control Type: Actuated-Uncoordinated

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 11: Lake Helen Osteen Rd & Catalina Blvd



HCM 6th Signalized Intersection Summary
11: Lake Helen Osteen Rd & Catalina Blvd

2020 Future Background Conditions
Timing Plan: PM Peak Hour

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	162	454	240	179	317	100
Future Volume (veh/h)	162	454	240	179	317	100
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	176	223	261	195	345	85
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	331	294	447	1062	434	107
Arrive On Green	0.19	0.19	0.14	0.57	0.30	0.30
Sat Flow, veh/h	1781	1585	1781	1870	1449	357
Grp Volume(v), veh/h	176	223	261	195	0	430
Grp Sat Flow(s),veh/h/ln	1781	1585	1781	1870	0	1806
Q Serve(g_s), s	5.1	7.6	5.2	2.9	0.0	12.4
Cycle Q Clear(g_c), s	5.1	7.6	5.2	2.9	0.0	12.4
Prop In Lane	1.00	1.00	1.00			0.20
Lane Grp Cap(c), veh/h	331	294	447	1062	0	540
V/C Ratio(X)	0.53	0.76	0.58	0.18	0.00	0.80
Avail Cap(c_a), veh/h	423	377	595	1399	0	715
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	20.9	21.9	11.8	5.9	0.0	18.3
Incr Delay (d2), s/veh	2.8	9.9	2.6	0.2	0.0	6.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	3.3	1.8	0.8	0.0	5.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	23.7	31.8	14.4	6.1	0.0	25.2
LnGrp LOS	C	C	B	A	A	C
Approach Vol, veh/h	399			456	430	
Approach Delay, s/veh	28.2			10.8	25.2	
Approach LOS	C			B	C	
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	15.3	24.5			39.8	17.0
Change Period (Y+Rc), s	7.5	7.5			7.5	6.5
Max Green Setting (Gmax), s	12.5	22.5			42.5	13.5
Max Q Clear Time (g_c+I1), s	7.2	14.4			4.9	9.6
Green Ext Time (p_c), s	0.7	2.6			2.1	1.0
Intersection Summary						
HCM 6th Ctrl Delay			21.0			
HCM 6th LOS			C			

Lanes, Volumes, Timings
12: Providence Blvd & Howland Blvd

2020 Future Background Conditions
Timing Plan: PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	1117	370	44	646	1	235	1	62	1	0	2
Future Volume (vph)	1	1117	370	44	646	1	235	1	62	1	0	2
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
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	1	1176	389	46	680	1	247	1	65	1	0	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	1	1176	389	46	681	0	247	66	0	0	3	0
Turn Type	Perm	NA	Perm	pm+pt	NA		pm+pt	NA		Perm	NA	
Protected Phases		6		5	2		7	4			8	
Permitted Phases	6		6	2			4			8		
Detector Phase	6	6	6	5	2		7	4		8	8	
Switch Phase												
Minimum Initial (s)	11.0	11.0	11.0	5.0	11.0		5.0	7.0		7.0	7.0	
Minimum Split (s)	18.0	18.0	18.0	12.0	18.0		12.0	14.0		14.0	14.0	
Total Split (s)	90.0	90.0	90.0	20.0	110.0		25.0	45.0		20.0	20.0	
Total Split (%)	58.1%	58.1%	58.1%	12.9%	71.0%		16.1%	29.0%		12.9%	12.9%	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		4.5	4.5		4.5	4.5	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.5	2.5		2.5	2.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0			7.0	
Lead/Lag	Lag	Lag	Lag	Lead			Lead			Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes			Yes	Yes	
Recall Mode	Min	Min	Min	None	C-Min		None	None		None	None	
v/c Ratio	0.00	0.90	0.33	0.37	0.48		1.11	0.25			0.02	
Control Delay	3.0	21.9	0.9	18.9	8.1		152.7	14.3			0.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Total Delay	3.0	21.9	0.9	18.9	8.1		152.7	14.3			0.0	
Queue Length 50th (ft)	0	437	6	9	195		~303	1			0	
Queue Length 95th (ft)	m0	#1528	8	43	392		#400	44			0	
Internal Link Dist (ft)		1815			1369			8692			129	
Turn Bay Length (ft)	160			160			280					
Base Capacity (vph)	504	1312	1168	194	1431		222	438			258	
Starvation Cap Reductn	0	0	0	0	0		0	0			0	
Spillback Cap Reductn	0	0	0	0	0		0	0			0	
Storage Cap Reductn	0	0	0	0	0		0	0			0	
Reduced v/c Ratio	0.00	0.90	0.33	0.24	0.48		1.11	0.15			0.01	

Intersection Summary

Cycle Length: 155

Actuated Cycle Length: 155

Offset: 28 (18%), Referenced to phase 2:WBTL, Start of Yellow

Natural Cycle: 130

Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

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

Splits and Phases: 12: Providence Blvd & Howland Blvd



HCM 6th Signalized Intersection Summary
12: Providence Blvd & Howland Blvd

2020 Future Background Conditions
Timing Plan: PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	1117	370	44	646	1	235	1	62	1	0	2
Future Volume (veh/h)	1	1117	370	44	646	1	235	1	62	1	0	2
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1856	1856	1856	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1	1176	366	46	680	1	247	1	29	1	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
Percent Heavy Veh, %	2	2	2	3	3	3	2	2	2	2	2	2
Cap, veh/h	464	1201	1018	310	1325	2	324	10	300	92	0	0
Arrive On Green	1.00	1.00	1.00	0.03	0.72	0.72	0.12	0.19	0.19	0.03	0.00	0.00
Sat Flow, veh/h	759	1870	1585	1767	1852	3	1781	53	1540	1379	0	0
Grp Volume(v), veh/h	1	1176	366	46	0	681	247	0	30	1	0	0
Grp Sat Flow(s),veh/h/ln	759	1870	1585	1767	0	1855	1781	0	1593	1380	0	0
Q Serve(g_s), s	0.0	0.0	0.0	1.3	0.0	25.6	18.0	0.0	2.4	0.1	0.0	0.0
Cycle Q Clear(g_c), s	14.3	0.0	0.0	1.3	0.0	25.6	18.0	0.0	2.4	0.1	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.00	1.00		0.97	1.00		0.00
Lane Grp Cap(c), veh/h	464	1201	1018	310	0	1327	324	0	310	92	0	0
V/C Ratio(X)	0.00	0.98	0.36	0.15	0.00	0.51	0.76	0.00	0.10	0.01	0.00	0.00
Avail Cap(c_a), veh/h	464	1201	1018	409	0	1327	324	0	391	162	0	0
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.61	0.61	0.61	1.00	0.00	1.00	0.86	0.00	0.86	1.00	0.00	0.00
Uniform Delay (d), s/veh	1.0	0.0	0.0	8.0	0.0	9.9	63.1	0.0	51.2	72.5	0.0	0.0
Incr Delay (d2), s/veh	0.0	15.6	0.2	0.2	0.0	1.4	9.5	0.0	0.1	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	5.2	0.1	0.5	0.0	9.9	10.3	0.0	1.0	0.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	1.0	15.6	0.2	8.2	0.0	11.4	72.6	0.0	51.4	72.5	0.0	0.0
LnGrp LOS	A	B	A	A	A	B	E	A	D	E	A	A
Approach Vol, veh/h	1543			727			277			1		
Approach Delay, s/veh	12.0			11.2			70.3			72.5		
Approach LOS	B			B			E			E		
Timer - Assigned Phs	2			4			5			6		
Phs Duration (G+Y+Rc), s	117.8			37.2			11.3			106.5		
Change Period (Y+Rc), s	7.0			7.0			7.0			7.0		
Max Green Setting (Gmax), s	103.0			38.0			13.0			83.0		
Max Q Clear Time (g_c+I1), s	27.6			4.4			3.3			16.3		
Green Ext Time (p_c), s	7.8			0.1			0.0			29.6		
Intersection Summary												
HCM 6th Ctrl Delay	18.1											
HCM 6th LOS	B											

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	29	88	149	189	88	114	153	1473	183	97	1184	25
Future Volume (vph)	29	88	149	189	88	114	153	1473	183	97	1184	25
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
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	31	93	157	199	93	120	161	1551	193	102	1246	26
Shared Lane Traffic (%)												
Lane Group Flow (vph)	31	93	157	199	213	0	161	1744	0	102	1272	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8		8	4			6			2		
Detector Phase	3	8	8	7	4		1	6		5	2	
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0		5.0	15.0		5.0	15.0	
Minimum Split (s)	11.9	16.9	16.9	11.7	16.9		12.1	22.1		11.8	22.1	
Total Split (s)	25.0	30.0	30.0	25.0	30.0		28.0	75.0		20.0	67.0	
Total Split (%)	16.7%	20.0%	20.0%	16.7%	20.0%		18.7%	50.0%		13.3%	44.7%	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.9	4.9		4.8	4.9	
All-Red Time (s)	2.9	2.9	2.9	2.7	2.9		2.2	2.2		2.0	2.2	
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)	6.9	6.9	6.9	6.7	6.9		7.1	7.1		6.8	7.1	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	None	None	None	None		None	C-Min		None	C-Min	
v/c Ratio	0.16	0.54	0.51	0.61	0.60		0.59	0.92		0.61	0.71	
Control Delay	43.1	76.1	10.5	54.4	54.0		24.5	40.9		52.5	25.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	43.1	76.1	10.5	54.4	54.0		24.5	40.9		52.5	25.2	
Queue Length 50th (ft)	23	89	0	165	167		56	776		52	522	
Queue Length 95th (ft)	48	144	45	230	251		132	#1142		127	707	
Internal Link Dist (ft)		835			5352			877			5260	
Turn Bay Length (ft)	330		755	300			240			285		
Base Capacity (vph)	320	286	396	332	355		341	1893		211	1794	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.10	0.33	0.40	0.60	0.60		0.47	0.92		0.48	0.71	

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 8 (5%), Referenced to phase 2:SBTL and 6:NBTL, Start of Yellow

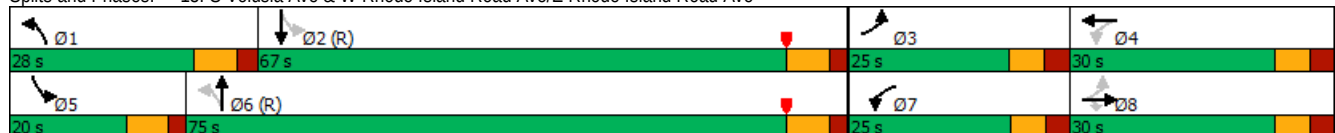
Natural Cycle: 90

Control Type: Actuated-Coordinated

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

Queue shown is maximum after two cycles.

Splits and Phases: 13: S Volusia Ave & W Rhode Island Road Ave/E Rhode Island Road Ave



HCM 6th Signalized Intersection Summary

2020 Future Background Conditions

13: S Volusia Ave & W Rhode Island Road Ave/E Rhode Island Road Ave

Timing Plan: PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	29	88	149	189	88	114	153	1473	183	97	1184	25
Future Volume (veh/h)	29	88	149	189	88	114	153	1473	183	97	1184	25
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1856	1856	1856	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	31	93	32	199	93	84	161	1551	190	102	1246	24
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	3	3	3	2	2	2	2	2	2
Cap, veh/h	163	125	106	275	141	127	295	1907	231	171	2070	40
Arrive On Green	0.02	0.07	0.07	0.12	0.16	0.16	0.05	0.60	0.60	0.04	0.58	0.58
Sat Flow, veh/h	1781	1870	1585	1767	898	811	1781	3192	386	1781	3566	69
Grp Volume(v), veh/h	31	93	32	199	0	177	161	854	887	102	621	649
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1767	0	1710	1781	1777	1801	1781	1777	1858
Q Serve(g_s), s	2.4	7.3	2.9	15.3	0.0	14.6	5.5	55.9	58.5	3.5	33.8	33.8
Cycle Q Clear(g_c), s	2.4	7.3	2.9	15.3	0.0	14.6	5.5	55.9	58.5	3.5	33.8	33.8
Prop In Lane	1.00		1.00	1.00		0.47	1.00		0.21	1.00		0.04
Lane Grp Cap(c), veh/h	163	125	106	275	0	268	295	1062	1076	171	1031	1078
V/C Ratio(X)	0.19	0.75	0.30	0.72	0.00	0.66	0.55	0.80	0.82	0.60	0.60	0.60
Avail Cap(c_a), veh/h	335	288	244	286	0	268	451	1062	1076	262	1031	1078
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.14	0.00	0.14	1.00	1.00	1.00	0.87	0.87	0.87
Uniform Delay (d), s/veh	63.1	68.8	66.7	55.0	0.0	59.5	17.2	23.4	23.9	28.2	20.3	20.3
Incr Delay (d2), s/veh	0.6	8.5	1.6	1.2	0.0	0.8	1.6	6.5	7.2	2.9	2.3	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	3.8	1.2	6.9	0.0	6.4	2.2	23.7	25.2	2.1	13.9	14.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	63.7	77.3	68.3	56.3	0.0	60.3	18.8	29.9	31.1	31.1	22.6	22.5
LnGrp LOS	E	E	E	E	A	E	B	C	C	C	C	C
Approach Vol, veh/h	156			376			1902			1372		
Approach Delay, s/veh	72.7			58.2			29.5			23.2		
Approach LOS	E			E			C			C		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	14.9	94.2	10.5	30.4	12.3	96.7	24.1	16.9				
Change Period (Y+Rc), s	* 7.1	* 7.1	6.9	6.9	6.8	* 7.1	* 6.7	6.9				
Max Green Setting (Gmax), s	* 21	* 60	18.1	23.1	13.2	* 68	* 18	23.1				
Max Q Clear Time (g_c+I1), s	7.5	35.8	4.4	16.6	5.5	60.5	17.3	9.3				
Green Ext Time (p_c), s	0.3	12.1	0.0	0.4	0.1	6.4	0.1	0.4				

Intersection Summary

HCM 6th Ctrl Delay	31.8
HCM 6th LOS	C

Notes

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

Lanes, Volumes, Timings
14: Veterans Memorial Pkwy & E Rhode Island Road Ave

2020 Future Background Conditions
Timing Plan: PM Peak Hour

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	264	270	369	898	610	258
Future Volume (vph)	264	270	369	898	610	258
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	281	287	393	955	649	274
Shared Lane Traffic (%)						
Lane Group Flow (vph)	281	287	393	955	649	274
Turn Type	Prot	Perm	pm+pt	NA	NA	Perm
Protected Phases	4		1	6	2	
Permitted Phases		4	6			2
Detector Phase	4	4	1	6	2	2
Switch Phase						
Minimum Initial (s)	7.0	7.0	5.0	11.0	11.0	11.0
Minimum Split (s)	13.5	13.5	13.5	20.5	20.5	20.5
Total Split (s)	20.0	20.0	15.0	50.0	35.0	35.0
Total Split (%)	28.6%	28.6%	21.4%	71.4%	50.0%	50.0%
Yellow Time (s)	3.5	3.5	5.5	5.5	5.5	5.5
All-Red Time (s)	3.0	3.0	3.0	4.0	4.0	4.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	8.5	9.5	9.5	9.5
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Recall Mode	None	None	None	Min	Min	Min
v/c Ratio	0.84	0.54	1.40	0.88	0.96	0.37
Control Delay	51.8	7.8	220.4	24.9	49.9	3.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.8	7.8	220.4	24.9	49.9	3.8
Queue Length 50th (ft)	117	0	~180	320	266	0
Queue Length 95th (ft)	#239	59	#342	#595	#473	44
Internal Link Dist (ft)	5352			4702	7026	
Turn Bay Length (ft)	450		385			385
Base Capacity (vph)	345	539	280	1088	685	755
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.81	0.53	1.40	0.88	0.95	0.36

Intersection Summary

Cycle Length: 70

Actuated Cycle Length: 69.3

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

Splits and Phases: 14: Veterans Memorial Pkwy & E Rhode Island Road Ave

 Ø1	 Ø2	 Ø4
15 s	35 s	20 s
 Ø6		
50 s		

HCM 6th Signalized Intersection Summary
 14: Veterans Memorial Pkwy & E Rhode Island Road Ave

2020 Future Background Conditions
 Timing Plan: PM Peak Hour

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	264	270	369	898	610	258
Future Volume (veh/h)	264	270	369	898	610	258
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	281	120	393	955	649	180
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	327	291	292	1093	687	582
Arrive On Green	0.18	0.18	0.09	0.58	0.37	0.37
Sat Flow, veh/h	1781	1585	1781	1870	1870	1585
Grp Volume(v), veh/h	281	120	393	955	649	180
Grp Sat Flow(s),veh/h/ln	1781	1585	1781	1870	1870	1585
Q Serve(g_s), s	10.6	4.6	6.5	29.9	23.2	5.6
Cycle Q Clear(g_c), s	10.6	4.6	6.5	29.9	23.2	5.6
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	327	291	292	1093	687	582
V/C Ratio(X)	0.86	0.41	1.34	0.87	0.94	0.31
Avail Cap(c_a), veh/h	348	310	292	1097	691	585
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.3	24.9	16.9	12.2	21.2	15.6
Incr Delay (d2), s/veh	18.1	0.9	175.9	8.0	21.7	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.7	1.7	16.4	10.6	12.4	1.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	45.4	25.8	192.8	20.1	42.9	15.9
LnGrp LOS	D	C	F	C	D	B
Approach Vol, veh/h	401			1348	829	
Approach Delay, s/veh	39.5			70.5	37.0	
Approach LOS	D			E	D	
Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	15.0	34.9		19.2		49.9
Change Period (Y+Rc), s	8.5	9.5		6.5		9.5
Max Green Setting (Gmax), s	6.5	25.5		13.5		40.5
Max Q Clear Time (g_c+I1), s	8.5	25.2		12.6		31.9
Green Ext Time (p_c), s	0.0	0.1		0.1		4.1
Intersection Summary						
HCM 6th Ctrl Delay			54.9			
HCM 6th LOS			D			

Lanes, Volumes, Timings
15: N Normandy Blvd & Elkcam Blvd

2020 Future Background Conditions
Timing Plan: PM Peak Hour

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	211	226	631	394	348	770
Future Volume (vph)	211	226	631	394	348	770
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	222	238	664	415	366	811
Shared Lane Traffic (%)						
Lane Group Flow (vph)	222	238	1079	0	366	811
Turn Type	Prot	Perm	NA		pm+pt	NA
Protected Phases	4		6		5	2
Permitted Phases		4			2	
Detector Phase	4	4	6		5	2
Switch Phase						
Minimum Initial (s)	5.0	5.0	12.0		5.0	12.0
Minimum Split (s)	11.5	11.5	19.0		11.5	18.5
Total Split (s)	20.0	20.0	35.0		15.0	50.0
Total Split (%)	28.6%	28.6%	50.0%		21.4%	71.4%
Yellow Time (s)	4.0	4.0	4.5		4.0	4.0
All-Red Time (s)	2.5	2.5	2.5		2.5	2.5
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	6.5	6.5	7.0		6.5	6.5
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	None	None	Min		None	Min
v/c Ratio	0.68	0.49	0.79		1.04	0.37
Control Delay	37.5	7.8	18.7		78.7	7.0
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	37.5	7.8	18.7		78.7	7.0
Queue Length 50th (ft)	86	0	157		-121	78
Queue Length 95th (ft)	#172	54	228		#281	109
Internal Link Dist (ft)	7820		5060			9642
Turn Bay Length (ft)	460				275	
Base Capacity (vph)	376	523	1598		352	2421
Starvation Cap Reductn	0	0	0		0	0
Spillback Cap Reductn	0	0	0		0	0
Storage Cap Reductn	0	0	0		0	0
Reduced v/c Ratio	0.59	0.46	0.68		1.04	0.33

Intersection Summary

Cycle Length: 70

Actuated Cycle Length: 64.4

Natural Cycle: 65

Control Type: Actuated-Uncoordinated

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

Splits and Phases: 15: N Normandy Blvd & Elkcam Blvd



HCM 6th Signalized Intersection Summary
15: N Normandy Blvd & Elkcam Blvd

2020 Future Background Conditions
Timing Plan: PM Peak Hour

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	211	226	631	394	348	770
Future Volume (veh/h)	211	226	631	394	348	770
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	222	126	664	255	366	811
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	287	256	876	336	454	2156
Arrive On Green	0.16	0.16	0.35	0.35	0.15	0.61
Sat Flow, veh/h	1781	1585	2604	964	1781	3647
Grp Volume(v), veh/h	222	126	470	449	366	811
Grp Sat Flow(s),veh/h/ln	1781	1585	1777	1697	1781	1777
Q Serve(g_s), s	7.0	4.2	13.6	13.6	7.1	6.8
Cycle Q Clear(g_c), s	7.0	4.2	13.6	13.6	7.1	6.8
Prop In Lane	1.00	1.00		0.57	1.00	
Lane Grp Cap(c), veh/h	287	256	620	592	454	2156
V/C Ratio(X)	0.77	0.49	0.76	0.76	0.81	0.38
Avail Cap(c_a), veh/h	413	368	855	816	454	2656
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.4	22.2	16.8	16.8	11.8	5.8
Incr Delay (d2), s/veh	5.6	1.5	2.6	2.7	10.3	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.1	0.1	5.2	5.0	3.2	1.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	28.9	23.7	19.4	19.5	22.1	5.9
LnGrp LOS	C	C	B	B	C	A
Approach Vol, veh/h	348		919			1177
Approach Delay, s/veh	27.0		19.4			11.0
Approach LOS	C		B			B
Timer - Assigned Phs	2		4	5	6	
Phs Duration (G+Y+Rc), s	42.3		15.9	15.0	27.3	
Change Period (Y+Rc), s	* 7		6.5	6.5	7.0	
Max Green Setting (Gmax), s	* 44		13.5	8.5	28.0	
Max Q Clear Time (g_c+I1), s	8.8		9.0	9.1	15.6	
Green Ext Time (p_c), s	5.8		0.5	0.0	4.7	
Intersection Summary						
HCM 6th Ctrl Delay			16.4			
HCM 6th LOS			B			
Notes						

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

Lanes, Volumes, Timings
16: Fort Smith Blvd & Elkcaml Blvd

2020 Future Background Conditions
Timing Plan: PM Peak Hour

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	361	233	5	215	159	11
Future Volume (vph)	361	233	5	215	159	11
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	2%	2%	4%	4%
Adj. Flow (vph)	392	253	5	234	173	12
Shared Lane Traffic (%)						
Lane Group Flow (vph)	645	0	0	239	185	0
Sign Control	Free			Free	Stop	

Intersection Summary

Control Type: Unsignalized

Intersection						
Int Delay, s/veh	4.1					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	361	233	5	215	159	11
Future Vol, veh/h	361	233	5	215	159	11
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	4	4
Mvmt Flow	392	253	5	234	173	12
Major/Minor	Major1	Major2		Minor1		
Conflicting Flow All	0	0	645	0	763	519
Stage 1	-	-	-	-	519	-
Stage 2	-	-	-	-	244	-
Critical Hdwy	-	-	4.12	-	6.44	6.24
Critical Hdwy Stg 1	-	-	-	-	5.44	-
Critical Hdwy Stg 2	-	-	-	-	5.44	-
Follow-up Hdwy	-	-	2.218	-	3.536	3.336
Pot Cap-1 Maneuver	-	-	940	-	370	553
Stage 1	-	-	-	-	593	-
Stage 2	-	-	-	-	792	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	940	-	368	553
Mov Cap-2 Maneuver	-	-	-	-	368	-
Stage 1	-	-	-	-	589	-
Stage 2	-	-	-	-	792	-
Approach	EB	WB		NB		
HCM Control Delay, s	0	0.2		23.5		
HCM LOS	C					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	376	-	-	940	-	
HCM Lane V/C Ratio	0.491	-	-	0.006	-	
HCM Control Delay (s)	23.5	-	-	8.9	0	
HCM Lane LOS	C	-	-	A	A	
HCM 95th %tile Q(veh)	2.6	-	-	0	-	

Lanes, Volumes, Timings
17: Providence Blvd & Elkcaml Blvd

2020 Future Background Conditions
Timing Plan: PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	80	211	80	180	153	41	63	273	202	73	350	51
Future Volume (vph)	80	211	80	180	153	41	63	273	202	73	350	51
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	85	224	85	191	163	44	67	290	215	78	372	54
Shared Lane Traffic (%)												
Lane Group Flow (vph)	85	309	0	191	207	0	67	290	215	78	372	54
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6			8		8	4		4
Detector Phase	5	2		1	6		3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	5.0	6.0		5.0	6.0		5.0	6.0	6.0	5.0	6.0	6.0
Minimum Split (s)	12.5	13.5		12.5	13.5		12.0	13.0	13.0	12.5	13.5	13.5
Total Split (s)	15.0	30.0		15.0	30.0		20.0	35.0	35.0	20.0	35.0	35.0
Total Split (%)	15.0%	30.0%		15.0%	30.0%		20.0%	35.0%	35.0%	20.0%	35.0%	35.0%
Yellow Time (s)	4.5	4.5		4.5	4.5		4.0	4.0	4.0	4.5	4.5	4.5
All-Red Time (s)	3.0	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	0.0
Total Lost Time (s)	7.5	7.5		7.5	7.5		7.0	7.0	7.0	7.5	7.5	7.5
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Min		None	Min		None	None	None	None	None	None
v/c Ratio	0.20	0.74		0.56	0.40		0.21	0.59	0.37	0.22	0.75	0.09
Control Delay	20.0	42.2		28.1	30.8		16.8	33.8	6.0	16.8	39.6	0.3
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.0	42.2		28.1	30.8		16.8	33.8	6.0	16.8	39.6	0.3
Queue Length 50th (ft)	30	154		72	96		22	144	0	26	193	0
Queue Length 95th (ft)	66	#282		#136	176		46	236	52	53	306	0
Internal Link Dist (ft)		4411			6336			3885			8692	
Turn Bay Length (ft)	375			225			235		365	220		295
Base Capacity (vph)	430	514		340	542		422	651	693	450	644	687
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.20	0.60		0.56	0.38		0.16	0.45	0.31	0.17	0.58	0.08

Intersection Summary

Cycle Length: 100

Actuated Cycle Length: 83.8

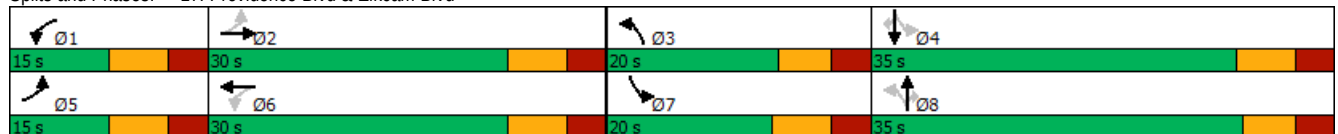
Natural Cycle: 75

Control Type: Actuated-Uncoordinated

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

Queue shown is maximum after two cycles.

Splits and Phases: 17: Providence Blvd & Elkcaml Blvd



HCM 6th Signalized Intersection Summary
17: Providence Blvd & Elkcam Blvd

2020 Future Background Conditions
Timing Plan: PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	80	211	80	180	153	41	63	273	202	73	350	51
Future Volume (veh/h)	80	211	80	180	153	41	63	273	202	73	350	51
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	85	224	67	191	163	35	67	290	115	78	372	24
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	381	278	83	330	369	79	246	442	374	288	461	390
Arrive On Green	0.06	0.20	0.20	0.10	0.25	0.25	0.05	0.24	0.24	0.05	0.25	0.25
Sat Flow, veh/h	1781	1382	413	1781	1492	320	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	85	0	291	191	0	198	67	290	115	78	372	24
Grp Sat Flow(s),veh/h/ln	1781	0	1796	1781	0	1813	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	2.7	0.0	11.4	6.2	0.0	6.8	2.1	10.3	4.4	2.4	13.8	0.9
Cycle Q Clear(g_c), s	2.7	0.0	11.4	6.2	0.0	6.8	2.1	10.3	4.4	2.4	13.8	0.9
Prop In Lane	1.00		0.23	1.00		0.18	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	381	0	361	330	0	448	246	442	374	288	461	390
V/C Ratio(X)	0.22	0.00	0.81	0.58	0.00	0.44	0.27	0.66	0.31	0.27	0.81	0.06
Avail Cap(c_a), veh/h	462	0	548	330	0	553	470	710	602	494	698	591
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	21.4	0.0	28.1	21.1	0.0	23.5	20.7	25.5	23.2	20.2	26.1	21.3
Incr Delay (d2), s/veh	0.3	0.0	6.7	2.5	0.0	1.0	0.6	2.4	0.7	0.5	5.5	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.0	5.3	2.6	0.0	2.9	0.8	4.6	1.6	1.0	6.4	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.7	0.0	34.8	23.7	0.0	24.4	21.3	27.8	23.9	20.7	31.6	21.4
LnGrp LOS	C	A	C	C	A	C	C	C	C	C	C	C
Approach Vol, veh/h	376			389			472			474		
Approach Delay, s/veh	31.8			24.1			25.9			29.3		
Approach LOS	C			C			C			C		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	15.0	22.3	10.7	25.7	11.6	25.7	11.5	24.9				
Change Period (Y+Rc), s	7.5	7.5	7.0	7.5	7.5	7.5	7.5	* 7.5				
Max Green Setting (Gmax), s	7.5	22.5	13.0	27.5	7.5	22.5	12.5	* 28				
Max Q Clear Time (g_c+I1), s	8.2	13.4	4.1	15.8	4.7	8.8	4.4	12.3				
Green Ext Time (p_c), s	0.0	1.5	0.1	2.4	0.0	1.1	0.1	2.5				
Intersection Summary												
HCM 6th Ctrl Delay	27.7											
HCM 6th LOS	C											
Notes												

Lanes, Volumes, Timings
18: Lake Helen Osteen Rd & Elkcaml Blvd

2020 Future Background Conditions
Timing Plan: PM Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	139	338	10	72	246	16	15	170	139	30	215	129
Future Volume (vph)	139	338	10	72	246	16	15	170	139	30	215	129
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	3%	3%	3%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	153	371	11	79	270	18	16	187	153	33	236	142
Shared Lane Traffic (%)												
Lane Group Flow (vph)	153	382	0	79	288	0	16	340	0	33	378	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		5	2		6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		5.0	7.0		7.0	7.0	
Minimum Split (s)	13.5	13.5		13.5	13.5		11.5	14.0		13.5	13.5	
Total Split (s)	20.0	20.0		20.0	20.0		20.0	45.0		25.0	25.0	
Total Split (%)	30.8%	30.8%		30.8%	30.8%		30.8%	69.2%		38.5%	38.5%	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.5		4.0	4.0	
All-Red Time (s)	2.5	2.5		2.5	2.5		2.5	2.5		2.5	2.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.5	6.5		6.5	6.5		6.5	7.0		6.5	6.5	
Lead/Lag							Lead			Lag	Lag	
Lead-Lag Optimize?							Yes			Yes	Yes	
Recall Mode	None	None		None	None		None	Min		Min	Min	
v/c Ratio	0.43	0.63		0.30	0.47		0.04	0.51		0.10	0.65	
Control Delay	20.4	22.4		17.9	17.4		7.6	9.7		12.4	17.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	20.4	22.4		17.9	17.4		7.6	9.7		12.4	17.7	
Queue Length 50th (ft)	25	66		12	46		2	40		5	58	
Queue Length 95th (ft)	#119	#273		60	#181		9	81		25	177	
Internal Link Dist (ft)		10882			412			5142			782	
Turn Bay Length (ft)	405			105			100			170		
Base Capacity (vph)	352	604		266	609		619	1577		465	816	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.43	0.63		0.30	0.47		0.03	0.22		0.07	0.46	

Intersection Summary

Cycle Length: 65

Actuated Cycle Length: 42.5

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

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

Queue shown is maximum after two cycles.

Splits and Phases: 18: Lake Helen Osteen Rd & Elkcaml Blvd



HCM 6th Signalized Intersection Summary
18: Lake Helen Osteen Rd & Elkcarn Blvd

2020 Future Background Conditions
Timing Plan: PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	139	338	10	72	246	16	15	170	139	30	215	129
Future Volume (veh/h)	139	338	10	72	246	16	15	170	139	30	215	129
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	153	371	9	79	270	14	16	187	105	33	236	97
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	3	3	3	2	2	2	2	2	2	2	2	2
Cap, veh/h	340	533	13	271	521	27	270	460	258	426	311	128
Arrive On Green	0.30	0.30	0.30	0.30	0.30	0.30	0.02	0.41	0.41	0.25	0.25	0.25
Sat Flow, veh/h	1086	1804	44	1003	1763	91	1781	1125	632	1087	1260	518
Grp Volume(v), veh/h	153	0	380	79	0	284	16	0	292	33	0	333
Grp Sat Flow(s),veh/h/ln	1086	0	1848	1003	0	1854	1781	0	1757	1087	0	1777
Q Serve(g_s), s	6.2	0.0	8.3	3.5	0.0	5.8	0.3	0.0	5.4	1.1	0.0	7.9
Cycle Q Clear(g_c), s	12.1	0.0	8.3	11.8	0.0	5.8	0.3	0.0	5.4	1.1	0.0	7.9
Prop In Lane	1.00		0.02	1.00		0.05	1.00		0.36	1.00		0.29
Lane Grp Cap(c), veh/h	340	0	546	271	0	548	270	0	719	426	0	438
V/C Ratio(X)	0.45	0.00	0.70	0.29	0.00	0.52	0.06	0.00	0.41	0.08	0.00	0.76
Avail Cap(c_a), veh/h	340	0	546	271	0	548	760	0	1461	598	0	720
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	18.4	0.0	14.3	19.5	0.0	13.4	12.1	0.0	9.6	13.4	0.0	16.0
Incr Delay (d2), s/veh	0.9	0.0	3.8	0.6	0.0	0.9	0.1	0.0	0.4	0.1	0.0	2.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	0.0	3.4	0.7	0.0	2.1	0.1	0.0	1.6	0.2	0.0	3.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	19.3	0.0	18.1	20.1	0.0	14.3	12.1	0.0	9.9	13.4	0.0	18.7
LnGrp LOS	B	A	B	C	A	B	B	A	A	B	A	B
Approach Vol, veh/h	533			363			308			366		
Approach Delay, s/veh	18.5			15.5			10.1			18.2		
Approach LOS	B			B			B			B		
Timer - Assigned Phs	2			4		5	6		8			
Phs Duration (G+Y+Rc), s	25.7			20.0		7.4	18.3		20.0			
Change Period (Y+Rc), s	7.0			6.5		6.5	* 7		6.5			
Max Green Setting (Gmax), s	38.0			13.5		13.5	* 19		13.5			
Max Q Clear Time (g_c+I1), s	7.4			14.1		2.3	9.9		13.8			
Green Ext Time (p_c), s	1.8			0.0		0.0	1.3		0.0			

Intersection Summary

HCM 6th Ctrl Delay 16.1
HCM 6th LOS B

Notes

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

Lanes, Volumes, Timings
19: Providence Blvd & Fort Smith Blvd

2020 Future Background Conditions
Timing Plan: PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	9	144	56	220	123	108	52	410	393	130	391	4
Future Volume (vph)	9	144	56	220	123	108	52	410	393	130	391	4
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
Heavy Vehicles (%)	4%	4%	4%	2%	2%	2%	2%	2%	2%	3%	3%	3%
Adj. Flow (vph)	9	152	59	232	129	114	55	432	414	137	412	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	9	211	0	232	243	0	55	432	414	137	416	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2		2	6		
Detector Phase	4	4		8	8		2	2	2	1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		12.0	12.0	12.0	5.0	12.0	
Minimum Split (s)	14.0	14.0		13.5	13.5		18.5	18.5	18.5	13.0	20.0	
Total Split (s)	30.0	30.0		30.0	30.0		35.0	35.0	35.0	20.0	55.0	
Total Split (%)	35.3%	35.3%		35.3%	35.3%		41.2%	41.2%	41.2%	23.5%	64.7%	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.5	4.5	
All-Red Time (s)	3.0	3.0		2.5	2.5		2.5	2.5	2.5	3.5	3.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	7.0	7.0		6.5	6.5		6.5	6.5	6.5	8.0	8.0	
Lead/Lag							Lag	Lag	Lag	Lead		
Lead-Lag Optimize?							Yes	Yes	Yes	Yes		
Recall Mode	None	None		None	None		Min	Min	Min	None	None	
v/c Ratio	0.03	0.43		0.71	0.47		0.17	0.67	0.51	0.36	0.45	
Control Delay	22.7	24.5		39.9	22.0		20.5	28.1	4.8	12.0	12.9	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	22.7	24.5		39.9	22.0		20.5	28.1	4.8	12.0	12.9	
Queue Length 50th (ft)	3	77		105	78		19	182	0	32	117	
Queue Length 95th (ft)	15	144		#216	151		48	298	60	61	184	
Internal Link Dist (ft)		5102			547			764			3885	
Turn Bay Length (ft)	100			440			200			221		
Base Capacity (vph)	359	633		421	659		423	816	926	460	1255	
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	
Reduced v/c Ratio	0.03	0.33		0.55	0.37		0.13	0.53	0.45	0.30	0.33	

Intersection Summary

Cycle Length: 85

Actuated Cycle Length: 70.8

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

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

Queue shown is maximum after two cycles.

Splits and Phases: 19: Providence Blvd & Fort Smith Blvd



HCM 6th Signalized Intersection Summary
19: Providence Blvd & Fort Smith Blvd

2020 Future Background Conditions
Timing Plan: PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	9	144	56	220	123	108	52	410	393	130	391	4
Future Volume (veh/h)	9	144	56	220	123	108	52	410	393	130	391	4
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1841	1841	1841	1870	1870	1870	1870	1870	1870	1856	1856	1856
Adj Flow Rate, veh/h	9	152	37	232	129	73	55	432	286	137	412	4
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, %	4	4	4	2	2	2	2	2	2	3	3	3
Cap, veh/h	350	436	106	366	342	193	390	557	472	297	890	9
Arrive On Green	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.08	0.49	0.49
Sat Flow, veh/h	1162	1430	348	1194	1121	635	970	1870	1585	1767	1835	18
Grp Volume(v), veh/h	9	0	189	232	0	202	55	432	286	137	0	416
Grp Sat Flow(s),veh/h/ln	1162	0	1778	1194	0	1756	970	1870	1585	1767	0	1852
Q Serve(g_s), s	0.4	0.0	5.9	13.4	0.0	6.5	3.0	15.1	11.0	3.6	0.0	10.7
Cycle Q Clear(g_c), s	6.9	0.0	5.9	19.3	0.0	6.5	3.0	15.1	11.0	3.6	0.0	10.7
Prop In Lane	1.00		0.20	1.00		0.36	1.00		1.00	1.00		0.01
Lane Grp Cap(c), veh/h	350	0	542	366	0	535	390	557	472	297	0	899
V/C Ratio(X)	0.03	0.00	0.35	0.63	0.00	0.38	0.14	0.77	0.61	0.46	0.00	0.46
Avail Cap(c_a), veh/h	370	0	572	395	0	578	488	746	632	461	0	1218
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	22.2	0.0	19.3	26.8	0.0	19.5	18.7	22.9	21.5	16.4	0.0	12.2
Incr Delay (d2), s/veh	0.0	0.0	0.4	3.0	0.0	0.4	0.2	4.4	1.8	1.1	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	2.4	3.9	0.0	2.5	0.7	6.8	4.0	1.4	0.0	3.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.2	0.0	19.7	29.8	0.0	20.0	18.9	27.3	23.3	17.5	0.0	12.7
LnGrp LOS	C	A	B	C	A	B	B	C	C	B	A	B
Approach Vol, veh/h	198			434			773			553		
Approach Delay, s/veh	19.8			25.2			25.2			13.9		
Approach LOS	B			C			C			B		
Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	13.4	29.3		28.8		42.7		28.8				
Change Period (Y+Rc), s	8.0	* 8		7.0		8.0		* 7				
Max Green Setting (Gmax), s	12.0	* 29		23.0		47.0		* 24				
Max Q Clear Time (g_c+I1), s	5.6	17.1		8.9		12.7		21.3				
Green Ext Time (p_c), s	0.2	4.2		0.9		4.0		0.5				

Intersection Summary

HCM 6th Ctrl Delay 21.5
HCM 6th LOS C

Notes

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

Lanes, Volumes, Timings
20: Veterans Memorial Pkwy & Harley Strickland Blvd

2020 Future Background Conditions
Timing Plan: PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	340	60	289	75	41	107	253	442	2	134	542	193
Future Volume (vph)	340	60	289	75	41	107	253	442	2	134	542	193
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
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	3%	3%	3%	2%	2%	2%
Adj. Flow (vph)	354	63	301	78	43	111	264	460	2	140	565	201
Shared Lane Traffic (%)												
Lane Group Flow (vph)	354	63	301	78	154	0	264	462	0	140	766	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8		8	4			6			2		
Detector Phase	3	8	8	7	4		1	6		5	2	
Switch Phase												
Minimum Initial (s)	5.0	7.0	7.0	5.0	7.0		5.0	16.0		5.0	16.0	
Minimum Split (s)	12.5	14.5	14.5	12.5	14.5		12.5	23.5		12.5	23.5	
Total Split (s)	25.0	40.0	40.0	20.0	35.0		30.0	50.0		20.0	40.0	
Total Split (%)	19.2%	30.8%	30.8%	15.4%	26.9%		23.1%	38.5%		15.4%	30.8%	
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	
All-Red Time (s)	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)	7.5	7.5	7.5	7.5	7.5		7.5	7.5		7.5	7.5	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	None	None	None	None		None	C-Min		None	C-Min	
v/c Ratio	1.05	0.19	0.57	0.32	0.68		0.60	0.29		0.29	0.58	
Control Delay	105.1	48.9	9.7	38.1	39.4		19.2	23.4		15.5	34.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	105.1	48.9	9.7	38.1	39.4		19.2	23.4		15.5	34.1	
Queue Length 50th (ft)	~271	48	0	50	52		97	121		47	247	
Queue Length 95th (ft)	#433	90	83	86	120		165	185		89	372	
Internal Link Dist (ft)		562			593			1843			1501	
Turn Bay Length (ft)	235		235	250			435			340		
Base Capacity (vph)	336	468	623	285	423		476	1606		517	1315	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	1.05	0.13	0.48	0.27	0.36		0.55	0.29		0.27	0.58	

Intersection Summary

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 40 (31%), Referenced to phase 2:SBTL and 6:NBTL, Start of Yellow

Natural Cycle: 90

Control Type: Actuated-Coordinated

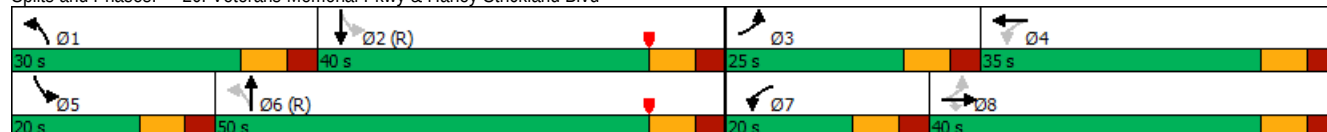
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

Splits and Phases: 20: Veterans Memorial Pkwy & Harley Strickland Blvd



HCM 6th Signalized Intersection Summary
20: Veterans Memorial Pkwy & Harley Strickland Blvd

2020 Future Background Conditions
Timing Plan: PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	340	60	289	75	41	107	253	442	2	134	542	193
Future Volume (veh/h)	340	60	289	75	41	107	253	442	2	134	542	193
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1856	1856	1856	1870	1870	1870
Adj Flow Rate, veh/h	354	62	141	78	43	74	264	460	2	140	565	159
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	3	3	3	2	2	2
Cap, veh/h	320	319	270	251	54	93	450	1760	8	544	1227	344
Arrive On Green	0.13	0.17	0.17	0.05	0.09	0.09	0.10	0.49	0.49	0.06	0.45	0.45
Sat Flow, veh/h	1781	1870	1585	1781	617	1062	1767	3600	16	1781	2740	769
Grp Volume(v), veh/h	354	62	141	78	0	117	264	225	237	140	366	358
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	0	1679	1767	1763	1853	1781	1777	1732
Q Serve(g_s), s	17.5	3.7	10.5	5.1	0.0	8.9	10.3	9.7	9.7	5.5	18.6	18.7
Cycle Q Clear(g_c), s	17.5	3.7	10.5	5.1	0.0	8.9	10.3	9.7	9.7	5.5	18.6	18.7
Prop In Lane	1.00		1.00	1.00		0.63	1.00		0.01	1.00		0.44
Lane Grp Cap(c), veh/h	320	319	270	251	0	147	450	862	906	544	796	776
V/C Ratio(X)	1.11	0.19	0.52	0.31	0.00	0.79	0.59	0.26	0.26	0.26	0.46	0.46
Avail Cap(c_a), veh/h	320	468	396	330	0	355	581	862	906	612	796	776
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	0.09	0.09	0.09	1.00	1.00	1.00
Uniform Delay (d), s/veh	48.3	46.3	49.1	50.3	0.0	58.2	17.8	19.5	19.5	17.3	24.9	25.0
Incr Delay (d2), s/veh	82.2	0.3	1.6	0.7	0.0	9.3	0.1	0.1	0.1	0.2	1.9	2.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.1	1.7	4.2	2.3	0.0	4.2	4.0	3.9	4.1	2.2	8.1	7.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	130.5	46.6	50.7	51.0	0.0	67.5	17.9	19.5	19.5	17.5	26.9	27.0
LnGrp LOS	F	D	D	D	A	E	B	B	B	B	C	C
Approach Vol, veh/h	557			195			726			864		
Approach Delay, s/veh	101.0			60.9			18.9			25.4		
Approach LOS	F			E			B			C		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	20.4	65.7	25.0	18.9	15.1	71.0	14.3	29.6				
Change Period (Y+Rc), s	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5				
Max Green Setting (Gmax), s	22.5	32.5	17.5	27.5	12.5	42.5	12.5	32.5				
Max Q Clear Time (g_c+I1), s	12.3	20.7	19.5	10.9	7.5	11.7	7.1	12.5				
Green Ext Time (p_c), s	0.5	4.5	0.0	0.5	0.1	3.9	0.1	0.7				
Intersection Summary												
HCM 6th Ctrl Delay	44.3											
HCM 6th LOS	D											

Lanes, Volumes, Timings
21: Broward Ave/Veterans Memorial Pkwy & Saxon Blvd

2020 Future Background Conditions
Timing Plan: PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	205	1336	29	155	1258	528	47	48	101	705	69	192
Future Volume (vph)	205	1336	29	155	1258	528	47	48	101	705	69	192
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
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	216	1406	31	163	1324	556	49	51	106	742	73	202
Shared Lane Traffic (%)										45%		
Lane Group Flow (vph)	216	1437	0	163	1880	0	49	51	106	408	407	202
Turn Type	pm+pt	NA		pm+pt	NA		Split	NA	Perm	Split	NA	Perm
Protected Phases	1	6		5	2		4	4		8	8	
Permitted Phases	6			2					4			8
Detector Phase	1	6		5	2		4	4	4	8	8	8
Switch Phase												
Minimum Initial (s)	5.0	12.0		5.0	12.0		7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	12.9	18.8		12.8	18.8		14.5	14.5	14.5	15.3	15.3	15.3
Total Split (s)	19.0	106.0		13.0	100.0		14.5	14.5	14.5	36.0	36.0	36.0
Total Split (%)	11.2%	62.5%		7.7%	59.0%		8.6%	8.6%	8.6%	21.2%	21.2%	21.2%
Yellow Time (s)	4.8	4.8		4.8	4.8		3.7	3.7	3.7	4.5	4.5	4.5
All-Red Time (s)	3.1	2.0		3.0	2.0		3.8	3.8	3.8	3.8	3.8	3.8
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.9	6.8		7.8	6.8		7.5	7.5	7.5	8.3	8.3	8.3
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Recall Mode	None	C-Min		None	C-Min		None	None	None	None	None	None
v/c Ratio	1.38	0.55		0.97	0.79		0.50	0.50	0.51	1.14	1.12	0.47
Control Delay	241.0	27.7		87.2	36.5		94.8	93.7	14.7	147.4	142.0	28.1
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	241.0	27.7		87.2	36.5		94.8	93.7	14.7	147.4	142.0	28.1
Queue Length 50th (ft)	~266	380		78	596		54	56	0	~574	~567	75
Queue Length 95th (ft)	#438	377		#166	588		104	108	42	#889	#883	172
Internal Link Dist (ft)		957			1787			543			1843	
Turn Bay Length (ft)	460			400			200		445	410		
Base Capacity (vph)	157	2939		168	2691		98	103	209	357	362	433
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	1.38	0.49		0.97	0.70		0.50	0.50	0.51	1.14	1.12	0.47

Intersection Summary

Cycle Length: 169.5

Actuated Cycle Length: 169.5

Offset: 124 (73%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow

Natural Cycle: 140

Control Type: Actuated-Coordinated

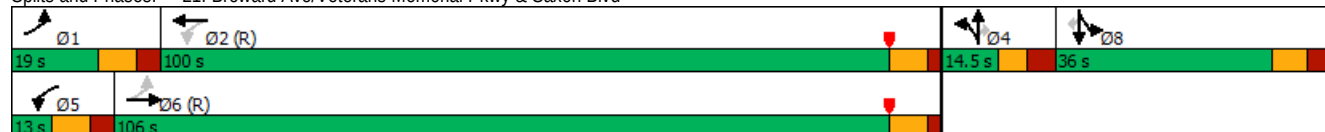
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

Splits and Phases: 21: Broward Ave/Veterans Memorial Pkwy & Saxon Blvd



HCM 6th Signalized Intersection Summary
21: Broward Ave/Veterans Memorial Pkwy & Saxon Blvd

2020 Future Background Conditions

Timing Plan: PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	205	1336	29	155	1258	528	47	48	101	705	69	192
Future Volume (veh/h)	205	1336	29	155	1258	528	47	48	101	705	69	192
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	216	1406	22	163	1324	556	49	51	37	794	0	105
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, %	3	3	3	3	3	3	2	2	2	2	2	2
Cap, veh/h	224	3013	47	257	1936	804	73	77	65	580	0	258
Arrive On Green	0.07	0.59	0.59	0.03	0.55	0.55	0.04	0.04	0.04	0.16	0.00	0.16
Sat Flow, veh/h	1767	5138	80	1767	3512	1458	1781	1870	1585	3563	0	1585
Grp Volume(v), veh/h	216	924	504	163	1273	607	49	51	37	794	0	105
Grp Sat Flow(s),veh/h/ln	1767	1689	1841	1767	1689	1593	1781	1870	1585	1781	0	1585
Q Serve(g_s), s	10.3	26.5	26.5	5.2	46.1	47.0	4.6	4.6	3.9	27.7	0.0	10.1
Cycle Q Clear(g_c), s	10.3	26.5	26.5	5.2	46.1	47.0	4.6	4.6	3.9	27.7	0.0	10.1
Prop In Lane	1.00		0.04	1.00		0.92	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	224	1981	1080	257	1862	878	73	77	65	580	0	258
V/C Ratio(X)	0.97	0.47	0.47	0.64	0.68	0.69	0.67	0.66	0.57	1.37	0.00	0.41
Avail Cap(c_a), veh/h	224	1981	1080	257	1862	878	73	77	65	580	0	258
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.86	0.86	0.86	1.00	1.00	1.00	0.81	0.00	0.81
Uniform Delay (d), s/veh	36.7	20.0	20.0	23.6	27.5	27.7	80.4	80.3	80.0	71.2	0.0	63.8
Incr Delay (d2), s/veh	50.3	0.8	1.4	4.4	1.8	3.8	20.9	19.2	11.0	174.4	0.0	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.0	10.4	11.5	2.5	18.5	18.2	2.6	2.6	1.8	26.6	0.0	4.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	87.0	20.8	21.5	28.0	29.2	31.5	101.3	99.6	91.0	245.5	0.0	64.6
LnGrp LOS	F	C	C	C	C	C	F	F	F	F	A	E
Approach Vol, veh/h	1644			2043			137			899		
Approach Delay, s/veh	29.7			29.8			97.9			224.4		
Approach LOS	C			C			F			F		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	19.0	100.5		14.5	13.0	106.5		36.0				
Change Period (Y+Rc), s	7.9	6.8		7.5	7.8	6.8		8.3				
Max Green Setting (Gmax), s	11.1	93.2		7.0	5.2	99.2		27.7				
Max Q Clear Time (g_c+I1), s	12.3	49.0		6.6	7.2	28.5		29.7				
Green Ext Time (p_c), s	0.0	19.7		0.0	0.0	12.7		0.0				

Intersection Summary

HCM 6th Ctrl Delay 68.8

HCM 6th LOS E

Notes

User approved volume balancing among the lanes for turning movement.

Lanes, Volumes, Timings
22: FDOT Park & Ride & Saxon Blvd

2020 Future Background Conditions
Timing Plan: PM Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↰↰↰		↰	↰↰↰		↰	↰			↰↰	
Traffic Volume (vph)	38	2042	91	106	1741	27	61	0	100	35	5	15
Future Volume (vph)	38	2042	91	106	1741	27	61	0	100	35	5	15
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	41	2196	98	114	1872	29	66	0	108	38	5	16
Shared Lane Traffic (%)												
Lane Group Flow (vph)	41	2294	0	114	1901	0	66	108	0	0	59	0
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	1	6		5	2			4			8	
Permitted Phases	6			2			4			8		
Detector Phase	1	6		5	2		4	4		8	8	
Switch Phase												
Minimum Initial (s)	5.0	11.0		5.0	11.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	12.7	17.9		12.8	17.9		14.6	14.6		14.6	14.6	
Total Split (s)	12.7	110.0		15.0	112.3		21.0	21.0		21.0	21.0	
Total Split (%)	8.7%	75.3%		10.3%	76.9%		14.4%	14.4%		14.4%	14.4%	
Yellow Time (s)	4.8	4.9		4.9	4.9		4.2	4.2		4.2	4.2	
All-Red Time (s)	2.9	2.0		2.9	2.0		3.4	3.4		3.4	3.4	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0			0.0	
Total Lost Time (s)	7.7	6.9		7.8	6.9		7.6	7.6			7.6	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Recall Mode	None	C-Min		None	C-Min		None	None		None	None	
v/c Ratio	0.22	0.63		0.72	0.50		0.59	0.54			0.58	
Control Delay	6.0	11.8		48.8	8.3		85.9	28.3			76.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0			0.0	
Total Delay	6.0	11.8		48.8	8.3		85.9	28.3			76.1	
Queue Length 50th (ft)	6	407		41	264		61	19			45	
Queue Length 95th (ft)	14	432		#144	297		114	82			96	
Internal Link Dist (ft)		1787			407			186			166	
Turn Bay Length (ft)	365			390			105					
Base Capacity (vph)	188	3641		160	3818		135	224			120	
Starvation Cap Reductn	0	0		0	0		0	0			0	
Spillback Cap Reductn	0	0		0	0		0	0			0	
Storage Cap Reductn	0	0		0	0		0	0			0	
Reduced v/c Ratio	0.22	0.63		0.71	0.50		0.49	0.48			0.49	

Intersection Summary

Cycle Length: 146

Actuated Cycle Length: 146

Offset: 31 (21%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow

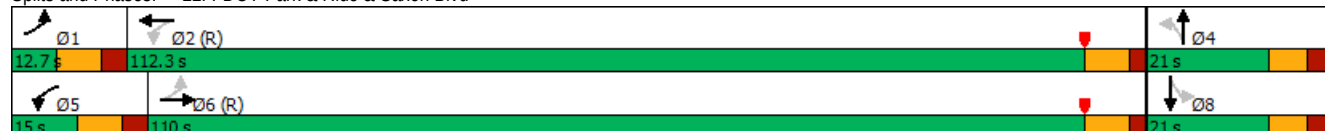
Natural Cycle: 65

Control Type: Actuated-Coordinated

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

Queue shown is maximum after two cycles.

Splits and Phases: 22: FDOT Park & Ride & Saxon Blvd



HCM 6th Signalized Intersection Summary
22: FDOT Park & Ride & Saxon Blvd

2020 Future Background Conditions
Timing Plan: PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	38	2042	91	106	1741	27	61	0	100	35	5	15
Future Volume (veh/h)	38	2042	91	106	1741	27	61	0	100	35	5	15
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	41	2196	93	114	1872	28	66	0	42	38	5	5
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	244	3746	158	198	3900	58	151	0	107	92	12	7
Arrive On Green	0.03	0.75	0.75	0.03	0.75	0.75	0.07	0.00	0.07	0.07	0.07	0.07
Sat Flow, veh/h	1781	5024	212	1781	5183	77	1405	0	1585	706	180	103
Grp Volume(v), veh/h	41	1485	804	114	1229	671	66	0	42	48	0	0
Grp Sat Flow(s),veh/h/ln	1781	1702	1832	1781	1702	1856	1405	0	1585	989	0	0
Q Serve(g_s), s	0.8	28.7	29.1	2.2	20.4	20.5	0.0	0.0	3.7	4.2	0.0	0.0
Cycle Q Clear(g_c), s	0.8	28.7	29.1	2.2	20.4	20.5	6.1	0.0	3.7	7.9	0.0	0.0
Prop In Lane	1.00		0.12	1.00		0.04	1.00		1.00	0.79		0.10
Lane Grp Cap(c), veh/h	244	2538	1366	198	2561	1397	151	0	107	111	0	0
V/C Ratio(X)	0.17	0.58	0.59	0.58	0.48	0.48	0.44	0.00	0.39	0.43	0.00	0.00
Avail Cap(c_a), veh/h	256	2538	1366	226	2561	1397	185	0	145	145	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.69	0.69	0.69	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	5.4	8.4	8.4	13.6	7.0	7.0	66.3	0.0	65.2	68.2	0.0	0.0
Incr Delay (d2), s/veh	0.2	0.7	1.3	2.7	0.6	1.2	2.0	0.0	2.3	2.6	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	9.1	10.2	1.9	6.5	7.3	2.5	0.0	1.6	1.9	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	5.6	9.1	9.7	16.3	7.7	8.2	68.3	0.0	67.5	70.8	0.0	0.0
LnGrp LOS	A	A	A	B	A	A	E	A	E	E	A	A
Approach Vol, veh/h	2330			2014			108			48		
Approach Delay, s/veh	9.2			8.3			68.0			70.8		
Approach LOS	A			A			E			E		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.8	116.8		17.5	12.8	115.8		17.5				
Change Period (Y+Rc), s	* 7.7	6.9		7.6	7.8	6.9		7.6				
Max Green Setting (Gmax), s	* 5	105.4		13.4	7.2	103.1		13.4				
Max Q Clear Time (g_c+I1), s	2.8	22.5		8.1	4.2	31.1		9.9				
Green Ext Time (p_c), s	0.0	37.5		0.1	0.1	48.3		0.0				

Intersection Summary

HCM 6th Ctrl Delay 10.9
HCM 6th LOS B

Notes

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

Lanes, Volumes, Timings
23: I-4 & Saxon Blvd

2020 Future Background Conditions
Timing Plan: PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑		↑↑	↑			↑			↑
Traffic Volume (vph)	0	1923	499	0	1650	347	0	0	759	0	0	767
Future Volume (vph)	0	1923	499	0	1650	347	0	0	759	0	0	767
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
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	3%	3%	3%
Adj. Flow (vph)	0	2024	525	0	1737	365	0	0	799	0	0	807
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	2024	525	0	1737	365	0	0	799	0	0	807
Sign Control		Free			Free			Yield			Stop	

Intersection Summary

Control Type: Unsignalized

Intersection												
Int Delay, s/veh	85.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑		↑↑	↑			↑			↑
Traffic Vol, veh/h	0	1923	499	0	1650	347	0	0	759	0	0	767
Future Vol, veh/h	0	1923	499	0	1650	347	0	0	759	0	0	767
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Yield	Yield	Yield	Stop	Stop	Stop
RT Channelized	-	-	Free	-	-	Free	-	-	Yield	-	-	Stop
Storage Length	-	-	450	-	-	900	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	16965	-	-	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	3	3	3
Mvmt Flow	0	2024	525	0	1737	365	0	0	799	0	0	807
Major/Minor	Major1		Major2				Minor2					
Conflicting Flow All	-	0	-	-	-	0	-	-	-	-	-	869
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	-	-	-	-	-	-	6.96
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	-	-	-	-	-	-	3.33
Pot Cap-1 Maneuver	0	-	0	0	-	0	-	-	-	0	0	*~ 403
Stage 1	0	-	0	0	-	0	-	-	-	0	0	-
Stage 2	0	-	0	0	-	0	-	-	-	0	0	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	1
Mov Cap-1 Maneuver	-	-	-	-	-	-	-	-	-	-	0	*~ 403
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	0	-
Stage 1	-	-	-	-	-	-	-	-	-	-	0	-
Stage 2	-	-	-	-	-	-	-	-	-	-	0	-
Approach	EB		WB				SB					
HCM Control Delay, s	0		0				\$ 482.6					
HCM LOS							F					
Minor Lane/Major Mvmt	EBT		WBT	SBLn1								
Capacity (veh/h)	-		-	403								
HCM Lane V/C Ratio	-		-	2.003								
HCM Control Delay (s)	-		-	\$ 482.6								
HCM Lane LOS	-		-	F								
HCM 95th %tile Q(veh)	-		-	56								
Notes												
~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon												

Lanes, Volumes, Timings
24: I-4 & Saxon Blvd

2020 Future Background Conditions
Timing Plan: PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	395	2812	0	0	1365	251	0	0	1205	0	0	523
Future Volume (vph)	395	2812	0	0	1365	251	0	0	1205	0	0	523
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	420	2991	0	0	1452	267	0	0	1282	0	0	556
Shared Lane Traffic (%)												
Lane Group Flow (vph)	420	2991	0	0	1452	267	0	0	1282	0	0	556
Turn Type	Prot	NA			NA	Perm			Prot			Perm
Protected Phases	1	6			2				5			
Permitted Phases						2						6
Detector Phase	1	6			2	2			5			6
Switch Phase												
Minimum Initial (s)	5.0	15.0			17.0	17.0			6.0			15.0
Minimum Split (s)	12.7	21.8			23.8	23.8			12.0			21.8
Total Split (s)	50.0	93.0			100.0	100.0			57.0			93.0
Total Split (%)	33.3%	62.0%			66.7%	66.7%			38.0%			62.0%
Yellow Time (s)	5.4	4.8			4.8	4.8			4.0			4.8
All-Red Time (s)	2.3	2.0			2.0	2.0			2.0			2.0
Lost Time Adjust (s)	0.0	0.0			0.0	0.0			0.0			0.0
Total Lost Time (s)	7.7	6.8			6.8	6.8			6.0			6.8
Lead/Lag	Lead	Lag			Lag	Lag			Lead			Lag
Lead-Lag Optimize?	Yes	Yes			Yes	Yes			Yes			Yes
Recall Mode	None	C-Min			C-Min	C-Min			None			C-Min
v/c Ratio	0.92	1.47			0.64	0.25			1.33			0.40
Control Delay	79.0	242.6			17.1	5.1			192.8			0.9
Queue Delay	0.0	0.0			0.0	0.0			0.0			0.0
Total Delay	79.0	242.6			17.1	5.1			192.8			0.9
Queue Length 50th (ft)	392	~2107			574	28			~914			0
Queue Length 95th (ft)	#563	#2212			630	m62			#1069			0
Internal Link Dist (ft)		1519			3036			820			423	
Turn Bay Length (ft)	700					160						
Base Capacity (vph)	499	2033			2278	1073			966			1379
Starvation Cap Reductn	0	0			0	0			0			0
Spillback Cap Reductn	0	0			0	0			0			0
Storage Cap Reductn	0	0			0	0			0			0
Reduced v/c Ratio	0.84	1.47			0.64	0.25			1.33			0.40

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 26 (17%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow

Natural Cycle: 150

Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.

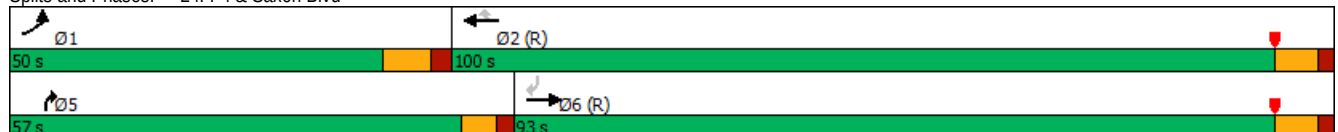
Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 24: I-4 & Saxon Blvd



HCM Signalized Intersection Capacity Analysis
24: I-4 & Saxon Blvd

2020 Future Background Conditions
Timing Plan: PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	395	2812	0	0	1365	251	0	0	1205	0	0	523
Future Volume (vph)	395	2812	0	0	1365	251	0	0	1205	0	0	523
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.7	6.8			6.8	6.8			6.0			6.8
Lane Util. Factor	1.00	0.95			0.95	1.00			0.88			1.00
Frt	1.00	1.00			1.00	0.85			0.85			0.86
Flt Protected	0.95	1.00			1.00	1.00			1.00			1.00
Satd. Flow (prot)	1770	3539			3539	1583			2787			1611
Flt Permitted	0.95	1.00			1.00	1.00			1.00			1.00
Satd. Flow (perm)	1770	3539			3539	1583			2787			1611
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)	420	2991	0	0	1452	267	0	0	1282	0	0	556
RTOR Reduction (vph)	0	0	0	0	0	55	0	0	18	0	0	236
Lane Group Flow (vph)	420	2991	0	0	1452	212	0	0	1264	0	0	320
Turn Type	Prot	NA			NA	Perm			Prot			Perm
Protected Phases	1	6			2				5			
Permitted Phases						2						6
Actuated Green, G (s)	38.9	86.2			96.6	96.6			51.0			86.2
Effective Green, g (s)	38.9	86.2			96.6	96.6			51.0			86.2
Actuated g/C Ratio	0.26	0.57			0.64	0.64			0.34			0.57
Clearance Time (s)	7.7	6.8			6.8	6.8			6.0			6.8
Vehicle Extension (s)	3.0	3.0			3.0	3.0			3.0			3.0
Lane Grp Cap (vph)	459	2033			2279	1019			947			925
v/s Ratio Prot	0.24	c0.85			0.41				c0.45			
v/s Ratio Perm						0.13						0.20
v/c Ratio	0.92	1.47			0.64	0.21			1.33			0.35
Uniform Delay, d1	53.9	31.9			16.1	11.0			49.5			16.9
Progression Factor	1.00	1.00			0.95	0.93			1.00			1.00
Incremental Delay, d2	22.7	214.8			1.2	0.4			157.6			1.0
Delay (s)	76.6	246.7			16.4	10.6			207.1			18.0
Level of Service	E	F			B	B			F			B
Approach Delay (s)		225.7			15.5			207.1			18.0	
Approach LOS		F			B			F			B	
Intersection Summary												
HCM 2000 Control Delay		153.9			HCM 2000 Level of Service			F				
HCM 2000 Volume to Capacity ratio		1.44										
Actuated Cycle Length (s)		150.0			Sum of lost time (s)			14.5				
Intersection Capacity Utilization		130.6%			ICU Level of Service			H				
Analysis Period (min)		15										

c Critical Lane Group

Lanes, Volumes, Timings
25: N Normandy Blvd & Saxon Blvd

2020 Future Background Conditions
Timing Plan: PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	674	1491	352	33	671	197	190	271	47	252	269	454
Future Volume (vph)	674	1491	352	33	671	197	190	271	47	252	269	454
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
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	3%	3%	3%	2%	2%	2%
Adj. Flow (vph)	702	1553	367	34	699	205	198	282	49	263	280	473
Shared Lane Traffic (%)												
Lane Group Flow (vph)	702	1553	367	34	904	0	198	331	0	263	280	473
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA	pm+ov
Protected Phases	1	6		5	2		7	4		3	8	1
Permitted Phases	6		6	2			4			8		8
Detector Phase	1	6	6	5	2		7	4		3	8	1
Switch Phase												
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0		5.0	10.0		5.0	10.0	5.0
Minimum Split (s)	12.6	21.9	21.9	13.1	21.9		11.8	16.9		12.5	16.9	12.6
Total Split (s)	38.0	82.0	82.0	18.0	62.0		25.0	32.0		18.0	25.0	38.0
Total Split (%)	25.3%	54.7%	54.7%	12.0%	41.3%		16.7%	21.3%		12.0%	16.7%	25.3%
Yellow Time (s)	4.4	4.9	4.9	4.9	4.9		4.0	4.8		4.8	4.8	4.4
All-Red Time (s)	3.2	2.0	2.0	3.2	2.0		2.8	2.1		2.7	2.1	3.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	7.6	6.9	6.9	8.1	6.9		6.8	6.9		7.5	6.9	7.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	Yes
Recall Mode	None	C-Min	C-Min	None	C-Min		None	None		None	None	None
v/c Ratio	1.55	0.84	0.40	0.27	0.75		0.81	1.08		1.31	1.02	0.67
Control Delay	280.0	28.6	5.9	21.9	45.5		67.3	130.9		207.8	119.8	32.7
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	280.0	28.6	5.9	21.9	45.5		67.3	130.9		207.8	119.8	32.7
Queue Length 50th (ft)	~861	714	60	13	385		156	~357		~326	~340	292
Queue Length 95th (ft)	m#434	m382	m15	28	465		#252	#561		#519	#531	431
Internal Link Dist (ft)		3036			7092			3666			5060	
Turn Bay Length (ft)	520		220	470			260					385
Base Capacity (vph)	452	1849	928	165	1274		261	306		201	275	707
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	0
Reduced v/c Ratio	1.55	0.84	0.40	0.21	0.71		0.76	1.08		1.31	1.02	0.67

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 95 (63%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow

Natural Cycle: 150

Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

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

Splits and Phases: 25: N Normandy Blvd & Saxon Blvd



HCM 6th Signalized Intersection Summary
25: N Normandy Blvd & Saxon Blvd

2020 Future Background Conditions
Timing Plan: PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	674	1491	352	33	671	197	190	271	47	252	269	454
Future Volume (veh/h)	674	1491	352	33	671	197	190	271	47	252	269	454
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1856	1856	1856	1870	1870	1870
Adj Flow Rate, veh/h	702	1553	302	34	699	199	198	282	41	262	280	282
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	3	3	3	2	2	2
Cap, veh/h	502	1924	858	130	1003	285	241	265	39	173	248	532
Arrive On Green	0.14	0.36	0.36	0.03	0.37	0.37	0.11	0.17	0.17	0.07	0.13	0.13
Sat Flow, veh/h	1781	3554	1585	1781	2730	777	1767	1584	230	1781	1870	1585
Grp Volume(v), veh/h	702	1553	302	34	455	443	198	0	323	262	280	282
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1730	1767	0	1814	1781	1870	1585
Q Serve(g_s), s	30.4	59.1	20.9	1.8	32.7	32.7	14.3	0.0	25.1	10.5	19.9	19.9
Cycle Q Clear(g_c), s	30.4	59.1	20.9	1.8	32.7	32.7	14.3	0.0	25.1	10.5	19.9	19.9
Prop In Lane	1.00		1.00	1.00		0.45	1.00		0.13	1.00		1.00
Lane Grp Cap(c), veh/h	502	1924	858	130	653	636	241	0	304	173	248	532
V/C Ratio(X)	1.40	0.81	0.35	0.26	0.70	0.70	0.82	0.00	1.06	1.52	1.13	0.53
Avail Cap(c_a), veh/h	502	1924	858	202	653	636	262	0	304	173	248	532
HCM Platoon Ratio	0.67	0.67	0.67	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.09	0.09	0.09	0.60	0.60	0.60	0.77	0.00	0.77	0.90	0.90	0.90
Uniform Delay (d), s/veh	41.0	40.7	28.6	32.4	40.3	40.4	49.6	0.0	62.5	56.8	65.0	40.3
Incr Delay (d2), s/veh	180.7	0.4	0.1	0.6	3.7	3.8	13.8	0.0	63.3	257.6	93.2	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	44.7	26.8	8.5	0.8	14.7	14.4	7.2	0.0	16.9	13.8	15.9	8.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	221.7	41.1	28.7	33.0	44.1	44.2	63.4	0.0	125.8	314.4	158.2	41.5
LnGrp LOS	F	D	C	C	D	D	E	A	F	F	F	D
Approach Vol, veh/h	2557			932			521			824		
Approach Delay, s/veh	89.2			43.7			102.1			167.9		
Approach LOS	F			D			F			F		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	38.0	62.0	18.0	32.0	11.9	88.1	23.2	26.8				
Change Period (Y+Rc), s	* 7.6	6.9	* 7.5	6.9	* 8.1	6.9	* 6.8	6.9				
Max Green Setting (Gmax), s	* 30	55.1	* 11	25.1	* 9.9	75.1	* 18	18.1				
Max Q Clear Time (g_c+I1), s	32.4	34.7	12.5	27.1	3.8	61.1	16.3	21.9				
Green Ext Time (p_c), s	0.0	7.7	0.0	0.0	0.0	11.4	0.1	0.0				

Intersection Summary

HCM 6th Ctrl Delay 95.2
HCM 6th LOS F

Notes

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

Lanes, Volumes, Timings
26: Tivoli Dr & Saxon Blvd

2020 Future Background Conditions
Timing Plan: PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	469	583	99	6	382	14	77	110	8	5	86	285
Future Volume (vph)	469	583	99	6	382	14	77	110	8	5	86	285
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	504	627	106	6	411	15	83	118	9	5	92	306
Shared Lane Traffic (%)												
Lane Group Flow (vph)	504	627	106	6	426	0	83	127	0	5	398	0
Turn Type	pm+pt	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases	5	2			6			4			8	
Permitted Phases	2		2	6			4			8		
Detector Phase	5	2	2	6	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	5.0	11.0	11.0	11.0	11.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	12.0	17.5	17.5	17.5	17.5		11.5	11.5		11.5	11.5	
Total Split (s)	15.0	45.0	45.0	30.0	30.0		30.0	30.0		30.0	30.0	
Total Split (%)	20.0%	60.0%	60.0%	40.0%	40.0%		40.0%	40.0%		40.0%	40.0%	
Yellow Time (s)	4.5	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.5	2.5	2.5	2.5	2.5		2.5	2.5		2.5	2.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	7.0	6.5	6.5	6.5	6.5		6.5	6.5		6.5	6.5	
Lead/Lag	Lead			Lag	Lag							
Lead-Lag Optimize?	Yes			Yes	Yes							
Recall Mode	None	Min	Min	Min	Min		None	None		None	None	
v/c Ratio	1.16	0.60	0.11	0.02	0.74		0.69	0.31		0.02	0.74	
Control Delay	111.6	13.0	2.5	17.0	29.0		51.0	21.7		18.8	18.3	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	111.6	13.0	2.5	17.0	29.0		51.0	21.7		18.8	18.3	
Queue Length 50th (ft)	~136	135	0	2	136		29	39		2	55	
Queue Length 95th (ft)	#489	311	21	10	#302		76	81		9	144	
Internal Link Dist (ft)		7092			564			624			981	
Turn Bay Length (ft)	390			120			265			150		
Base Capacity (vph)	436	1203	1060	310	725		219	729		496	791	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	1.16	0.52	0.10	0.02	0.59		0.38	0.17		0.01	0.50	

Intersection Summary

Cycle Length: 75

Actuated Cycle Length: 61.4

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

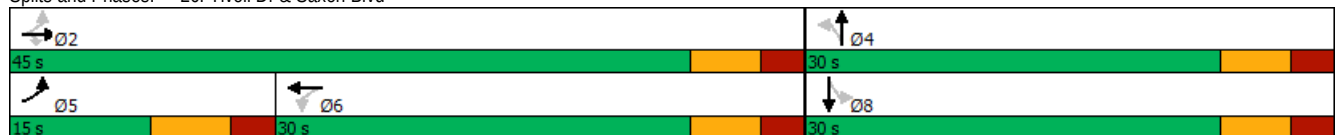
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

Splits and Phases: 26: Tivoli Dr & Saxon Blvd



HCM 6th Signalized Intersection Summary
26: Tivoli Dr & Saxon Blvd

2020 Future Background Conditions
Timing Plan: PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	469	583	99	6	382	14	77	110	8	5	86	285
Future Volume (veh/h)	469	583	99	6	382	14	77	110	8	5	86	285
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1856	1856	1856	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	504	627	66	6	411	14	83	118	7	5	92	201
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	3	3	3	2	2	2	2	2	2
Cap, veh/h	408	976	827	325	502	17	239	472	28	390	141	308
Arrive On Green	0.13	0.52	0.52	0.28	0.28	0.28	0.27	0.27	0.27	0.27	0.27	0.27
Sat Flow, veh/h	1781	1870	1585	745	1784	61	1086	1748	104	1266	523	1142
Grp Volume(v), veh/h	504	627	66	6	0	425	83	0	125	5	0	293
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	745	0	1845	1086	0	1852	1266	0	1665
Q Serve(g_s), s	8.0	15.0	1.3	0.4	0.0	13.4	4.6	0.0	3.3	0.2	0.0	9.7
Cycle Q Clear(g_c), s	8.0	15.0	1.3	0.4	0.0	13.4	14.3	0.0	3.3	3.5	0.0	9.7
Prop In Lane	1.00		1.00	1.00		0.03	1.00		0.06	1.00		0.69
Lane Grp Cap(c), veh/h	408	976	827	325	0	519	239	0	500	390	0	449
V/C Ratio(X)	1.24	0.64	0.08	0.02	0.00	0.82	0.35	0.00	0.25	0.01	0.00	0.65
Avail Cap(c_a), veh/h	408	1155	978	396	0	695	355	0	698	525	0	627
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	17.7	10.7	7.4	16.3	0.0	20.9	26.5	0.0	17.8	19.2	0.0	20.2
Incr Delay (d2), s/veh	126.0	1.2	0.1	0.0	0.0	6.7	0.9	0.0	0.3	0.0	0.0	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	17.6	5.0	0.4	0.1	0.0	6.1	1.2	0.0	1.3	0.1	0.0	3.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	143.6	11.9	7.5	16.3	0.0	27.6	27.4	0.0	18.1	19.2	0.0	21.8
LnGrp LOS	F	B	A	B	A	C	C	A	B	B	A	C
Approach Vol, veh/h	1197			431			208			298		
Approach Delay, s/veh	67.1			27.5			21.8			21.7		
Approach LOS	E			C			C			C		
Timer - Assigned Phs	2			4		5	6		8			
Phs Duration (G+Y+Rc), s	39.0			23.3		15.0	24.0		23.3			
Change Period (Y+Rc), s	6.5			6.5		7.0	6.5		6.5			
Max Green Setting (Gmax), s	38.5			23.5		8.0	23.5		23.5			
Max Q Clear Time (g_c+I1), s	17.0			16.3		10.0	15.4		11.7			
Green Ext Time (p_c), s	6.0			0.5		0.0	2.1		1.4			
Intersection Summary												
HCM 6th Ctrl Delay	48.4											
HCM 6th LOS	D											

Lanes, Volumes, Timings
27: N Normandy Blvd & Deltona Blvd

2020 Future Background Conditions
Timing Plan: PM Peak Hour

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	331	361	196	191	289	305
Future Volume (vph)	331	361	196	191	289	305
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	352	384	209	203	307	324
Shared Lane Traffic (%)						
Lane Group Flow (vph)	352	384	209	203	307	324
Turn Type	Prot	Perm	pm+pt	NA	NA	Perm
Protected Phases	4		5	2	6	
Permitted Phases		4	2			6
Detector Phase	4	4	5	2	6	6
Switch Phase						
Minimum Initial (s)	4.0	4.0	3.0	10.0	10.0	10.0
Minimum Split (s)	10.0	10.0	9.5	16.5	17.0	17.0
Total Split (s)	20.0	20.0	15.0	40.0	25.0	25.0
Total Split (%)	33.3%	33.3%	25.0%	66.7%	41.7%	41.7%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.5	4.5
All-Red Time (s)	2.0	2.0	2.5	2.5	2.5	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.5	6.5	7.0	7.0
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Recall Mode	None	None	None	Min	Min	Min
v/c Ratio	0.83	0.57	0.40	0.20	0.64	0.50
Control Delay	40.8	6.5	9.4	7.4	24.9	5.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.8	6.5	9.4	7.4	24.9	5.4
Queue Length 50th (ft)	114	0	34	33	92	0
Queue Length 95th (ft)	#253	59	63	61	160	49
Internal Link Dist (ft)	828			759	3666	
Turn Bay Length (ft)			230			350
Base Capacity (vph)	450	689	528	1135	609	736
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.78	0.56	0.40	0.18	0.50	0.44

Intersection Summary

Cycle Length: 60

Actuated Cycle Length: 55.5

Natural Cycle: 55

Control Type: Actuated-Uncoordinated

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

Queue shown is maximum after two cycles.

Splits and Phases: 27: N Normandy Blvd & Deltona Blvd



HCM 6th Signalized Intersection Summary
27: N Normandy Blvd & Deltona Blvd

2020 Future Background Conditions
Timing Plan: PM Peak Hour

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	331	361	196	191	289	305
Future Volume (veh/h)	331	361	196	191	289	305
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	352	146	209	203	307	208
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	426	379	432	907	429	364
Arrive On Green	0.24	0.24	0.12	0.49	0.23	0.23
Sat Flow, veh/h	1781	1585	1781	1870	1870	1585
Grp Volume(v), veh/h	352	146	209	203	307	208
Grp Sat Flow(s),veh/h/ln	1781	1585	1781	1870	1870	1585
Q Serve(g_s), s	8.8	3.6	3.8	3.0	7.1	5.5
Cycle Q Clear(g_c), s	8.8	3.6	3.8	3.0	7.1	5.5
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	426	379	432	907	429	364
V/C Ratio(X)	0.83	0.39	0.48	0.22	0.72	0.57
Avail Cap(c_a), veh/h	529	471	543	1330	715	606
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.0	15.0	11.1	7.0	16.7	16.1
Incr Delay (d2), s/veh	8.0	0.5	0.6	0.1	2.2	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.0	0.1	1.3	0.9	2.8	1.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	25.0	15.5	11.7	7.1	19.0	17.5
LnGrp LOS	C	B	B	A	B	B
Approach Vol, veh/h	498			412	515	
Approach Delay, s/veh	22.2			9.5	18.4	
Approach LOS	C			A	B	
Timer - Assigned Phs	2			4	5	6
Phs Duration (G+Y+Rc), s	29.9			17.3	12.1	17.8
Change Period (Y+Rc), s	* 7			6.0	6.5	7.0
Max Green Setting (Gmax), s	* 34			14.0	8.5	18.0
Max Q Clear Time (g_c+I1), s	5.0			10.8	5.8	9.1
Green Ext Time (p_c), s	1.2			0.4	0.1	1.7
Intersection Summary						
HCM 6th Ctrl Delay			17.2			
HCM 6th LOS			B			
Notes						
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.						

Arterial Level of Service: EB E Saxon Blvd

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
N Normandy Blvd	II	40	53.1	28.6	81.7	0.59	26.0	C
Tivoli Dr	II	40	122.3	13.0	135.3	1.36	36.1	A
Total	II		175.4	41.6	217.0	1.95	32.3	B

Arterial Level of Service: WB E Saxon Blvd

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Tivoli Dr	II	35	15.2	29.0	44.2	0.12	9.9	F
N Normandy Blvd	II	40	122.3	45.5	167.8	1.36	29.1	B
I-4	II	45	47.2	17.1	64.3	0.59	33.0	B
Total	II		184.7	91.6	276.3	2.07	27.0	C

Arterial Level of Service: EB SR 472

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
N Kentucky Ave	I	55	17.7	75.3	93.0	0.18	7.1	F
I-4 WB	I	55	36.3	15.2	51.5	0.55	38.7	B
I-4 EB	I	50	30.3	9.8	40.1	0.32	28.6	C
E Graves Avenue	I	50	26.1	223.6	249.7	0.28	4.0	F
Total	I		110.4	323.9	434.3	1.33	11.0	F

Arterial Level of Service: WB SR 472

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
I-4 EB	I	50	26.1	19.6	45.7	0.28	21.7	D
I-4 WB	I	50	30.3	12.4	42.7	0.32	26.9	D
Dr. Martin Luther Ki	I	55	36.3	50.1	86.4	0.55	23.1	D
Total	I		92.7	82.1	174.8	1.15	23.7	D

Arterial Level of Service: EB W Saxon Blvd

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Broward Ave	II	45	21.4	27.7	49.1	0.20	14.4	E
FDOT Park & Ride	II	45	33.9	11.8	45.7	0.35	27.9	C
Total	II		55.3	39.5	94.8	0.55	20.9	D

Arterial Level of Service: WB W Saxon Blvd

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
FDOT Park & Ride	II	45	37.1	8.3	45.4	0.40	31.3	B
Veterans Memorial Pk	II	45	33.9	36.5	70.4	0.35	18.1	D
Total	II		71.0	44.8	115.8	0.75	23.3	C

H8: PM Peak Hour Future Background Traffic Conditions with Improvement

1: Dr Martin Luther King Jr Beltway & Orange Camp Rd

Timing Plan: PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	77	554	183	89	879	316	309	528	56	299	503	80
Future Volume (vph)	77	554	183	89	879	316	309	528	56	299	503	80
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
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	81	583	193	94	925	333	325	556	59	315	529	84
Shared Lane Traffic (%)												
Lane Group Flow (vph)	81	776	0	94	925	333	325	556	59	315	529	84
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8			4		4	6		6	2		2
Detector Phase	3	8		7	4	4	1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	7.0	7.0	5.0	17.0	17.0	5.0	17.0	17.0
Minimum Split (s)	11.5	14.5		11.5	14.5	14.5	11.5	24.5	24.5	11.5	24.5	24.5
Total Split (s)	12.0	48.0		12.0	48.0	48.0	50.0	72.0	72.0	48.0	70.0	70.0
Total Split (%)	6.7%	26.7%		6.7%	26.7%	26.7%	27.8%	40.0%	40.0%	26.7%	38.9%	38.9%
Yellow Time (s)	3.5	5.5		3.5	5.5	5.5	3.5	5.5	5.5	3.5	5.5	5.5
All-Red Time (s)	3.0	2.0		3.0	2.0	2.0	3.0	2.0	2.0	3.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	7.5		6.5	7.5	7.5	6.5	7.5	7.5	6.5	7.5	7.5
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None		None	None	None	None	Min	Min	None	Min	Min
v/c Ratio	0.70	0.82		0.68	0.97	0.59	0.84	0.90	0.10	0.85	0.84	0.14
Control Delay	71.5	60.1		66.2	77.5	26.0	48.4	66.6	0.3	57.2	59.9	3.2
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	71.5	60.1		66.2	77.5	26.0	48.4	66.6	0.3	57.2	59.9	3.2
Queue Length 50th (ft)	54	373		64	483	119	201	518	0	219	476	0
Queue Length 95th (ft)	#146	#593		#170	#788	267	318	743	0	351	700	23
Internal Link Dist (ft)		536			746			5808			524	
Turn Bay Length (ft)	385			550			340		375	335		380
Base Capacity (vph)	115	943		138	952	567	589	798	739	548	776	721
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.70	0.82		0.68	0.97	0.59	0.55	0.70	0.08	0.57	0.68	0.12

Intersection Summary

Cycle Length: 180

Actuated Cycle Length: 151.2

Natural Cycle: 120

Control Type: Actuated-Uncoordinated

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

Queue shown is maximum after two cycles.

Splits and Phases: 1: Dr Martin Luther King Jr Beltway & Orange Camp Rd



HCM 6th Signalized Intersection Summary
1: Dr Martin Luther King Jr Beltway & Orange Camp Rd

2020 Future Background Conditions w/Imp
Timing Plan: PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	77	554	183	89	879	316	309	528	56	299	503	80
Future Volume (veh/h)	77	554	183	89	879	316	309	528	56	299	503	80
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	81	583	166	94	925	312	325	556	34	315	529	52
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	3	3	3	3	3	3	3	3	3
Cap, veh/h	135	776	220	184	1001	446	358	618	524	344	626	530
Arrive On Green	0.04	0.28	0.28	0.04	0.28	0.28	0.14	0.33	0.33	0.14	0.34	0.34
Sat Flow, veh/h	1781	2732	776	1767	3526	1572	1767	1856	1572	1767	1856	1572
Grp Volume(v), veh/h	81	379	370	94	925	312	325	556	34	315	529	52
Grp Sat Flow(s),veh/h/ln	1781	1777	1731	1767	1763	1572	1767	1856	1572	1767	1856	1572
Q Serve(g_s), s	4.5	27.1	27.3	5.3	35.6	24.8	16.6	39.9	2.1	17.3	37.0	3.2
Cycle Q Clear(g_c), s	4.5	27.1	27.3	5.3	35.6	24.8	16.6	39.9	2.1	17.3	37.0	3.2
Prop In Lane	1.00		0.45	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	135	504	491	184	1001	446	358	618	524	344	626	530
V/C Ratio(X)	0.60	0.75	0.75	0.51	0.92	0.70	0.91	0.90	0.06	0.91	0.85	0.10
Avail Cap(c_a), veh/h	135	514	501	184	1020	455	661	855	725	615	829	702
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.9	45.6	45.7	36.9	48.6	44.8	30.7	44.4	31.8	34.7	43.0	31.8
Incr Delay (d2), s/veh	7.3	6.5	6.8	2.4	13.6	5.1	8.8	10.8	0.1	10.4	7.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	12.5	12.3	2.4	17.0	10.0	7.4	19.3	0.8	7.9	17.3	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	46.2	52.1	52.4	39.3	62.3	49.9	39.4	55.3	31.9	45.1	50.1	31.9
LnGrp LOS	D	D	D	D	E	D	D	E	C	D	D	C
Approach Vol, veh/h	830			1331			915			896		
Approach Delay, s/veh	51.6			57.8			48.8			47.3		
Approach LOS	D			E			D			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	26.0	54.7	12.0	47.2	26.6	54.1	12.0	47.2				
Change Period (Y+Rc), s	6.5	7.5	6.5	7.5	6.5	7.5	6.5	7.5				
Max Green Setting (Gmax), s	43.5	62.5	5.5	40.5	41.5	64.5	5.5	40.5				
Max Q Clear Time (g_c+I1), s	18.6	39.0	6.5	37.6	19.3	41.9	7.3	29.3				
Green Ext Time (p_c), s	0.9	4.6	0.0	2.1	0.8	4.7	0.0	4.3				
Intersection Summary												
HCM 6th Ctrl Delay	52.1											
HCM 6th LOS	D											

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	60	1087	333	163	1018	338	220	351	57	315	434	50
Future Volume (vph)	60	1087	333	163	1018	338	220	351	57	315	434	50
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	4%	4%	4%	2%	2%	2%
Adj. Flow (vph)	65	1169	358	175	1095	363	237	377	61	339	467	54
Shared Lane Traffic (%)												
Lane Group Flow (vph)	65	1169	358	175	1095	363	237	377	61	339	467	54
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases			6			2			4			8
Detector Phase	1	6	6	5	2	2	7	4	4	3	8	8
Switch Phase												
Minimum Initial (s)	5.0	17.0	17.0	5.0	17.0	17.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	13.3	25.3	25.3	13.3	25.3	25.3	15.8	15.8	15.8	16.4	16.4	16.4
Total Split (s)	20.3	63.0	63.0	14.1	56.8	56.8	27.9	34.0	34.0	38.9	45.0	45.0
Total Split (%)	13.5%	42.0%	42.0%	9.4%	37.9%	37.9%	18.6%	22.7%	22.7%	25.9%	30.0%	30.0%
Yellow Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.6	5.6	5.6
All-Red Time (s)	2.8	2.8	2.8	2.8	2.8	2.8	3.3	3.3	3.3	3.8	3.8	3.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	8.3	8.3	8.3	8.3	8.3	8.3	8.8	8.8	8.8	9.4	9.4	9.4
Lead/Lag	Lead	Lead	Lead	Lag	Lag	Lag	Lag	Lead	Lead	Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Min	Min	None	C-Min	C-Min	None	None	None	None	None	None
v/c Ratio	0.53	0.79	0.41	1.75	0.73	0.41	0.62	0.74	0.13	0.69	0.75	0.12
Control Delay	82.8	42.9	4.4	407.8	40.1	5.8	70.3	70.2	0.5	68.0	65.9	0.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	82.8	42.9	4.4	407.8	40.1	5.8	70.3	70.2	0.5	68.0	65.9	0.5
Queue Length 50th (ft)	62	498	0	~289	372	18	115	187	0	165	230	0
Queue Length 95th (ft)	114	666	67	m#427	#704	m83	158	242	0	207	279	0
Internal Link Dist (ft)		884			2846			4140			2874	
Turn Bay Length (ft)	400		395	425		400			485	350		350
Base Capacity (vph)	144	1485	872	100	1499	878	436	583	507	675	839	549
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.45	0.79	0.41	1.75	0.73	0.41	0.54	0.65	0.12	0.50	0.56	0.10

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 0 (0%), Referenced to phase 2:WBT, Start of Yellow

Natural Cycle: 100

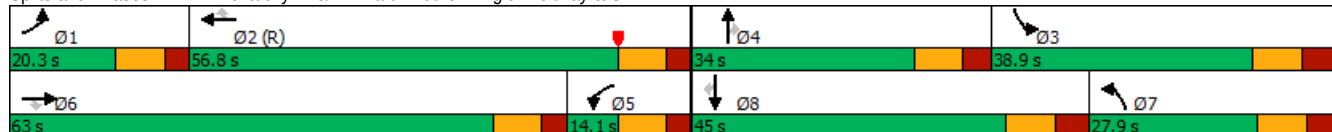
Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

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

Splits and Phases: 2: N Kentucky Ave/Dr. Martin Luther King Jr Beltway & SR 472



HCM 6th Signalized Intersection Summary
2: N Kentucky Ave/Dr. Martin Luther King Jr Beltway & SR 472

2020 Future Background Conditions w/Imp
Timing Plan: PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	1087	333	163	1018	338	220	351	57	315	434	50
Future Volume (veh/h)	60	1087	333	163	1018	338	220	351	57	315	434	50
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1856	1856	1856	1841	1841	1841	1870	1870	1870
Adj Flow Rate, veh/h	65	1169	167	175	1095	172	237	377	0	339	467	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	3	3	3	4	4	4	2	2	2
Cap, veh/h	83	1263	563	286	1660	740	292	453		419	572	
Arrive On Green	0.05	0.36	0.36	0.11	0.32	0.32	0.09	0.13	0.00	0.12	0.16	0.00
Sat Flow, veh/h	1781	3554	1585	1767	3526	1572	3401	3497	1560	3456	3554	1585
Grp Volume(v), veh/h	65	1169	167	175	1095	172	237	377	0	339	467	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1767	1763	1572	1700	1749	1560	1728	1777	1585
Q Serve(g_s), s	5.4	47.4	11.4	14.2	40.3	6.6	10.3	15.8	0.0	14.3	19.0	0.0
Cycle Q Clear(g_c), s	5.4	47.4	11.4	14.2	40.3	6.6	10.3	15.8	0.0	14.3	19.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	83	1263	563	286	1660	740	292	453		419	572	
V/C Ratio(X)	0.79	0.93	0.30	0.61	0.66	0.23	0.81	0.83		0.81	0.82	
Avail Cap(c_a), veh/h	143	1296	578	286	1660	740	433	588		680	843	
HCM Platoon Ratio	1.00	1.00	1.00	0.67	0.67	0.67	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.75	0.75	0.75	0.47	0.47	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	70.8	46.4	34.8	62.4	41.0	9.4	67.4	63.7	0.0	64.2	60.8	0.0
Incr Delay (d2), s/veh	15.0	11.4	0.4	2.9	1.6	0.6	4.4	4.4	0.0	5.3	5.1	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(50%),veh/ln	2.8	21.9	4.3	6.7	18.2	4.4	4.6	7.2	0.0	6.4	8.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	85.8	57.9	35.2	65.2	42.5	10.0	71.8	68.1	0.0	69.5	65.9	0.0
LnGrp LOS	F	E	D	E	D	A	E	E		E	E	
Approach Vol, veh/h	1401			1442			614			806		
Approach Delay, s/veh	56.5			41.4			69.5			67.4		
Approach LOS	E			D			E			E		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	15.3	78.9	27.6	28.2	32.6	61.6	22.3	33.5				
Change Period (Y+Rc), s	* 8.3	* 8.3	* 9.4	* 8.8	* 8.3	* 8.3	* 9.4	* 9.4				
Max Green Setting (Gmax), s	* 12	* 49	* 30	* 25	* 5.8	* 55	* 19	* 36				
Max Q Clear Time (g_c+I1), s	7.4	42.3	16.3	17.8	16.2	49.4	12.3	21.0				
Green Ext Time (p_c), s	0.0	4.3	1.4	1.7	0.0	3.9	0.6	3.1				

Intersection Summary

HCM 6th Ctrl Delay 55.3
HCM 6th LOS E

Notes

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

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

Lanes, Volumes, Timings
6: Veterans Memorial Pkwy & E Graves Ave

2020 Future Background Conditions w/Imp
Timing Plan: PM Peak Hour

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗	↘	↑	↘	↗
Traffic Volume (vph)	318	45	715	441	68	943
Future Volume (vph)	318	45	715	441	68	943
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	3%	3%	4%	4%	2%	2%
Adj. Flow (vph)	335	47	753	464	72	993
Shared Lane Traffic (%)						
Lane Group Flow (vph)	335	47	753	464	72	993
Turn Type	NA	Perm	pm+pt	NA	Prot	pm+ov
Protected Phases	2		1	6	8	1
Permitted Phases		2	6			8
Detector Phase	2	2	1	6	8	1
Switch Phase						
Minimum Initial (s)	11.0	11.0	7.0	11.0	7.0	7.0
Minimum Split (s)	18.0	18.0	14.0	18.0	14.0	14.0
Total Split (s)	21.0	21.0	35.0	56.0	19.0	35.0
Total Split (%)	28.0%	28.0%	46.7%	74.7%	25.3%	46.7%
Yellow Time (s)	4.5	4.5	4.5	4.5	5.0	4.5
All-Red Time (s)	2.5	2.5	2.5	2.5	2.0	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag	Lag	Lag	Lead			Lead
Lead-Lag Optimize?	Yes	Yes	Yes			Yes
Recall Mode	Min	Min	None	Min	None	None
v/c Ratio	0.88	0.13	0.90	0.34	0.33	1.02
Control Delay	55.9	9.4	30.6	5.5	32.9	48.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.9	9.4	30.6	5.5	32.9	48.8
Queue Length 50th (ft)	146	0	240	70	30	355
Queue Length 95th (ft)	#310	26	#511	132	66	#677
Internal Link Dist (ft)	7674			1636	7026	
Turn Bay Length (ft)		400	300		1000	
Base Capacity (vph)	379	359	837	1360	311	973
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.88	0.13	0.90	0.34	0.23	1.02

Intersection Summary

Cycle Length: 75

Actuated Cycle Length: 68.8

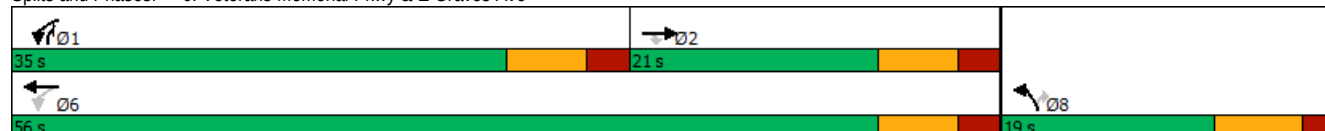
Natural Cycle: 90

Control Type: Actuated-Uncoordinated

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

Queue shown is maximum after two cycles.

Splits and Phases: 6: Veterans Memorial Pkwy & E Graves Ave



HCM 6th Signalized Intersection Summary
6: Veterans Memorial Pkwy & E Graves Ave

2020 Future Background Conditions w/Imp
Timing Plan: PM Peak Hour

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗	↘	↑	↘	↗
Traffic Volume (veh/h)	318	45	715	441	68	943
Future Volume (veh/h)	318	45	715	441	68	943
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1856	1856	1841	1841	1870	1870
Adj Flow Rate, veh/h	335	19	753	464	72	835
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	4	4	2	2
Cap, veh/h	346	294	758	1203	285	845
Arrive On Green	0.19	0.19	0.37	0.65	0.16	0.16
Sat Flow, veh/h	1856	1572	1753	1841	1781	1585
Grp Volume(v), veh/h	335	19	753	464	72	835
Grp Sat Flow(s),veh/h/ln	1856	1572	1753	1841	1781	1585
Q Serve(g_s), s	13.4	0.7	27.6	8.8	2.7	12.0
Cycle Q Clear(g_c), s	13.4	0.7	27.6	8.8	2.7	12.0
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	346	294	758	1203	285	845
V/C Ratio(X)	0.97	0.06	0.99	0.39	0.25	0.99
Avail Cap(c_a), veh/h	346	294	758	1203	285	845
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.3	25.1	17.2	6.0	27.6	17.3
Incr Delay (d2), s/veh	39.7	0.1	30.9	0.3	0.5	27.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.4	0.3	15.3	2.4	1.1	17.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	69.9	25.2	48.2	6.3	28.0	45.1
LnGrp LOS	E	C	D	A	C	D
Approach Vol, veh/h	354			1217	907	
Approach Delay, s/veh	67.5			32.2	43.7	
Approach LOS	E			C	D	
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	35.0	21.0			56.0	19.0
Change Period (Y+Rc), s	7.0	7.0			7.0	7.0
Max Green Setting (Gmax), s	28.0	14.0			49.0	12.0
Max Q Clear Time (g_c+I1), s	29.6	15.4			10.8	14.0
Green Ext Time (p_c), s	0.0	0.0			4.3	0.0
Intersection Summary						
HCM 6th Ctrl Delay			41.5			
HCM 6th LOS			D			

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	296	1001	24	28	839	415	15	9	17	504	19	337
Future Volume (vph)	296	1001	24	28	839	415	15	9	17	504	19	337
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	325	1100	26	31	922	456	16	10	19	554	21	370
Shared Lane Traffic (%)												
Lane Group Flow (vph)	325	1126	0	31	1378	0	0	45	0	554	391	0
Turn Type	pm+pt	NA		Perm	NA		Split	NA		Split	NA	
Protected Phases	5	2			6		4	4		8	8	
Permitted Phases	2			6								
Detector Phase	5	2		6	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	5.0	11.0		11.0	11.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	11.0	18.0		18.0	18.0		14.0	14.0		14.0	14.0	
Total Split (s)	31.0	97.0		66.0	66.0		14.0	14.0		29.0	29.0	
Total Split (%)	22.1%	69.3%		47.1%	47.1%		10.0%	10.0%		20.7%	20.7%	
Yellow Time (s)	4.0	5.0		5.0	5.0		4.0	4.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		3.0	3.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Lead/Lag	Lead			Lag	Lag							
Lead-Lag Optimize?	Yes			Yes	Yes							
Recall Mode	None	Min		Min	Min		None	None		None	None	
v/c Ratio	0.87	0.50		0.16	0.95		0.42	0.42		0.98	0.68	
Control Delay	63.3	13.4		27.9	49.9		54.3	54.3		89.1	13.4	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	63.3	13.4		27.9	49.9		54.3	54.3		89.1	13.4	
Queue Length 50th (ft)	237	266		17	606		23	23		~276	17	
Queue Length 95th (ft)	#410	318		42	#770		66	66		#394	125	
Internal Link Dist (ft)		1636			3200		455	455			4140	
Turn Bay Length (ft)	200			235						320		
Base Capacity (vph)	383	2361		206	1516		108	108		566	572	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.85	0.48		0.15	0.91		0.42	0.42		0.98	0.68	

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 134.3

Natural Cycle: 110

Control Type: Actuated-Uncoordinated

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

Splits and Phases: 7: S Kentucky Ave/N Kentucky Ave & E Graves Ave



HCM 6th Signalized Intersection Summary
 7: S Kentucky Ave/N Kentucky Ave & E Graves Ave

2020 Future Background Conditions w/Imp
 Timing Plan: PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	296	1001	24	28	839	415	15	9	17	504	19	337
Future Volume (veh/h)	296	1001	24	28	839	415	15	9	17	504	19	337
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	325	1100	24	31	922	358	16	10	6	554	21	229
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	3	3	3	3	3	3	2	2	2	2	2	2
Cap, veh/h	354	2196	48	270	1064	411	33	21	12	601	23	256
Arrive On Green	0.15	0.62	0.62	0.43	0.43	0.43	0.04	0.04	0.04	0.17	0.17	0.17
Sat Flow, veh/h	1767	3527	77	497	2487	959	883	552	331	3456	135	1471
Grp Volume(v), veh/h	325	550	574	31	652	628	32	0	0	554	0	250
Grp Sat Flow(s),veh/h/ln	1767	1763	1842	497	1763	1683	1767	0	0	1728	0	1606
Q Serve(g_s), s	16.0	21.6	21.6	4.8	42.4	43.0	2.2	0.0	0.0	19.9	0.0	19.2
Cycle Q Clear(g_c), s	16.0	21.6	21.6	4.8	42.4	43.0	2.2	0.0	0.0	19.9	0.0	19.2
Prop In Lane	1.00		0.04	1.00		0.57	0.50		0.19	1.00		0.92
Lane Grp Cap(c), veh/h	354	1097	1146	270	755	720	66	0	0	601	0	279
V/C Ratio(X)	0.92	0.50	0.50	0.11	0.86	0.87	0.48	0.00	0.00	0.92	0.00	0.90
Avail Cap(c_a), veh/h	444	1256	1312	289	823	786	98	0	0	602	0	280
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	34.8	13.1	13.1	22.0	32.8	33.0	59.6	0.0	0.0	51.3	0.0	51.1
Incr Delay (d2), s/veh	20.9	0.5	0.5	0.3	9.3	10.4	5.4	0.0	0.0	19.8	0.0	28.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	11.8	7.9	8.2	0.6	19.0	18.6	1.1	0.0	0.0	10.0	0.0	9.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	55.7	13.6	13.6	22.3	42.1	43.4	65.0	0.0	0.0	71.2	0.0	79.7
LnGrp LOS	E	B	B	C	D	D	E	A	A	E	A	E
Approach Vol, veh/h	1449			1311			32			804		
Approach Delay, s/veh	23.0			42.3			65.0			73.8		
Approach LOS	C			D			E			E		
Timer - Assigned Phs	2			4			5			6		
Phs Duration (G+Y+Rc), s	85.6			11.7			24.6			61.1		
Change Period (Y+Rc), s	7.0			7.0			6.0			7.0		
Max Green Setting (Gmax), s	90.0			7.0			25.0			59.0		
Max Q Clear Time (g_c+I1), s	23.6			4.2			18.0			45.0		
Green Ext Time (p_c), s	14.0			0.0			0.6			9.0		
Intersection Summary												
HCM 6th Ctrl Delay	41.8											
HCM 6th LOS	D											

Lanes, Volumes, Timings
8: N Normandy Blvd & E Graves Ave

2020 Future Background Conditions w/Imp
Timing Plan: PM Peak Hour

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↘↙	↑	↘↙	↑
Traffic Volume (vph)	734	926	651	607	597	554
Future Volume (vph)	734	926	651	607	597	554
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	2%	2%	4%	4%	2%	2%
Adj. Flow (vph)	781	985	693	646	635	589
Shared Lane Traffic (%)						
Lane Group Flow (vph)	781	985	693	646	635	589
Turn Type	NA	pm+ov	Prot	NA	Prot	Perm
Protected Phases	6	4	5	2	4	
Permitted Phases		6				4
Detector Phase	6	4	5	2	4	4
Switch Phase						
Minimum Initial (s)	12.0	7.0	5.0	12.0	7.0	7.0
Minimum Split (s)	19.0	13.0	12.0	19.0	13.0	13.0
Total Split (s)	29.0	35.0	26.0	55.0	35.0	35.0
Total Split (%)	32.2%	38.9%	28.9%	61.1%	38.9%	38.9%
Yellow Time (s)	5.0	4.0	5.0	5.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	6.0	7.0	7.0	6.0	6.0
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Recall Mode	Min	None	None	Min	None	None
v/c Ratio	0.90	0.96	0.98	0.66	0.57	0.69
Control Delay	48.4	37.0	65.1	19.3	27.9	8.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.4	37.0	65.1	19.3	27.9	8.9
Queue Length 50th (ft)	226	464	203	250	153	31
Queue Length 95th (ft)	#334	#801	#317	372	207	138
Internal Link Dist (ft)	3200			471	9642	
Turn Bay Length (ft)		630	400		200	
Base Capacity (vph)	865	1024	710	974	1106	857
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.90	0.96	0.98	0.66	0.57	0.69

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

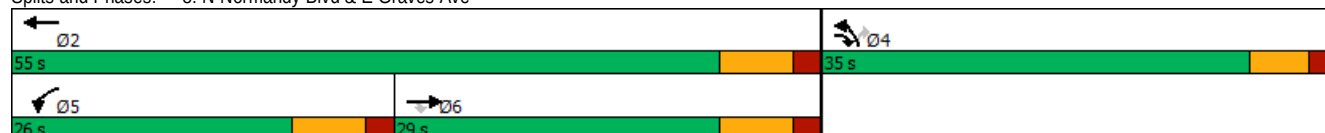
Natural Cycle: 90

Control Type: Actuated-Uncoordinated

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

Queue shown is maximum after two cycles.

Splits and Phases: 8: N Normandy Blvd & E Graves Ave



HCM 6th Signalized Intersection Summary
8: N Normandy Blvd & E Graves Ave

2020 Future Background Conditions w/Imp
Timing Plan: PM Peak Hour

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↑↑	↑	↑↑	↑
Traffic Volume (veh/h)	734	926	651	607	597	554
Future Volume (veh/h)	734	926	651	607	597	554
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1841	1841	1870	1870
Adj Flow Rate, veh/h	781	775	693	646	635	183
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	4	4	2	2
Cap, veh/h	1003	814	780	1108	800	367
Arrive On Green	0.28	0.28	0.23	0.60	0.23	0.23
Sat Flow, veh/h	3647	1585	3401	1841	3456	1585
Grp Volume(v), veh/h	781	775	693	646	635	183
Grp Sat Flow(s),veh/h/ln	1777	1585	1700	1841	1728	1585
Q Serve(g_s), s	15.7	22.0	15.4	16.8	13.5	7.8
Cycle Q Clear(g_c), s	15.7	22.0	15.4	16.8	13.5	7.8
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1003	814	780	1108	800	367
V/C Ratio(X)	0.78	0.95	0.89	0.58	0.79	0.50
Avail Cap(c_a), veh/h	1003	814	829	1134	1286	590
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.7	14.6	29.0	9.5	28.2	26.0
Incr Delay (d2), s/veh	4.2	20.8	11.1	0.9	1.8	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.6	18.7	6.9	5.3	5.3	0.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	29.9	35.3	40.2	10.4	30.0	27.1
LnGrp LOS	C	D	D	B	C	C
Approach Vol, veh/h	1556			1339	818	
Approach Delay, s/veh	32.6			25.8	29.4	
Approach LOS	C			C	C	
Timer - Assigned Phs	2			4	5	6
Phs Duration (G+Y+Rc), s	53.9			24.0	24.9	29.0
Change Period (Y+Rc), s	7.0			6.0	7.0	7.0
Max Green Setting (Gmax), s	48.0			29.0	19.0	22.0
Max Q Clear Time (g_c+I1), s	18.8			15.5	17.4	24.0
Green Ext Time (p_c), s	6.4			2.6	0.5	0.0
Intersection Summary						
HCM 6th Ctrl Delay			29.4			
HCM 6th LOS			C			

Lanes, Volumes, Timings
9: Howland Boulevard/SR 472 & Graves Avenue

2020 Future Background Conditions w/Imp
Timing Plan: PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	228	41	1093	52	40	106	671	1014	18	62	1809	343
Future Volume (vph)	228	41	1093	52	40	106	671	1014	18	62	1809	343
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
Heavy Vehicles (%)	3%	3%	3%	2%	2%	2%	3%	3%	3%	2%	2%	2%
Adj. Flow (vph)	240	43	1151	55	42	112	706	1067	19	65	1904	361
Shared Lane Traffic (%)												
Lane Group Flow (vph)	240	43	1151	55	42	112	706	1067	19	65	2265	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	5.0	17.0	17.0	7.0	17.0	
Minimum Split (s)	15.0	15.0	15.0	14.5	14.5	14.5	12.0	24.0	24.0	14.5	24.0	
Total Split (s)	23.0	26.0	26.0	22.0	25.0	25.0	27.0	88.0	88.0	15.0	76.0	
Total Split (%)	15.2%	17.2%	17.2%	14.6%	16.6%	16.6%	17.9%	58.3%	58.3%	9.9%	50.3%	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	3.0	3.0	3.0	2.5	2.5	2.5	2.0	2.0	2.0	2.5	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	8.0	8.0	8.0	7.5	7.5	7.5	7.0	7.0	7.0	7.5	7.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lag	Lag	Lag	Lead	Lead	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	None	None	None	None	None	None	C-Min	C-Min	None	C-Min	
v/c Ratio	0.75	0.13	2.15	0.30	0.19	0.31	1.57	0.55	0.02	0.39	0.99	
Control Delay	82.0	56.1	543.4	72.8	62.7	2.3	307.1	23.3	0.1	76.6	56.6	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	82.0	56.1	543.4	72.8	62.7	2.3	307.1	23.3	0.1	76.6	56.6	
Queue Length 50th (ft)	120	37	~1573	27	38	0	~506	358	0	32	793	
Queue Length 95th (ft)	169	77	#1855	52	79	0	#633	424	0	59	#920	
Internal Link Dist (ft)		1373			8563			569			283	
Turn Bay Length (ft)	330			565			280			185		
Base Capacity (vph)	337	334	536	329	225	357	450	1950	936	170	2286	
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.71	0.13	2.15	0.17	0.19	0.31	1.57	0.55	0.02	0.38	0.99	

Intersection Summary

Cycle Length: 151

Actuated Cycle Length: 151

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow

Natural Cycle: 150

Control Type: Actuated-Coordinated

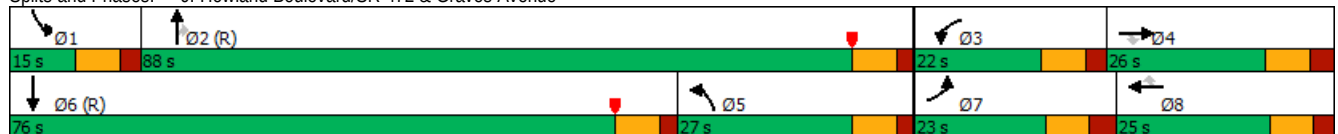
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

Splits and Phases: 9: Howland Boulevard/SR 472 & Graves Avenue



HCM 6th Signalized Intersection Summary
9: Howland Boulevard/SR 472 & Graves Avenue

2020 Future Background Conditions w/Imp
Timing Plan: PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	228	41	1093	52	40	106	671	1014	18	62	1809	343
Future Volume (veh/h)	228	41	1093	52	40	106	671	1014	18	62	1809	343
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1870	1870	1870	1856	1856	1856	1870	1870	1870
Adj Flow Rate, veh/h	240	43	0	55	42	21	706	1067	18	65	1904	346
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, %	3	3	3	2	2	2	3	3	3	2	2	2
Cap, veh/h	286	161		160	87	73	736	2192	978	160	1990	355
Arrive On Green	0.08	0.09	0.00	0.05	0.05	0.05	0.21	0.62	0.62	0.05	0.46	0.46
Sat Flow, veh/h	3428	1856	1572	3456	1870	1585	3428	3526	1572	3456	4356	778
Grp Volume(v), veh/h	240	43	0	55	42	21	706	1067	18	65	1481	769
Grp Sat Flow(s),veh/h/ln	1714	1856	1572	1728	1870	1585	1714	1763	1572	1728	1702	1730
Q Serve(g_s), s	10.4	3.3	0.0	2.3	3.3	1.9	30.7	24.8	0.7	2.8	63.1	65.7
Cycle Q Clear(g_c), s	10.4	3.3	0.0	2.3	3.3	1.9	30.7	24.8	0.7	2.8	63.1	65.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.45
Lane Grp Cap(c), veh/h	286	161		160	87	73	736	2192	978	160	1555	790
V/C Ratio(X)	0.84	0.27		0.34	0.48	0.29	0.96	0.49	0.02	0.41	0.95	0.97
Avail Cap(c_a), veh/h	341	221		332	217	184	736	2192	978	172	1555	791
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.09	0.09	0.00	0.51	0.51	0.51	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	68.2	64.5	0.0	69.8	70.2	69.6	58.6	15.5	10.9	70.0	39.4	40.1
Incr Delay (d2), s/veh	1.5	0.1	0.0	0.6	2.1	1.1	23.5	0.8	0.0	1.6	14.0	26.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.5	1.5	0.0	1.0	1.6	0.8	15.7	10.0	0.2	1.3	29.1	33.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	69.7	64.5	0.0	70.4	72.4	70.7	82.1	16.3	11.0	71.6	53.4	66.4
LnGrp LOS	E	E		E	E	E	F	B	B	E	D	E
Approach Vol, veh/h	283		A	118				1791		2315		
Approach Delay, s/veh	68.9			71.2				42.2		58.2		
Approach LOS	E			E				D		E		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	14.5	100.9	14.5	21.1	39.4	76.0	20.6	15.0				
Change Period (Y+Rc), s	7.5	7.0	7.5	8.0	7.0	7.0	8.0	* 8				
Max Green Setting (Gmax), s	7.5	81.0	14.5	18.0	20.0	69.0	15.0	* 18				
Max Q Clear Time (g_c+I1), s	4.8	26.8	4.3	5.3	32.7	67.7	12.4	5.3				
Green Ext Time (p_c), s	0.0	15.1	0.1	0.1	0.0	1.3	0.2	0.1				

Intersection Summary

HCM 6th Ctrl Delay 52.9

HCM 6th LOS D

Notes

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

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

Lanes, Volumes, Timings
10: Catalina Blvd & Graves Avenue/Howland Blvd

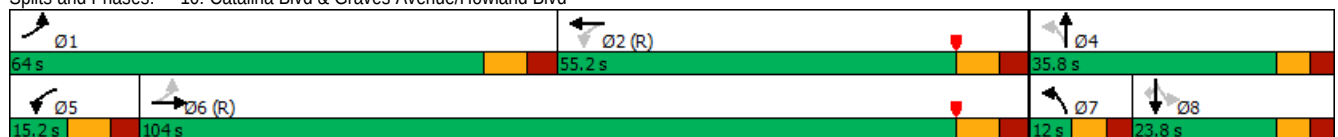
2020 Future Background Conditions w/Imp
Timing Plan: PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	626	1370	91	52	849	81	78	71	30	91	71	329
Future Volume (vph)	626	1370	91	52	849	81	78	71	30	91	71	329
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	639	1398	93	53	866	83	80	72	31	93	72	336
Shared Lane Traffic (%)												
Lane Group Flow (vph)	639	1491	0	53	949	0	80	103	0	93	72	336
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		Perm	NA	Perm
Protected Phases	1	6		5	2		7	4			8	
Permitted Phases	6			2			4			8		8
Detector Phase	1	6		5	2		7	4		8	8	8
Switch Phase												
Minimum Initial (s)	5.0	11.0		5.0	11.0		5.0	7.0		7.0	7.0	7.0
Minimum Split (s)	13.5	19.5		13.5	19.5		12.0	14.0		14.0	14.0	14.0
Total Split (s)	64.0	104.0		15.2	55.2		12.0	35.8		23.8	23.8	23.8
Total Split (%)	41.3%	67.1%		9.8%	35.6%		7.7%	23.1%		15.4%	15.4%	15.4%
Yellow Time (s)	5.0	5.0		5.0	5.0		4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	3.5	3.5		3.5	3.5		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)	8.5	8.5		8.5	8.5		7.0	7.0		7.0	7.0	7.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead			Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes			Yes	Yes	Yes
Recall Mode	None	C-Min		None	C-Min		None	None		None	None	None
v/c Ratio	0.95	0.66		0.30	0.85		0.41	0.31		0.74	0.40	0.73
Control Delay	62.9	19.7		24.8	52.3		61.8	51.3		99.3	71.5	16.3
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	62.9	19.7		24.8	52.3		61.8	51.3		99.3	71.5	16.3
Queue Length 50th (ft)	545	504		28	501		70	80		92	69	0
Queue Length 95th (ft)	#790	583		m30	m548		123	140		#173	123	104
Internal Link Dist (ft)		8563			1815			941			4969	
Turn Bay Length (ft)	375			270			180			235		415
Base Capacity (vph)	696	2257		179	1116		193	340		139	201	471
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.92	0.66		0.30	0.85		0.41	0.30		0.67	0.36	0.71

Intersection Summary

Cycle Length: 155
 Actuated Cycle Length: 155
 Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow
 Natural Cycle: 110
 Control Type: Actuated-Coordinated
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 10: Catalina Blvd & Graves Avenue/Howland Blvd



HCM 6th Signalized Intersection Summary
10: Catalina Blvd & Graves Avenue/Howland Blvd

2020 Future Background Conditions w/Imp
Timing Plan: PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	626	1370	91	52	849	81	78	71	30	91	71	329
Future Volume (veh/h)	626	1370	91	52	849	81	78	71	30	91	71	329
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1856	1856	1856	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	639	1398	91	53	866	82	80	72	24	93	72	118
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	3	3	3	2	2	2	2	2	2
Cap, veh/h	667	2200	143	232	1248	118	167	224	75	162	167	142
Arrive On Green	0.30	0.65	0.65	0.03	0.38	0.38	0.03	0.17	0.17	0.09	0.09	0.09
Sat Flow, veh/h	1781	3388	220	1767	3255	308	1781	1342	447	1300	1870	1585
Grp Volume(v), veh/h	639	731	758	53	469	479	80	0	96	93	72	118
Grp Sat Flow(s),veh/h/ln	1781	1777	1831	1767	1763	1800	1781	0	1790	1300	1870	1585
Q Serve(g_s), s	42.0	38.0	38.4	2.8	34.6	34.6	5.0	0.0	7.3	10.9	5.7	11.4
Cycle Q Clear(g_c), s	42.0	38.0	38.4	2.8	34.6	34.6	5.0	0.0	7.3	10.9	5.7	11.4
Prop In Lane	1.00		0.12	1.00		0.17	1.00		0.25	1.00		1.00
Lane Grp Cap(c), veh/h	667	1154	1189	232	676	690	167	0	298	162	167	142
V/C Ratio(X)	0.96	0.63	0.64	0.23	0.69	0.69	0.48	0.00	0.32	0.57	0.43	0.83
Avail Cap(c_a), veh/h	779	1154	1189	257	676	690	167	0	333	187	203	172
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.98	0.98	0.98	0.72	0.72	0.72	1.00	0.00	1.00	0.83	0.83	0.83
Uniform Delay (d), s/veh	36.3	16.2	16.2	27.6	40.1	40.1	62.5	0.0	56.9	69.2	66.9	69.4
Incr Delay (d2), s/veh	20.8	2.6	2.6	0.4	4.2	4.1	2.1	0.0	0.6	3.7	2.1	23.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	27.1	15.2	15.8	1.2	15.5	15.8	0.7	0.0	3.4	3.8	2.8	5.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	57.1	18.8	18.8	27.9	44.4	44.3	64.7	0.0	57.5	73.0	68.9	92.4
LnGrp LOS	E	B	B	C	D	D	E	A	E	E	E	F
Approach Vol, veh/h	2128			1001			176			283		
Approach Delay, s/veh	30.3			43.5			60.7			80.0		
Approach LOS	C			D			E			F		
Timer - Assigned Phs	1	2		4	5	6	7	8				
Phs Duration (G+Y+Rc), s	54.2	67.9		32.8	13.0	109.2	12.0	20.8				
Change Period (Y+Rc), s	8.5	8.5		7.0	8.5	8.5	7.0	7.0				
Max Green Setting (Gmax), s	55.5	46.7		28.8	6.7	95.5	5.0	16.8				
Max Q Clear Time (g_c+I1), s	44.0	36.6		9.3	4.8	40.4	7.0	13.4				
Green Ext Time (p_c), s	1.7	5.1		0.4	0.0	22.6	0.0	0.5				
Intersection Summary												
HCM 6th Ctrl Delay	39.4											
HCM 6th LOS	D											

Lanes, Volumes, Timings
14: Veterans Memorial Pkwy & E Rhode Island Road Ave

2020 Future Background Conditions w/Imp
Timing Plan: PM Peak Hour

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	264	270	369	898	610	258
Future Volume (vph)	264	270	369	898	610	258
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	281	287	393	955	649	274
Shared Lane Traffic (%)						
Lane Group Flow (vph)	281	287	393	955	649	274
Turn Type	Prot	Perm	Prot	NA	NA	Perm
Protected Phases	4		1	6	2	
Permitted Phases		4				2
Detector Phase	4	4	1	6	2	2
Switch Phase						
Minimum Initial (s)	7.0	7.0	5.0	11.0	11.0	11.0
Minimum Split (s)	13.5	13.5	13.5	20.5	20.5	20.5
Total Split (s)	18.9	18.9	17.0	51.1	34.1	34.1
Total Split (%)	27.0%	27.0%	24.3%	73.0%	48.7%	48.7%
Yellow Time (s)	3.5	3.5	5.5	5.5	5.5	5.5
All-Red Time (s)	3.0	3.0	3.0	4.0	4.0	4.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	8.5	9.5	9.5	9.5
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Recall Mode	None	None	None	Min	Min	Min
v/c Ratio	0.90	0.56	0.94	0.86	0.99	0.37
Control Delay	61.9	8.3	65.7	22.4	58.9	4.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	61.9	8.3	65.7	22.4	58.9	4.0
Queue Length 50th (ft)	120	0	88	305	272	0
Queue Length 95th (ft)	#252	60	#168	#582	#484	45
Internal Link Dist (ft)	5352			4702	7026	
Turn Bay Length (ft)	450		385			385
Base Capacity (vph)	313	516	416	1107	654	734
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.90	0.56	0.94	0.86	0.99	0.37

Intersection Summary

Cycle Length: 70

Actuated Cycle Length: 70

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 14: Veterans Memorial Pkwy & E Rhode Island Road Ave

 Ø1	 Ø2	 Ø4
17 s	34.1 s	18.9 s
 Ø6		
51.1 s		

HCM 6th Signalized Intersection Summary
 14: Veterans Memorial Pkwy & E Rhode Island Road Ave

2020 Future Background Conditions w/Imp
 Timing Plan: PM Peak Hour

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	264	270	369	898	610	258
Future Volume (veh/h)	264	270	369	898	610	258
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	281	120	393	955	649	174
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	316	281	420	1112	657	557
Arrive On Green	0.18	0.18	0.12	0.59	0.35	0.35
Sat Flow, veh/h	1781	1585	3456	1870	1870	1585
Grp Volume(v), veh/h	281	120	393	955	649	174
Grp Sat Flow(s),veh/h/ln	1781	1585	1728	1870	1870	1585
Q Serve(g_s), s	10.8	4.7	7.9	29.6	24.1	5.6
Cycle Q Clear(g_c), s	10.8	4.7	7.9	29.6	24.1	5.6
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	316	281	420	1112	657	557
V/C Ratio(X)	0.89	0.43	0.94	0.86	0.99	0.31
Avail Cap(c_a), veh/h	316	281	420	1112	657	557
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.1	25.6	30.5	11.8	22.5	16.5
Incr Delay (d2), s/veh	25.4	1.0	28.5	6.9	31.8	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.4	1.7	4.6	10.2	14.6	1.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	53.5	26.7	59.0	18.7	54.4	16.9
LnGrp LOS	D	C	E	B	D	B
Approach Vol, veh/h	401			1348	823	
Approach Delay, s/veh	45.5			30.5	46.4	
Approach LOS	D			C	D	
Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	17.0	34.1		18.9		51.1
Change Period (Y+Rc), s	8.5	9.5		6.5		9.5
Max Green Setting (Gmax), s	8.5	24.6		12.4		41.6
Max Q Clear Time (g_c+I1), s	9.9	26.1		12.8		31.6
Green Ext Time (p_c), s	0.0	0.0		0.0		4.5
Intersection Summary						
HCM 6th Ctrl Delay			37.9			
HCM 6th LOS			D			

Lanes, Volumes, Timings
20: Veterans Memorial Pkwy & Harley Strickland Blvd

2020 Future Background Conditions w/Imp
Timing Plan: PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	340	60	289	75	41	107	253	442	2	134	542	193
Future Volume (vph)	340	60	289	75	41	107	253	442	2	134	542	193
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
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	3%	3%	3%	2%	2%	2%
Adj. Flow (vph)	354	63	301	78	43	111	264	460	2	140	565	201
Shared Lane Traffic (%)												
Lane Group Flow (vph)	354	63	301	78	154	0	264	462	0	140	766	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8		8	4			6			2		
Detector Phase	3	8	8	7	4		1	6		5	2	
Switch Phase												
Minimum Initial (s)	5.0	7.0	7.0	5.0	7.0		5.0	16.0		5.0	16.0	
Minimum Split (s)	12.5	14.5	14.5	12.5	14.5		12.5	23.5		12.5	23.5	
Total Split (s)	35.0	42.7	42.7	14.3	22.0		28.0	55.8		17.2	45.0	
Total Split (%)	26.9%	32.8%	32.8%	11.0%	16.9%		21.5%	42.9%		13.2%	34.6%	
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	
All-Red Time (s)	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)	7.5	7.5	7.5	7.5	7.5		7.5	7.5		7.5	7.5	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	None	None	None	None		None	C-Min		None	C-Min	
v/c Ratio	0.85	0.14	0.49	0.36	0.72		0.69	0.31		0.31	0.62	
Control Delay	54.2	39.2	7.0	36.0	46.4		27.5	27.1		18.9	36.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	54.2	39.2	7.0	36.0	46.4		27.5	27.1		18.9	36.9	
Queue Length 50th (ft)	242	43	0	45	61		117	140		57	272	
Queue Length 95th (ft)	327	78	70	78	133		192	193		101	372	
Internal Link Dist (ft)		562			593			1843			1501	
Turn Bay Length (ft)	235		235	250			435			340		
Base Capacity (vph)	443	504	648	218	256		415	1472		459	1242	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.80	0.13	0.46	0.36	0.60		0.64	0.31		0.31	0.62	

Intersection Summary

Cycle Length: 130

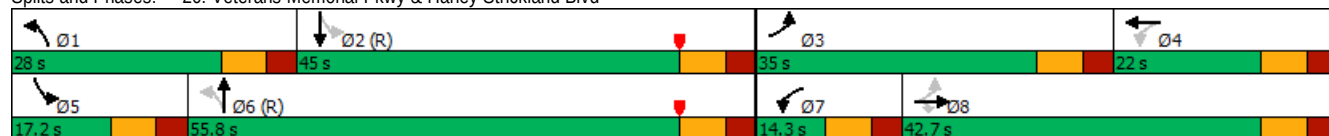
Actuated Cycle Length: 130

Offset: 40 (31%), Referenced to phase 2:SBTL and 6:NBTL, Start of Yellow

Natural Cycle: 90

Control Type: Actuated-Coordinated

Splits and Phases: 20: Veterans Memorial Pkwy & Harley Strickland Blvd



HCM 6th Signalized Intersection Summary
20: Veterans Memorial Pkwy & Harley Strickland Blvd

2020 Future Background Conditions w/Imp
Timing Plan: PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	340	60	289	75	41	107	253	442	2	134	542	193
Future Volume (veh/h)	340	60	289	75	41	107	253	442	2	134	542	193
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1856	1856	1856	1870	1870	1870
Adj Flow Rate, veh/h	354	62	137	78	43	74	264	460	2	140	565	159
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	3	3	3	2	2	2
Cap, veh/h	420	424	359	248	53	90	407	1542	7	488	1051	295
Arrive On Green	0.19	0.23	0.23	0.05	0.09	0.09	0.11	0.43	0.43	0.06	0.38	0.38
Sat Flow, veh/h	1781	1870	1585	1781	617	1062	1767	3600	16	1781	2740	769
Grp Volume(v), veh/h	354	62	137	78	0	117	264	225	237	140	366	358
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	0	1679	1767	1763	1853	1781	1777	1732
Q Serve(g_s), s	22.8	3.4	9.5	5.1	0.0	8.9	11.6	10.9	10.9	6.1	20.8	20.9
Cycle Q Clear(g_c), s	22.8	3.4	9.5	5.1	0.0	8.9	11.6	10.9	10.9	6.1	20.8	20.9
Prop In Lane	1.00		1.00	1.00		0.63	1.00		0.01	1.00		0.44
Lane Grp Cap(c), veh/h	420	424	359	248	0	143	407	755	794	488	681	664
V/C Ratio(X)	0.84	0.15	0.38	0.31	0.00	0.82	0.65	0.30	0.30	0.29	0.54	0.54
Avail Cap(c_a), veh/h	453	506	429	249	0	187	495	755	794	509	681	664
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	0.63	0.63	0.63	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.1	40.2	42.6	50.7	0.0	58.5	22.3	24.3	24.3	21.8	31.1	31.1
Incr Delay (d2), s/veh	12.7	0.2	0.7	0.7	0.0	19.0	1.4	0.6	0.6	0.3	3.0	3.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	11.3	1.6	3.8	2.4	0.0	4.5	4.8	4.6	4.8	2.6	9.3	9.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	53.8	40.4	43.2	51.4	0.0	77.4	23.7	25.0	24.9	22.1	34.1	34.3
LnGrp LOS	D	D	D	D	A	E	C	C	C	C	C	C
Approach Vol, veh/h	553			195			726			864		
Approach Delay, s/veh	49.7			67.0			24.5			32.2		
Approach LOS	D			E			C			C		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	21.5	57.4	32.6	18.6	15.6	63.2	14.2	36.9				
Change Period (Y+Rc), s	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5				
Max Green Setting (Gmax), s	20.5	37.5	27.5	14.5	9.7	48.3	6.8	35.2				
Max Q Clear Time (g_c+I1), s	13.6	22.9	24.8	10.9	8.1	12.9	7.1	11.5				
Green Ext Time (p_c), s	0.4	5.1	0.3	0.2	0.0	4.0	0.0	0.7				
Intersection Summary												
HCM 6th Ctrl Delay	36.9											
HCM 6th LOS	D											

Lanes, Volumes, Timings
21: Broward Ave/Veterans Memorial Pkwy & Saxon Blvd

2020 Future Background Conditions w/Imp
Timing Plan: PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	205	1336	29	155	1258	528	47	48	101	705	69	192
Future Volume (vph)	205	1336	29	155	1258	528	47	48	101	705	69	192
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
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	216	1406	31	163	1324	556	49	51	106	742	73	202
Shared Lane Traffic (%)										45%		
Lane Group Flow (vph)	216	1437	0	163	1880	0	49	51	106	408	407	202
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases	1	6		5	2		4		4	3	8	
Permitted Phases	6			2			4		4	8		8
Detector Phase	1	6		5	2		4	4	4	3	8	8
Switch Phase												
Minimum Initial (s)	5.0	12.0		5.0	12.0		7.0	7.0	7.0	5.0	7.0	7.0
Minimum Split (s)	12.9	18.8		12.8	18.8		14.5	14.5	14.5	12.9	15.3	15.3
Total Split (s)	29.0	71.0		29.0	71.0		15.0	15.0	15.0	39.5	54.5	54.5
Total Split (%)	18.8%	46.0%		18.8%	46.0%		9.7%	9.7%	9.7%	25.6%	35.3%	35.3%
Yellow Time (s)	4.8	4.8		4.8	4.8		3.7	3.7	3.7	4.8	4.5	4.5
All-Red Time (s)	3.1	2.0		3.0	2.0		3.8	3.8	3.8	3.1	3.8	3.8
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.9	6.8		7.8	6.8		7.5	7.5	7.5	7.9	8.3	8.3
Lead/Lag	Lead	Lag		Lead	Lag		Lag	Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes		
Recall Mode	None	C-Min		None	C-Min		None	None	None	None	None	None
v/c Ratio	0.84	0.63		0.67	0.90		1.02	0.57	0.51	0.99	0.98	0.33
Control Delay	69.1	34.0		35.5	46.9		204.3	95.6	13.0	89.6	88.6	8.9
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	69.1	34.0		35.5	46.9		204.3	95.6	13.0	89.6	88.6	8.9
Queue Length 50th (ft)	160	391		70	625		~52	51	0	~411	~408	15
Queue Length 95th (ft)	#286	481		140	702		#148	#108	31	#618	#615	80
Internal Link Dist (ft)		957			1787			543			1843	
Turn Bay Length (ft)	460			400			200		445	410		
Base Capacity (vph)	285	2281		326	2083		48	90	208	414	415	612
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.76	0.63		0.50	0.90		1.02	0.57	0.51	0.99	0.98	0.33

Intersection Summary

Cycle Length: 154.5

Actuated Cycle Length: 154.5

Offset: 124 (80%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow

Natural Cycle: 120

Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 21: Broward Ave/Veterans Memorial Pkwy & Saxon Blvd

 Ø1	 Ø2 (R)	 Ø3	 Ø4
29 s	71 s	39.5 s	15 s
 Ø5	 Ø6 (R)	 Ø7	 Ø8
29 s	71 s	54.5 s	

HCM 6th Signalized Intersection Summary
21: Broward Ave/Veterans Memorial Pkwy & Saxon Blvd

2020 Future Background Conditions w/Imp
Timing Plan: PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	205	1336	29	155	1258	528	47	48	101	705	69	192
Future Volume (veh/h)	205	1336	29	155	1258	528	47	48	101	705	69	192
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	216	1406	22	163	1324	556	49	51	37	794	0	105
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, %	3	3	3	3	3	3	2	2	2	2	2	2
Cap, veh/h	239	2477	39	267	1587	659	110	91	77	882	0	484
Arrive On Green	0.09	0.48	0.48	0.06	0.45	0.45	0.05	0.05	0.05	0.21	0.00	0.31
Sat Flow, veh/h	1767	5138	80	1767	3512	1458	1289	1870	1585	3563	0	1585
Grp Volume(v), veh/h	216	924	504	163	1273	607	49	51	37	794	0	105
Grp Sat Flow(s),veh/h/ln	1767	1689	1841	1767	1689	1593	1289	1870	1585	1781	0	1585
Q Serve(g_s), s	12.1	30.1	30.1	7.6	51.0	52.0	5.8	4.1	3.5	31.6	0.0	7.6
Cycle Q Clear(g_c), s	12.1	30.1	30.1	7.6	51.0	52.0	5.8	4.1	3.5	31.6	0.0	7.6
Prop In Lane	1.00		0.04	1.00		0.92	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	239	1628	888	267	1526	720	110	91	77	882	0	484
V/C Ratio(X)	0.90	0.57	0.57	0.61	0.83	0.84	0.45	0.56	0.48	0.90	0.00	0.22
Avail Cap(c_a), veh/h	316	1628	888	397	1526	720	110	91	77	882	0	484
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.86	0.86	0.86	1.00	1.00	1.00	0.80	0.00	0.80
Uniform Delay (d), s/veh	41.5	28.4	28.4	23.6	37.1	37.4	72.4	71.6	71.3	53.6	0.0	39.8
Incr Delay (d2), s/veh	23.0	1.4	2.6	2.0	4.8	10.1	2.8	7.5	4.5	10.1	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.8	12.2	13.6	3.2	21.3	21.5	2.0	2.2	1.5	15.5	0.0	3.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	64.5	29.9	31.1	25.6	41.9	47.5	75.3	79.1	75.9	63.7	0.0	40.0
LnGrp LOS	E	C	C	C	D	D	E	E	E	E	A	D
Approach Vol, veh/h		1644			2043			137			899	
Approach Delay, s/veh		34.8			42.3			76.9			60.9	
Approach LOS		C			D			E			E	
Timer - Assigned Phs	1	2	3	4	5	6		8				
Phs Duration (G+Y+Rc), s	22.3	76.4	39.5	15.8	17.7	81.0		55.3				
Change Period (Y+Rc), s	7.9	6.8	7.9	* 8.3	7.8	6.8		* 8.3				
Max Green Setting (Gmax), s	21.1	64.2	31.6	* 7.5	21.2	64.2		* 46				
Max Q Clear Time (g_c+I1), s	14.1	54.0	33.6	7.8	9.6	32.1		9.6				
Green Ext Time (p_c), s	0.3	7.7	0.0	0.0	0.3	11.1		0.3				

Intersection Summary

HCM 6th Ctrl Delay 44.2
HCM 6th LOS D

Notes

User approved volume balancing among the lanes for turning movement.

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

Lanes, Volumes, Timings
24: I-4 & Saxon Blvd

2020 Future Background Conditions w/Imp
Timing Plan: PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	395	2812	0	0	1365	251	0	0	1205	0	0	523
Future Volume (vph)	395	2812	0	0	1365	251	0	0	1205	0	0	523
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	420	2991	0	0	1452	267	0	0	1282	0	0	556
Shared Lane Traffic (%)												
Lane Group Flow (vph)	420	2991	0	0	1452	267	0	0	1282	0	0	556
Turn Type	Prot	NA			NA	Perm			Prot			Perm
Protected Phases	1	6			2				5			
Permitted Phases						2						6
Detector Phase	1	6			2	2			5			6
Switch Phase												
Minimum Initial (s)	5.0	15.0			17.0	17.0			5.0			15.0
Minimum Split (s)	12.7	21.8			23.8	23.8			22.5			21.8
Total Split (s)	50.0	81.0			100.0	100.0			69.0			81.0
Total Split (%)	33.3%	54.0%			66.7%	66.7%			46.0%			54.0%
Yellow Time (s)	5.4	4.8			4.8	4.8			3.5			4.8
All-Red Time (s)	2.3	2.0			2.0	2.0			1.0			2.0
Lost Time Adjust (s)	0.0	0.0			0.0	0.0			0.0			0.0
Total Lost Time (s)	7.7	6.8			6.8	6.8			4.5			6.8
Lead/Lag	Lead	Lag			Lag	Lag			Lead			Lag
Lead-Lag Optimize?	Yes	Yes			Yes	Yes			Yes			Yes
Recall Mode	None	C-Min			C-Min	C-Min			None			C-Min
v/c Ratio	0.92	0.88			0.64	0.25			0.89			0.45
Control Delay	79.0	35.6			17.4	4.8			49.7			1.2
Queue Delay	0.0	0.0			0.0	0.0			0.0			0.0
Total Delay	79.0	35.6			17.4	4.8			49.7			1.2
Queue Length 50th (ft)	392	740			324	35			496			0
Queue Length 95th (ft)	#563	840			m392	m56			551			0
Internal Link Dist (ft)		1519			3036			820			423	
Turn Bay Length (ft)	700					160						
Base Capacity (vph)	499	3394			2278	1073			1568			1240
Starvation Cap Reductn	0	0			0	0			0			0
Spillback Cap Reductn	0	0			0	0			0			0
Storage Cap Reductn	0	0			0	0			0			0
Reduced v/c Ratio	0.84	0.88			0.64	0.25			0.82			0.45

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 0 (0%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow

Natural Cycle: 80

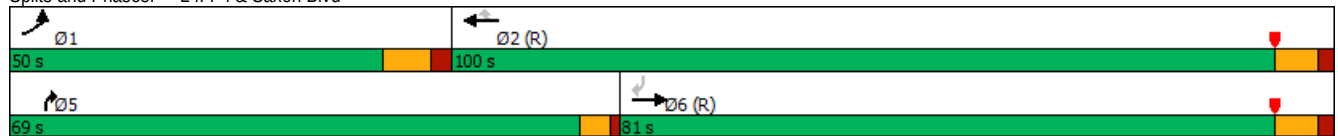
Control Type: Actuated-Coordinated

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 24: I-4 & Saxon Blvd



HCM Signalized Intersection Capacity Analysis
24: I-4 & Saxon Blvd

2020 Future Background Conditions w/Imp
Timing Plan: PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			 				  			
Traffic Volume (vph)	395	2812	0	0	1365	251	0	0	1205	0	0	523
Future Volume (vph)	395	2812	0	0	1365	251	0	0	1205	0	0	523
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.7	6.8			6.8	6.8			4.5			6.8
Lane Util. Factor	1.00	0.86			0.95	1.00			0.76			1.00
Frt	1.00	1.00			1.00	0.85			0.85			0.86
Flt Protected	0.95	1.00			1.00	1.00			1.00			1.00
Satd. Flow (prot)	1770	6408			3539	1583			3610			1611
Flt Permitted	0.95	1.00			1.00	1.00			1.00			1.00
Satd. Flow (perm)	1770	6408			3539	1583			3610			1611
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)	420	2991	0	0	1452	267	0	0	1282	0	0	556
RTOR Reduction (vph)	0	0	0	0	0	55	0	0	17	0	0	261
Lane Group Flow (vph)	420	2991	0	0	1452	212	0	0	1265	0	0	295
Turn Type	Prot	NA			NA	Perm			Prot			Perm
Protected Phases	1	6			2				5			
Permitted Phases						2						6
Actuated Green, G (s)	38.9	79.5			96.6	96.6			59.2			79.5
Effective Green, g (s)	38.9	79.5			96.6	96.6			59.2			79.5
Actuated g/C Ratio	0.26	0.53			0.64	0.64			0.39			0.53
Clearance Time (s)	7.7	6.8			6.8	6.8			4.5			6.8
Vehicle Extension (s)	3.0	3.0			3.0	3.0			3.0			3.0
Lane Grp Cap (vph)	459	3396			2279	1019			1424			853
v/s Ratio Prot	0.24	c0.47			0.41				c0.35			
v/s Ratio Perm						0.13						0.18
v/c Ratio	0.92	0.88			0.64	0.21			0.89			0.35
Uniform Delay, d1	53.9	31.1			16.1	11.0			42.3			20.3
Progression Factor	1.00	1.00			0.96	0.88			1.00			1.00
Incremental Delay, d2	22.7	3.7			1.1	0.4			7.1			1.1
Delay (s)	76.6	34.7			16.6	10.0			49.4			21.4
Level of Service	E	C			B	B			D			C
Approach Delay (s)		39.9			15.6			49.4			21.4	
Approach LOS		D			B			D			C	
Intersection Summary												
HCM 2000 Control Delay			34.2				HCM 2000 Level of Service			C		
HCM 2000 Volume to Capacity ratio			0.90									
Actuated Cycle Length (s)			150.0				Sum of lost time (s)			14.5		
Intersection Capacity Utilization			81.4%				ICU Level of Service			D		
Analysis Period (min)			15									

c Critical Lane Group

Lanes, Volumes, Timings
25: N Normandy Blvd & Saxon Blvd

2020 Future Background Conditions w/Imp
Timing Plan: PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 		 	 		 	 		 	 	
Traffic Volume (vph)	674	1491	352	33	671	197	190	271	47	252	269	454
Future Volume (vph)	674	1491	352	33	671	197	190	271	47	252	269	454
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
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	3%	3%	3%	2%	2%	2%
Adj. Flow (vph)	702	1553	367	34	699	205	198	282	49	263	280	473
Shared Lane Traffic (%)												
Lane Group Flow (vph)	702	1553	367	34	699	205	198	331	0	263	280	473
Turn Type	Prot	NA	pm+ov	Prot	NA	Perm	pm+pt	NA		pm+pt	NA	pm+ov
Protected Phases	1	6	7	5	2		7	4		3	8	1
Permitted Phases			6			2	4			8		8
Detector Phase	1	6	7	5	2	2	7	4		3	8	1
Switch Phase												
Minimum Initial (s)	5.0	15.0	5.0	5.0	15.0	15.0	5.0	10.0		5.0	10.0	5.0
Minimum Split (s)	12.6	21.9	11.8	13.1	21.9	21.9	11.8	16.9		12.5	16.9	12.6
Total Split (s)	50.0	64.0	22.0	14.0	28.0	28.0	22.0	40.0		32.0	50.0	50.0
Total Split (%)	33.3%	42.7%	14.7%	9.3%	18.7%	18.7%	14.7%	26.7%		21.3%	33.3%	33.3%
Yellow Time (s)	4.4	4.9	4.0	4.9	4.9	4.9	4.0	4.8		4.8	4.8	4.4
All-Red Time (s)	3.2	2.0	2.8	3.2	2.0	2.0	2.8	2.1		2.7	2.1	3.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	7.6	6.9	6.8	8.1	6.9	6.9	6.8	6.9		7.5	6.9	7.6
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Recall Mode	None	C-Min	None	None	C-Min	C-Min	None	None		None	None	None
v/c Ratio	0.83	1.02	0.37	0.45	0.92	0.38	0.57	0.87		0.82	0.59	0.51
Control Delay	51.3	63.8	13.9	88.2	75.0	4.8	37.9	79.6		53.7	53.9	15.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	51.3	63.8	13.9	88.2	75.0	4.8	37.9	79.6		53.7	53.9	15.7
Queue Length 50th (ft)	361	~939	158	33	~381	0	127	306		177	238	192
Queue Length 95th (ft)	m411	#1091	m213	#77	#611	36	183	#461		260	328	246
Internal Link Dist (ft)		3036			7092			3666			5060	
Turn Bay Length (ft)	520		220	470			260					385
Base Capacity (vph)	970	1529	1011	77	757	533	354	406		360	535	978
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.72	1.02	0.36	0.44	0.92	0.38	0.56	0.82		0.73	0.52	0.48

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 95 (63%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow

Natural Cycle: 140

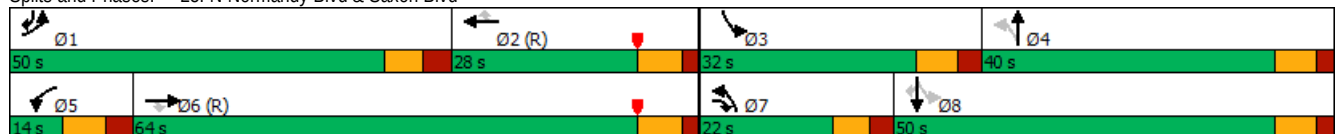
Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

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

Splits and Phases: 25: N Normandy Blvd & Saxon Blvd



HCM 6th Signalized Intersection Summary
25: N Normandy Blvd & Saxon Blvd

2020 Future Background Conditions w/Imp
Timing Plan: PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	674	1491	352	33	671	197	190	271	47	252	269	454
Future Volume (veh/h)	674	1491	352	33	671	197	190	271	47	252	269	454
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1856	1856	1856	1870	1870	1870
Adj Flow Rate, veh/h	702	1553	302	34	699	198	198	282	41	262	280	269
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	3	3	3	2	2	2
Cap, veh/h	788	1607	878	45	898	401	307	308	45	304	430	726
Arrive On Green	0.08	0.15	0.15	0.03	0.25	0.25	0.10	0.19	0.19	0.13	0.23	0.23
Sat Flow, veh/h	3456	3554	1585	1781	3554	1585	1767	1584	230	1781	1870	1585
Grp Volume(v), veh/h	702	1553	302	34	699	198	198	0	323	262	280	269
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1781	1777	1585	1767	0	1814	1781	1870	1585
Q Serve(g_s), s	30.2	65.2	21.1	2.8	27.4	16.0	13.3	0.0	26.2	17.4	20.3	16.6
Cycle Q Clear(g_c), s	30.2	65.2	21.1	2.8	27.4	16.0	13.3	0.0	26.2	17.4	20.3	16.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.13	1.00		1.00
Lane Grp Cap(c), veh/h	788	1607	878	45	898	401	307	0	353	304	430	726
V/C Ratio(X)	0.89	0.97	0.34	0.76	0.78	0.49	0.64	0.00	0.91	0.86	0.65	0.37
Avail Cap(c_a), veh/h	977	1607	878	70	898	401	307	0	400	360	537	817
HCM Platoon Ratio	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.35	0.35	0.35	0.64	0.64	0.64	0.77	0.00	0.77	0.90	0.90	0.90
Uniform Delay (d), s/veh	67.5	62.7	30.5	72.6	52.1	47.9	42.8	0.0	59.2	42.6	52.3	26.5
Incr Delay (d2), s/veh	3.4	7.5	0.4	15.1	4.3	2.8	3.5	0.0	20.2	15.2	2.3	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	14.5	32.8	9.1	1.5	12.6	6.6	6.1	0.0	13.9	8.9	9.8	6.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	70.9	70.2	30.9	87.7	56.4	50.6	46.4	0.0	79.4	57.9	54.7	27.0
LnGrp LOS	E	E	C	F	E	D	D	A	E	E	D	C
Approach Vol, veh/h	2557			931			521			811		
Approach Delay, s/veh	65.7			56.3			66.8			46.5		
Approach LOS	E			E			E			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	41.8	44.8	27.3	36.1	11.9	74.7	22.0	41.4				
Change Period (Y+Rc), s	* 7.6	6.9	* 7.5	6.9	* 8.1	6.9	* 6.8	6.9				
Max Green Setting (Gmax), s	* 42	21.1	* 25	33.1	* 5.9	57.1	* 15	43.1				
Max Q Clear Time (g_c+I1), s	32.2	29.4	19.4	28.2	4.8	67.2	15.3	22.3				
Green Ext Time (p_c), s	2.0	0.0	0.3	1.0	0.0	0.0	0.0	3.7				
Intersection Summary												
HCM 6th Ctrl Delay	60.8											
HCM 6th LOS	E											
Notes												

Lanes, Volumes, Timings
26: Tivoli Dr & Saxon Blvd

2020 Future Background Conditions w/Imp
Timing Plan: PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	469	583	99	6	382	14	77	110	8	5	86	285
Future Volume (vph)	469	583	99	6	382	14	77	110	8	5	86	285
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	504	627	106	6	411	15	83	118	9	5	92	306
Shared Lane Traffic (%)												
Lane Group Flow (vph)	504	627	106	6	426	0	83	127	0	5	92	306
Turn Type	pm+pt	NA	Perm	Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases	5	2			6			4			8	
Permitted Phases	2		2	6			4			8		8
Detector Phase	5	2	2	6	6		4	4		8	8	8
Switch Phase												
Minimum Initial (s)	5.0	11.0	11.0	11.0	11.0		5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	12.0	17.5	17.5	17.5	17.5		11.5	11.5		11.5	11.5	11.5
Total Split (s)	27.0	57.6	57.6	30.6	30.6		17.4	17.4		17.4	17.4	17.4
Total Split (%)	36.0%	76.8%	76.8%	40.8%	40.8%		23.2%	23.2%		23.2%	23.2%	23.2%
Yellow Time (s)	4.5	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	2.5	2.5	2.5	2.5	2.5		2.5	2.5		2.5	2.5	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	7.0	6.5	6.5	6.5	6.5		6.5	6.5		6.5	6.5	6.5
Lead/Lag	Lead			Lag	Lag							
Lead-Lag Optimize?	Yes			Yes	Yes							
Recall Mode	None	Min	Min	Min	Min		None	None		None	None	None
v/c Ratio	0.78	0.50	0.10	0.03	0.79		0.48	0.51		0.03	0.37	0.64
Control Delay	20.1	7.2	1.2	18.0	34.6		39.2	36.0		28.0	33.3	11.0
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	20.1	7.2	1.2	18.0	34.6		39.2	36.0		28.0	33.3	11.0
Queue Length 50th (ft)	112	112	0	2	168		35	52		2	38	0
Queue Length 95th (ft)	#273	183	13	10	#276		78	104		11	81	67
Internal Link Dist (ft)		7092			564			624			981	
Turn Bay Length (ft)	390			120			265			150		
Base Capacity (vph)	679	1420	1232	283	661		210	303		204	302	513
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	0
Reduced v/c Ratio	0.74	0.44	0.09	0.02	0.64		0.40	0.42		0.02	0.30	0.60

Intersection Summary

Cycle Length: 75

Actuated Cycle Length: 68.2

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

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

Queue shown is maximum after two cycles.

Splits and Phases: 26: Tivoli Dr & Saxon Blvd



HCM 6th Signalized Intersection Summary
26: Tivoli Dr & Saxon Blvd

2020 Future Background Conditions w/Imp
Timing Plan: PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	469	583	99	6	382	14	77	110	8	5	86	285
Future Volume (veh/h)	469	583	99	6	382	14	77	110	8	5	86	285
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1856	1856	1856	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	504	627	66	6	411	14	83	118	7	5	92	215
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	3	3	3	2	2	2	2	2	2
Cap, veh/h	589	1169	990	327	506	17	247	289	17	249	309	262
Arrive On Green	0.23	0.62	0.62	0.28	0.28	0.28	0.17	0.17	0.17	0.17	0.17	0.17
Sat Flow, veh/h	1781	1870	1585	745	1784	61	1072	1748	104	1266	1870	1585
Grp Volume(v), veh/h	504	627	66	6	0	425	83	0	125	5	92	215
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	745	0	1845	1072	0	1852	1266	1870	1585
Q Serve(g_s), s	11.1	11.7	1.0	0.4	0.0	13.3	4.6	0.0	3.7	0.2	2.7	8.1
Cycle Q Clear(g_c), s	11.1	11.7	1.0	0.4	0.0	13.3	7.2	0.0	3.7	4.0	2.7	8.1
Prop In Lane	1.00		1.00	1.00		0.03	1.00		0.06	1.00		1.00
Lane Grp Cap(c), veh/h	589	1169	990	327	0	523	247	0	306	249	309	262
V/C Ratio(X)	0.86	0.54	0.07	0.02	0.00	0.81	0.34	0.00	0.41	0.02	0.30	0.82
Avail Cap(c_a), veh/h	758	1545	1309	407	0	718	259	0	326	263	329	279
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	11.8	6.6	4.5	16.0	0.0	20.6	25.9	0.0	23.1	24.9	22.7	25.0
Incr Delay (d2), s/veh	7.7	0.5	0.0	0.0	0.0	6.1	0.8	0.0	0.9	0.0	0.5	16.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.4	3.1	0.2	0.1	0.0	6.0	1.2	0.0	1.6	0.1	1.2	4.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	19.4	7.1	4.6	16.0	0.0	26.7	26.7	0.0	24.0	24.9	23.2	41.7
LnGrp LOS	B	A	A	B	A	C	C	A	C	C	C	D
Approach Vol, veh/h	1197			431			208			312		
Approach Delay, s/veh	12.2			26.6			25.1			36.0		
Approach LOS	B			C			C			D		
Timer - Assigned Phs	2			4			5			6		
Phs Duration (G+Y+Rc), s	45.2			16.7			21.1			24.0		
Change Period (Y+Rc), s	6.5			6.5			7.0			6.5		
Max Green Setting (Gmax), s	51.1			10.9			20.0			24.1		
Max Q Clear Time (g_c+I1), s	13.7			9.2			13.1			15.3		
Green Ext Time (p_c), s	7.1			0.2			1.0			2.3		
Intersection Summary												
HCM 6th Ctrl Delay	19.8											
HCM 6th LOS	B											

Arterial Level of Service: EB E Saxon Blvd

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
N Normandy Blvd	II	40	53.1	53.2	106.3	0.59	20.0	D
Tivoli Dr	II	40	122.3	7.2	129.5	1.36	37.8	A
Total	II		175.4	60.4	235.8	1.95	29.7	B

Arterial Level of Service: WB E Saxon Blvd

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Tivoli Dr	II	35	15.2	34.6	49.8	0.12	8.8	F
N Normandy Blvd	II	40	122.3	75.0	197.3	1.36	24.8	C
I-4	II	45	47.2	9.4	56.6	0.59	37.5	A
Total	II		184.7	119.0	303.7	2.07	24.5	C

Arterial Level of Service: EB SR 472

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
N Kentucky Ave	I	55	17.7	42.9	60.6	0.18	10.8	F
I-4 WB	I	55	36.3	21.5	57.8	0.55	34.5	B
I-4 EB	I	50	30.3	10.7	41.0	0.32	28.0	C
E Graves Avenue	I	50	26.1	56.1	82.2	0.28	12.1	F
Total	I		110.4	131.2	241.6	1.33	19.8	E

Arterial Level of Service: WB SR 472

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
I-4 EB	I	50	26.1	19.6	45.7	0.28	21.7	D
I-4 WB	I	50	30.3	12.4	42.7	0.32	26.9	D
Dr. Martin Luther Ki	I	55	36.3	40.1	76.4	0.55	26.1	D
Total	I		92.7	72.1	164.8	1.15	25.1	D

Arterial Level of Service: EB W Saxon Blvd

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Broward Ave	II	45	21.4	34.0	55.4	0.20	12.8	F
FDOT Park & Ride	II	45	33.9	11.8	45.7	0.35	27.9	C
Total	II		55.3	45.8	101.1	0.55	19.6	D

Arterial Level of Service: WB W Saxon Blvd

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
FDOT Park & Ride	II	45	10.1	8.3	18.4	0.09	18.0	D
Veterans Memorial Pk	II	45	33.9	46.9	80.8	0.35	15.8	E
Total	II		44.0	55.2	99.2	0.45	16.2	E

H9: PM Peak Hour Buildout Traffic Conditions (with Background Improvement)

Lanes, Volumes, Timings
1: Dr Martin Luther King Jr Beltway & Orange Camp Rd

2020 Buildout Conditions
Timing Plan: PM Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	77	554	191	93	879	316	321	540	62	299	511	80
Future Volume (vph)	77	554	191	93	879	316	321	540	62	299	511	80
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
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	81	583	201	98	925	333	338	568	65	315	538	84
Shared Lane Traffic (%)												
Lane Group Flow (vph)	81	784	0	98	925	333	338	568	65	315	538	84
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8			4		4	6		6	2		2
Detector Phase	3	8		7	4	4	1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	7.0	7.0	5.0	17.0	17.0	5.0	17.0	17.0
Minimum Split (s)	11.5	14.5		11.5	14.5	14.5	11.5	24.5	24.5	11.5	24.5	24.5
Total Split (s)	12.0	48.0		12.0	48.0	48.0	50.0	72.0	72.0	48.0	70.0	70.0
Total Split (%)	6.7%	26.7%		6.7%	26.7%	26.7%	27.8%	40.0%	40.0%	26.7%	38.9%	38.9%
Yellow Time (s)	3.5	5.5		3.5	5.5	5.5	3.5	5.5	5.5	3.5	5.5	5.5
All-Red Time (s)	3.0	2.0		3.0	2.0	2.0	3.0	2.0	2.0	3.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	7.5		6.5	7.5	7.5	6.5	7.5	7.5	6.5	7.5	7.5
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None		None	None	None	None	Min	Min	None	Min	Min
v/c Ratio	0.72	0.85		0.76	0.99	0.59	0.86	0.90	0.11	0.85	0.86	0.14
Control Delay	74.4	62.7		76.8	82.4	26.7	53.2	67.2	1.0	58.0	62.4	3.3
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	74.4	62.7		76.8	82.4	26.7	53.2	67.2	1.0	58.0	62.4	3.3
Queue Length 50th (ft)	56	391		69	~505	123	228	539	0	226	499	0
Queue Length 95th (ft)	#149	#608		#193	#796	270	352	773	5	357	731	24
Internal Link Dist (ft)		536			746			5808			524	
Turn Bay Length (ft)	385			550			340		375	335		380
Base Capacity (vph)	113	927		129	936	561	576	785	728	540	763	710
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.72	0.85		0.76	0.99	0.59	0.59	0.72	0.09	0.58	0.71	0.12

Intersection Summary

Cycle Length: 180

Actuated Cycle Length: 153.7

Natural Cycle: 120

Control Type: Actuated-Uncoordinated

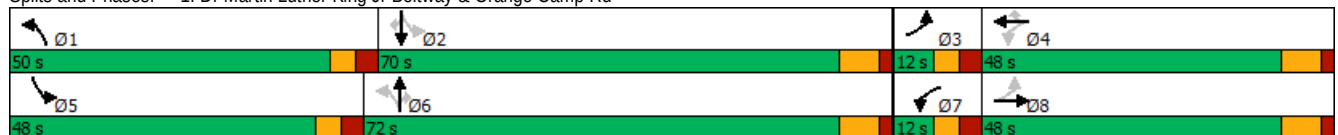
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

Splits and Phases: 1: Dr Martin Luther King Jr Beltway & Orange Camp Rd



HCM 6th Signalized Intersection Summary
1: Dr Martin Luther King Jr Beltway & Orange Camp Rd

2020 Buildout Conditions
Timing Plan: PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	77	554	191	93	879	316	321	540	62	299	511	80
Future Volume (veh/h)	77	554	191	93	879	316	321	540	62	299	511	80
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	81	583	173	98	925	312	338	568	40	315	538	52
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	3	3	3	3	3	3	3	3	3
Cap, veh/h	131	760	225	177	991	442	367	629	533	344	614	520
Arrive On Green	0.04	0.28	0.28	0.04	0.28	0.28	0.15	0.34	0.34	0.14	0.33	0.33
Sat Flow, veh/h	1781	2703	800	1767	3526	1572	1767	1856	1572	1767	1856	1572
Grp Volume(v), veh/h	81	383	373	98	925	312	338	568	40	315	538	52
Grp Sat Flow(s),veh/h/ln	1781	1777	1726	1767	1763	1572	1767	1856	1572	1767	1856	1572
Q Serve(g_s), s	4.6	28.1	28.2	5.5	36.4	25.3	18.7	41.5	2.5	17.7	38.8	3.3
Cycle Q Clear(g_c), s	4.6	28.1	28.2	5.5	36.4	25.3	18.7	41.5	2.5	17.7	38.8	3.3
Prop In Lane	1.00		0.46	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	131	499	485	177	991	442	367	629	533	344	614	520
V/C Ratio(X)	0.62	0.77	0.77	0.55	0.93	0.71	0.92	0.90	0.08	0.92	0.88	0.10
Avail Cap(c_a), veh/h	131	506	492	177	1004	448	639	842	713	605	816	691
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.8	46.8	46.9	38.8	49.8	45.8	34.4	44.8	31.9	35.7	44.8	32.9
Incr Delay (d2), s/veh	8.5	7.3	7.7	3.7	15.1	5.4	11.3	11.6	0.1	11.0	9.4	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	13.0	12.8	2.6	17.5	10.2	8.7	20.1	0.9	8.2	18.6	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	48.4	54.2	54.6	42.5	64.9	51.3	45.7	56.3	32.0	46.7	54.2	33.0
LnGrp LOS	D	D	D	D	E	D	D	E	C	D	D	C
Approach Vol, veh/h	837			1335			946			905		
Approach Delay, s/veh	53.8			60.1			51.5			50.3		
Approach LOS	D			E			D			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	28.2	54.6	12.0	47.5	27.0	55.7	12.0	47.5				
Change Period (Y+Rc), s	6.5	7.5	6.5	7.5	6.5	7.5	6.5	7.5				
Max Green Setting (Gmax), s	43.5	62.5	5.5	40.5	41.5	64.5	5.5	40.5				
Max Q Clear Time (g_c+I1), s	20.7	40.8	6.6	38.4	19.7	43.5	7.5	30.2				
Green Ext Time (p_c), s	0.9	4.5	0.0	1.6	0.8	4.7	0.0	4.1				
Intersection Summary												
HCM 6th Ctrl Delay	54.6											
HCM 6th LOS	D											

Lanes, Volumes, Timings
2: N Kentucky Ave/Dr. Martin Luther King Jr Beltway & SR 472

2020 Buildout Conditions
Timing Plan: PM Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↰↰	↰	↰	↰↰	↰	↰↰	↰↰	↰	↰↰	↰↰	↰
Traffic Volume (vph)	60	1087	370	167	1018	338	274	387	69	315	459	50
Future Volume (vph)	60	1087	370	167	1018	338	274	387	69	315	459	50
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	4%	4%	4%	2%	2%	2%
Adj. Flow (vph)	65	1169	398	180	1095	363	295	416	74	339	494	54
Shared Lane Traffic (%)												
Lane Group Flow (vph)	65	1169	398	180	1095	363	295	416	74	339	494	54
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases			6			2			4			8
Detector Phase	1	6	6	5	2	2	7	4	4	3	8	8
Switch Phase												
Minimum Initial (s)	5.0	17.0	17.0	5.0	17.0	17.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	13.3	25.3	25.3	13.3	25.3	25.3	15.8	15.8	15.8	16.4	16.4	16.4
Total Split (s)	20.3	63.0	63.0	14.1	56.8	56.8	27.9	34.0	34.0	38.9	45.0	45.0
Total Split (%)	13.5%	42.0%	42.0%	9.4%	37.9%	37.9%	18.6%	22.7%	22.7%	25.9%	30.0%	30.0%
Yellow Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.6	5.6	5.6
All-Red Time (s)	2.8	2.8	2.8	2.8	2.8	2.8	3.3	3.3	3.3	3.8	3.8	3.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	8.3	8.3	8.3	8.3	8.3	8.3	8.8	8.8	8.8	9.4	9.4	9.4
Lead/Lag	Lead	Lead	Lead	Lag	Lag	Lag	Lag	Lead	Lead	Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Min	Min	None	C-Min	C-Min	None	None	None	None	None	None
v/c Ratio	0.54	0.81	0.45	1.98	0.76	0.42	0.71	0.78	0.15	0.64	0.76	0.11
Control Delay	83.6	45.2	4.6	499.9	41.5	5.4	72.9	71.5	0.7	64.9	65.5	0.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	83.6	45.2	4.6	499.9	41.5	5.4	72.9	71.5	0.7	64.9	65.5	0.5
Queue Length 50th (ft)	62	521	0	~299	375	15	144	205	0	163	243	0
Queue Length 95th (ft)	115	#680	71	m#439	#704	m76	195	266	0	205	293	0
Internal Link Dist (ft)		884			2846			4140			2874	
Turn Bay Length (ft)	400		395	425		400			485	350		350
Base Capacity (vph)	142	1442	881	91	1443	859	443	583	507	675	839	549
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.46	0.81	0.45	1.98	0.76	0.42	0.67	0.71	0.15	0.50	0.59	0.10

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 0 (0%), Referenced to phase 2:WBT, Start of Yellow

Natural Cycle: 110

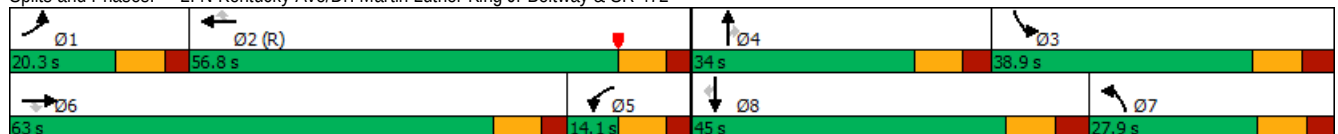
Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

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

Splits and Phases: 2: N Kentucky Ave/Dr. Martin Luther King Jr Beltway & SR 472



HCM 6th Signalized Intersection Summary
2: N Kentucky Ave/Dr. Martin Luther King Jr Beltway & SR 472

2020 Buildout Conditions
Timing Plan: PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	1087	370	167	1018	338	274	387	69	315	459	50
Future Volume (veh/h)	60	1087	370	167	1018	338	274	387	69	315	459	50
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1856	1856	1856	1841	1841	1841	1870	1870	1870
Adj Flow Rate, veh/h	65	1169	185	180	1095	172	295	416	0	339	494	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	3	3	3	4	4	4	2	2	2
Cap, veh/h	83	1263	564	243	1574	702	348	489		467	599	
Arrive On Green	0.05	0.36	0.36	0.09	0.30	0.30	0.10	0.14	0.00	0.14	0.17	0.00
Sat Flow, veh/h	1781	3554	1585	1767	3526	1572	3401	3497	1560	3456	3554	1585
Grp Volume(v), veh/h	65	1169	185	180	1095	172	295	416	0	339	494	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1767	1763	1572	1700	1749	1560	1728	1777	1585
Q Serve(g_s), s	5.4	47.4	12.8	14.9	41.2	6.7	12.8	17.4	0.0	14.1	20.1	0.0
Cycle Q Clear(g_c), s	5.4	47.4	12.8	14.9	41.2	6.7	12.8	17.4	0.0	14.1	20.1	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	83	1263	564	243	1574	702	348	489		467	599	
V/C Ratio(X)	0.79	0.93	0.33	0.74	0.70	0.24	0.85	0.85		0.73	0.82	
Avail Cap(c_a), veh/h	143	1296	578	243	1574	702	433	588		680	843	
HCM Platoon Ratio	1.00	1.00	1.00	0.67	0.67	0.67	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.74	0.74	0.74	0.44	0.44	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	70.8	46.4	35.3	65.5	43.5	9.8	66.2	63.0	0.0	62.2	60.2	0.0
Incr Delay (d2), s/veh	15.0	11.4	0.5	8.7	1.9	0.6	6.4	5.1	0.0	3.1	5.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	21.9	4.9	7.4	18.8	4.6	5.8	8.0	0.0	6.2	9.3	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	85.8	57.8	35.7	74.2	45.4	10.4	72.6	68.1	0.0	65.2	65.8	0.0
LnGrp LOS	F	E	D	E	D	B	E	E		E	E	
Approach Vol, veh/h	1419			1447			711			833		
Approach Delay, s/veh	56.2			44.9			70.0			65.6		
Approach LOS	E			D			E			E		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	15.3	75.3	29.7	29.8	28.9	61.6	24.8	34.7				
Change Period (Y+Rc), s	* 8.3	* 8.3	* 9.4	* 8.8	* 8.3	* 8.3	* 9.4	* 9.4				
Max Green Setting (Gmax), s	* 12	* 49	* 30	* 25	* 5.8	* 55	* 19	* 36				
Max Q Clear Time (g_c+I1), s	7.4	43.2	16.1	19.4	16.9	49.4	14.8	22.1				
Green Ext Time (p_c), s	0.0	3.7	1.4	1.5	0.0	3.9	0.6	3.2				

Intersection Summary

HCM 6th Ctrl Delay 56.5
HCM 6th LOS E

Notes

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

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

Lanes, Volumes, Timings
3: SR 472 & I-4

2020 Buildout Conditions
Timing Plan: PM Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↓	↑↑					↓↓		↓
Traffic Volume (vph)	0	748	673	437	1217	0	0	0	0	479	0	369
Future Volume (vph)	0	748	673	437	1217	0	0	0	0	479	0	369
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	0	796	716	465	1295	0	0	0	0	510	0	393
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	796	716	465	1295	0	0	0	0	510	0	393
Turn Type		NA	Perm	Prot	NA					Prot		Prot
Protected Phases		6		5	2					8		8
Permitted Phases			6									8
Detector Phase		6	6	5	2					8		8
Switch Phase												
Minimum Initial (s)		17.0	17.0	6.0	17.0					7.0		7.0
Minimum Split (s)		24.1	24.1	13.1	24.1					15.0		15.0
Total Split (s)		66.0	66.0	45.0	111.0					39.0		39.0
Total Split (%)		44.0%	44.0%	30.0%	74.0%					26.0%		26.0%
Yellow Time (s)		5.1	5.1	5.1	5.1					5.1		5.1
All-Red Time (s)		2.0	2.0	2.0	2.0					2.9		2.9
Lost Time Adjust (s)		0.0	0.0	0.0	0.0					0.0		0.0
Total Lost Time (s)		7.1	7.1	7.1	7.1					8.0		8.0
Lead/Lag		Lag	Lag	Lead								
Lead-Lag Optimize?		Yes	Yes	Yes								
Recall Mode		C-Min	C-Min	None	C-Min					None		None
v/c Ratio		0.71	0.82	0.91	0.56					0.60		0.86
Control Delay		24.6	21.8	79.0	13.7					53.8		59.5
Queue Delay		0.0	0.0	0.0	0.0					0.0		0.0
Total Delay		24.6	21.8	79.0	13.7					53.8		59.5
Queue Length 50th (ft)		393	541	416	255					221		283
Queue Length 95th (ft)		347	672	m#677	156					307		#533
Internal Link Dist (ft)		2846			1605			330			679	
Turn Bay Length (ft)			500							550		550
Base Capacity (vph)		1389	951	509	2451					844		457
Starvation Cap Reductn		0	0	0	0					0		0
Spillback Cap Reductn		0	0	0	0					0		0
Storage Cap Reductn		0	0	0	0					0		0
Reduced v/c Ratio		0.57	0.75	0.91	0.53					0.60		0.86

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 38 (25%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow

Natural Cycle: 80

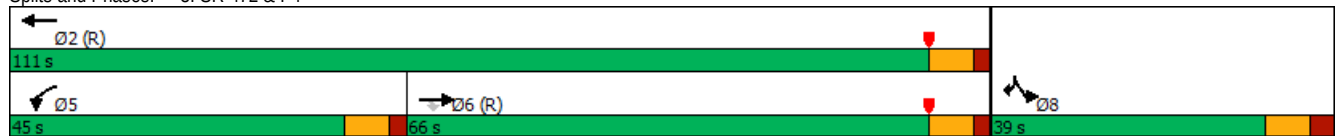
Control Type: Actuated-Coordinated

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 3: SR 472 & I-4



HCM 6th Signalized Intersection Summary
3: SR 472 & I-4

2020 Buildout Conditions
Timing Plan: PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↑	↑↑					↑↑		↑
Traffic Volume (veh/h)	0	748	673	437	1217	0	0	0	0	479	0	369
Future Volume (veh/h)	0	748	673	437	1217	0	0	0	0	479	0	369
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0				1870	0	1870
Adj Flow Rate, veh/h	0	796	0	465	1295	0				510	0	160
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94				0.94	0.94	0.94
Percent Heavy Veh, %	0	2	2	2	2	0				2	0	2
Cap, veh/h	0	1534		450	2600	0				579	0	266
Arrive On Green	0.00	0.43	0.00	0.34	0.97	0.00				0.17	0.00	0.17
Sat Flow, veh/h	0	3647	1585	1781	3647	0				3456	0	1585
Grp Volume(v), veh/h	0	796	0	465	1295	0				510	0	160
Grp Sat Flow(s),veh/h/ln	0	1777	1585	1781	1777	0				1728	0	1585
Q Serve(g_s), s	0.0	24.6	0.0	37.9	2.8	0.0				21.6	0.0	14.0
Cycle Q Clear(g_c), s	0.0	24.6	0.0	37.9	2.8	0.0				21.6	0.0	14.0
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1534		450	2600	0				579	0	266
V/C Ratio(X)	0.00	0.52		1.03	0.50	0.00				0.88	0.00	0.60
Avail Cap(c_a), veh/h	0	1534		450	2600	0				714	0	328
HCM Platoon Ratio	1.00	1.00	1.00	1.33	1.33	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.59	0.00	0.73	0.73	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	31.2	0.0	49.8	0.6	0.0				61.0	0.0	57.8
Incr Delay (d2), s/veh	0.0	0.7	0.0	45.1	0.5	0.0				10.6	0.0	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	10.3	0.0	21.0	0.7	0.0				10.2	0.0	5.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	32.0	0.0	94.8	1.1	0.0				71.5	0.0	60.0
LnGrp LOS	A	C		F	A	A				E	A	E
Approach Vol, veh/h		796	A		1760						670	
Approach Delay, s/veh		32.0			25.9						68.8	
Approach LOS		C			C						E	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		116.9			45.0	71.9		33.1				
Change Period (Y+Rc), s		7.1			7.1	7.1		8.0				
Max Green Setting (Gmax), s		103.9			37.9	58.9		31.0				
Max Q Clear Time (g_c+I1), s		4.8			39.9	26.6		23.6				
Green Ext Time (p_c), s		12.0			0.0	5.2		1.5				

Intersection Summary

HCM 6th Ctrl Delay 36.3
HCM 6th LOS D

Notes

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

Lanes, Volumes, Timings
4: I-4 & Howland Blvd/Graves Avenue

2020 Buildout Conditions
Timing Plan: PM Peak Hour

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑		↑↑↑	↘↘	↗
Traffic Volume (vph)	1098	99	0	1150	955	1114
Future Volume (vph)	1098	99	0	1150	955	1114
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	2%	2%	4%	4%	3%	3%
Adj. Flow (vph)	1168	105	0	1223	1016	1185
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1168	105	0	1223	1016	1185
Turn Type	NA	Perm		NA	Prot	Perm
Protected Phases	2			6	4	
Permitted Phases		2				4
Detector Phase	2	2		6	4	4
Switch Phase						
Minimum Initial (s)	17.0	17.0		7.0	7.0	7.0
Minimum Split (s)	24.5	24.5		14.2	14.2	14.2
Total Split (s)	91.0	91.0		91.0	59.0	59.0
Total Split (%)	60.7%	60.7%		60.7%	39.3%	39.3%
Yellow Time (s)	5.5	5.5		4.8	4.8	4.8
All-Red Time (s)	2.0	2.0		2.4	2.4	2.4
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	7.5	7.5		7.2	7.2	7.2
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	Min	Min		C-Max	None	None
v/c Ratio	0.59	0.11		0.44	0.87	2.03
Control Delay	10.0	3.3		20.0	54.8	494.7
Queue Delay	0.0	0.0		0.0	0.0	0.0
Total Delay	10.0	3.3		20.0	54.8	494.7
Queue Length 50th (ft)	44	1		248	478	~1782
Queue Length 95th (ft)	233	35		284	570	#2052
Internal Link Dist (ft)	1605			1373	1105	
Turn Bay Length (ft)		620				1000
Base Capacity (vph)	1970	927		2786	1174	584
Starvation Cap Reductn	0	0		0	0	0
Spillback Cap Reductn	0	0		0	0	0
Storage Cap Reductn	0	0		0	0	0
Reduced v/c Ratio	0.59	0.11		0.44	0.87	2.03

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 73 (49%), Referenced to phase 6:WBT, Start of Yellow

Natural Cycle: 130

Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 4: I-4 & Howland Blvd/Graves Avenue

→ Ø2		↖ Ø4
91 s		59 s
← Ø6 (R)		
91 s		

HCM 6th Signalized Intersection Summary
4: I-4 & Howland Blvd/Graves Avenue

2020 Buildout Conditions
Timing Plan: PM Peak Hour

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑		↑↑↑	↘↗	↗
Traffic Volume (veh/h)	1098	99	0	1150	955	1114
Future Volume (veh/h)	1098	99	0	1150	955	1114
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	0	1841	1856	1856
Adj Flow Rate, veh/h	1168	0	0	1223	1016	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	0	4	3	3
Cap, veh/h	1985		0	2807	1102	
Arrive On Green	0.56	0.00	0.00	0.56	0.32	0.00
Sat Flow, veh/h	3647	1585	0	5356	3428	1572
Grp Volume(v), veh/h	1168	0	0	1223	1016	0
Grp Sat Flow(s),veh/h/ln	1777	1585	0	1675	1714	1572
Q Serve(g_s), s	32.4	0.0	0.0	21.3	42.9	0.0
Cycle Q Clear(g_c), s	32.4	0.0	0.0	21.3	42.9	0.0
Prop In Lane		1.00	0.00		1.00	1.00
Lane Grp Cap(c), veh/h	1985		0	2807	1102	
V/C Ratio(X)	0.59		0.00	0.44	0.92	
Avail Cap(c_a), veh/h	1985		0	2807	1184	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.69	0.00	0.00	0.09	1.00	0.00
Uniform Delay (d), s/veh	21.8	0.0	0.0	19.3	49.1	0.0
Incr Delay (d2), s/veh	0.4	0.0	0.0	0.0	11.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.8	0.0	0.0	7.9	19.6	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	22.1	0.0	0.0	19.4	60.7	0.0
LnGrp LOS	C		A	B	E	
Approach Vol, veh/h	1168	A		1223	1016	A
Approach Delay, s/veh	22.1			19.4	60.7	
Approach LOS	C			B	E	
Timer - Assigned Phs	2			4		6
Phs Duration (G+Y+Rc), s	91.3			55.4		91.3
Change Period (Y+Rc), s	7.5			* 7.2		* 7.5
Max Green Setting (Gmax), s	83.5			* 52		* 84
Max Q Clear Time (g_c+I1), s	34.4			44.9		23.3
Green Ext Time (p_c), s	15.0			3.4		16.1

Intersection Summary

HCM 6th Ctrl Delay 32.6
HCM 6th LOS C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [NBR, EBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
5: S Volusia Ave/N Volusia Ave & E Graves Ave

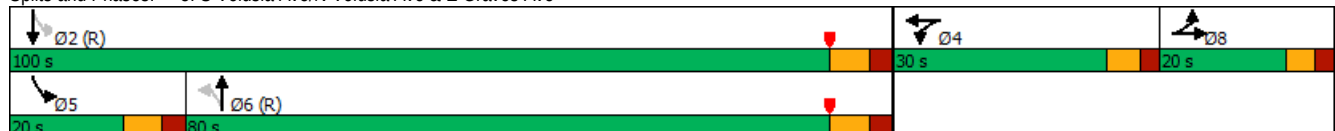
2020 Buildout Conditions
Timing Plan: PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	27	53	19	118	79	130	14	1242	120	107	1044	38
Future Volume (vph)	27	53	19	118	79	130	14	1242	120	107	1044	38
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
Heavy Vehicles (%)	2%	2%	2%	4%	4%	4%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	28	55	20	123	82	135	15	1294	125	111	1088	40
Shared Lane Traffic (%)												
Lane Group Flow (vph)	28	75	0	123	217	0	15	1419	0	111	1128	0
Turn Type	Split	NA		Split	NA		Perm	NA		pm+pt	NA	
Protected Phases	8	8		4	4			6		5	2	
Permitted Phases							6			2		
Detector Phase	8	8		4	4		6	6		5	2	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		15.0	15.0		5.0	15.0	
Minimum Split (s)	15.7	15.7		15.9	15.9		22.3	22.3		12.2	22.3	
Total Split (s)	20.0	20.0		30.0	30.0		80.0	80.0		20.0	100.0	
Total Split (%)	13.3%	13.3%		20.0%	20.0%		53.3%	53.3%		13.3%	66.7%	
Yellow Time (s)	3.4	3.4		3.8	3.8		4.5	4.5		4.4	4.5	
All-Red Time (s)	2.3	2.3		2.1	2.1		2.8	2.8		2.8	2.8	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.7	5.7		5.9	5.9		7.3	7.3		7.2	7.3	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?							Yes	Yes		Yes		
Recall Mode	None	None		None	None		C-Min	C-Min		None	C-Min	
v/c Ratio	0.21	0.51		0.53	0.83		0.06	0.74		0.53	0.49	
Control Delay	67.9	69.7		68.6	74.8		6.0	13.2		20.6	14.0	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	67.9	69.7		68.6	74.8		6.0	13.2		20.6	14.0	
Queue Length 50th (ft)	26	62		113	165		1	242		37	271	
Queue Length 95th (ft)	60	117		179	257		m3	m817		77	368	
Internal Link Dist (ft)		249			1033			5260			358	
Turn Bay Length (ft)							245			280		
Base Capacity (vph)	168	179		278	305		254	1915		244	2317	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.17	0.42		0.44	0.71		0.06	0.74		0.45	0.49	

Intersection Summary

Cycle Length: 150
Actuated Cycle Length: 150
Offset: 117 (78%), Referenced to phase 2:SBTL and 6:NBTL, Start of Yellow
Natural Cycle: 90
Control Type: Actuated-Coordinated
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 5: S Volusia Ave/N Volusia Ave & E Graves Ave



HCM 6th Signalized Intersection Summary
5: S Volusia Ave/N Volusia Ave & E Graves Ave

2020 Buildout Conditions
Timing Plan: PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	27	53	19	118	79	130	14	1242	120	107	1044	38
Future Volume (veh/h)	27	53	19	118	79	130	14	1242	120	107	1044	38
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1841	1841	1841	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	28	55	10	123	82	88	15	1294	119	111	1088	36
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	4	4	4	3	3	3	3	3	3
Cap, veh/h	116	101	18	206	95	102	322	1980	181	244	2407	80
Arrive On Green	0.07	0.07	0.07	0.12	0.12	0.12	0.61	0.61	0.61	0.04	0.69	0.69
Sat Flow, veh/h	1781	1540	280	1753	812	872	497	3265	299	1767	3482	115
Grp Volume(v), veh/h	28	0	65	123	0	170	15	697	716	111	551	573
Grp Sat Flow(s),veh/h/ln	1781	0	1820	1753	0	1684	497	1763	1802	1767	1763	1835
Q Serve(g_s), s	2.2	0.0	5.2	10.0	0.0	14.9	2.1	38.6	39.0	3.5	21.0	21.1
Cycle Q Clear(g_c), s	2.2	0.0	5.2	10.0	0.0	14.9	10.4	38.6	39.0	3.5	21.0	21.1
Prop In Lane	1.00		0.15	1.00		0.52	1.00		0.17	1.00		0.06
Lane Grp Cap(c), veh/h	116	0	119	206	0	198	322	1069	1092	244	1218	1268
V/C Ratio(X)	0.24	0.00	0.55	0.60	0.00	0.86	0.05	0.65	0.66	0.46	0.45	0.45
Avail Cap(c_a), veh/h	170	0	174	282	0	271	322	1069	1092	330	1218	1268
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.27	0.27	0.27	1.00	1.00	1.00
Uniform Delay (d), s/veh	66.6	0.0	68.0	62.8	0.0	65.0	15.6	19.2	19.3	17.4	10.4	10.4
Incr Delay (d2), s/veh	1.1	0.0	3.9	2.8	0.0	18.0	0.1	0.8	0.8	1.3	1.2	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.0	2.6	4.6	0.0	7.4	0.2	15.3	15.8	1.4	8.1	8.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	67.6	0.0	71.8	65.6	0.0	83.0	15.7	20.1	20.1	18.7	11.6	11.6
LnGrp LOS	E	A	E	E	A	F	B	C	C	B	B	B
Approach Vol, veh/h	93			293			1428			1235		
Approach Delay, s/veh	70.6			75.7			20.1			12.2		
Approach LOS	E			E			C			B		
Timer - Assigned Phs	2			4		5	6		8			
Phs Duration (G+Y+Rc), s	111.0			23.5		12.7	98.3		15.5			
Change Period (Y+Rc), s	* 7.3			* 5.9		* 7.2	* 7.3		5.7			
Max Green Setting (Gmax), s	* 93			* 24		* 13	* 73		14.3			
Max Q Clear Time (g_c+I1), s	23.1			16.9		5.5	41.0		7.2			
Green Ext Time (p_c), s	9.0			0.8		0.1	12.1		0.2			
Intersection Summary												
HCM 6th Ctrl Delay				23.8								
HCM 6th LOS				C								
Notes												

Lanes, Volumes, Timings
6: Veterans Memorial Pkwy & E Graves Ave

2020 Buildout Conditions
Timing Plan: PM Peak Hour

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗	↘	↑	↘	↗
Traffic Volume (vph)	330	45	769	459	68	980
Future Volume (vph)	330	45	769	459	68	980
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	3%	3%	4%	4%	2%	2%
Adj. Flow (vph)	347	47	809	483	72	1032
Shared Lane Traffic (%)						
Lane Group Flow (vph)	347	47	809	483	72	1032
Turn Type	NA	Perm	pm+pt	NA	Prot	pm+ov
Protected Phases	2		1	6	8	1
Permitted Phases		2	6			8
Detector Phase	2	2	1	6	8	1
Switch Phase						
Minimum Initial (s)	11.0	11.0	7.0	11.0	7.0	7.0
Minimum Split (s)	18.0	18.0	14.0	18.0	14.0	14.0
Total Split (s)	21.0	21.0	35.0	56.0	19.0	35.0
Total Split (%)	28.0%	28.0%	46.7%	74.7%	25.3%	46.7%
Yellow Time (s)	4.5	4.5	4.5	4.5	5.0	4.5
All-Red Time (s)	2.5	2.5	2.5	2.5	2.0	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag	Lag	Lag	Lead			Lead
Lead-Lag Optimize?	Yes	Yes	Yes			Yes
Recall Mode	Min	Min	None	Min	None	None
v/c Ratio	0.92	0.13	0.98	0.36	0.33	1.07
Control Delay	60.9	9.4	44.7	5.6	32.9	63.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	60.9	9.4	44.7	5.6	32.9	63.2
Queue Length 50th (ft)	152	0	~306	74	30	~482
Queue Length 95th (ft)	#323	26	#581	139	66	#722
Internal Link Dist (ft)	7674			1636	7026	
Turn Bay Length (ft)		400	300		1000	
Base Capacity (vph)	379	359	828	1360	311	969
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.92	0.13	0.98	0.36	0.23	1.07

Intersection Summary

Cycle Length: 75

Actuated Cycle Length: 68.8

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

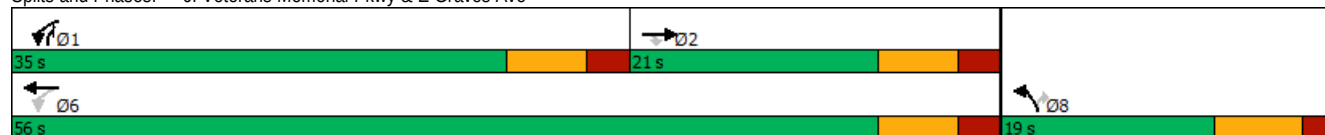
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

Splits and Phases: 6: Veterans Memorial Pkwy & E Graves Ave



HCM 6th Signalized Intersection Summary
6: Veterans Memorial Pkwy & E Graves Ave

2020 Buildout Conditions
Timing Plan: PM Peak Hour

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗	↘	↑	↘	↗
Traffic Volume (veh/h)	330	45	769	459	68	980
Future Volume (veh/h)	330	45	769	459	68	980
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1856	1856	1841	1841	1870	1870
Adj Flow Rate, veh/h	347	19	809	483	72	869
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	4	4	2	2
Cap, veh/h	346	294	750	1203	285	845
Arrive On Green	0.19	0.19	0.37	0.65	0.16	0.16
Sat Flow, veh/h	1856	1572	1753	1841	1781	1585
Grp Volume(v), veh/h	347	19	809	483	72	869
Grp Sat Flow(s),veh/h/ln	1856	1572	1753	1841	1781	1585
Q Serve(g_s), s	14.0	0.7	28.0	9.2	2.7	12.0
Cycle Q Clear(g_c), s	14.0	0.7	28.0	9.2	2.7	12.0
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	346	294	750	1203	285	845
V/C Ratio(X)	1.00	0.06	1.08	0.40	0.25	1.03
Avail Cap(c_a), veh/h	346	294	750	1203	285	845
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.5	25.1	17.7	6.1	27.6	17.5
Incr Delay (d2), s/veh	48.8	0.1	55.9	0.3	0.5	38.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.5	0.3	20.6	2.5	1.1	19.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	79.3	25.2	73.6	6.4	28.0	55.8
LnGrp LOS	F	C	F	A	C	F
Approach Vol, veh/h	366			1292	941	
Approach Delay, s/veh	76.5			48.5	53.7	
Approach LOS	E			D	D	
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	35.0	21.0			56.0	19.0
Change Period (Y+Rc), s	7.0	7.0			7.0	7.0
Max Green Setting (Gmax), s	28.0	14.0			49.0	12.0
Max Q Clear Time (g_c+I1), s	30.0	16.0			11.2	14.0
Green Ext Time (p_c), s	0.0	0.0			4.5	0.0
Intersection Summary						
HCM 6th Ctrl Delay			54.3			
HCM 6th LOS			D			

Lanes, Volumes, Timings
7: S Kentucky Ave/N Kentucky Ave & E Graves Ave

2020 Buildout Conditions
Timing Plan: PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	296	1051	24	28	911	517	15	9	17	570	19	337
Future Volume (vph)	296	1051	24	28	911	517	15	9	17	570	19	337
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	325	1155	26	31	1001	568	16	10	19	626	21	370
Shared Lane Traffic (%)												
Lane Group Flow (vph)	325	1181	0	31	1569	0	0	45	0	626	391	0
Turn Type	pm+pt	NA		Perm	NA		Split	NA		Split	NA	
Protected Phases	5	2			6		4	4		8	8	
Permitted Phases	2			6								
Detector Phase	5	2		6	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	5.0	11.0		11.0	11.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	11.0	18.0		18.0	18.0		14.0	14.0		14.0	14.0	
Total Split (s)	31.0	97.0		66.0	66.0		14.0	14.0		29.0	29.0	
Total Split (%)	22.1%	69.3%		47.1%	47.1%		10.0%	10.0%		20.7%	20.7%	
Yellow Time (s)	4.0	5.0		5.0	5.0		4.0	4.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		3.0	3.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Lead/Lag	Lead			Lag	Lag							
Lead-Lag Optimize?	Yes			Yes	Yes							
Recall Mode	None	Min		Min	Min		None	None		None	None	
v/c Ratio	0.89	0.52		0.16	1.05		0.42			1.13	0.69	
Control Delay	66.1	13.6		28.2	73.5		54.9			129.6	13.6	
Queue Delay	0.0	0.0		0.0	0.0		0.0			0.0	0.0	
Total Delay	66.1	13.6		28.2	73.5		54.9			129.6	13.6	
Queue Length 50th (ft)	239	286		17	~810		23			~346	17	
Queue Length 95th (ft)	#413	341		43	#951		66			#469	125	
Internal Link Dist (ft)		1636			3200		455				4140	
Turn Bay Length (ft)	200			235						320		
Base Capacity (vph)	376	2312		190	1493		106			555	568	
Starvation Cap Reductn	0	0		0	0		0			0	0	
Spillback Cap Reductn	0	0		0	0		0			0	0	
Storage Cap Reductn	0	0		0	0		0			0	0	
Reduced v/c Ratio	0.86	0.51		0.16	1.05		0.42			1.13	0.69	

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 136.4

Natural Cycle: 150

Control Type: Actuated-Uncoordinated

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

Splits and Phases: 7: S Kentucky Ave/N Kentucky Ave & E Graves Ave



HCM 6th Signalized Intersection Summary
7: S Kentucky Ave/N Kentucky Ave & E Graves Ave

2020 Buildout Conditions
Timing Plan: PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	296	1051	24	28	911	517	15	9	17	570	19	337
Future Volume (veh/h)	296	1051	24	28	911	517	15	9	17	570	19	337
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	325	1155	24	31	1001	353	16	10	6	626	21	229
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	3	3	3	3	3	3	2	2	2	2	2	2
Cap, veh/h	352	2238	46	260	1113	389	33	20	12	583	23	248
Arrive On Green	0.15	0.63	0.63	0.43	0.43	0.43	0.04	0.04	0.04	0.17	0.17	0.17
Sat Flow, veh/h	1767	3532	73	472	2562	895	883	552	331	3456	135	1471
Grp Volume(v), veh/h	325	576	603	31	686	668	32	0	0	626	0	250
Grp Sat Flow(s),veh/h/ln	1767	1763	1842	472	1763	1694	1767	0	0	1728	0	1606
Q Serve(g_s), s	17.5	23.2	23.2	5.2	47.0	48.0	2.3	0.0	0.0	22.0	0.0	20.0
Cycle Q Clear(g_c), s	17.5	23.2	23.2	5.2	47.0	48.0	2.3	0.0	0.0	22.0	0.0	20.0
Prop In Lane	1.00		0.04	1.00		0.53	0.50		0.19	1.00		0.92
Lane Grp Cap(c), veh/h	352	1117	1167	260	766	736	65	0	0	583	0	271
V/C Ratio(X)	0.92	0.52	0.52	0.12	0.90	0.91	0.49	0.00	0.00	1.07	0.00	0.92
Avail Cap(c_a), veh/h	420	1216	1271	269	797	766	95	0	0	583	0	271
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	38.6	13.0	13.0	22.3	34.2	34.5	61.6	0.0	0.0	54.2	0.0	53.4
Incr Delay (d2), s/veh	23.4	0.5	0.5	0.3	12.8	14.6	5.6	0.0	0.0	58.8	0.0	35.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.4	8.5	8.9	0.6	21.7	21.7	1.2	0.0	0.0	14.1	0.0	10.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	62.1	13.5	13.5	22.6	47.0	49.1	67.3	0.0	0.0	113.0	0.0	88.4
LnGrp LOS	E	B	B	C	D	D	E	A	A	F	A	F
Approach Vol, veh/h	1504			1385			32			876		
Approach Delay, s/veh	24.0			47.4			67.3			106.0		
Approach LOS	C			D			E			F		
Timer - Assigned Phs	2			4		5	6		8			
Phs Duration (G+Y+Rc), s	89.7			11.8		26.0	63.7		29.0			
Change Period (Y+Rc), s	7.0			7.0		6.0	7.0		7.0			
Max Green Setting (Gmax), s	90.0			7.0		25.0	59.0		22.0			
Max Q Clear Time (g_c+I1), s	25.2			4.3		19.5	50.0		24.0			
Green Ext Time (p_c), s	15.1			0.0		0.5	6.6		0.0			
Intersection Summary												
HCM 6th Ctrl Delay	51.8											
HCM 6th LOS	D											

Lanes, Volumes, Timings
8: N Normandy Blvd & E Graves Ave

2020 Buildout Conditions
Timing Plan: PM Peak Hour

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↖↗	↑	↖↗	↑
Traffic Volume (vph)	734	1046	774	607	778	716
Future Volume (vph)	734	1046	774	607	778	716
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	2%	2%	4%	4%	2%	2%
Adj. Flow (vph)	781	1113	823	646	828	762
Shared Lane Traffic (%)						
Lane Group Flow (vph)	781	1113	823	646	828	762
Turn Type	NA	pm+ov	Prot	NA	Prot	Perm
Protected Phases	6	4	5	2	4	
Permitted Phases		6				4
Detector Phase	6	4	5	2	4	4
Switch Phase						
Minimum Initial (s)	12.0	7.0	5.0	12.0	7.0	7.0
Minimum Split (s)	19.0	13.0	12.0	19.0	13.0	13.0
Total Split (s)	29.0	35.0	26.0	55.0	35.0	35.0
Total Split (%)	32.2%	38.9%	28.9%	61.1%	38.9%	38.9%
Yellow Time (s)	5.0	4.0	5.0	5.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	6.0	7.0	7.0	6.0	6.0
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Recall Mode	Min	None	None	Min	None	None
v/c Ratio	0.90	1.09	1.16	0.66	0.75	0.89
Control Delay	48.4	74.7	120.8	19.3	32.3	23.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.4	74.7	120.8	19.3	32.3	23.7
Queue Length 50th (ft)	226	~721	~288	250	214	142
Queue Length 95th (ft)	#334	#967	#402	372	283	#401
Internal Link Dist (ft)	3200			471	1192	
Turn Bay Length (ft)		630	400		200	
Base Capacity (vph)	865	1021	710	974	1106	857
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.90	1.09	1.16	0.66	0.75	0.89

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Natural Cycle: 110

Control Type: Actuated-Uncoordinated

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

Splits and Phases: 8: N Normandy Blvd & E Graves Ave



HCM 6th Signalized Intersection Summary
8: N Normandy Blvd & E Graves Ave

2020 Buildout Conditions
Timing Plan: PM Peak Hour

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↑↑	↑	↑↑	↑
Traffic Volume (veh/h)	734	1046	774	607	778	716
Future Volume (veh/h)	734	1046	774	607	778	716
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1841	1841	1870	1870
Adj Flow Rate, veh/h	781	876	823	646	828	233
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	4	4	2	2
Cap, veh/h	921	857	762	1041	971	446
Arrive On Green	0.26	0.26	0.22	0.57	0.28	0.28
Sat Flow, veh/h	3647	1585	3401	1841	3456	1585
Grp Volume(v), veh/h	781	876	823	646	828	233
Grp Sat Flow(s),veh/h/ln	1777	1585	1700	1841	1728	1585
Q Serve(g_s), s	17.7	22.0	19.0	19.9	19.2	10.5
Cycle Q Clear(g_c), s	17.7	22.0	19.0	19.9	19.2	10.5
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	921	857	762	1041	971	446
V/C Ratio(X)	0.85	1.02	1.08	0.62	0.85	0.52
Avail Cap(c_a), veh/h	921	857	762	1041	1181	542
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.8	14.0	32.9	12.3	28.8	25.7
Incr Delay (d2), s/veh	7.7	36.6	56.6	1.3	5.3	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.9	25.8	13.2	7.0	8.0	0.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	37.5	50.7	89.5	13.7	34.1	26.7
LnGrp LOS	D	F	F	B	C	C
Approach Vol, veh/h	1657			1469	1061	
Approach Delay, s/veh	44.5			56.2	32.5	
Approach LOS	D			E	C	
Timer - Assigned Phs	2			4	5	6
Phs Duration (G+Y+Rc), s	55.0			29.8	26.0	29.0
Change Period (Y+Rc), s	7.0			6.0	7.0	7.0
Max Green Setting (Gmax), s	48.0			29.0	19.0	22.0
Max Q Clear Time (g_c+I1), s	21.9			21.2	21.0	24.0
Green Ext Time (p_c), s	6.2			2.6	0.0	0.0
Intersection Summary						
HCM 6th Ctrl Delay			45.5			
HCM 6th LOS			D			

Lanes, Volumes, Timings
9: Howland Boulevard/SR 472 & Graves Avenue

2020 Buildout Conditions
Timing Plan: PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 			 			 	 		 	  	
Traffic Volume (vph)	281	47	1196	52	44	106	741	1014	18	62	1809	391
Future Volume (vph)	281	47	1196	52	44	106	741	1014	18	62	1809	391
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
Heavy Vehicles (%)	3%	3%	3%	2%	2%	2%	3%	3%	3%	2%	2%	2%
Adj. Flow (vph)	296	49	1259	55	46	112	780	1067	19	65	1904	412
Shared Lane Traffic (%)												
Lane Group Flow (vph)	296	49	1259	55	46	112	780	1067	19	65	2316	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	5.0	17.0	17.0	7.0	17.0	
Minimum Split (s)	15.0	15.0	15.0	14.5	14.5	14.5	12.0	24.0	24.0	14.5	24.0	
Total Split (s)	23.0	26.0	26.0	22.0	25.0	25.0	27.0	88.0	88.0	15.0	76.0	
Total Split (%)	15.2%	17.2%	17.2%	14.6%	16.6%	16.6%	17.9%	58.3%	58.3%	9.9%	50.3%	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	3.0	3.0	3.0	2.5	2.5	2.5	2.0	2.0	2.0	2.5	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	8.0	8.0	8.0	7.5	7.5	7.5	7.0	7.0	7.0	7.5	7.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lag	Lag	Lag	Lead	Lead	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	None	None	None	None	None	None	C-Min	C-Min	None	C-Min	
v/c Ratio	0.88	0.15	2.35	0.30	0.21	0.32	1.73	0.55	0.02	0.39	1.01	
Control Delay	93.4	56.3	632.6	72.8	63.3	2.4	375.6	23.3	0.1	76.6	62.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	93.4	56.3	632.6	72.8	63.3	2.4	375.6	23.3	0.1	76.6	62.1	
Queue Length 50th (ft)	151	42	~1797	27	42	0	~584	358	0	32	~870	
Queue Length 95th (ft)	#234	85	#2081	52	84	0	#714	424	0	59	#958	
Internal Link Dist (ft)		1373			8563			569			283	
Turn Bay Length (ft)	330			565			280			185		
Base Capacity (vph)	337	334	536	329	216	350	450	1950	936	170	2283	
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.88	0.15	2.35	0.17	0.21	0.32	1.73	0.55	0.02	0.38	1.01	

Intersection Summary

Cycle Length: 151

Actuated Cycle Length: 151

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow

Natural Cycle: 150

Control Type: Actuated-Coordinated

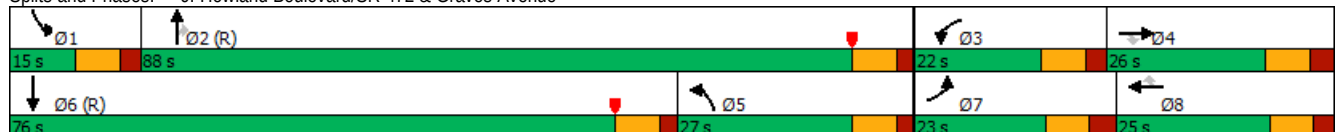
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

Splits and Phases: 9: Howland Boulevard/SR 472 & Graves Avenue



HCM 6th Signalized Intersection Summary
9: Howland Boulevard/SR 472 & Graves Avenue

2020 Buildout Conditions
Timing Plan: PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	281	47	1196	52	44	106	741	1014	18	62	1809	391
Future Volume (veh/h)	281	47	1196	52	44	106	741	1014	18	62	1809	391
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1870	1870	1870	1856	1856	1856	1870	1870	1870
Adj Flow Rate, veh/h	296	49	0	55	46	21	780	1067	18	65	1904	395
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, %	3	3	3	2	2	2	3	3	3	2	2	2
Cap, veh/h	338	189		160	87	73	684	2139	954	160	1945	395
Arrive On Green	0.10	0.10	0.00	0.05	0.05	0.05	0.20	0.61	0.61	0.05	0.46	0.46
Sat Flow, veh/h	3428	1856	1572	3456	1870	1585	3428	3526	1572	3456	4256	863
Grp Volume(v), veh/h	296	49	0	55	46	21	780	1067	18	65	1514	785
Grp Sat Flow(s),veh/h/ln	1714	1856	1572	1728	1870	1585	1714	1763	1572	1728	1702	1715
Q Serve(g_s), s	12.9	3.7	0.0	2.3	3.6	1.9	30.1	25.8	0.7	2.8	65.7	69.0
Cycle Q Clear(g_c), s	12.9	3.7	0.0	2.3	3.6	1.9	30.1	25.8	0.7	2.8	65.7	69.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.50
Lane Grp Cap(c), veh/h	338	189		160	87	73	684	2139	954	160	1555	784
V/C Ratio(X)	0.88	0.26		0.34	0.53	0.29	1.14	0.50	0.02	0.41	0.97	1.00
Avail Cap(c_a), veh/h	341	221		332	217	184	684	2139	954	172	1555	784
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.09	0.09	0.00	0.39	0.39	0.39	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	67.2	62.6	0.0	69.8	70.4	69.6	60.4	16.7	11.8	70.0	40.1	41.0
Incr Delay (d2), s/veh	2.6	0.1	0.0	0.5	2.0	0.8	80.0	0.8	0.0	1.6	17.3	32.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.6	1.7	0.0	1.0	1.8	0.8	20.6	10.5	0.2	1.3	30.9	35.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	69.7	62.6	0.0	70.3	72.4	70.4	140.5	17.6	11.8	71.6	57.5	73.4
LnGrp LOS	E	E		E	E	E	F	B	B	E	E	F
Approach Vol, veh/h	345			122			1865			2364		
Approach Delay, s/veh	68.7			71.1			68.9			63.1		
Approach LOS	E			E			E			E		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	14.5	98.6	14.5	23.4	37.1	76.0	22.9	15.0				
Change Period (Y+Rc), s	7.5	7.0	7.5	8.0	7.0	7.0	8.0	* 8				
Max Green Setting (Gmax), s	7.5	81.0	14.5	18.0	20.0	69.0	15.0	* 18				
Max Q Clear Time (g_c+I1), s	4.8	27.8	4.3	5.7	32.1	71.0	14.9	5.6				
Green Ext Time (p_c), s	0.0	15.0	0.1	0.1	0.0	0.0	0.0	0.1				

Intersection Summary

HCM 6th Ctrl Delay 66.1
HCM 6th LOS E

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
10: Catalina Blvd & Graves Avenue/Howland Blvd

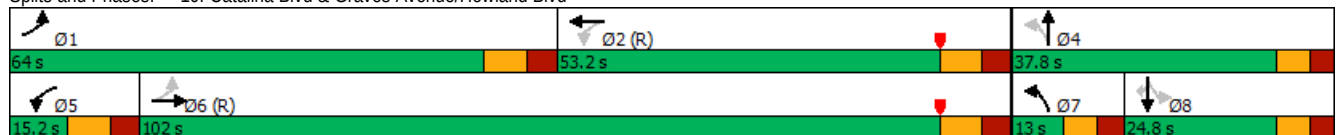
2020 Buildout Conditions
Timing Plan: PM Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	656	1412	103	52	878	81	86	71	30	91	71	350
Future Volume (vph)	656	1412	103	52	878	81	86	71	30	91	71	350
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	669	1441	105	53	896	83	88	72	31	93	72	357
Shared Lane Traffic (%)												
Lane Group Flow (vph)	669	1546	0	53	979	0	88	103	0	93	72	357
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		Perm	NA	Perm
Protected Phases	1	6		5	2		7	4			8	
Permitted Phases	6			2			4			8		8
Detector Phase	1	6		5	2		7	4		8	8	8
Switch Phase												
Minimum Initial (s)	5.0	11.0		5.0	11.0		5.0	7.0		7.0	7.0	7.0
Minimum Split (s)	13.5	19.5		13.5	19.5		12.0	14.0		14.0	14.0	14.0
Total Split (s)	64.0	102.0		15.2	53.2		13.0	37.8		24.8	24.8	24.8
Total Split (%)	41.3%	65.8%		9.8%	34.3%		8.4%	24.4%		16.0%	16.0%	16.0%
Yellow Time (s)	5.0	5.0		5.0	5.0		4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	3.5	3.5		3.5	3.5		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)	8.5	8.5		8.5	8.5		7.0	7.0		7.0	7.0	7.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead			Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes			Yes	Yes	Yes
Recall Mode	None	C-Min		None	C-Min		None	None		None	None	None
v/c Ratio	0.98	0.69		0.33	0.94		0.43	0.30		0.70	0.38	0.74
Control Delay	71.3	21.6		26.8	63.3		60.6	49.8		94.4	70.1	15.9
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	71.3	21.6		26.8	63.3		60.6	49.8		94.4	70.1	15.9
Queue Length 50th (ft)	618	557		28	528		76	79		91	68	0
Queue Length 95th (ft)	#890	645		m30	m#608		131	138		#164	122	106
Internal Link Dist (ft)		8563			1815			941			4969	
Turn Bay Length (ft)	375			270			180			235		415
Base Capacity (vph)	686	2229		166	1040		204	363		147	213	497
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.98	0.69		0.32	0.94		0.43	0.28		0.63	0.34	0.72

Intersection Summary

Cycle Length: 155
 Actuated Cycle Length: 155
 Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow
 Natural Cycle: 120
 Control Type: Actuated-Coordinated
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 10: Catalina Blvd & Graves Avenue/Howland Blvd



HCM 6th Signalized Intersection Summary
10: Catalina Blvd & Graves Avenue/Howland Blvd

2020 Buildout Conditions
Timing Plan: PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	656	1412	103	52	878	81	86	71	30	91	71	350
Future Volume (veh/h)	656	1412	103	52	878	81	86	71	30	91	71	350
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1856	1856	1856	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	669	1441	103	53	896	82	88	72	24	93	72	124
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	3	3	3	2	2	2	2	2	2
Cap, veh/h	691	2148	153	209	1083	99	183	238	79	168	175	148
Arrive On Green	0.34	0.64	0.64	0.03	0.33	0.33	0.04	0.18	0.18	0.09	0.09	0.09
Sat Flow, veh/h	1781	3365	239	1767	3266	299	1781	1342	447	1300	1870	1585
Grp Volume(v), veh/h	669	758	786	53	484	494	88	0	96	93	72	124
Grp Sat Flow(s),veh/h/ln	1781	1777	1827	1767	1763	1802	1781	0	1790	1300	1870	1585
Q Serve(g_s), s	49.1	41.7	42.3	3.1	39.2	39.2	6.0	0.0	7.2	10.8	5.6	11.9
Cycle Q Clear(g_c), s	49.1	41.7	42.3	3.1	39.2	39.2	6.0	0.0	7.2	10.8	5.6	11.9
Prop In Lane	1.00		0.13	1.00		0.17	1.00		0.25	1.00		1.00
Lane Grp Cap(c), veh/h	691	1135	1167	209	584	597	183	0	317	168	175	148
V/C Ratio(X)	0.97	0.67	0.67	0.25	0.83	0.83	0.48	0.00	0.30	0.55	0.41	0.84
Avail Cap(c_a), veh/h	730	1135	1167	233	584	597	183	0	356	196	215	182
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.98	0.98	0.98	0.71	0.71	0.71	1.00	0.00	1.00	0.80	0.80	0.80
Uniform Delay (d), s/veh	39.9	17.7	17.8	32.6	47.7	47.7	60.7	0.0	55.4	68.6	66.3	69.1
Incr Delay (d2), s/veh	24.8	3.1	3.1	0.4	9.4	9.2	1.9	0.0	0.5	3.2	1.8	21.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	29.2	16.9	17.5	1.3	18.3	18.7	0.5	0.0	3.3	3.7	2.8	5.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	64.6	20.7	20.8	33.1	57.1	56.9	62.7	0.0	56.0	71.8	68.0	90.8
LnGrp LOS	E	C	C	C	E	E	E	A	E	E	E	F
Approach Vol, veh/h	2213			1031			184			289		
Approach Delay, s/veh	34.0			55.8			59.2			79.0		
Approach LOS	C			E			E			E		
Timer - Assigned Phs	1	2		4	5	6	7	8				
Phs Duration (G+Y+Rc), s	60.6	59.9		34.5	13.1	107.5	13.0	21.5				
Change Period (Y+Rc), s	8.5	8.5		7.0	8.5	8.5	7.0	7.0				
Max Green Setting (Gmax), s	55.5	44.7		30.8	6.7	93.5	6.0	17.8				
Max Q Clear Time (g_c+I1), s	51.1	41.2		9.2	5.1	44.3	8.0	13.9				
Green Ext Time (p_c), s	1.1	2.2		0.4	0.0	23.1	0.0	0.5				
Intersection Summary												
HCM 6th Ctrl Delay	44.8											
HCM 6th LOS	D											

Lanes, Volumes, Timings
11: Lake Helen Osteen Rd & Catalina Blvd

2020 Buildout Conditions
Timing Plan: PM Peak Hour

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	168	472	252	179	317	104
Future Volume (vph)	168	472	252	179	317	104
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	183	513	274	195	345	113
Shared Lane Traffic (%)						
Lane Group Flow (vph)	183	513	274	195	458	0
Turn Type	Prot	Perm	pm+pt	NA	NA	
Protected Phases	8		1	6	2	
Permitted Phases		8	6			
Detector Phase	8	8	1	6	2	
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	15.0	15.0	
Minimum Split (s)	11.5	11.5	12.5	22.5	22.5	
Total Split (s)	20.0	20.0	20.0	50.0	30.0	
Total Split (%)	28.6%	28.6%	28.6%	71.4%	42.9%	
Yellow Time (s)	3.5	3.5	5.0	5.0	5.0	
All-Red Time (s)	3.0	3.0	2.5	2.5	2.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.5	6.5	7.5	7.5	7.5	
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	None	None	None	Min	Min	
v/c Ratio	0.55	0.72	0.57	0.18	0.80	
Control Delay	32.1	9.3	11.5	6.5	32.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	32.1	9.3	11.5	6.5	32.5	
Queue Length 50th (ft)	72	0	48	33	166	
Queue Length 95th (ft)	131	81	85	59	#306	
Internal Link Dist (ft)	4969			10882	661	
Turn Bay Length (ft)	185		240			
Base Capacity (vph)	364	733	506	1208	634	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.50	0.70	0.54	0.16	0.72	

Intersection Summary

Cycle Length: 70

Actuated Cycle Length: 66.1

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

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

Queue shown is maximum after two cycles.

Splits and Phases: 11: Lake Helen Osteen Rd & Catalina Blvd



HCM 6th Signalized Intersection Summary
11: Lake Helen Osteen Rd & Catalina Blvd

2020 Buildout Conditions
Timing Plan: PM Peak Hour

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	168	472	252	179	317	104
Future Volume (veh/h)	168	472	252	179	317	104
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	183	227	274	195	345	88
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	333	296	451	1067	430	110
Arrive On Green	0.19	0.19	0.14	0.57	0.30	0.30
Sat Flow, veh/h	1781	1585	1781	1870	1438	367
Grp Volume(v), veh/h	183	227	274	195	0	433
Grp Sat Flow(s),veh/h/ln	1781	1585	1781	1870	0	1804
Q Serve(g_s), s	5.4	7.8	5.5	2.9	0.0	12.8
Cycle Q Clear(g_c), s	5.4	7.8	5.5	2.9	0.0	12.8
Prop In Lane	1.00	1.00	1.00			0.20
Lane Grp Cap(c), veh/h	333	296	451	1067	0	540
V/C Ratio(X)	0.55	0.77	0.61	0.18	0.00	0.80
Avail Cap(c_a), veh/h	417	371	585	1377	0	703
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	21.3	22.3	12.0	5.9	0.0	18.6
Incr Delay (d2), s/veh	3.0	10.5	2.8	0.2	0.0	7.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	3.5	1.9	0.8	0.0	5.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	24.3	32.8	14.8	6.1	0.0	26.0
LnGrp LOS	C	C	B	A	A	C
Approach Vol, veh/h	410			469	433	
Approach Delay, s/veh	29.0			11.2	26.0	
Approach LOS	C			B	C	
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	15.7	24.8			40.4	17.3
Change Period (Y+Rc), s	7.5	7.5			7.5	6.5
Max Green Setting (Gmax), s	12.5	22.5			42.5	13.5
Max Q Clear Time (g_c+I1), s	7.5	14.8			4.9	9.8
Green Ext Time (p_c), s	0.7	2.5			2.1	1.0
Intersection Summary						
HCM 6th Ctrl Delay			21.6			
HCM 6th LOS			C			

Lanes, Volumes, Timings
12: Providence Blvd & Howland Blvd

2020 Buildout Conditions
Timing Plan: PM Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	1159	370	44	675	1	235	1	62	1	0	2
Future Volume (vph)	1	1159	370	44	675	1	235	1	62	1	0	2
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
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	1	1220	389	46	711	1	247	1	65	1	0	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	1	1220	389	46	712	0	247	66	0	0	3	0
Turn Type	Perm	NA	Perm	pm+pt	NA		pm+pt	NA		Perm	NA	
Protected Phases		6		5	2		7	4			8	
Permitted Phases	6		6	2			4			8		
Detector Phase	6	6	6	5	2		7	4		8	8	
Switch Phase												
Minimum Initial (s)	11.0	11.0	11.0	5.0	11.0		5.0	7.0		7.0	7.0	
Minimum Split (s)	18.0	18.0	18.0	12.0	18.0		12.0	14.0		14.0	14.0	
Total Split (s)	90.0	90.0	90.0	20.0	110.0		25.0	45.0		20.0	20.0	
Total Split (%)	58.1%	58.1%	58.1%	12.9%	71.0%		16.1%	29.0%		12.9%	12.9%	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		4.5	4.5		4.5	4.5	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.5	2.5		2.5	2.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0			7.0	
Lead/Lag	Lag	Lag	Lag	Lead			Lead			Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes			Yes	Yes	
Recall Mode	Min	Min	Min	None	C-Min		None	None		None	None	
v/c Ratio	0.00	0.93	0.33	0.37	0.50		1.11	0.25			0.02	
Control Delay	3.0	22.7	0.9	18.9	8.4		152.7	14.3			0.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Total Delay	3.0	22.7	0.9	18.9	8.4		152.7	14.3			0.0	
Queue Length 50th (ft)	0	435	6	9	210		~303	1			0	
Queue Length 95th (ft)	m0	#1658	9	43	421		#400	44			0	
Internal Link Dist (ft)		1815			1369			8692			129	
Turn Bay Length (ft)	160			160			280					
Base Capacity (vph)	481	1312	1166	194	1431		222	438			258	
Starvation Cap Reductn	0	0	0	0	0		0	0			0	
Spillback Cap Reductn	0	0	0	0	0		0	0			0	
Storage Cap Reductn	0	0	0	0	0		0	0			0	
Reduced v/c Ratio	0.00	0.93	0.33	0.24	0.50		1.11	0.15			0.01	

Intersection Summary

Cycle Length: 155

Actuated Cycle Length: 155

Offset: 28 (18%), Referenced to phase 2:WBTL, Start of Yellow

Natural Cycle: 140

Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

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

Splits and Phases: 12: Providence Blvd & Howland Blvd



HCM 6th Signalized Intersection Summary
12: Providence Blvd & Howland Blvd

2020 Buildout Conditions
Timing Plan: PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	1159	370	44	675	1	235	1	62	1	0	2
Future Volume (veh/h)	1	1159	370	44	675	1	235	1	62	1	0	2
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1856	1856	1856	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1	1220	366	46	711	1	247	1	29	1	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
Percent Heavy Veh, %	2	2	2	3	3	3	2	2	2	2	2	2
Cap, veh/h	443	1201	1018	301	1325	2	324	10	300	92	0	0
Arrive On Green	1.00	1.00	1.00	0.03	0.72	0.72	0.12	0.19	0.19	0.03	0.00	0.00
Sat Flow, veh/h	738	1870	1585	1767	1852	3	1781	53	1540	1379	0	0
Grp Volume(v), veh/h	1	1220	366	46	0	712	247	0	30	1	0	0
Grp Sat Flow(s),veh/h/ln	738	1870	1585	1767	0	1855	1781	0	1593	1380	0	0
Q Serve(g_s), s	0.0	0.0	0.0	1.3	0.0	27.5	18.0	0.0	2.4	0.1	0.0	0.0
Cycle Q Clear(g_c), s	16.2	0.0	0.0	1.3	0.0	27.5	18.0	0.0	2.4	0.1	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.00	1.00		0.97	1.00		0.00
Lane Grp Cap(c), veh/h	443	1201	1018	301	0	1327	324	0	310	92	0	0
V/C Ratio(X)	0.00	1.02	0.36	0.15	0.00	0.54	0.76	0.00	0.10	0.01	0.00	0.00
Avail Cap(c_a), veh/h	443	1201	1018	400	0	1327	324	0	391	162	0	0
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.66	0.66	0.66	1.00	0.00	1.00	0.86	0.00	0.86	1.00	0.00	0.00
Uniform Delay (d), s/veh	1.3	0.0	0.0	8.0	0.0	10.2	63.1	0.0	51.2	72.5	0.0	0.0
Incr Delay (d2), s/veh	0.0	25.1	0.2	0.2	0.0	1.6	9.5	0.0	0.1	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	8.4	0.1	0.5	0.0	10.6	10.3	0.0	1.0	0.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	1.3	25.1	0.2	8.3	0.0	11.8	72.6	0.0	51.4	72.5	0.0	0.0
LnGrp LOS	A	F	A	A	A	B	E	A	D	E	A	A
Approach Vol, veh/h	1587		758				277				1	
Approach Delay, s/veh	19.4		11.6				70.3				72.5	
Approach LOS	B		B				E				E	
Timer - Assigned Phs	2		4		5		6		7		8	
Phs Duration (G+Y+Rc), s	117.8		37.2		11.3		106.5		25.0		12.2	
Change Period (Y+Rc), s	7.0		7.0		7.0		7.0		7.0			
Max Green Setting (Gmax), s	103.0		38.0		13.0		83.0		18.0		13.0	
Max Q Clear Time (g_c+I1), s	29.5		4.4		3.3		18.2		20.0		2.1	
Green Ext Time (p_c), s	8.4		0.1		0.0		31.8		0.0		0.0	
Intersection Summary												
HCM 6th Ctrl Delay	22.5											
HCM 6th LOS	C											

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	29	92	149	201	94	120	153	1473	191	101	1184	25
Future Volume (vph)	29	92	149	201	94	120	153	1473	191	101	1184	25
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
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	31	97	157	212	99	126	161	1551	201	106	1246	26
Shared Lane Traffic (%)												
Lane Group Flow (vph)	31	97	157	212	225	0	161	1752	0	106	1272	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8		8	4			6			2		
Detector Phase	3	8	8	7	4		1	6		5	2	
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0		5.0	15.0		5.0	15.0	
Minimum Split (s)	11.9	16.9	16.9	11.7	16.9		12.1	22.1		11.8	22.1	
Total Split (s)	25.0	30.0	30.0	25.0	30.0		28.0	75.0		20.0	67.0	
Total Split (%)	16.7%	20.0%	20.0%	16.7%	20.0%		18.7%	50.0%		13.3%	44.7%	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.9	4.9		4.8	4.9	
All-Red Time (s)	2.9	2.9	2.9	2.7	2.9		2.2	2.2		2.0	2.2	
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)	6.9	6.9	6.9	6.7	6.9		7.1	7.1		6.8	7.1	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	None	None	None	None		None	C-Min		None	C-Min	
v/c Ratio	0.16	0.54	0.50	0.64	0.62		0.61	0.94		0.63	0.72	
Control Delay	42.3	74.7	10.1	55.0	54.6		26.2	43.2		55.0	25.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	42.3	74.7	10.1	55.0	54.6		26.2	43.2		55.0	25.8	
Queue Length 50th (ft)	23	93	0	177	180		57	790		55	523	
Queue Length 95th (ft)	48	147	45	240	264		137	#1163		131	717	
Internal Link Dist (ft)		835			5352			877			5260	
Turn Bay Length (ft)	330		755	300			240			285		
Base Capacity (vph)	325	286	396	336	364		337	1870		210	1774	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.10	0.34	0.40	0.63	0.62		0.48	0.94		0.50	0.72	

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 8 (5%), Referenced to phase 2:SBTL and 6:NBTL, Start of Yellow

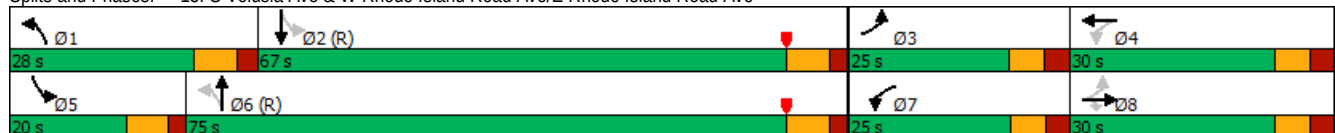
Natural Cycle: 100

Control Type: Actuated-Coordinated

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

Queue shown is maximum after two cycles.

Splits and Phases: 13: S Volusia Ave & W Rhode Island Road Ave/E Rhode Island Road Ave



HCM 6th Signalized Intersection Summary

13: S Volusia Ave & W Rhode Island Road Ave/E Rhode Island Road Ave

2020 Buildout Conditions

Timing Plan: PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	29	92	149	201	94	120	153	1473	191	101	1184	25
Future Volume (veh/h)	29	92	149	201	94	120	153	1473	191	101	1184	25
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1856	1856	1856	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	31	97	37	212	99	87	161	1551	198	106	1246	24
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	3	3	3	2	2	2	2	2	2
Cap, veh/h	165	126	106	284	149	131	291	1871	236	167	2043	39
Arrive On Green	0.02	0.07	0.07	0.12	0.16	0.16	0.05	0.59	0.59	0.04	0.57	0.57
Sat Flow, veh/h	1781	1870	1585	1767	911	801	1781	3175	400	1781	3566	69
Grp Volume(v), veh/h	31	97	37	212	0	186	161	858	891	106	621	649
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1767	0	1711	1781	1777	1798	1781	1777	1858
Q Serve(g_s), s	2.4	7.7	3.3	16.3	0.0	15.3	5.6	57.6	60.4	3.7	34.4	34.4
Cycle Q Clear(g_c), s	2.4	7.7	3.3	16.3	0.0	15.3	5.6	57.6	60.4	3.7	34.4	34.4
Prop In Lane	1.00		1.00	1.00		0.47	1.00		0.22	1.00		0.04
Lane Grp Cap(c), veh/h	165	126	106	284	0	280	291	1047	1060	167	1018	1065
V/C Ratio(X)	0.19	0.77	0.35	0.75	0.00	0.66	0.55	0.82	0.84	0.63	0.61	0.61
Avail Cap(c_a), veh/h	337	288	244	284	0	280	446	1047	1060	256	1018	1065
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.65	0.00	0.65	1.00	1.00	1.00	0.86	0.86	0.86
Uniform Delay (d), s/veh	63.0	68.8	66.8	54.6	0.0	58.9	17.8	24.5	25.1	29.9	21.0	21.0
Incr Delay (d2), s/veh	0.5	9.6	1.9	6.9	0.0	3.8	1.6	7.2	8.0	3.4	2.3	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	4.0	1.4	7.8	0.0	6.9	2.3	24.6	26.3	2.3	14.2	14.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	63.6	78.4	68.8	61.5	0.0	62.7	19.5	31.7	33.1	33.3	23.4	23.3
LnGrp LOS	E	E	E	E	A	E	B	C	C	C	C	C
Approach Vol, veh/h	165			398			1910			1376		
Approach Delay, s/veh	73.5			62.1			31.3			24.1		
Approach LOS	E			E			C			C		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	15.0	93.0	10.5	31.4	12.5	95.5	25.0	17.0				
Change Period (Y+Rc), s	* 7.1	* 7.1	6.9	6.9	6.8	* 7.1	* 6.7	6.9				
Max Green Setting (Gmax), s	* 21	* 60	18.1	23.1	13.2	* 68	* 18	23.1				
Max Q Clear Time (g_c+I1), s	7.6	36.4	4.4	17.3	5.7	62.4	18.3	9.7				
Green Ext Time (p_c), s	0.3	12.0	0.0	0.4	0.1	4.8	0.0	0.4				

Intersection Summary

HCM 6th Ctrl Delay 33.7

HCM 6th LOS C

Notes

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

Lanes, Volumes, Timings
14: Veterans Memorial Pkwy & E Rhode Island Road Ave

2020 Buildout Conditions
Timing Plan: PM Peak Hour

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	289	270	369	906	622	294
Future Volume (vph)	289	270	369	906	622	294
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	304	284	388	954	655	309
Shared Lane Traffic (%)						
Lane Group Flow (vph)	304	284	388	954	655	309
Turn Type	Prot	Perm	Prot	NA	NA	Perm
Protected Phases	4		1	6	2	
Permitted Phases		4				2
Detector Phase	4	4	1	6	2	2
Switch Phase						
Minimum Initial (s)	7.0	7.0	5.0	11.0	11.0	11.0
Minimum Split (s)	13.5	13.5	13.5	20.5	20.5	20.5
Total Split (s)	18.9	18.9	17.0	51.1	34.1	34.1
Total Split (%)	27.0%	27.0%	24.3%	73.0%	48.7%	48.7%
Yellow Time (s)	3.5	3.5	5.5	5.5	5.5	5.5
All-Red Time (s)	3.0	3.0	3.0	4.0	4.0	4.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	8.5	9.5	9.5	9.5
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Recall Mode	None	None	None	Min	Min	Min
v/c Ratio	0.97	0.55	0.93	0.86	1.00	0.41
Control Delay	76.6	8.3	63.4	22.3	61.2	4.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	76.6	8.3	63.4	22.3	61.2	4.1
Queue Length 50th (ft)	132	0	87	305	~277	0
Queue Length 95th (ft)	#277	60	#165	#580	#490	47
Internal Link Dist (ft)	5352			4702	7026	
Turn Bay Length (ft)	450		385			385
Base Capacity (vph)	313	514	416	1107	654	756
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.97	0.55	0.93	0.86	1.00	0.41

Intersection Summary

Cycle Length: 70

Actuated Cycle Length: 70

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

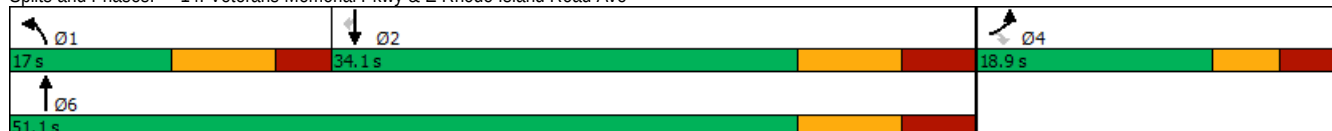
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

Splits and Phases: 14: Veterans Memorial Pkwy & E Rhode Island Road Ave



HCM 6th Signalized Intersection Summary
 14: Veterans Memorial Pkwy & E Rhode Island Road Ave

2020 Buildout Conditions
 Timing Plan: PM Peak Hour

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	289	270	369	906	622	294
Future Volume (veh/h)	289	270	369	906	622	294
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	304	119	388	954	655	196
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	316	281	420	1112	657	557
Arrive On Green	0.18	0.18	0.12	0.59	0.35	0.35
Sat Flow, veh/h	1781	1585	3456	1870	1870	1585
Grp Volume(v), veh/h	304	119	388	954	655	196
Grp Sat Flow(s),veh/h/ln	1781	1585	1728	1870	1870	1585
Q Serve(g_s), s	11.9	4.7	7.8	29.6	24.5	6.4
Cycle Q Clear(g_c), s	11.9	4.7	7.8	29.6	24.5	6.4
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	316	281	420	1112	657	557
V/C Ratio(X)	0.96	0.42	0.92	0.86	1.00	0.35
Avail Cap(c_a), veh/h	316	281	420	1112	657	557
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.6	25.6	30.4	11.8	22.7	16.8
Incr Delay (d2), s/veh	40.7	1.0	26.2	6.9	34.2	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.2	1.7	4.4	10.2	15.1	2.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	69.3	26.6	56.6	18.6	56.8	17.2
LnGrp LOS	E	C	E	B	E	B
Approach Vol, veh/h	423			1342	851	
Approach Delay, s/veh	57.3			29.6	47.7	
Approach LOS	E			C	D	
Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	17.0	34.1		18.9		51.1
Change Period (Y+Rc), s	8.5	9.5		6.5		9.5
Max Green Setting (Gmax), s	8.5	24.6		12.4		41.6
Max Q Clear Time (g_c+I1), s	9.8	26.5		13.9		31.6
Green Ext Time (p_c), s	0.0	0.0		0.0		4.5
Intersection Summary						
HCM 6th Ctrl Delay			40.0			
HCM 6th LOS			D			

Lanes, Volumes, Timings
15: N Normandy Blvd & Elkcarn Blvd

2020 Buildout Conditions
Timing Plan: PM Peak Hour

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	211	263	759	394	402	957
Future Volume (vph)	211	263	759	394	402	957
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	222	277	799	415	423	1007
Shared Lane Traffic (%)						
Lane Group Flow (vph)	222	277	1214	0	423	1007
Turn Type	Prot	Perm	NA		pm+pt	NA
Protected Phases	4		6		5	2
Permitted Phases		4			2	
Detector Phase	4	4	6		5	2
Switch Phase						
Minimum Initial (s)	5.0	5.0	12.0		5.0	12.0
Minimum Split (s)	11.5	11.5	19.0		11.5	18.5
Total Split (s)	20.0	20.0	35.0		15.0	50.0
Total Split (%)	28.6%	28.6%	50.0%		21.4%	71.4%
Yellow Time (s)	4.0	4.0	4.5		4.0	4.0
All-Red Time (s)	2.5	2.5	2.5		2.5	2.5
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	6.5	6.5	7.0		6.5	6.5
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	None	None	Min		None	Min
v/c Ratio	0.70	0.54	0.86		1.26	0.45
Control Delay	39.4	8.1	23.7		159.7	7.5
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	39.4	8.1	23.7		159.7	7.5
Queue Length 50th (ft)	89	0	212		-187	105
Queue Length 95th (ft)	#172	58	#309		#354	143
Internal Link Dist (ft)	7820		5060			4811
Turn Bay Length (ft)	460				275	
Base Capacity (vph)	358	540	1501		335	2306
Starvation Cap Reductn	0	0	0		0	0
Spillback Cap Reductn	0	0	0		0	0
Storage Cap Reductn	0	0	0		0	0
Reduced v/c Ratio	0.62	0.51	0.81		1.26	0.44

Intersection Summary

Cycle Length: 70

Actuated Cycle Length: 67.1

Natural Cycle: 80

Control Type: Actuated-Uncoordinated

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

Splits and Phases: 15: N Normandy Blvd & Elkcarn Blvd



HCM 6th Signalized Intersection Summary
15: N Normandy Blvd & Elkcam Blvd

2020 Buildout Conditions
Timing Plan: PM Peak Hour

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	211	263	759	394	402	957
Future Volume (veh/h)	211	263	759	394	402	957
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	222	132	799	255	423	1007
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	284	252	997	318	421	2206
Arrive On Green	0.16	0.16	0.38	0.38	0.14	0.62
Sat Flow, veh/h	1781	1585	2743	845	1781	3647
Grp Volume(v), veh/h	222	132	536	518	423	1007
Grp Sat Flow(s),veh/h/ln	1781	1585	1777	1718	1781	1777
Q Serve(g_s), s	7.3	4.7	16.5	16.5	8.5	9.2
Cycle Q Clear(g_c), s	7.3	4.7	16.5	16.5	8.5	9.2
Prop In Lane	1.00	1.00		0.49	1.00	
Lane Grp Cap(c), veh/h	284	252	669	647	421	2206
V/C Ratio(X)	0.78	0.52	0.80	0.80	1.00	0.46
Avail Cap(c_a), veh/h	392	349	811	784	421	2518
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.8	23.7	17.1	17.1	13.1	6.2
Incr Delay (d2), s/veh	6.8	1.7	4.8	5.0	44.8	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.4	4.3	6.7	6.5	7.5	2.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	31.6	25.3	21.9	22.1	57.9	6.3
LnGrp LOS	C	C	C	C	F	A
Approach Vol, veh/h	354		1054			1430
Approach Delay, s/veh	29.3		22.0			21.6
Approach LOS	C		C			C
Timer - Assigned Phs	2		4	5	6	
Phs Duration (G+Y+Rc), s	45.1		16.3	15.0	30.1	
Change Period (Y+Rc), s	* 7		6.5	6.5	7.0	
Max Green Setting (Gmax), s	* 44		13.5	8.5	28.0	
Max Q Clear Time (g_c+I1), s	11.2		9.3	10.5	18.5	
Green Ext Time (p_c), s	7.6		0.4	0.0	4.6	
Intersection Summary						
HCM 6th Ctrl Delay			22.7			
HCM 6th LOS			C			
Notes						

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

Lanes, Volumes, Timings
16: Fort Smith Blvd & Elkcaml Blvd

2020 Buildout Conditions
Timing Plan: PM Peak Hour

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	379	257	5	227	176	11
Future Volume (vph)	379	257	5	227	176	11
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	2%	2%	4%	4%
Adj. Flow (vph)	412	279	5	247	191	12
Shared Lane Traffic (%)						
Lane Group Flow (vph)	691	0	0	252	203	0
Sign Control	Free			Free	Stop	

Intersection Summary

Control Type: Unsignalized

Intersection						
Int Delay, s/veh	5.1					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	379	257	5	227	176	11
Future Vol, veh/h	379	257	5	227	176	11
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	4	4
Mvmt Flow	412	279	5	247	191	12
Major/Minor	Major1	Major2		Minor1		
Conflicting Flow All	0	0	691	0	809	552
Stage 1	-	-	-	-	552	-
Stage 2	-	-	-	-	257	-
Critical Hdwy	-	-	4.12	-	6.44	6.24
Critical Hdwy Stg 1	-	-	-	-	5.44	-
Critical Hdwy Stg 2	-	-	-	-	5.44	-
Follow-up Hdwy	-	-	2.218	-	3.536	3.336
Pot Cap-1 Maneuver	-	-	904	-	347	530
Stage 1	-	-	-	-	573	-
Stage 2	-	-	-	-	781	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	904	-	345	530
Mov Cap-2 Maneuver	-	-	-	-	345	-
Stage 1	-	-	-	-	570	-
Stage 2	-	-	-	-	781	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0.2		28.3	
HCM LOS					D	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	352	-	-	904	-	
HCM Lane V/C Ratio	0.577	-	-	0.006	-	
HCM Control Delay (s)	28.3	-	-	9	0	
HCM Lane LOS	D	-	-	A	A	
HCM 95th %tile Q(veh)	3.5	-	-	0	-	

Lanes, Volumes, Timings
17: Providence Blvd & Elkcam Blvd

2020 Buildout Conditions
Timing Plan: PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	86	211	86	180	153	41	67	273	202	73	350	55
Future Volume (vph)	86	211	86	180	153	41	67	273	202	73	350	55
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	91	224	91	191	163	44	71	290	215	78	372	59
Shared Lane Traffic (%)												
Lane Group Flow (vph)	91	315	0	191	207	0	71	290	215	78	372	59
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6			8		8	4		4
Detector Phase	5	2		1	6		3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	5.0	6.0		5.0	6.0		5.0	6.0	6.0	5.0	6.0	6.0
Minimum Split (s)	12.5	13.5		12.5	13.5		12.0	13.0	13.0	12.5	13.5	13.5
Total Split (s)	15.0	30.0		15.0	30.0		20.0	35.0	35.0	20.0	35.0	35.0
Total Split (%)	15.0%	30.0%		15.0%	30.0%		20.0%	35.0%	35.0%	20.0%	35.0%	35.0%
Yellow Time (s)	4.5	4.5		4.5	4.5		4.0	4.0	4.0	4.5	4.5	4.5
All-Red Time (s)	3.0	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	0.0
Total Lost Time (s)	7.5	7.5		7.5	7.5		7.0	7.0	7.0	7.5	7.5	7.5
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Min		None	Min		None	None	None	None	None	None
v/c Ratio	0.22	0.75		0.57	0.40		0.23	0.59	0.37	0.22	0.75	0.10
Control Delay	20.1	42.7		28.5	30.8		17.0	33.8	6.0	16.9	40.0	0.3
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.1	42.7		28.5	30.8		17.0	33.8	6.0	16.9	40.0	0.3
Queue Length 50th (ft)	32	158		72	96		23	145	0	26	195	0
Queue Length 95th (ft)	70	#291		#139	176		49	236	52	53	307	0
Internal Link Dist (ft)		4411			6336			3885			8692	
Turn Bay Length (ft)	375			225			235		365	220		295
Base Capacity (vph)	431	512		335	541		420	648	691	449	640	684
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.62		0.57	0.38		0.17	0.45	0.31	0.17	0.58	0.09

Intersection Summary

Cycle Length: 100

Actuated Cycle Length: 84.2

Natural Cycle: 75

Control Type: Actuated-Uncoordinated

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

Queue shown is maximum after two cycles.

Splits and Phases: 17: Providence Blvd & Elkcam Blvd

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

HCM 6th Signalized Intersection Summary
17: Providence Blvd & Elkcam Blvd

2020 Buildout Conditions
Timing Plan: PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	86	211	86	180	153	41	67	273	202	73	350	55
Future Volume (veh/h)	86	211	86	180	153	41	67	273	202	73	350	55
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	91	224	72	191	163	35	71	290	115	78	372	26
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	383	277	89	327	370	79	247	444	376	288	460	390
Arrive On Green	0.06	0.20	0.20	0.10	0.25	0.25	0.05	0.24	0.24	0.05	0.25	0.25
Sat Flow, veh/h	1781	1356	436	1781	1492	320	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	91	0	296	191	0	198	71	290	115	78	372	26
Grp Sat Flow(s),veh/h/ln	1781	0	1792	1781	0	1813	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	3.0	0.0	11.7	6.2	0.0	6.8	2.2	10.4	4.4	2.4	13.9	0.9
Cycle Q Clear(g_c), s	3.0	0.0	11.7	6.2	0.0	6.8	2.2	10.4	4.4	2.4	13.9	0.9
Prop In Lane	1.00		0.24	1.00		0.18	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	383	0	365	327	0	449	247	444	376	288	460	390
V/C Ratio(X)	0.24	0.00	0.81	0.58	0.00	0.44	0.29	0.65	0.31	0.27	0.81	0.07
Avail Cap(c_a), veh/h	461	0	543	327	0	549	467	705	598	492	693	587
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	21.5	0.0	28.2	21.2	0.0	23.6	20.8	25.6	23.3	20.3	26.3	21.5
Incr Delay (d2), s/veh	0.3	0.0	7.2	2.6	0.0	1.0	0.6	2.3	0.6	0.5	5.6	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	0.0	5.4	2.6	0.0	2.9	0.9	4.6	1.6	1.0	6.5	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.8	0.0	35.3	23.8	0.0	24.5	21.5	27.9	23.9	20.8	31.9	21.6
LnGrp LOS	C	A	D	C	A	C	C	C	C	C	C	C
Approach Vol, veh/h	387			389			476			476		
Approach Delay, s/veh	32.2			24.2			26.0			29.5		
Approach LOS	C			C			C			C		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	15.0	22.6	10.8	25.8	11.7	25.9	11.5	25.1				
Change Period (Y+Rc), s	7.5	7.5	7.0	7.5	7.5	7.5	7.5	* 7.5				
Max Green Setting (Gmax), s	7.5	22.5	13.0	27.5	7.5	22.5	12.5	* 28				
Max Q Clear Time (g_c+I1), s	8.2	13.7	4.2	15.9	5.0	8.8	4.4	12.4				
Green Ext Time (p_c), s	0.0	1.4	0.1	2.4	0.0	1.1	0.1	2.5				

Intersection Summary

HCM 6th Ctrl Delay 27.9
HCM 6th LOS C

Notes

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

Lanes, Volumes, Timings
18: Lake Helen Osteen Rd & Elkcarn Blvd

2020 Buildout Conditions
Timing Plan: PM Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	139	344	10	72	250	16	15	170	139	30	215	129
Future Volume (vph)	139	344	10	72	250	16	15	170	139	30	215	129
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	3%	3%	3%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	153	378	11	79	275	18	16	187	153	33	236	142
Shared Lane Traffic (%)												
Lane Group Flow (vph)	153	389	0	79	293	0	16	340	0	33	378	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		5	2		6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		5.0	7.0		7.0	7.0	
Minimum Split (s)	13.5	13.5		13.5	13.5		11.5	14.0		13.5	13.5	
Total Split (s)	20.0	20.0		20.0	20.0		20.0	45.0		25.0	25.0	
Total Split (%)	30.8%	30.8%		30.8%	30.8%		30.8%	69.2%		38.5%	38.5%	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.5		4.0	4.0	
All-Red Time (s)	2.5	2.5		2.5	2.5		2.5	2.5		2.5	2.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.5	6.5		6.5	6.5		6.5	7.0		6.5	6.5	
Lead/Lag							Lead			Lag	Lag	
Lead-Lag Optimize?							Yes			Yes	Yes	
Recall Mode	None	None		None	None		None	Min		Min	Min	
v/c Ratio	0.44	0.64		0.31	0.48		0.04	0.52		0.10	0.65	
Control Delay	20.6	22.8		18.1	17.6		7.6	9.9		12.4	17.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	20.6	22.8		18.1	17.6		7.6	9.9		12.4	17.7	
Queue Length 50th (ft)	25	67		12	47		2	41		5	58	
Queue Length 95th (ft)	#119	#279		60	#185		9	83		25	177	
Internal Link Dist (ft)		10882			412			5142			782	
Turn Bay Length (ft)	405			105			100			170		
Base Capacity (vph)	350	604		259	609		619	1577		465	816	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.44	0.64		0.31	0.48		0.03	0.22		0.07	0.46	

Intersection Summary

Cycle Length: 65

Actuated Cycle Length: 42.5

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

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

Queue shown is maximum after two cycles.

Splits and Phases: 18: Lake Helen Osteen Rd & Elkcarn Blvd



HCM 6th Signalized Intersection Summary
18: Lake Helen Osteen Rd & Elkcarn Blvd

2020 Buildout Conditions
Timing Plan: PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	139	344	10	72	250	16	15	170	139	30	215	129
Future Volume (veh/h)	139	344	10	72	250	16	15	170	139	30	215	129
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	153	378	9	79	275	14	16	187	105	33	236	97
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	3	3	3	2	2	2	2	2	2	2	2	2
Cap, veh/h	336	533	13	266	521	27	270	460	258	426	311	128
Arrive On Green	0.30	0.30	0.30	0.30	0.30	0.30	0.02	0.41	0.41	0.25	0.25	0.25
Sat Flow, veh/h	1082	1805	43	997	1764	90	1781	1125	632	1087	1260	518
Grp Volume(v), veh/h	153	0	387	79	0	289	16	0	292	33	0	333
Grp Sat Flow(s),veh/h/ln	1082	0	1848	997	0	1854	1781	0	1757	1087	0	1777
Q Serve(g_s), s	6.3	0.0	8.5	3.5	0.0	5.9	0.3	0.0	5.4	1.1	0.0	7.9
Cycle Q Clear(g_c), s	12.2	0.0	8.5	12.0	0.0	5.9	0.3	0.0	5.4	1.1	0.0	7.9
Prop In Lane	1.00		0.02	1.00		0.05	1.00		0.36	1.00		0.29
Lane Grp Cap(c), veh/h	336	0	546	266	0	548	270	0	719	426	0	438
V/C Ratio(X)	0.45	0.00	0.71	0.30	0.00	0.53	0.06	0.00	0.41	0.08	0.00	0.76
Avail Cap(c_a), veh/h	336	0	546	266	0	548	760	0	1461	598	0	720
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	18.5	0.0	14.3	19.7	0.0	13.4	12.1	0.0	9.6	13.4	0.0	16.0
Incr Delay (d2), s/veh	1.0	0.0	4.2	0.6	0.0	0.9	0.1	0.0	0.4	0.1	0.0	2.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	0.0	3.5	0.7	0.0	2.1	0.1	0.0	1.6	0.2	0.0	3.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	19.5	0.0	18.6	20.3	0.0	14.4	12.1	0.0	9.9	13.4	0.0	18.7
LnGrp LOS	B	A	B	C	A	B	B	A	A	B	A	B
Approach Vol, veh/h	540			368			308			366		
Approach Delay, s/veh	18.8			15.7			10.1			18.2		
Approach LOS	B			B			B			B		
Timer - Assigned Phs	2			4		5	6	8				
Phs Duration (G+Y+Rc), s	25.7			20.0		7.4	18.3	20.0				
Change Period (Y+Rc), s	7.0			6.5		6.5	* 7	6.5				
Max Green Setting (Gmax), s	38.0			13.5		13.5	* 19	13.5				
Max Q Clear Time (g_c+I1), s	7.4			14.2		2.3	9.9	14.0				
Green Ext Time (p_c), s	1.8			0.0		0.0	1.3	0.0				
Intersection Summary												
HCM 6th Ctrl Delay	16.2											
HCM 6th LOS	B											
Notes												

Lanes, Volumes, Timings
19: Providence Blvd & Fort Smith Blvd

2020 Buildout Conditions
Timing Plan: PM Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	9	162	62	220	135	108	56	410	393	130	391	4
Future Volume (vph)	9	162	62	220	135	108	56	410	393	130	391	4
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
Heavy Vehicles (%)	4%	4%	4%	2%	2%	2%	2%	2%	2%	3%	3%	3%
Adj. Flow (vph)	9	171	65	232	142	114	59	432	414	137	412	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	9	236	0	232	256	0	59	432	414	137	416	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2		2	6		
Detector Phase	4	4		8	8		2	2	2	1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		12.0	12.0	12.0	5.0	12.0	
Minimum Split (s)	14.0	14.0		13.5	13.5		18.5	18.5	18.5	13.0	20.0	
Total Split (s)	30.0	30.0		30.0	30.0		35.0	35.0	35.0	20.0	55.0	
Total Split (%)	35.3%	35.3%		35.3%	35.3%		41.2%	41.2%	41.2%	23.5%	64.7%	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.5	4.5	
All-Red Time (s)	3.0	3.0		2.5	2.5		2.5	2.5	2.5	3.5	3.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	7.0	7.0		6.5	6.5		6.5	6.5	6.5	8.0	8.0	
Lead/Lag							Lag	Lag	Lag	Lead		
Lead-Lag Optimize?							Yes	Yes	Yes	Yes		
Recall Mode	None	None		None	None		Min	Min	Min	None	None	
v/c Ratio	0.03	0.46		0.73	0.48		0.18	0.68	0.51	0.37	0.46	
Control Delay	22.7	25.2		42.4	22.8		20.9	28.7	4.8	12.4	13.2	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	22.7	25.2		42.4	22.8		20.9	28.7	4.8	12.4	13.2	
Queue Length 50th (ft)	3	89		107	86		21	184	0	33	119	
Queue Length 95th (ft)	15	163		#228	163		51	298	60	61	184	
Internal Link Dist (ft)		5102			547			764			3885	
Turn Bay Length (ft)	100			440			200			221		
Base Capacity (vph)	337	617		382	641		412	795	912	449	1242	
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	
Reduced v/c Ratio	0.03	0.38		0.61	0.40		0.14	0.54	0.45	0.31	0.33	

Intersection Summary

Cycle Length: 85

Actuated Cycle Length: 72

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

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

Queue shown is maximum after two cycles.

Splits and Phases: 19: Providence Blvd & Fort Smith Blvd



HCM 6th Signalized Intersection Summary
19: Providence Blvd & Fort Smith Blvd

2020 Buildout Conditions
Timing Plan: PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	9	162	62	220	135	108	56	410	393	130	391	4
Future Volume (veh/h)	9	162	62	220	135	108	56	410	393	130	391	4
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1841	1841	1841	1870	1870	1870	1870	1870	1870	1856	1856	1856
Adj Flow Rate, veh/h	9	171	40	232	142	73	59	432	286	137	412	4
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, %	4	4	4	2	2	2	2	2	2	3	3	3
Cap, veh/h	350	453	106	358	366	188	386	553	469	293	881	9
Arrive On Green	0.31	0.31	0.31	0.31	0.31	0.31	0.30	0.30	0.30	0.08	0.48	0.48
Sat Flow, veh/h	1148	1443	337	1171	1164	598	970	1870	1585	1767	1835	18
Grp Volume(v), veh/h	9	0	211	232	0	215	59	432	286	137	0	416
Grp Sat Flow(s),veh/h/ln	1148	0	1780	1171	0	1763	970	1870	1585	1767	0	1852
Q Serve(g_s), s	0.5	0.0	6.7	14.1	0.0	7.0	3.3	15.5	11.3	3.7	0.0	11.0
Cycle Q Clear(g_c), s	7.4	0.0	6.7	20.8	0.0	7.0	3.3	15.5	11.3	3.7	0.0	11.0
Prop In Lane	1.00		0.19	1.00		0.34	1.00		1.00	1.00		0.01
Lane Grp Cap(c), veh/h	350	0	559	358	0	554	386	553	469	293	0	890
V/C Ratio(X)	0.03	0.00	0.38	0.65	0.00	0.39	0.15	0.78	0.61	0.47	0.00	0.47
Avail Cap(c_a), veh/h	350	0	560	367	0	567	477	729	618	450	0	1191
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	22.5	0.0	19.5	27.6	0.0	19.6	19.3	23.6	22.1	16.9	0.0	12.7
Incr Delay (d2), s/veh	0.0	0.0	0.4	3.8	0.0	0.4	0.3	4.8	1.8	1.2	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	2.7	4.0	0.0	2.7	0.7	7.0	4.1	1.4	0.0	4.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.5	0.0	19.9	31.4	0.0	20.0	19.5	28.4	23.9	18.1	0.0	13.3
LnGrp LOS	C	A	B	C	A	C	B	C	C	B	A	B
Approach Vol, veh/h	220			447			777			553		
Approach Delay, s/veh	20.0			25.9			26.1			14.5		
Approach LOS	C			C			C			B		
Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	13.5	29.6		30.0		43.1		30.0				
Change Period (Y+Rc), s	8.0	* 8		7.0		8.0		* 7				
Max Green Setting (Gmax), s	12.0	* 29		23.0		47.0		* 24				
Max Q Clear Time (g_c+I1), s	5.7	17.5		9.4		13.0		22.8				
Green Ext Time (p_c), s	0.2	4.2		1.0		4.0		0.2				

Intersection Summary

HCM 6th Ctrl Delay 22.2
HCM 6th LOS C

Notes

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

Lanes, Volumes, Timings
20: Veterans Memorial Pkwy & Harley Strickland Blvd

2020 Buildout Conditions
Timing Plan: PM Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	340	60	297	75	41	107	265	442	2	134	542	193
Future Volume (vph)	340	60	297	75	41	107	265	442	2	134	542	193
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
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	3%	3%	3%	2%	2%	2%
Adj. Flow (vph)	354	63	309	78	43	111	276	460	2	140	565	201
Shared Lane Traffic (%)												
Lane Group Flow (vph)	354	63	309	78	154	0	276	462	0	140	766	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8		8	4			6			2		
Detector Phase	3	8	8	7	4		1	6		5	2	
Switch Phase												
Minimum Initial (s)	5.0	7.0	7.0	5.0	7.0		5.0	16.0		5.0	16.0	
Minimum Split (s)	12.5	14.5	14.5	12.5	14.5		12.5	23.5		12.5	23.5	
Total Split (s)	35.0	42.7	42.7	14.3	22.0		28.0	55.8		17.2	45.0	
Total Split (%)	26.9%	32.8%	32.8%	11.0%	16.9%		21.5%	42.9%		13.2%	34.6%	
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	
All-Red Time (s)	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)	7.5	7.5	7.5	7.5	7.5		7.5	7.5		7.5	7.5	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	None	None	None	None		None	C-Min		None	C-Min	
v/c Ratio	0.84	0.14	0.50	0.36	0.72		0.72	0.31		0.31	0.63	
Control Delay	54.1	39.2	7.0	36.0	46.4		28.9	27.2		19.0	37.6	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	54.1	39.2	7.0	36.0	46.4		28.9	27.2		19.0	37.6	
Queue Length 50th (ft)	242	43	0	45	61		124	141		57	276	
Queue Length 95th (ft)	327	78	71	78	133		208	193		101	372	
Internal Link Dist (ft)		562			593			1843			1501	
Turn Bay Length (ft)	235		235	250			435			340		
Base Capacity (vph)	443	504	653	218	256		413	1471		454	1223	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.80	0.13	0.47	0.36	0.60		0.67	0.31		0.31	0.63	

Intersection Summary

Cycle Length: 130

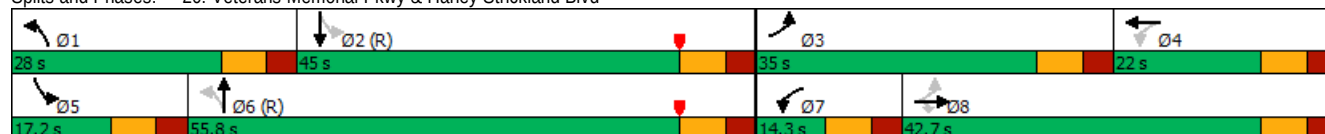
Actuated Cycle Length: 130

Offset: 40 (31%), Referenced to phase 2:SBTL and 6:NBTL, Start of Yellow

Natural Cycle: 90

Control Type: Actuated-Coordinated

Splits and Phases: 20: Veterans Memorial Pkwy & Harley Strickland Blvd



HCM 6th Signalized Intersection Summary
20: Veterans Memorial Pkwy & Harley Strickland Blvd

2020 Buildout Conditions
Timing Plan: PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	340	60	297	75	41	107	265	442	2	134	542	193
Future Volume (veh/h)	340	60	297	75	41	107	265	442	2	134	542	193
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1856	1856	1856	1870	1870	1870
Adj Flow Rate, veh/h	354	62	141	78	43	74	276	460	2	140	565	159
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	3	3	3	2	2	2
Cap, veh/h	420	424	359	248	53	90	410	1541	7	488	1040	292
Arrive On Green	0.19	0.23	0.23	0.05	0.09	0.09	0.11	0.43	0.43	0.06	0.38	0.38
Sat Flow, veh/h	1781	1870	1585	1781	617	1062	1767	3600	16	1781	2740	769
Grp Volume(v), veh/h	354	62	141	78	0	117	276	225	237	140	366	358
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	0	1679	1767	1763	1853	1781	1777	1732
Q Serve(g_s), s	22.8	3.4	9.8	5.1	0.0	8.9	12.1	10.9	10.9	6.2	20.9	21.0
Cycle Q Clear(g_c), s	22.8	3.4	9.8	5.1	0.0	8.9	12.1	10.9	10.9	6.2	20.9	21.0
Prop In Lane	1.00		1.00	1.00		0.63	1.00		0.01	1.00		0.44
Lane Grp Cap(c), veh/h	420	424	359	248	0	143	410	755	793	488	674	657
V/C Ratio(X)	0.84	0.15	0.39	0.31	0.00	0.82	0.67	0.30	0.30	0.29	0.54	0.55
Avail Cap(c_a), veh/h	453	506	429	249	0	187	492	755	793	509	674	657
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	0.63	0.63	0.63	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.1	40.2	42.7	50.7	0.0	58.5	22.4	24.4	24.4	22.0	31.5	31.6
Incr Delay (d2), s/veh	12.7	0.2	0.7	0.7	0.0	19.0	1.8	0.6	0.6	0.3	3.1	3.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	11.3	1.6	3.9	2.4	0.0	4.5	5.0	4.6	4.8	2.6	9.4	9.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	53.8	40.4	43.4	51.4	0.0	77.4	24.2	25.0	25.0	22.4	34.6	34.8
LnGrp LOS	D	D	D	D	A	E	C	C	C	C	C	C
Approach Vol, veh/h	557			195			738			864		
Approach Delay, s/veh	49.7			67.0			24.7			32.7		
Approach LOS	D			E			C			C		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	22.0	56.8	32.6	18.6	15.7	63.2	14.2	36.9				
Change Period (Y+Rc), s	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5				
Max Green Setting (Gmax), s	20.5	37.5	27.5	14.5	9.7	48.3	6.8	35.2				
Max Q Clear Time (g_c+I1), s	14.1	23.0	24.8	10.9	8.2	12.9	7.1	11.8				
Green Ext Time (p_c), s	0.4	5.0	0.3	0.2	0.0	4.0	0.0	0.7				
Intersection Summary												
HCM 6th Ctrl Delay	37.0											
HCM 6th LOS	D											

Lanes, Volumes, Timings
21: Broward Ave/Veterans Memorial Pkwy & Saxon Blvd

2020 Buildout Conditions
Timing Plan: PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	205	1361	29	155	1294	540	47	48	101	713	69	192
Future Volume (vph)	205	1361	29	155	1294	540	47	48	101	713	69	192
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
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	216	1433	31	163	1362	568	49	51	106	751	73	202
Shared Lane Traffic (%)										46%		
Lane Group Flow (vph)	216	1464	0	163	1930	0	49	51	106	406	418	202
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases	1	6		5	2			4		3	8	
Permitted Phases	6			2			4		4	8		8
Detector Phase	1	6		5	2		4	4	4	3	8	8
Switch Phase												
Minimum Initial (s)	5.0	12.0		5.0	12.0		7.0	7.0	7.0	5.0	7.0	7.0
Minimum Split (s)	12.9	18.8		12.8	18.8		14.5	14.5	14.5	12.9	15.3	15.3
Total Split (s)	29.0	71.0		29.0	71.0		15.0	15.0	15.0	39.5	54.5	54.5
Total Split (%)	18.8%	46.0%		18.8%	46.0%		9.7%	9.7%	9.7%	25.6%	35.3%	35.3%
Yellow Time (s)	4.8	4.8		4.8	4.8		3.7	3.7	3.7	4.8	4.5	4.5
All-Red Time (s)	3.1	2.0		3.0	2.0		3.8	3.8	3.8	3.1	3.8	3.8
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.9	6.8		7.8	6.8		7.5	7.5	7.5	7.9	8.3	8.3
Lead/Lag	Lead	Lag		Lead	Lag		Lag	Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes		
Recall Mode	None	C-Min		None	C-Min		None	None	None	None	None	None
v/c Ratio	0.84	0.64		0.67	0.92		1.02	0.57	0.51	0.99	1.02	0.33
Control Delay	69.2	34.3		36.9	48.4		204.3	95.6	13.0	91.3	98.1	9.4
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	69.2	34.3		36.9	48.4		204.3	95.6	13.0	91.3	98.1	9.4
Queue Length 50th (ft)	161	403		72	654		~52	51	0	~406	~414	18
Queue Length 95th (ft)	#286	496		145	#734		#148	#108	31	#614	#643	84
Internal Link Dist (ft)		957			1787			543			1843	
Turn Bay Length (ft)	460			400			200		445	410		
Base Capacity (vph)	285	2286		322	2096		48	90	208	410	410	605
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.76	0.64		0.51	0.92		1.02	0.57	0.51	0.99	1.02	0.33

Intersection Summary

Cycle Length: 154.5

Actuated Cycle Length: 154.5

Offset: 124 (80%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow

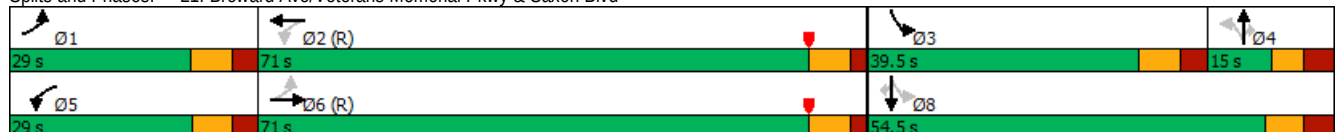
Natural Cycle: 130

Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 21: Broward Ave/Veterans Memorial Pkwy & Saxon Blvd



HCM 6th Signalized Intersection Summary
21: Broward Ave/Veterans Memorial Pkwy & Saxon Blvd

2020 Buildout Conditions
Timing Plan: PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	205	1361	29	155	1294	540	47	48	101	713	69	192
Future Volume (veh/h)	205	1361	29	155	1294	540	47	48	101	713	69	192
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	216	1433	22	163	1362	568	49	51	37	803	0	105
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, %	3	3	3	3	3	3	2	2	2	2	2	2
Cap, veh/h	239	2476	38	262	1580	650	110	91	77	882	0	484
Arrive On Green	0.10	0.48	0.48	0.06	0.45	0.45	0.05	0.05	0.05	0.21	0.00	0.31
Sat Flow, veh/h	1767	5140	79	1767	3523	1449	1289	1870	1585	3563	0	1585
Grp Volume(v), veh/h	216	942	513	163	1305	625	49	51	37	803	0	105
Grp Sat Flow(s),veh/h/ln	1767	1689	1841	1767	1689	1595	1289	1870	1585	1781	0	1585
Q Serve(g_s), s	12.6	30.9	30.9	7.6	53.5	54.8	5.8	4.1	3.5	31.6	0.0	7.6
Cycle Q Clear(g_c), s	12.6	30.9	30.9	7.6	53.5	54.8	5.8	4.1	3.5	31.6	0.0	7.6
Prop In Lane	1.00		0.04	1.00		0.91	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	239	1627	887	262	1515	715	110	91	77	882	0	484
V/C Ratio(X)	0.90	0.58	0.58	0.62	0.86	0.87	0.45	0.56	0.48	0.91	0.00	0.22
Avail Cap(c_a), veh/h	310	1627	887	392	1515	715	110	91	77	882	0	484
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.85	0.85	0.85	1.00	1.00	1.00	0.79	0.00	0.79
Uniform Delay (d), s/veh	43.8	28.7	28.7	24.0	38.2	38.5	72.4	71.6	71.3	53.8	0.0	39.8
Incr Delay (d2), s/veh	23.8	1.5	2.7	2.0	5.7	12.2	2.8	7.5	4.5	11.0	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.8	12.5	13.9	3.2	22.5	23.0	2.0	2.2	1.5	15.9	0.0	3.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	67.5	30.2	31.4	26.1	43.9	50.7	75.3	79.1	75.9	64.9	0.0	40.0
LnGrp LOS	E	C	C	C	D	D	E	E	E	E	A	D
Approach Vol, veh/h	1671			2093			137			908		
Approach Delay, s/veh	35.4			44.5			76.9			62.0		
Approach LOS	D			D			E			E		
Timer - Assigned Phs	1	2	3	4	5	6	8					
Phs Duration (G+Y+Rc), s	22.8	75.9	39.5	15.8	17.7	81.0	55.3					
Change Period (Y+Rc), s	7.9	6.8	7.9	* 8.3	7.8	6.8	* 8.3					
Max Green Setting (Gmax), s	21.1	64.2	31.6	* 7.5	21.2	64.2	* 46					
Max Q Clear Time (g_c+I1), s	14.6	56.8	33.6	7.8	9.6	32.9	9.6					
Green Ext Time (p_c), s	0.3	6.0	0.0	0.0	0.3	11.3	0.3					

Intersection Summary

HCM 6th Ctrl Delay 45.6

HCM 6th LOS D

Notes

User approved volume balancing among the lanes for turning movement.

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

Lanes, Volumes, Timings
22: FDOT Park & Ride & Saxon Blvd

2020 Buildout Conditions
Timing Plan: PM Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	38	2075	91	106	1789	27	61	0	100	35	5	15
Future Volume (vph)	38	2075	91	106	1789	27	61	0	100	35	5	15
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	41	2231	98	114	1924	29	66	0	108	38	5	16
Shared Lane Traffic (%)												
Lane Group Flow (vph)	41	2329	0	114	1953	0	66	108	0	0	59	0
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	1	6		5	2			4			8	
Permitted Phases	6			2			4			8		
Detector Phase	1	6		5	2		4	4		8	8	
Switch Phase												
Minimum Initial (s)	5.0	11.0		5.0	11.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	12.7	17.9		12.8	17.9		14.6	14.6		14.6	14.6	
Total Split (s)	12.7	110.0		15.0	112.3		21.0	21.0		21.0	21.0	
Total Split (%)	8.7%	75.3%		10.3%	76.9%		14.4%	14.4%		14.4%	14.4%	
Yellow Time (s)	4.8	4.9		4.9	4.9		4.2	4.2		4.2	4.2	
All-Red Time (s)	2.9	2.0		2.9	2.0		3.4	3.4		3.4	3.4	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0			0.0	
Total Lost Time (s)	7.7	6.9		7.8	6.9		7.6	7.6			7.6	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Recall Mode	None	C-Min		None	C-Min		None	None		None	None	
v/c Ratio	0.23	0.64		0.72	0.51		0.59	0.54			0.58	
Control Delay	6.3	12.1		51.4	8.4		85.9	28.3			76.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0			0.0	
Total Delay	6.3	12.1		51.4	8.4		85.9	28.3			76.1	
Queue Length 50th (ft)	6	423		44	275		61	19			45	
Queue Length 95th (ft)	14	444		#152	310		114	82			96	
Internal Link Dist (ft)		1787			407			186			166	
Turn Bay Length (ft)	365			390			105					
Base Capacity (vph)	180	3636		159	3818		135	224			120	
Starvation Cap Reductn	0	0		0	0		0	0			0	
Spillback Cap Reductn	0	0		0	0		0	0			0	
Storage Cap Reductn	0	0		0	0		0	0			0	
Reduced v/c Ratio	0.23	0.64		0.72	0.51		0.49	0.48			0.49	

Intersection Summary

Cycle Length: 146

Actuated Cycle Length: 146

Offset: 31 (21%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow

Natural Cycle: 70

Control Type: Actuated-Coordinated

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

Queue shown is maximum after two cycles.

Splits and Phases: 22: FDOT Park & Ride & Saxon Blvd



HCM 6th Signalized Intersection Summary
22: FDOT Park & Ride & Saxon Blvd

2020 Buildout Conditions
Timing Plan: PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	38	2075	91	106	1789	27	61	0	100	35	5	15
Future Volume (veh/h)	38	2075	91	106	1789	27	61	0	100	35	5	15
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	41	2231	93	114	1924	28	66	0	42	38	5	5
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	236	3749	156	194	3902	57	151	0	107	92	12	7
Arrive On Green	0.03	0.75	0.75	0.03	0.75	0.75	0.07	0.00	0.07	0.07	0.07	0.07
Sat Flow, veh/h	1781	5028	209	1781	5185	75	1405	0	1585	706	180	103
Grp Volume(v), veh/h	41	1507	817	114	1263	689	66	0	42	48	0	0
Grp Sat Flow(s),veh/h/ln	1781	1702	1833	1781	1702	1857	1405	0	1585	989	0	0
Q Serve(g_s), s	0.8	29.5	29.9	2.2	21.3	21.3	0.0	0.0	3.7	4.2	0.0	0.0
Cycle Q Clear(g_c), s	0.8	29.5	29.9	2.2	21.3	21.3	6.1	0.0	3.7	7.9	0.0	0.0
Prop In Lane	1.00		0.11	1.00		0.04	1.00		1.00	0.79		0.10
Lane Grp Cap(c), veh/h	236	2538	1367	194	2561	1397	151	0	107	111	0	0
V/C Ratio(X)	0.17	0.59	0.60	0.59	0.49	0.49	0.44	0.00	0.39	0.43	0.00	0.00
Avail Cap(c_a), veh/h	247	2538	1367	222	2561	1397	185	0	145	145	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.41	0.41	0.41	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	5.6	8.5	8.5	15.1	7.1	7.1	66.3	0.0	65.2	68.2	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.4	0.8	3.1	0.7	1.2	2.0	0.0	2.3	2.6	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	9.3	10.3	2.2	6.7	7.6	2.5	0.0	1.6	1.9	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	5.7	8.9	9.3	18.2	7.8	8.4	68.3	0.0	67.5	70.8	0.0	0.0
LnGrp LOS	A	A	A	B	A	A	E	A	E	E	A	A
Approach Vol, veh/h	2365			2066			108			48		
Approach Delay, s/veh	9.0			8.6			68.0			70.8		
Approach LOS	A			A			E			E		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.8	116.8		17.5	12.8	115.8		17.5				
Change Period (Y+Rc), s	* 7.7	6.9		7.6	7.8	6.9		7.6				
Max Green Setting (Gmax), s	* 5	105.4		13.4	7.2	103.1		13.4				
Max Q Clear Time (g_c+I1), s	2.8	23.3		8.1	4.2	31.9		9.9				
Green Ext Time (p_c), s	0.0	39.3		0.1	0.1	49.0		0.0				

Intersection Summary

HCM 6th Ctrl Delay 10.8
HCM 6th LOS B

Notes

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

Lanes, Volumes, Timings
24: I-4 & Saxon Blvd

2020 Buildout Conditions
Timing Plan: PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			 				  			
Traffic Volume (vph)	395	2853	0	0	1425	263	0	0	1213	0	0	523
Future Volume (vph)	395	2853	0	0	1425	263	0	0	1213	0	0	523
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	420	3035	0	0	1516	280	0	0	1290	0	0	556
Shared Lane Traffic (%)												
Lane Group Flow (vph)	420	3035	0	0	1516	280	0	0	1290	0	0	556
Turn Type	Prot	NA			NA	Perm			Prot			Perm
Protected Phases	1	6			2				5			
Permitted Phases						2						6
Detector Phase	1	6			2	2			5			6
Switch Phase												
Minimum Initial (s)	5.0	15.0			17.0	17.0			6.0			15.0
Minimum Split (s)	12.7	21.8			23.8	23.8			12.0			21.8
Total Split (s)	50.0	81.0			100.0	100.0			69.0			81.0
Total Split (%)	33.3%	54.0%			66.7%	66.7%			46.0%			54.0%
Yellow Time (s)	5.4	4.8			4.8	4.8			4.0			4.8
All-Red Time (s)	2.3	2.0			2.0	2.0			2.0			2.0
Lost Time Adjust (s)	0.0	0.0			0.0	0.0			0.0			0.0
Total Lost Time (s)	7.7	6.8			6.8	6.8			6.0			6.8
Lead/Lag	Lead	Lag			Lag	Lag			Lead			Lag
Lead-Lag Optimize?	Yes	Yes			Yes	Yes			Yes			Yes
Recall Mode	None	C-Min			C-Min	C-Min			None			C-Min
v/c Ratio	0.92	0.91			0.67	0.26			0.90			0.45
Control Delay	79.0	37.9			15.3	5.0			51.1			1.2
Queue Delay	0.0	0.0			0.0	0.0			0.0			0.0
Total Delay	79.0	37.9			15.3	5.0			51.1			1.2
Queue Length 50th (ft)	392	777			292	28			502			0
Queue Length 95th (ft)	#563	863			m315	m46			566			0
Internal Link Dist (ft)		1519			3036			820			423	
Turn Bay Length (ft)	700					160						
Base Capacity (vph)	499	3347			2278	1073			1532			1244
Starvation Cap Reductn	0	0			0	0			0			0
Spillback Cap Reductn	0	0			0	0			0			0
Storage Cap Reductn	0	0			0	0			0			0
Reduced v/c Ratio	0.84	0.91			0.67	0.26			0.84			0.45

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 26 (17%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow

Natural Cycle: 90

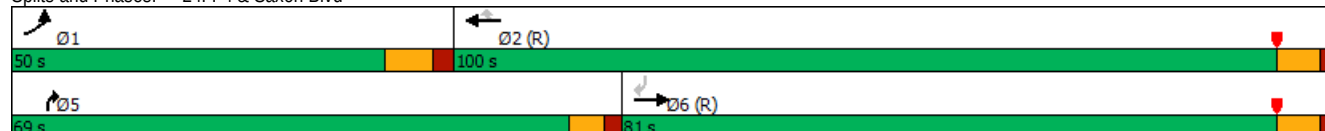
Control Type: Actuated-Coordinated

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 24: I-4 & Saxon Blvd



HCM Signalized Intersection Capacity Analysis
24: I-4 & Saxon Blvd

2020 Buildout Conditions
Timing Plan: PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	395	2853	0	0	1425	263	0	0	1213	0	0	523
Future Volume (vph)	395	2853	0	0	1425	263	0	0	1213	0	0	523
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.7	6.8			6.8	6.8			6.0			6.8
Lane Util. Factor	1.00	0.86			0.95	1.00			0.76			1.00
Frt	1.00	1.00			1.00	0.85			0.85			0.86
Flt Protected	0.95	1.00			1.00	1.00			1.00			1.00
Satd. Flow (prot)	1770	6408			3539	1583			3610			1611
Flt Permitted	0.95	1.00			1.00	1.00			1.00			1.00
Satd. Flow (perm)	1770	6408			3539	1583			3610			1611
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)	420	3035	0	0	1516	280	0	0	1290	0	0	556
RTOR Reduction (vph)	0	0	0	0	0	55	0	0	17	0	0	265
Lane Group Flow (vph)	420	3035	0	0	1516	225	0	0	1273	0	0	291
Turn Type	Prot	NA			NA	Perm			Prot			Perm
Protected Phases	1	6			2				5			
Permitted Phases						2						6
Actuated Green, G (s)	38.9	78.4			96.6	96.6			58.8			78.4
Effective Green, g (s)	38.9	78.4			96.6	96.6			58.8			78.4
Actuated g/C Ratio	0.26	0.52			0.64	0.64			0.39			0.52
Clearance Time (s)	7.7	6.8			6.8	6.8			6.0			6.8
Vehicle Extension (s)	3.0	3.0			3.0	3.0			3.0			3.0
Lane Grp Cap (vph)	459	3349			2279	1019			1415			842
v/s Ratio Prot	0.24	c0.47			0.43				c0.35			
v/s Ratio Perm						0.14						0.18
v/c Ratio	0.92	0.91			0.67	0.22			0.90			0.35
Uniform Delay, d1	53.9	32.5			16.6	11.1			42.8			20.8
Progression Factor	1.00	1.00			0.81	0.86			1.00			1.00
Incremental Delay, d2	22.7	4.7			1.2	0.4			8.0			1.1
Delay (s)	76.6	37.1			14.6	9.9			50.8			22.0
Level of Service	E	D			B	A			D			C
Approach Delay (s)		41.9			13.9			50.8			22.0	
Approach LOS		D			B			D			C	
Intersection Summary												
HCM 2000 Control Delay			34.9			HCM 2000 Level of Service				C		
HCM 2000 Volume to Capacity ratio			0.91									
Actuated Cycle Length (s)			150.0			Sum of lost time (s)			14.5			
Intersection Capacity Utilization			83.1%			ICU Level of Service			E			
Analysis Period (min)			15									

c Critical Lane Group

Lanes, Volumes, Timings
25: N Normandy Blvd & Saxon Blvd

2020 Buildout Conditions
Timing Plan: PM Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↕↕	↔↔	↔↔	↕↕	↔↔	↔↔	↕↕	↔↔	↔↔	↕↕	↔↔
Traffic Volume (vph)	724	1491	352	33	671	238	190	296	47	312	305	526
Future Volume (vph)	724	1491	352	33	671	238	190	296	47	312	305	526
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
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	3%	3%	3%	2%	2%	2%
Adj. Flow (vph)	754	1553	367	34	699	248	198	308	49	325	318	548
Shared Lane Traffic (%)												
Lane Group Flow (vph)	754	1553	367	34	699	248	198	357	0	325	318	548
Turn Type	Prot	NA	pm+ov	Prot	NA	Perm	pm+pt	NA		pm+pt	NA	pm+ov
Protected Phases	1	6	7	5	2		7	4		3	8	1
Permitted Phases			6			2	4			8		8
Detector Phase	1	6	7	5	2	2	7	4		3	8	1
Switch Phase												
Minimum Initial (s)	5.0	15.0	5.0	5.0	15.0	15.0	5.0	10.0		5.0	10.0	5.0
Minimum Split (s)	12.6	21.9	11.8	13.1	21.9	21.9	11.8	16.9		12.5	16.9	12.6
Total Split (s)	50.0	64.0	22.0	14.0	28.0	28.0	22.0	40.0		32.0	50.0	50.0
Total Split (%)	33.3%	42.7%	14.7%	9.3%	18.7%	18.7%	14.7%	26.7%		21.3%	33.3%	33.3%
Yellow Time (s)	4.4	4.9	4.0	4.9	4.9	4.9	4.0	4.8		4.8	4.8	4.4
All-Red Time (s)	3.2	2.0	2.8	3.2	2.0	2.0	2.8	2.1		2.7	2.1	3.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	7.6	6.9	6.8	8.1	6.9	6.9	6.8	6.9		7.5	6.9	7.6
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Recall Mode	None	C-Min	None	None	C-Min	C-Min	None	None		None	None	None
v/c Ratio	0.85	1.07	0.38	0.50	1.12	0.51	0.57	0.92		0.94	0.61	0.56
Control Delay	45.9	77.3	6.1	94.8	126.2	10.7	36.2	85.5		73.7	52.1	15.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	45.9	77.3	6.1	94.8	126.2	10.7	36.2	85.5		73.7	52.1	15.7
Queue Length 50th (ft)	325	~946	89	33	~454	1	122	338		244	269	227
Queue Length 95th (ft)	m378	#1091	m102	#77	#611	86	183	#518		#428	375	317
Internal Link Dist (ft)		3036			7092			3666			5060	
Turn Bay Length (ft)	520		220	470			260					385
Base Capacity (vph)	970	1454	982	69	626	483	359	402		353	537	1018
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.78	1.07	0.37	0.49	1.12	0.51	0.55	0.89		0.92	0.59	0.54

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 95 (63%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow

Natural Cycle: 140

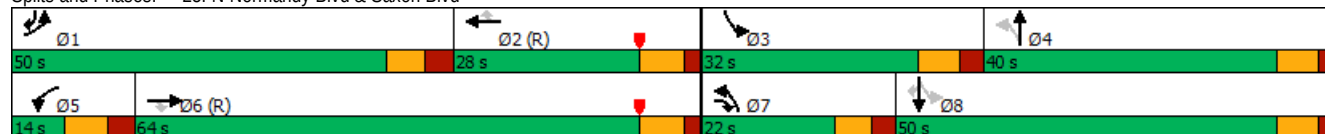
Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

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

Splits and Phases: 25: N Normandy Blvd & Saxon Blvd



HCM 6th Signalized Intersection Summary
25: N Normandy Blvd & Saxon Blvd

2020 Buildout Conditions
Timing Plan: PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	724	1491	352	33	671	238	190	296	47	312	305	526
Future Volume (veh/h)	724	1491	352	33	671	238	190	296	47	312	305	526
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1856	1856	1856	1870	1870	1870
Adj Flow Rate, veh/h	754	1553	302	34	699	240	198	308	41	325	318	312
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	3	3	3	2	2	2
Cap, veh/h	838	1476	818	45	716	320	319	331	44	346	500	808
Arrive On Green	0.08	0.14	0.14	0.03	0.20	0.20	0.10	0.21	0.21	0.16	0.27	0.27
Sat Flow, veh/h	3456	3554	1585	1781	3554	1585	1767	1604	213	1781	1870	1585
Grp Volume(v), veh/h	754	1553	302	34	699	240	198	0	349	325	318	312
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1781	1777	1585	1767	0	1817	1781	1870	1585
Q Serve(g_s), s	32.4	62.3	21.8	2.8	29.3	21.4	13.1	0.0	28.3	21.4	22.5	18.0
Cycle Q Clear(g_c), s	32.4	62.3	21.8	2.8	29.3	21.4	13.1	0.0	28.3	21.4	22.5	18.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.12	1.00		1.00
Lane Grp Cap(c), veh/h	838	1476	818	45	716	320	319	0	375	346	500	808
V/C Ratio(X)	0.90	1.05	0.37	0.76	0.98	0.75	0.62	0.00	0.93	0.94	0.64	0.39
Avail Cap(c_a), veh/h	977	1476	818	70	716	320	320	0	401	358	537	840
HCM Platoon Ratio	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.30	0.30	0.30	0.63	0.63	0.63	0.75	0.00	0.75	0.86	0.86	0.86
Uniform Delay (d), s/veh	67.2	64.7	33.7	72.6	59.5	56.3	41.3	0.0	58.4	40.9	48.5	22.5
Incr Delay (d2), s/veh	3.5	29.3	0.4	14.9	21.4	9.8	2.8	0.0	22.7	29.0	2.3	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	15.5	35.8	9.3	1.5	15.2	9.4	6.0	0.0	15.3	12.1	10.8	6.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	70.7	94.0	34.1	87.5	81.0	66.2	44.1	0.0	81.1	70.0	50.8	22.8
LnGrp LOS	E	F	C	F	F	E	D	A	F	E	D	C
Approach Vol, veh/h	2609			973			547			955		
Approach Delay, s/veh	80.3			77.5			67.7			48.2		
Approach LOS	F			E			E			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	44.0	37.1	31.0	37.9	11.9	69.2	21.9	47.0				
Change Period (Y+Rc), s	* 7.6	6.9	* 7.5	6.9	* 8.1	6.9	* 6.8	6.9				
Max Green Setting (Gmax), s	* 42	21.1	* 25	33.1	* 5.9	57.1	* 15	43.1				
Max Q Clear Time (g_c+I1), s	34.4	31.3	23.4	30.3	4.8	64.3	15.1	24.5				
Green Ext Time (p_c), s	1.9	0.0	0.1	0.7	0.0	0.0	0.0	4.2				

Intersection Summary	
HCM 6th Ctrl Delay	72.4
HCM 6th LOS	E
Notes	

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

Lanes, Volumes, Timings
26: Tivoli Dr & Saxon Blvd

2020 Buildout Conditions
Timing Plan: PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	469	607	105	6	399	14	81	110	8	5	86	285
Future Volume (vph)	469	607	105	6	399	14	81	110	8	5	86	285
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	504	653	113	6	429	15	87	118	9	5	92	306
Shared Lane Traffic (%)												
Lane Group Flow (vph)	504	653	113	6	444	0	87	127	0	5	92	306
Turn Type	pm+pt	NA	Perm	Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases	5	2			6			4			8	
Permitted Phases	2		2	6			4			8		8
Detector Phase	5	2	2	6	6		4	4		8	8	8
Switch Phase												
Minimum Initial (s)	5.0	11.0	11.0	11.0	11.0		5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	12.0	17.5	17.5	17.5	17.5		11.5	11.5		11.5	11.5	11.5
Total Split (s)	27.0	57.6	57.6	30.6	30.6		17.4	17.4		17.4	17.4	17.4
Total Split (%)	36.0%	76.8%	76.8%	40.8%	40.8%		23.2%	23.2%		23.2%	23.2%	23.2%
Yellow Time (s)	4.5	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	2.5	2.5	2.5	2.5	2.5		2.5	2.5		2.5	2.5	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	7.0	6.5	6.5	6.5	6.5		6.5	6.5		6.5	6.5	6.5
Lead/Lag	Lead			Lag	Lag							
Lead-Lag Optimize?	Yes			Yes	Yes							
Recall Mode	None	Min	Min	Min	Min		None	None		None	None	None
v/c Ratio	0.79	0.52	0.10	0.03	0.81		0.51	0.51		0.03	0.37	0.64
Control Delay	21.7	7.4	1.2	18.0	35.9		40.5	36.3		28.2	33.6	11.1
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	21.7	7.4	1.2	18.0	35.9		40.5	36.3		28.2	33.6	11.1
Queue Length 50th (ft)	120	120	0	2	179		38	53		2	39	0
Queue Length 95th (ft)	#283	195	13	10	#316		81	104		11	81	67
Internal Link Dist (ft)		7092			564			624			981	
Turn Bay Length (ft)	390			120			265			150		
Base Capacity (vph)	667	1404	1221	273	654		208	299		202	299	511
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	0
Reduced v/c Ratio	0.76	0.47	0.09	0.02	0.68		0.42	0.42		0.02	0.31	0.60

Intersection Summary

Cycle Length: 75

Actuated Cycle Length: 68.9

Natural Cycle: 65

Control Type: Actuated-Uncoordinated

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

Queue shown is maximum after two cycles.

Splits and Phases: 26: Tivoli Dr & Saxon Blvd



HCM 6th Signalized Intersection Summary
26: Tivoli Dr & Saxon Blvd

2020 Buildout Conditions
Timing Plan: PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	469	607	105	6	399	14	81	110	8	5	86	285
Future Volume (veh/h)	469	607	105	6	399	14	81	110	8	5	86	285
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1856	1856	1856	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	504	653	70	6	429	14	87	118	7	5	92	201
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	3	3	3	2	2	2	2	2	2
Cap, veh/h	585	1182	1002	329	523	17	240	275	16	239	295	250
Arrive On Green	0.23	0.63	0.63	0.29	0.29	0.29	0.16	0.16	0.16	0.16	0.16	0.16
Sat Flow, veh/h	1781	1870	1585	725	1787	58	1086	1748	104	1266	1870	1585
Grp Volume(v), veh/h	504	653	70	6	0	443	87	0	125	5	92	201
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	725	0	1845	1086	0	1852	1266	1870	1585
Q Serve(g_s), s	10.9	12.2	1.0	0.4	0.0	13.8	4.8	0.0	3.8	0.2	2.7	7.6
Cycle Q Clear(g_c), s	10.9	12.2	1.0	0.4	0.0	13.8	7.5	0.0	3.8	4.0	2.7	7.6
Prop In Lane	1.00		1.00	1.00		0.03	1.00		0.06	1.00		1.00
Lane Grp Cap(c), veh/h	585	1182	1002	329	0	540	240	0	292	239	295	250
V/C Ratio(X)	0.86	0.55	0.07	0.02	0.00	0.82	0.36	0.00	0.43	0.02	0.31	0.81
Avail Cap(c_a), veh/h	759	1548	1312	399	0	720	261	0	327	263	330	280
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	11.7	6.4	4.4	15.6	0.0	20.3	26.4	0.0	23.5	25.3	23.1	25.1
Incr Delay (d2), s/veh	8.1	0.6	0.0	0.0	0.0	6.6	0.9	0.0	1.0	0.0	0.6	14.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.3	3.2	0.2	0.1	0.0	6.2	1.2	0.0	1.6	0.1	1.2	3.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	19.7	7.0	4.4	15.6	0.0	26.9	27.3	0.0	24.5	25.3	23.6	39.4
LnGrp LOS	B	A	A	B	A	C	C	A	C	C	C	D
Approach Vol, veh/h	1227			449			212			298		
Approach Delay, s/veh	12.1			26.7			25.6			34.3		
Approach LOS	B			C			C			C		
Timer - Assigned Phs	2			4			5			6		
Phs Duration (G+Y+Rc), s	45.5			16.2			21.0			24.6		
Change Period (Y+Rc), s	6.5			6.5			7.0			6.5		
Max Green Setting (Gmax), s	51.1			10.9			20.0			24.1		
Max Q Clear Time (g_c+I1), s	14.2			9.5			12.9			15.8		
Green Ext Time (p_c), s	7.5			0.1			1.0			2.3		
Intersection Summary												
HCM 6th Ctrl Delay	19.4											
HCM 6th LOS	B											

Lanes, Volumes, Timings
27: N Normandy Blvd & Deltona Blvd

2020 Buildout Conditions
Timing Plan: PM Peak Hour

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	343	361	196	199	301	323
Future Volume (vph)	343	361	196	199	301	323
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	365	384	209	212	320	344
Shared Lane Traffic (%)						
Lane Group Flow (vph)	365	384	209	212	320	344
Turn Type	Prot	Perm	pm+pt	NA	NA	Perm
Protected Phases	4		5	2	6	
Permitted Phases		4	2			6
Detector Phase	4	4	5	2	6	6
Switch Phase						
Minimum Initial (s)	4.0	4.0	3.0	10.0	10.0	10.0
Minimum Split (s)	10.0	10.0	9.5	16.5	17.0	17.0
Total Split (s)	20.0	20.0	15.0	40.0	25.0	25.0
Total Split (%)	33.3%	33.3%	25.0%	66.7%	41.7%	41.7%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.5	4.5
All-Red Time (s)	2.0	2.0	2.5	2.5	2.5	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.5	6.5	7.0	7.0
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Recall Mode	None	None	None	Min	Min	Min
v/c Ratio	0.85	0.57	0.41	0.21	0.65	0.51
Control Delay	43.9	6.5	9.5	7.5	25.4	5.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.9	6.5	9.5	7.5	25.4	5.4
Queue Length 50th (ft)	121	0	34	34	97	0
Queue Length 95th (ft)	#265	59	63	63	168	50
Internal Link Dist (ft)	828			759	3666	
Turn Bay Length (ft)			230			350
Base Capacity (vph)	445	685	518	1122	602	744
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.82	0.56	0.40	0.19	0.53	0.46

Intersection Summary

Cycle Length: 60

Actuated Cycle Length: 56

Natural Cycle: 55

Control Type: Actuated-Uncoordinated

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

Queue shown is maximum after two cycles.

Splits and Phases: 27: N Normandy Blvd & Deltona Blvd



HCM 6th Signalized Intersection Summary
27: N Normandy Blvd & Deltona Blvd

2020 Buildout Conditions
Timing Plan: PM Peak Hour

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	343	361	196	199	301	323
Future Volume (veh/h)	343	361	196	199	301	323
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	365	146	209	212	320	217
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	435	387	424	910	439	372
Arrive On Green	0.24	0.24	0.12	0.49	0.23	0.23
Sat Flow, veh/h	1781	1585	1781	1870	1870	1585
Grp Volume(v), veh/h	365	146	209	212	320	217
Grp Sat Flow(s),veh/h/ln	1781	1585	1781	1870	1870	1585
Q Serve(g_s), s	9.4	3.7	3.9	3.2	7.6	5.9
Cycle Q Clear(g_c), s	9.4	3.7	3.9	3.2	7.6	5.9
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	435	387	424	910	439	372
V/C Ratio(X)	0.84	0.38	0.49	0.23	0.73	0.58
Avail Cap(c_a), veh/h	517	460	530	1299	698	591
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.3	15.2	11.3	7.2	17.0	16.4
Incr Delay (d2), s/veh	9.7	0.5	0.7	0.1	2.3	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.4	0.0	1.3	1.0	3.0	1.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	27.0	15.6	12.0	7.3	19.4	17.8
LnGrp LOS	C	B	B	A	B	B
Approach Vol, veh/h	511			421	537	
Approach Delay, s/veh	23.7			9.6	18.7	
Approach LOS	C			A	B	
Timer - Assigned Phs	2			4	5	6
Phs Duration (G+Y+Rc), s	30.5			17.8	12.1	18.3
Change Period (Y+Rc), s	* 7			6.0	6.5	7.0
Max Green Setting (Gmax), s	* 34			14.0	8.5	18.0
Max Q Clear Time (g_c+I1), s	5.2			11.4	5.9	9.6
Green Ext Time (p_c), s	1.2			0.4	0.1	1.7
Intersection Summary						
HCM 6th Ctrl Delay			17.9			
HCM 6th LOS			B			
Notes						
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.						

Lanes, Volumes, Timings
28: N Normandy Blvd & Driveway 1

2020 Buildout Conditions
Timing Plan: PM Peak Hour

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	11	0	0	1237	1218	15
Future Volume (vph)	11	0	0	1237	1218	15
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	12	0	0	1345	1324	16
Shared Lane Traffic (%)						
Lane Group Flow (vph)	12	0	0	1345	1324	16
Sign Control	Stop			Free	Free	
Intersection Summary						
Control Type: Unsignalized						

Intersection						
Int Delay, s/veh	0.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	11	0	0	1237	1218	15
Future Vol, veh/h	11	0	0	1237	1218	15
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	0	-	-	0
Veh in Median Storage, #	1	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	12	0	0	1345	1324	16
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	2669	1324	1340	0	-	0
Stage 1	1324	-	-	-	-	-
Stage 2	1345	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	25	191	514	-	-	-
Stage 1	249	-	-	-	-	-
Stage 2	243	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	25	191	514	-	-	-
Mov Cap-2 Maneuver	124	-	-	-	-	-
Stage 1	249	-	-	-	-	-
Stage 2	243	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	37.1	0		0		
HCM LOS	E					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	514	-	124	-	-	-
HCM Lane V/C Ratio	-	-	0.096	-	-	-
HCM Control Delay (s)	0	-	37.1	0	-	-
HCM Lane LOS	A	-	E	A	-	-
HCM 95th %tile Q(veh)	0	-	0.3	-	-	-

Lanes, Volumes, Timings
29: N Normandy Blvd & Driveway 2

2020 Buildout Conditions
Timing Plan: PM Peak Hour

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	271	54	37	965	1032	186
Future Volume (vph)	271	54	37	965	1032	186
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	295	59	40	1049	1122	202
Shared Lane Traffic (%)						
Lane Group Flow (vph)	295	59	40	1049	1122	202
Turn Type	Prot	Perm	Perm	NA	NA	Perm
Protected Phases	4			2	6	
Permitted Phases		4	2			6
Detector Phase	4	4	2	2	6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	20.0	20.0	20.0	20.0
Minimum Split (s)	22.5	22.5	27.5	27.5	27.5	27.5
Total Split (s)	36.0	36.0	54.0	54.0	54.0	54.0
Total Split (%)	40.0%	40.0%	60.0%	60.0%	60.0%	60.0%
Yellow Time (s)	4.0	4.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.5	2.5	2.5	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	7.5	7.5	7.5	7.5
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None	Min	Min	Min	Min
v/c Ratio	0.72	0.14	0.42	0.95	1.01	0.20
Control Delay	38.3	7.5	28.6	34.6	48.9	3.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.3	7.5	28.6	34.6	48.9	3.0
Queue Length 50th (ft)	133	0	10	426	-514	7
Queue Length 95th (ft)	213	27	#60	#853	#939	39
Internal Link Dist (ft)	663			985	1576	
Turn Bay Length (ft)						
Base Capacity (vph)	680	645	95	1110	1110	1009
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.43	0.09	0.42	0.95	1.01	0.20

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 78.3

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

Splits and Phases: 29: N Normandy Blvd & Driveway 2

 Ø2	 Ø4
54 s	36 s
 Ø6	
54 s	

HCM 6th Signalized Intersection Summary
29: N Normandy Blvd & Driveway 2

2020 Buildout Conditions
Timing Plan: PM Peak Hour

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	271	54	37	965	1032	186
Future Volume (veh/h)	271	54	37	965	1032	186
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	295	44	40	1049	1122	151
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	353	314	120	1162	1162	985
Arrive On Green	0.20	0.20	0.62	0.62	0.62	0.62
Sat Flow, veh/h	1781	1585	435	1870	1870	1585
Grp Volume(v), veh/h	295	44	40	1049	1122	151
Grp Sat Flow(s),veh/h/ln	1781	1585	435	1870	1870	1585
Q Serve(g_s), s	11.9	1.7	4.0	36.2	42.5	3.0
Cycle Q Clear(g_c), s	11.9	1.7	46.5	36.2	42.5	3.0
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	353	314	120	1162	1162	985
V/C Ratio(X)	0.84	0.14	0.33	0.90	0.97	0.15
Avail Cap(c_a), veh/h	714	636	120	1162	1162	985
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.8	24.7	36.2	12.2	13.4	5.9
Incr Delay (d2), s/veh	5.2	0.2	1.6	9.9	18.6	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.4	0.6	0.7	13.5	18.1	0.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	34.1	24.9	37.8	22.1	32.0	6.0
LnGrp LOS	C	C	D	C	C	A
Approach Vol, veh/h	339			1089	1273	
Approach Delay, s/veh	32.9			22.7	28.9	
Approach LOS	C			C	C	
Timer - Assigned Phs	2			4		6
Phs Duration (G+Y+Rc), s	54.0			20.8		54.0
Change Period (Y+Rc), s	7.5			6.0		7.5
Max Green Setting (Gmax), s	46.5			30.0		46.5
Max Q Clear Time (g_c+I1), s	48.5			13.9		44.5
Green Ext Time (p_c), s	0.0			0.9		1.5
Intersection Summary						
HCM 6th Ctrl Delay			26.9			
HCM 6th LOS			C			

Lanes, Volumes, Timings
30: N Normandy Blvd & Driveway 3

2020 Buildout Conditions
Timing Plan: PM Peak Hour

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	66	211	145	861	1065	46
Future Volume (vph)	66	211	145	861	1065	46
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	3%	3%	2%	2%	2%	2%
Adj. Flow (vph)	73	232	159	946	1170	51
Shared Lane Traffic (%)						
Lane Group Flow (vph)	73	232	159	946	1170	51
Turn Type	Prot	Perm	Perm	NA	NA	Perm
Protected Phases	4			2	6	
Permitted Phases		4	2			6
Detector Phase	4	4	2	2	6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	20.0	20.0	20.0	20.0
Minimum Split (s)	22.5	22.5	27.5	27.5	27.5	27.5
Total Split (s)	22.5	22.5	87.5	87.5	87.5	87.5
Total Split (%)	20.5%	20.5%	79.5%	79.5%	79.5%	79.5%
Yellow Time (s)	4.0	4.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.5	2.5	2.5	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	7.5	7.5	7.5	7.5
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	Min	Min	C-Min	C-Min	C-Min	C-Min
v/c Ratio	0.37	0.80	0.84	0.66	0.82	0.04
Control Delay	49.1	40.5	50.1	9.8	15.7	1.3
Queue Delay	0.0	0.0	0.0	0.0	0.4	0.0
Total Delay	49.1	40.5	50.1	9.8	16.1	1.3
Queue Length 50th (ft)	48	69	64	276	451	0
Queue Length 95th (ft)	91	154	#106	461	804	10
Internal Link Dist (ft)	1231			763	985	
Turn Bay Length (ft)						
Base Capacity (vph)	262	345	189	1424	1424	1223
Starvation Cap Reductn	0	0	0	0	39	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.28	0.67	0.84	0.66	0.84	0.04

Intersection Summary

Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 82 (75%), Referenced to phase 2:NBTL and 6:SBT, Start of Yellow
 Natural Cycle: 110
 Control Type: Actuated-Coordinated
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 30: N Normandy Blvd & Driveway 3

 Ø2 (R)	 Ø4
87.5 s	22.5 s
 Ø6 (R)	
87.5 s	

HCM 6th Signalized Intersection Summary
30: N Normandy Blvd & Driveway 3

2020 Buildout Conditions
Timing Plan: PM Peak Hour

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	66	211	145	861	1065	46
Future Volume (veh/h)	66	211	145	861	1065	46
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1856	1856	1870	1870	1870	1870
Adj Flow Rate, veh/h	73	232	159	946	1170	51
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	3	3	2	2	2	2
Cap, veh/h	265	236	190	1360	1360	1153
Arrive On Green	0.15	0.15	0.73	0.73	0.73	0.73
Sat Flow, veh/h	1767	1572	457	1870	1870	1585
Grp Volume(v), veh/h	73	232	159	946	1170	51
Grp Sat Flow(s),veh/h/ln	1767	1572	457	1870	1870	1585
Q Serve(g_s), s	4.0	16.2	29.9	30.7	50.1	1.0
Cycle Q Clear(g_c), s	4.0	16.2	80.0	30.7	50.1	1.0
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	265	236	190	1360	1360	1153
V/C Ratio(X)	0.28	0.98	0.84	0.70	0.86	0.04
Avail Cap(c_a), veh/h	265	236	190	1360	1360	1153
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.09	0.09
Uniform Delay (d), s/veh	41.4	46.6	43.3	8.3	10.9	4.2
Incr Delay (d2), s/veh	0.6	53.8	33.7	3.0	0.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	9.8	6.1	10.2	15.2	0.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	42.0	100.4	77.0	11.2	11.6	4.2
LnGrp LOS	D	F	E	B	B	A
Approach Vol, veh/h	305			1105	1221	
Approach Delay, s/veh	86.4			20.7	11.3	
Approach LOS	F			C	B	
Timer - Assigned Phs	2			4		6
Phs Duration (G+Y+Rc), s	87.5			22.5		87.5
Change Period (Y+Rc), s	7.5			6.0		7.5
Max Green Setting (Gmax), s	80.0			16.5		80.0
Max Q Clear Time (g_c+I1), s	82.0			18.2		52.1
Green Ext Time (p_c), s	0.0			0.0		11.7
Intersection Summary						
HCM 6th Ctrl Delay			24.0			
HCM 6th LOS			C			

Lanes, Volumes, Timings
31: N Normandy Blvd & Driveway 4

2020 Buildout Conditions
Timing Plan: PM Peak Hour

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	30	21	989	1248	0
Future Volume (vph)	0	30	21	989	1248	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	33	23	1075	1357	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	33	0	23	1075	1357	0
Sign Control	Stop			Free	Free	
Intersection Summary						
Control Type: Unsignalized						

Intersection						
Int Delay, s/veh	0.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	30	21	989	1248	0
Future Vol, veh/h	0	30	21	989	1248	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	0	-	-	-
Veh in Median Storage, #	1	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	33	23	1075	1357	0
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	2478	679	1357	0	-	0
Stage 1	1357	-	-	-	-	-
Stage 2	1121	-	-	-	-	-
Critical Hdwy	6.63	6.93	4.13	-	-	-
Critical Hdwy Stg 1	5.83	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.519	3.319	2.219	-	-	-
Pot Cap-1 Maneuver	*30	*576	*862	-	-	-
Stage 1	*544	-	-	-	-	-
Stage 2	*310	-	-	-	-	-
Platoon blocked, %	1	1	1	-	-	-
Mov Cap-1 Maneuver	*30	*576	*862	-	-	-
Mov Cap-2 Maneuver	*182	-	-	-	-	-
Stage 1	*529	-	-	-	-	-
Stage 2	*310	-	-	-	-	-
Approach	EB		NB		SB	
HCM Control Delay, s	11.6		0.2		0	
HCM LOS	B					
Minor Lane/Major Mvmt		NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)		* 862	-	576	-	-
HCM Lane V/C Ratio		0.026	-	0.057	-	-
HCM Control Delay (s)		9.3	-	11.6	-	-
HCM Lane LOS		A	-	B	-	-
HCM 95th %tile Q(veh)		0.1	-	0.2	-	-
Notes						
~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon						

Arterial Level of Service: EB E Saxon Blvd

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
N Normandy Blvd	II	40	53.1	77.3	130.4	0.59	16.3	E
Tivoli Dr	II	40	122.3	7.4	129.7	1.36	37.7	A
Total	II		175.4	84.7	260.1	1.95	27.0	C

Arterial Level of Service: WB E Saxon Blvd

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Tivoli Dr	II	35	15.2	35.9	51.1	0.12	8.6	F
N Normandy Blvd	II	40	122.3	126.2	248.5	1.36	19.7	D
I-4	II	45	47.2	15.3	62.5	0.59	34.0	B
Total	II		184.7	177.4	362.1	2.07	20.6	D

Arterial Level of Service: EB SR 472

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
N Kentucky Ave	I	55	17.7	45.2	62.9	0.18	10.4	F
I-4 WB	I	55	36.3	24.6	60.9	0.55	32.8	C
I-4 EB	I	50	30.3	10.0	40.3	0.32	28.5	C
E Graves Avenue	I	50	26.1	56.3	82.4	0.28	12.0	F
Total	I		110.4	136.1	246.5	1.33	19.4	E

Arterial Level of Service: WB SR 472

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
I-4 EB	I	50	26.1	20.0	46.1	0.28	21.5	D
I-4 WB	I	50	30.3	13.7	44.0	0.32	26.1	D
Dr. Martin Luther Ki	I	55	36.3	41.5	77.8	0.55	25.6	D
Total	I		92.7	75.2	167.9	1.15	24.6	D

Arterial Level of Service: EB W Saxon Blvd

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Broward Ave	II	45	21.4	34.3	55.7	0.20	12.7	F
FDOT Park & Ride	II	45	33.9	12.1	46.0	0.35	27.7	C
Total	II		55.3	46.4	101.7	0.55	19.5	D

Arterial Level of Service: WB W Saxon Blvd

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
FDOT Park & Ride	II	45	10.1	8.4	18.5	0.09	17.9	D
Veterans Memorial Pk	II	45	33.9	48.4	82.3	0.35	15.5	E
Total	II		44.0	56.8	100.8	0.45	15.9	E

H10: PM Peak Hour Buildout Traffic Conditions with Mitigation

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↓	↑↑					↓		↓
Traffic Volume (vph)	0	748	673	437	1217	0	0	0	0	479	0	369
Future Volume (vph)	0	748	673	437	1217	0	0	0	0	479	0	369
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	0	796	716	465	1295	0	0	0	0	510	0	393
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	796	716	465	1295	0	0	0	0	510	0	393
Turn Type		NA	Perm	Prot	NA					Prot		Prot
Protected Phases		6		5	2					8		8
Permitted Phases			6									8
Detector Phase		6	6	5	2					8		8
Switch Phase												
Minimum Initial (s)		17.0	17.0	6.0	17.0					7.0		7.0
Minimum Split (s)		24.1	24.1	13.1	24.1					15.0		15.0
Total Split (s)		64.0	64.0	47.0	111.0					39.0		39.0
Total Split (%)		42.7%	42.7%	31.3%	74.0%					26.0%		26.0%
Yellow Time (s)		5.1	5.1	5.1	5.1					5.1		5.1
All-Red Time (s)		2.0	2.0	2.0	2.0					2.9		2.9
Lost Time Adjust (s)		0.0	0.0	0.0	0.0					0.0		0.0
Total Lost Time (s)		7.1	7.1	7.1	7.1					8.0		8.0
Lead/Lag		Lag	Lag	Lead								
Lead-Lag Optimize?		Yes	Yes	Yes								
Recall Mode		C-Min	C-Min	None	C-Min					None		None
v/c Ratio		0.69	0.81	0.94	0.56					0.61		0.87
Control Delay		24.2	21.9	83.7	12.9					54.2		60.6
Queue Delay		0.0	0.0	0.0	0.0					0.0		0.0
Total Delay		24.2	21.9	83.7	12.9					54.2		60.6
Queue Length 50th (ft)		398	536	415	237					221		283
Queue Length 95th (ft)		378	667	m#653	156					307		#533
Internal Link Dist (ft)		2846			1605			330			679	
Turn Bay Length (ft)			500							550		550
Base Capacity (vph)		1342	933	496	2451					836		454
Starvation Cap Reductn		0	0	0	0					0		0
Spillback Cap Reductn		0	0	0	0					0		0
Storage Cap Reductn		0	0	0	0					0		0
Reduced v/c Ratio		0.59	0.77	0.94	0.53					0.61		0.87

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 38 (25%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow

Natural Cycle: 80

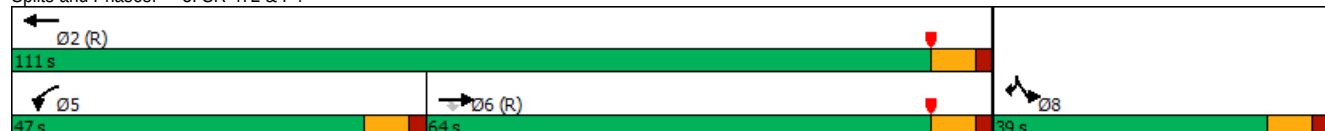
Control Type: Actuated-Coordinated

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 3: SR 472 & I-4



HCM 6th Signalized Intersection Summary
3: SR 472 & I-4

2020 Buildout Conditions w/Imp
Timing Plan: PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↓	↑↑					↓↓		↓
Traffic Volume (veh/h)	0	748	673	437	1217	0	0	0	0	479	0	369
Future Volume (veh/h)	0	748	673	437	1217	0	0	0	0	479	0	369
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0				1870	0	1870
Adj Flow Rate, veh/h	0	796	0	465	1295	0				510	0	160
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94				0.94	0.94	0.94
Percent Heavy Veh, %	0	2	2	2	2	0				2	0	2
Cap, veh/h	0	1487		474	2600	0				579	0	266
Arrive On Green	0.00	0.42	0.00	0.35	0.97	0.00				0.17	0.00	0.17
Sat Flow, veh/h	0	3647	1585	1781	3647	0				3456	0	1585
Grp Volume(v), veh/h	0	796	0	465	1295	0				510	0	160
Grp Sat Flow(s),veh/h/ln	0	1777	1585	1781	1777	0				1728	0	1585
Q Serve(g_s), s	0.0	25.2	0.0	38.8	2.8	0.0				21.6	0.0	14.0
Cycle Q Clear(g_c), s	0.0	25.2	0.0	38.8	2.8	0.0				21.6	0.0	14.0
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1487		474	2600	0				579	0	266
V/C Ratio(X)	0.00	0.54		0.98	0.50	0.00				0.88	0.00	0.60
Avail Cap(c_a), veh/h	0	1487		474	2600	0				714	0	328
HCM Platoon Ratio	1.00	1.00	1.00	1.33	1.33	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.59	0.00	0.73	0.73	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	32.7	0.0	48.1	0.6	0.0				61.0	0.0	57.8
Incr Delay (d2), s/veh	0.0	0.8	0.0	30.5	0.5	0.0				10.6	0.0	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	10.6	0.0	19.6	0.7	0.0				10.2	0.0	5.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	33.5	0.0	78.6	1.1	0.0				71.5	0.0	60.0
LnGrp LOS	A	C		E	A	A				E	A	E
Approach Vol, veh/h		796	A		1760						670	
Approach Delay, s/veh		33.5			21.6						68.8	
Approach LOS		C			C						E	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		116.9			47.0	69.9		33.1				
Change Period (Y+Rc), s		7.1			7.1	7.1		8.0				
Max Green Setting (Gmax), s		103.9			39.9	56.9		31.0				
Max Q Clear Time (g_c+I1), s		4.8			40.8	27.2		23.6				
Green Ext Time (p_c), s		12.0			0.0	5.1		1.5				

Intersection Summary

HCM 6th Ctrl Delay 34.3
HCM 6th LOS C

Notes

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

Lanes, Volumes, Timings
6: Veterans Memorial Pkwy & E Graves Ave

2020 Buildout Conditions w/Imp
Timing Plan: PM Peak Hour

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗	↘	↑	↖	↗
Traffic Volume (vph)	330	45	769	459	68	980
Future Volume (vph)	330	45	769	459	68	980
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	3%	3%	4%	4%	2%	2%
Adj. Flow (vph)	347	47	809	483	72	1032
Shared Lane Traffic (%)						
Lane Group Flow (vph)	347	47	809	483	72	1032
Turn Type	NA	Perm	pm+pt	NA	Prot	pm+ov
Protected Phases	2		1	6	8	1
Permitted Phases		2	6			8
Detector Phase	2	2	1	6	8	1
Switch Phase						
Minimum Initial (s)	11.0	11.0	7.0	11.0	7.0	7.0
Minimum Split (s)	18.0	18.0	14.0	18.0	14.0	14.0
Total Split (s)	32.0	32.0	28.0	60.0	15.0	28.0
Total Split (%)	42.7%	42.7%	37.3%	80.0%	20.0%	37.3%
Yellow Time (s)	4.5	4.5	4.5	4.5	5.0	4.5
All-Red Time (s)	2.5	2.5	2.5	2.5	2.0	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag	Lag	Lag	Lead			Lead
Lead-Lag Optimize?	Yes	Yes	Yes			Yes
Recall Mode	Min	Min	None	Min	None	None
v/c Ratio	0.61	0.09	0.52	0.33	0.30	0.70
Control Delay	24.3	6.5	4.8	4.3	32.2	9.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.3	6.5	4.8	4.3	32.2	9.2
Queue Length 50th (ft)	123	0	60	73	27	69
Queue Length 95th (ft)	212	21	84	115	70	159
Internal Link Dist (ft)	7674			1636	7026	
Turn Bay Length (ft)		400	300		1000	
Base Capacity (vph)	851	749	1728	1551	261	1675
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.41	0.06	0.47	0.31	0.28	0.62

Intersection Summary

Cycle Length: 75

Actuated Cycle Length: 58.7

Natural Cycle: 55

Control Type: Actuated-Uncoordinated

Splits and Phases: 6: Veterans Memorial Pkwy & E Graves Ave



HCM 6th Signalized Intersection Summary
6: Veterans Memorial Pkwy & E Graves Ave

2020 Buildout Conditions w/Imp
Timing Plan: PM Peak Hour

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗	↘↙	↑	↖	↗↘
Traffic Volume (veh/h)	330	45	769	459	68	980
Future Volume (veh/h)	330	45	769	459	68	980
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1856	1856	1841	1841	1870	1870
Adj Flow Rate, veh/h	347	19	809	483	72	869
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	4	4	2	2
Cap, veh/h	462	392	1189	1114	256	1043
Arrive On Green	0.25	0.25	0.23	0.60	0.14	0.14
Sat Flow, veh/h	1856	1572	3401	1841	1781	2790
Grp Volume(v), veh/h	347	19	809	483	72	869
Grp Sat Flow(s),veh/h/ln	1856	1572	1700	1841	1781	1395
Q Serve(g_s), s	9.6	0.5	8.4	7.8	2.0	8.0
Cycle Q Clear(g_c), s	9.6	0.5	8.4	7.8	2.0	8.0
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	462	392	1189	1114	256	1043
V/C Ratio(X)	0.75	0.05	0.68	0.43	0.28	0.83
Avail Cap(c_a), veh/h	833	706	1689	1752	256	1043
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	19.3	15.9	10.5	5.9	21.3	15.9
Incr Delay (d2), s/veh	3.5	0.1	0.7	0.4	0.6	5.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.0	0.2	2.2	1.8	0.8	4.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	22.8	16.0	11.2	6.3	21.9	21.8
LnGrp LOS	C	B	B	A	C	C
Approach Vol, veh/h	366			1292	941	
Approach Delay, s/veh	22.4			9.3	21.8	
Approach LOS	C			A	C	
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	19.8	20.9			40.7	15.0
Change Period (Y+Rc), s	7.0	7.0			7.0	7.0
Max Green Setting (Gmax), s	21.0	25.0			53.0	8.0
Max Q Clear Time (g_c+I1), s	10.4	11.6			9.8	10.0
Green Ext Time (p_c), s	2.4	2.3			4.6	0.0
Intersection Summary						
HCM 6th Ctrl Delay			15.7			
HCM 6th LOS			B			

Lanes, Volumes, Timings
7: S Kentucky Ave/N Kentucky Ave & E Graves Ave

2020 Buildout Conditions w/Imp
Timing Plan: PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	296	1051	24	28	911	517	15	9	17	570	19	337
Future Volume (vph)	296	1051	24	28	911	517	15	9	17	570	19	337
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	325	1155	26	31	1001	568	16	10	19	626	21	370
Shared Lane Traffic (%)												
Lane Group Flow (vph)	325	1181	0	31	1001	568	0	45	0	626	391	0
Turn Type	pm+pt	NA		Perm	NA	Perm	Split	NA		Split	NA	
Protected Phases	5	2			6		4	4		8	8	
Permitted Phases	2			6		6						
Detector Phase	5	2		6	6	6	4	4		8	8	
Switch Phase												
Minimum Initial (s)	5.0	11.0		11.0	11.0	11.0	7.0	7.0		7.0	7.0	
Minimum Split (s)	11.0	18.0		18.0	18.0	18.0	14.0	14.0		14.0	14.0	
Total Split (s)	31.0	97.0		66.0	66.0	66.0	14.0	14.0		29.0	29.0	
Total Split (%)	22.1%	69.3%		47.1%	47.1%	47.1%	10.0%	10.0%		20.7%	20.7%	
Yellow Time (s)	4.0	5.0		5.0	5.0	5.0	4.0	4.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	3.0	3.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0		0.0		0.0	0.0	
Total Lost Time (s)	6.0	7.0		7.0	7.0	7.0		7.0		7.0	7.0	
Lead/Lag	Lead			Lag	Lag	Lag						
Lead-Lag Optimize?	Yes			Yes	Yes	Yes						
Recall Mode	None	Min		Min	Min	Min	None	None		None	None	
v/c Ratio	0.79	0.55		0.18	0.73	0.59		0.38		1.00	0.66	
Control Delay	38.6	14.7		29.0	36.0	4.8		51.5		89.3	12.7	
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0		0.0	0.0	
Total Delay	38.6	14.7		29.0	36.0	4.8		51.5		89.3	12.7	
Queue Length 50th (ft)	168	286		17	384	0		22		~323	16	
Queue Length 95th (ft)	#296	341		43	462	72		66		#469	125	
Internal Link Dist (ft)		1636			3200			455			4140	
Turn Bay Length (ft)	200			235		460				320		
Base Capacity (vph)	459	2581		214	1709	1055		117		624	593	
Starvation Cap Reductn	0	0		0	0	0		0		0	0	
Spillback Cap Reductn	0	0		0	0	0		0		0	0	
Storage Cap Reductn	0	0		0	0	0		0		0	0	
Reduced v/c Ratio	0.71	0.46		0.14	0.59	0.54		0.38		1.00	0.66	

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 124.8

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

Splits and Phases: 7: S Kentucky Ave/N Kentucky Ave & E Graves Ave



HCM 6th Signalized Intersection Summary
 7: S Kentucky Ave/N Kentucky Ave & E Graves Ave

2020 Buildout Conditions w/Imp
 Timing Plan: PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			 		 		
Traffic Volume (veh/h)	296	1051	24	28	911	517	15	9	17	570	19	337
Future Volume (veh/h)	296	1051	24	28	911	517	15	9	17	570	19	337
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	325	1155	24	31	1001	353	16	10	6	626	21	229
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	3	3	3	3	3	3	2	2	2	2	2	2
Cap, veh/h	360	2032	42	239	1364	609	35	22	13	679	27	289
Arrive On Green	0.13	0.58	0.58	0.39	0.39	0.39	0.04	0.04	0.04	0.20	0.20	0.20
Sat Flow, veh/h	1767	3532	73	472	3526	1572	883	552	331	3456	135	1471
Grp Volume(v), veh/h	325	576	603	31	1001	353	32	0	0	626	0	250
Grp Sat Flow(s),veh/h/ln	1767	1763	1842	472	1763	1572	1767	0	0	1728	0	1606
Q Serve(g_s), s	12.3	23.0	23.0	4.9	27.1	19.8	2.0	0.0	0.0	19.8	0.0	16.5
Cycle Q Clear(g_c), s	12.3	23.0	23.0	6.9	27.1	19.8	2.0	0.0	0.0	19.8	0.0	16.5
Prop In Lane	1.00		0.04	1.00		1.00	0.50		0.19	1.00		0.92
Lane Grp Cap(c), veh/h	360	1014	1060	239	1364	609	70	0	0	679	0	316
V/C Ratio(X)	0.90	0.57	0.57	0.13	0.73	0.58	0.46	0.00	0.00	0.92	0.00	0.79
Avail Cap(c_a), veh/h	519	1424	1488	306	1867	833	111	0	0	682	0	317
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	24.0	14.9	14.9	23.7	29.2	27.0	52.3	0.0	0.0	43.9	0.0	42.6
Incr Delay (d2), s/veh	14.5	0.7	0.7	0.3	1.3	1.2	4.6	0.0	0.0	18.0	0.0	12.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.1	8.4	8.8	0.6	11.0	7.2	1.0	0.0	0.0	9.8	0.0	7.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	38.5	15.6	15.6	24.1	30.5	28.2	57.0	0.0	0.0	61.9	0.0	55.4
LnGrp LOS	D	B	B	C	C	C	E	A	A	E	A	E
Approach Vol, veh/h	1504			1385			32			876		
Approach Delay, s/veh	20.6			29.8			57.0			60.0		
Approach LOS	C			C			E			E		
Timer - Assigned Phs	2			4		5	6		8			
Phs Duration (G+Y+Rc), s	71.1			11.4		21.0	50.1		28.9			
Change Period (Y+Rc), s	7.0			7.0		6.0	7.0		7.0			
Max Green Setting (Gmax), s	90.0			7.0		25.0	59.0		22.0			
Max Q Clear Time (g_c+I1), s	25.0			4.0		14.3	29.1		21.8			
Green Ext Time (p_c), s	15.2			0.0		0.7	14.0		0.1			
Intersection Summary												
HCM 6th Ctrl Delay	33.3											
HCM 6th LOS	C											

Lanes, Volumes, Timings
8: N Normandy Blvd & E Graves Ave

2020 Buildout Conditions w/Imp
Timing Plan: PM Peak Hour

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑↑	↑↑	↑	↑↑	↑
Traffic Volume (vph)	734	1046	774	607	778	716
Future Volume (vph)	734	1046	774	607	778	716
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	2%	2%	4%	4%	2%	2%
Adj. Flow (vph)	781	1113	823	646	828	762
Shared Lane Traffic (%)						
Lane Group Flow (vph)	781	1113	823	646	828	762
Turn Type	NA	pm+ov	Prot	NA	Prot	Perm
Protected Phases	6	4	5	2	4	
Permitted Phases		6				4
Detector Phase	6	4	5	2	4	4
Switch Phase						
Minimum Initial (s)	12.0	7.0	5.0	12.0	7.0	7.0
Minimum Split (s)	19.0	13.0	12.0	19.0	13.0	13.0
Total Split (s)	30.0	30.0	30.0	60.0	30.0	30.0
Total Split (%)	33.3%	33.3%	33.3%	66.7%	33.3%	33.3%
Yellow Time (s)	5.0	4.0	5.0	5.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	6.0	7.0	7.0	6.0	6.0
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Recall Mode	Min	None	None	Min	None	None
v/c Ratio	0.87	0.66	0.95	0.60	0.90	0.92
Control Delay	44.6	14.1	55.2	14.8	46.3	27.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.6	14.1	55.2	14.8	46.3	27.0
Queue Length 50th (ft)	223	214	238	215	234	123
Queue Length 95th (ft)	#322	288	#356	320	#342	#382
Internal Link Dist (ft)	3200			471	9642	
Turn Bay Length (ft)		630	400		200	
Base Capacity (vph)	908	1676	864	1080	919	829
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.86	0.66	0.95	0.60	0.90	0.92

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 89.6

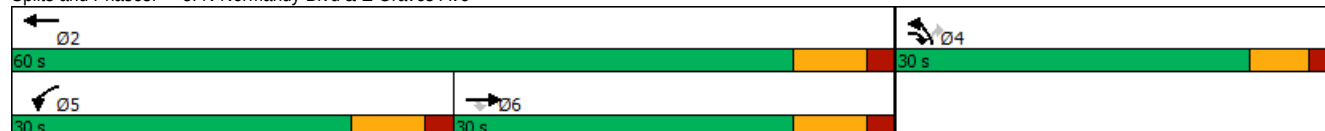
Natural Cycle: 90

Control Type: Actuated-Uncoordinated

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

Queue shown is maximum after two cycles.

Splits and Phases: 8: N Normandy Blvd & E Graves Ave



HCM 6th Signalized Intersection Summary
8: N Normandy Blvd & E Graves Ave

2020 Buildout Conditions w/Imp
Timing Plan: PM Peak Hour

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑↑	↑↑	↑	↑↑	↑
Traffic Volume (veh/h)	734	1046	774	607	778	716
Future Volume (veh/h)	734	1046	774	607	778	716
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1841	1841	1870	1870
Adj Flow Rate, veh/h	781	876	823	646	828	233
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	4	4	2	2
Cap, veh/h	909	1444	877	1090	905	415
Arrive On Green	0.26	0.26	0.26	0.59	0.26	0.26
Sat Flow, veh/h	3647	2790	3401	1841	3456	1585
Grp Volume(v), veh/h	781	876	823	646	828	233
Grp Sat Flow(s),veh/h/ln	1777	1395	1700	1841	1728	1585
Q Serve(g_s), s	18.7	19.7	21.1	19.7	20.7	11.3
Cycle Q Clear(g_c), s	18.7	19.7	21.1	19.7	20.7	11.3
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	909	1444	877	1090	905	415
V/C Ratio(X)	0.86	0.61	0.94	0.59	0.91	0.56
Avail Cap(c_a), veh/h	917	1450	877	1094	930	427
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.6	15.1	32.4	11.4	31.9	28.5
Incr Delay (d2), s/veh	8.5	0.9	17.3	1.0	13.2	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.5	9.5	10.2	6.8	9.7	10.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	40.1	16.0	49.7	12.5	45.1	30.1
LnGrp LOS	D	B	D	B	D	C
Approach Vol, veh/h	1657			1469	1061	
Approach Delay, s/veh	27.3			33.3	41.8	
Approach LOS	C			C	D	
Timer - Assigned Phs	2			4	5	6
Phs Duration (G+Y+Rc), s	59.8			29.4	30.0	29.8
Change Period (Y+Rc), s	7.0			6.0	7.0	7.0
Max Green Setting (Gmax), s	53.0			24.0	23.0	23.0
Max Q Clear Time (g_c+I1), s	21.7			22.7	23.1	21.7
Green Ext Time (p_c), s	6.5			0.6	0.0	1.1
Intersection Summary						
HCM 6th Ctrl Delay			33.1			
HCM 6th LOS			C			

Lanes, Volumes, Timings
9: Howland Boulevard/SR 472 & Graves Avenue

2020 Buildout Conditions w/Imp
Timing Plan: PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	281	47	1196	52	44	106	741	1014	18	62	1809	391
Future Volume (vph)	281	47	1196	52	44	106	741	1014	18	62	1809	391
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
Heavy Vehicles (%)	3%	3%	3%	2%	2%	2%	3%	3%	3%	2%	2%	2%
Adj. Flow (vph)	296	49	1259	55	46	112	780	1067	19	65	1904	412
Shared Lane Traffic (%)												
Lane Group Flow (vph)	296	49	1259	55	46	112	780	1067	19	65	1904	412
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	5.0	17.0	17.0	7.0	17.0	17.0
Minimum Split (s)	15.0	15.0	15.0	14.5	14.5	14.5	12.0	24.0	24.0	14.5	24.0	24.0
Total Split (s)	23.0	26.0	26.0	22.0	25.0	25.0	32.0	88.0	88.0	15.0	71.0	71.0
Total Split (%)	15.2%	17.2%	17.2%	14.6%	16.6%	16.6%	21.2%	58.3%	58.3%	9.9%	47.0%	47.0%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	3.0	3.0	3.0	2.5	2.5	2.5	2.0	2.0	2.0	2.5	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	8.0	8.0	8.0	7.5	7.5	7.5	7.0	7.0	7.0	7.5	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Min	C-Min	None	C-Min	C-Min
v/c Ratio	0.88	0.15	2.17	0.30	0.21	0.32	1.39	0.55	0.02	0.39	0.88	0.50
Control Delay	93.4	56.3	549.9	72.8	63.3	2.4	230.1	23.3	0.1	76.6	46.1	12.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	93.4	56.3	549.9	72.8	63.3	2.4	230.1	23.3	0.1	76.6	46.1	12.4
Queue Length 50th (ft)	151	42	~1698	27	42	0	~524	358	0	32	627	94
Queue Length 95th (ft)	#234	85	#1981	52	84	0	#655	424	0	59	695	192
Internal Link Dist (ft)		1373			8563			569			283	
Turn Bay Length (ft)	330			565			280			185		
Base Capacity (vph)	337	334	581	329	216	350	562	1950	936	170	2155	825
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.88	0.15	2.17	0.17	0.21	0.32	1.39	0.55	0.02	0.38	0.88	0.50

Intersection Summary

Cycle Length: 151

Actuated Cycle Length: 151

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow

Natural Cycle: 150

Control Type: Actuated-Coordinated

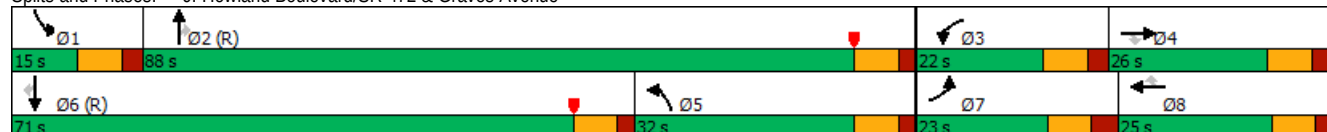
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

Splits and Phases: 9: Howland Boulevard/SR 472 & Graves Avenue



HCM 6th Signalized Intersection Summary
9: Howland Boulevard/SR 472 & Graves Avenue

2020 Buildout Conditions w/Imp
Timing Plan: PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	281	47	1196	52	44	106	741	1014	18	62	1809	391
Future Volume (veh/h)	281	47	1196	52	44	106	741	1014	18	62	1809	391
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1870	1870	1870	1856	1856	1856	1870	1870	1870
Adj Flow Rate, veh/h	296	49	0	55	46	21	780	1067	18	65	1904	395
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, %	3	3	3	2	2	2	3	3	3	2	2	2
Cap, veh/h	338	189		160	87	73	814	2139	954	160	2139	664
Arrive On Green	0.10	0.10	0.00	0.05	0.05	0.05	0.24	0.61	0.61	0.05	0.42	0.42
Sat Flow, veh/h	3428	1856	1572	3456	1870	1585	3428	3526	1572	3456	5106	1585
Grp Volume(v), veh/h	296	49	0	55	46	21	780	1067	18	65	1904	395
Grp Sat Flow(s),veh/h/ln	1714	1856	1572	1728	1870	1585	1714	1763	1572	1728	1702	1585
Q Serve(g_s), s	12.9	3.7	0.0	2.3	3.6	1.9	33.9	25.8	0.7	2.8	52.2	19.2
Cycle Q Clear(g_c), s	12.9	3.7	0.0	2.3	3.6	1.9	33.9	25.8	0.7	2.8	52.2	19.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	338	189		160	87	73	814	2139	954	160	2139	664
V/C Ratio(X)	0.88	0.26		0.34	0.53	0.29	0.96	0.50	0.02	0.41	0.89	0.59
Avail Cap(c_a), veh/h	341	221		332	217	184	814	2139	954	172	2164	672
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.09	0.09	0.00	0.39	0.39	0.39	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	67.2	62.6	0.0	69.8	70.4	69.6	56.8	16.7	11.8	70.0	40.7	14.8
Incr Delay (d2), s/veh	2.6	0.1	0.0	0.5	2.0	0.8	21.8	0.8	0.0	1.6	6.1	3.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.6	1.7	0.0	1.0	1.8	0.8	17.0	10.5	0.2	1.3	23.0	7.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	69.7	62.6	0.0	70.3	72.4	70.4	78.6	17.6	11.8	71.6	46.7	18.7
LnGrp LOS	E	E		E	E	E	E	B	B	E	D	B
Approach Vol, veh/h	345			122			1865			2364		
Approach Delay, s/veh	68.7			71.1			43.0			42.7		
Approach LOS	E			E			D			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	14.5	98.6	14.5	23.4	42.9	70.3	22.9	15.0				
Change Period (Y+Rc), s	7.5	7.0	7.5	8.0	7.0	7.0	8.0	* 8				
Max Green Setting (Gmax), s	7.5	81.0	14.5	18.0	25.0	64.0	15.0	* 18				
Max Q Clear Time (g_c+I1), s	4.8	27.8	4.3	5.7	35.9	54.2	14.9	5.6				
Green Ext Time (p_c), s	0.0	15.0	0.1	0.1	0.0	9.1	0.0	0.1				

Intersection Summary

HCM 6th Ctrl Delay 45.5
HCM 6th LOS D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
15: N Normandy Blvd & Elkcarn Blvd

2020 Buildout Conditions w/Imp
Timing Plan: PM Peak Hour

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	211	263	759	394	402	957
Future Volume (vph)	211	263	759	394	402	957
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	222	277	799	415	423	1007
Shared Lane Traffic (%)						
Lane Group Flow (vph)	222	277	1214	0	423	1007
Turn Type	Prot	Perm	NA		pm+pt	NA
Protected Phases	4		6		5	2
Permitted Phases		4			2	
Detector Phase	4	4	6		5	2
Switch Phase						
Minimum Initial (s)	5.0	5.0	12.0		5.0	12.0
Minimum Split (s)	11.5	11.5	19.0		11.5	18.5
Total Split (s)	20.0	20.0	33.0		17.0	50.0
Total Split (%)	28.6%	28.6%	47.1%		24.3%	71.4%
Yellow Time (s)	4.0	4.0	4.5		4.0	4.0
All-Red Time (s)	2.5	2.5	2.5		2.5	2.5
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	6.5	6.5	7.0		6.5	6.5
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	None	None	Min		None	Min
v/c Ratio	0.71	0.55	0.90		1.11	0.45
Control Delay	39.9	8.1	28.9		98.6	7.5
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	39.9	8.1	28.9		98.6	7.5
Queue Length 50th (ft)	89	0	226		-166	105
Queue Length 95th (ft)	#172	58	#359		#332	143
Internal Link Dist (ft)	7820		5060			9642
Turn Bay Length (ft)	460				275	
Base Capacity (vph)	352	536	1380		382	2268
Starvation Cap Reductn	0	0	0		0	0
Spillback Cap Reductn	0	0	0		0	0
Storage Cap Reductn	0	0	0		0	0
Reduced v/c Ratio	0.63	0.52	0.88		1.11	0.44

Intersection Summary

Cycle Length: 70

Actuated Cycle Length: 68

Natural Cycle: 80

Control Type: Actuated-Uncoordinated

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

Splits and Phases: 15: N Normandy Blvd & Elkcarn Blvd



HCM 6th Signalized Intersection Summary
15: N Normandy Blvd & Elkcam Blvd

2020 Buildout Conditions w/Imp
Timing Plan: PM Peak Hour

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	211	263	759	394	402	957
Future Volume (veh/h)	211	263	759	394	402	957
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	222	132	799	255	423	1007
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	281	250	959	306	454	2237
Arrive On Green	0.16	0.16	0.36	0.36	0.17	0.63
Sat Flow, veh/h	1781	1585	2743	845	1781	3647
Grp Volume(v), veh/h	222	132	536	518	423	1007
Grp Sat Flow(s),veh/h/ln	1781	1585	1777	1718	1781	1777
Q Serve(g_s), s	7.6	4.9	17.5	17.5	9.0	9.3
Cycle Q Clear(g_c), s	7.6	4.9	17.5	17.5	9.0	9.3
Prop In Lane	1.00	1.00		0.49	1.00	
Lane Grp Cap(c), veh/h	281	250	643	622	454	2237
V/C Ratio(X)	0.79	0.53	0.83	0.83	0.93	0.45
Avail Cap(c_a), veh/h	379	337	728	704	454	2435
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.7	24.6	18.5	18.5	13.3	6.1
Incr Delay (d2), s/veh	7.8	1.7	7.5	7.7	26.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.6	4.4	7.6	7.4	5.8	2.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	33.5	26.3	26.0	26.2	39.4	6.2
LnGrp LOS	C	C	C	C	D	A
Approach Vol, veh/h	354		1054			1430
Approach Delay, s/veh	30.8		26.1			16.0
Approach LOS	C		C			B
Timer - Assigned Phs	2		4	5	6	
Phs Duration (G+Y+Rc), s	47.0		16.5	17.0	30.0	
Change Period (Y+Rc), s	* 7		6.5	6.5	7.0	
Max Green Setting (Gmax), s	* 44		13.5	10.5	26.0	
Max Q Clear Time (g_c+I1), s	11.3		9.6	11.0	19.5	
Green Ext Time (p_c), s	7.6		0.4	0.0	3.5	
Intersection Summary						
HCM 6th Ctrl Delay			21.6			
HCM 6th LOS			C			
Notes						

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

Lanes, Volumes, Timings
25: N Normandy Blvd & Saxon Blvd

2020 Buildout Conditions w/Imp
Timing Plan: PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 		 	 		 	 		 	 	 
Traffic Volume (vph)	724	1491	352	33	671	238	190	296	47	312	305	526
Future Volume (vph)	724	1491	352	33	671	238	190	296	47	312	305	526
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
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	3%	3%	3%	2%	2%	2%
Adj. Flow (vph)	754	1553	367	34	699	248	198	308	49	325	318	548
Shared Lane Traffic (%)												
Lane Group Flow (vph)	754	1553	367	34	699	248	198	357	0	325	318	548
Turn Type	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA		Prot	NA	pm+ov
Protected Phases	1	6	7	5	2		7	4		3	8	1
Permitted Phases			6			2						8
Detector Phase	1	6	7	5	2	2	7	4		3	8	1
Switch Phase												
Minimum Initial (s)	5.0	15.0	5.0	5.0	15.0	15.0	5.0	10.0		5.0	10.0	5.0
Minimum Split (s)	12.6	21.9	11.8	13.1	21.9	21.9	11.8	16.9		12.5	16.9	12.6
Total Split (s)	45.2	68.1	29.9	13.1	36.0	36.0	29.9	42.9		25.9	38.9	45.2
Total Split (%)	30.1%	45.4%	19.9%	8.7%	24.0%	24.0%	19.9%	28.6%		17.3%	25.9%	30.1%
Yellow Time (s)	4.4	4.9	4.0	4.9	4.9	4.9	4.0	4.8		4.8	4.8	4.4
All-Red Time (s)	3.2	2.0	2.8	3.2	2.0	2.0	2.8	2.1		2.7	2.1	3.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	7.6	6.9	6.8	8.1	6.9	6.9	6.8	6.9		7.5	6.9	7.6
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Recall Mode	None	C-Min	None	None	C-Min	C-Min	None	None		None	None	None
v/c Ratio	0.90	0.98	0.35	0.52	0.87	0.47	0.82	0.88		0.81	0.83	0.38
Control Delay	52.5	43.3	6.4	96.3	69.1	12.3	88.8	78.9		80.9	75.9	17.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	52.5	43.3	6.4	96.3	69.1	12.3	88.8	78.9		80.9	75.9	17.2
Queue Length 50th (ft)	355	~892	92	33	~380	22	188	329		161	297	127
Queue Length 95th (ft)	m222	m497	m38	#88	#510	107	#294	#482		#218	#441	176
Internal Link Dist (ft)		3036			7092			3666			5060	
Turn Bay Length (ft)	520		220	470			260					385
Base Capacity (vph)	861	1579	1084	66	799	529	269	437		421	398	1472
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.88	0.98	0.34	0.52	0.87	0.47	0.74	0.82		0.77	0.80	0.37

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 95 (63%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow

Natural Cycle: 130

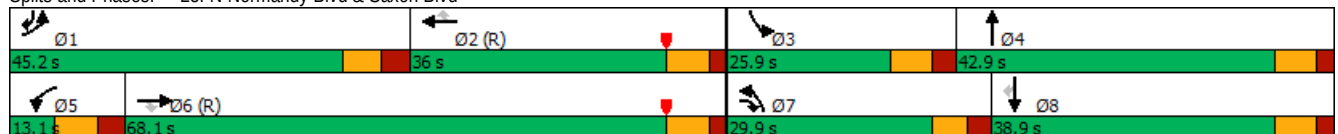
Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

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

Splits and Phases: 25: N Normandy Blvd & Saxon Blvd



HCM 6th Signalized Intersection Summary
25: N Normandy Blvd & Saxon Blvd

2020 Buildout Conditions w/Imp
Timing Plan: PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	724	1491	352	33	671	238	190	296	47	312	305	526
Future Volume (veh/h)	724	1491	352	33	671	238	190	296	47	312	305	526
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1856	1856	1856	1870	1870	1870
Adj Flow Rate, veh/h	754	1553	302	34	699	240	198	308	41	325	318	312
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	3	3	3	2	2	2
Cap, veh/h	818	1638	929	45	899	401	221	336	45	373	369	1211
Arrive On Green	0.08	0.15	0.15	0.03	0.25	0.25	0.13	0.21	0.21	0.11	0.20	0.20
Sat Flow, veh/h	3456	3554	1585	1781	3554	1585	1767	1604	213	3456	1870	2790
Grp Volume(v), veh/h	754	1553	302	34	699	240	198	0	349	325	318	312
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1781	1777	1585	1767	0	1817	1728	1870	1395
Q Serve(g_s), s	32.5	64.9	19.9	2.8	27.4	20.0	16.6	0.0	28.2	13.9	24.7	10.7
Cycle Q Clear(g_c), s	32.5	64.9	19.9	2.8	27.4	20.0	16.6	0.0	28.2	13.9	24.7	10.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.12	1.00		1.00
Lane Grp Cap(c), veh/h	818	1638	929	45	899	401	221	0	381	373	369	1211
V/C Ratio(X)	0.92	0.95	0.33	0.76	0.78	0.60	0.90	0.00	0.92	0.87	0.86	0.26
Avail Cap(c_a), veh/h	866	1638	929	59	899	401	272	0	436	424	399	1255
HCM Platoon Ratio	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.09	0.09	0.09	0.63	0.63	0.63	0.75	0.00	0.75	0.86	0.86	0.86
Uniform Delay (d), s/veh	67.8	61.8	26.7	72.6	52.1	49.3	64.7	0.0	58.0	65.9	58.2	27.1
Incr Delay (d2), s/veh	1.8	1.7	0.1	21.5	4.2	4.1	20.8	0.0	18.6	14.3	15.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	15.4	31.4	8.4	1.6	12.6	8.4	8.7	0.0	14.9	6.9	13.2	3.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	69.5	63.5	26.8	94.2	56.3	53.5	85.4	0.0	76.6	80.2	73.3	27.2
LnGrp LOS	E	E	C	F	E	D	F	A	E	F	E	C
Approach Vol, veh/h	2609			973			547			955		
Approach Delay, s/veh	61.0			57.0			79.8			60.6		
Approach LOS	E			E			E			E		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	43.1	44.8	23.7	38.4	11.9	76.1	25.6	36.5				
Change Period (Y+Rc), s	* 7.6	6.9	* 7.5	6.9	* 8.1	6.9	* 6.8	6.9				
Max Green Setting (Gmax), s	* 38	29.1	* 18	36.0	* 5	61.2	* 23	32.0				
Max Q Clear Time (g_c+I1), s	34.5	29.4	15.9	30.2	4.8	66.9	18.6	26.7				
Green Ext Time (p_c), s	1.0	0.0	0.3	1.3	0.0	0.0	0.2	2.0				

Intersection Summary

HCM 6th Ctrl Delay 62.2
HCM 6th LOS E

Notes

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

Arterial Level of Service: EB E Saxon Blvd

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
N Normandy Blvd	II	40	53.1	43.3	96.4	0.59	22.0	C
Tivoli Dr	II	40	122.3	7.4	129.7	1.36	37.7	A
Total	II		175.4	50.7	226.1	1.95	31.0	B

Arterial Level of Service: WB E Saxon Blvd

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Tivoli Dr	II	35	15.2	35.9	51.1	0.12	8.6	F
N Normandy Blvd	II	40	122.3	69.1	191.4	1.36	25.5	C
I-4	II	45	47.2	14.2	61.4	0.59	34.6	B
Total	II		184.7	119.2	303.9	2.07	24.5	C

Arterial Level of Service: EB SR 472

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
N Kentucky Ave	I	55	17.7	45.2	62.9	0.18	10.4	F
I-4 WB	I	55	36.3	24.2	60.5	0.55	33.0	C
I-4 EB	I	50	30.3	11.1	41.4	0.32	27.8	C
E Graves Avenue	I	50	26.1	56.3	82.4	0.28	12.0	F
Total	I		110.4	136.8	247.2	1.33	19.4	E

Arterial Level of Service: WB SR 472

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
I-4 EB	I	50	26.1	20.0	46.1	0.28	21.5	D
I-4 WB	I	50	30.3	12.9	43.2	0.32	26.6	D
Dr. Martin Luther Ki	I	55	36.3	42.0	78.3	0.55	25.5	D
Total	I		92.7	74.9	167.6	1.15	24.7	D

Arterial Level of Service: EB W Saxon Blvd

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Broward Ave	II	45	21.4	34.3	55.7	0.20	12.7	F
FDOT Park & Ride	II	45	33.9	12.1	46.0	0.35	27.7	C
Total	II		55.3	46.4	101.7	0.55	19.5	D

Arterial Level of Service: WB W Saxon Blvd

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
FDOT Park & Ride	II	45	10.1	8.4	18.5	0.09	17.9	D
Veterans Memorial Pk	II	45	33.9	48.4	82.3	0.35	15.5	E
Total	II		44.0	56.8	100.8	0.45	15.9	E

APPENDIX I: SIGNAL WARRANT ANALYSIS WORKSHEETS

2020 Buildout AM Peak Hour

TRAFFIC SIGNAL WARRANT SUMMARY

Form 750-020-01
TRAFFIC ENGINEERING - 07/99
Page 4 of 6

City: City of Deltona
County: Volusia County

Engineer: KHA Analyst
Date: July 17, 2019

Major Street: Normandy Boulevard
Minor Street: Driveway 1

Lanes: 1 Critical Approach Speed: 45
Lanes: 1

Volume Level Criteria

1. Is the critical speed of major street traffic > 70 km/h (40 mph) ? ☒ Yes ☐ No
2. Is the intersection in a built-up area of isolated community of <10,000 population? ☐ Yes ☒ No

If Question 1 or 2 above is answered "Yes", then use "70%" volume level ☒ 70% ☐ 100%

WARRANT 3 - PEAK HOUR

If all three criteria are fulfilled or the plotted point lies above the appropriate line, then the warrant is satisfied.

Applicable: ☐ Yes ☒ No
Satisfied: ☐ Yes ☒ No

Unusual condition justifying use of warrant:

Record hour when criteria are fulfilled and the corresponding delay or volume in boxes provided.

Peak Hour		

Criteria

1. Delay on Minor Approach *(vehicle-hours)

Approach Lanes	1	2
Delay Criteria*	4.0	5.0
Delay*		
Fulfilled?:	☐ Yes	☐ No

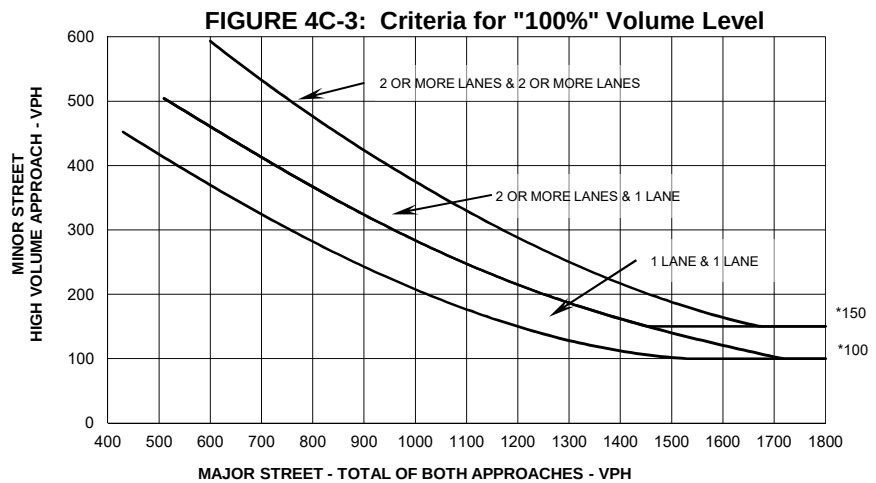
2. Volume on Minor Approach *(vehicles per hour)

Approach Lanes	1	2
Volume Criteria*	100	150
Volume*		
Fulfilled?:	☐ Yes	☐ No

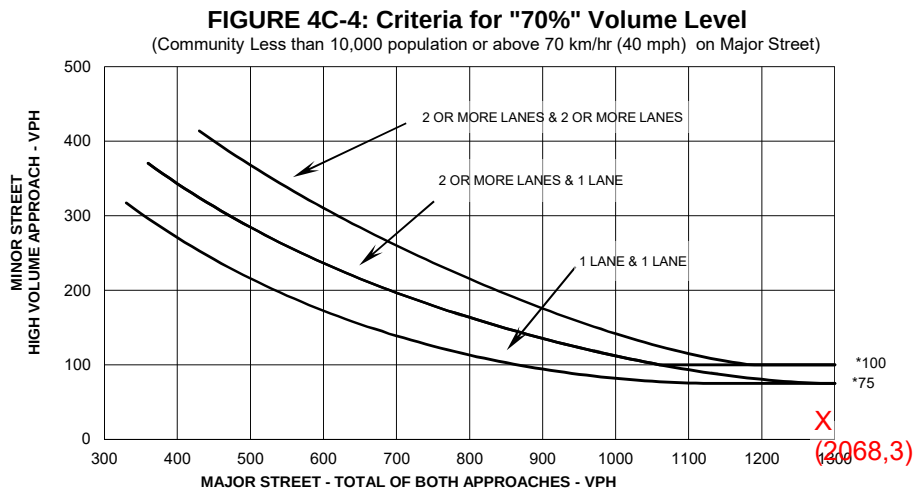
3. Total Entering Volume *(vehicles per hour)

No. of Approaches	3	4
Volume Criteria*	650	800
Volume*		
Fulfilled?:	☐ Yes	☐ No

Plot volume combination on the applicable figure below.



* Note: 150 vph applies as the lower threshold volume for a minor street approach with two or more lanes and 100 vph applies as the lower threshold volume threshold for a minor street approach with one lane.



* Note: 100 vph applies as the lower threshold volume for a minor street approach with two or more lanes and 75 vph applies as the lower threshold volume threshold for a minor street approach with one lane.

2020 Buildout AM Peak Hour

TRAFFIC SIGNAL WARRANT SUMMARY

Form 750-020-01
TRAFFIC ENGINEERING - 07/99
Page 4 of 6

City: City of Deltona
County: Volusia County

Engineer: KHA Analyst
Date: July 17, 2019

Major Street: Normandy Boulevard
Minor Street: Driveway 2

Lanes: 1 Critical Approach Speed: 45
Lanes: 1

Volume Level Criteria

1. Is the critical speed of major street traffic > 70 km/h (40 mph) ? ☒ Yes ☐ No
 2. Is the intersection in a built-up area of isolated community of <10,000 population? ☐ Yes ☒ No
- If Question 1 or 2 above is answered "Yes", then use "70%" volume level ☒ 70% ☐ 100%

WARRANT 3 - PEAK HOUR

If all three criteria are fulfilled or the plotted point lies above the appropriate line, then the warrant is satisfied.

Applicable: ☐ Yes ☒ No
Satisfied: ☐ Yes ☒ No

Unusual condition justifying
use of warrant:

Record hour when criteria are fulfilled
and the corresponding delay or volume
in boxes provided.

Peak Hour		

Criteria

1. Delay on Minor Approach *(vehicle-hours)

Approach Lanes	1	2
Delay Criteria*	4.0	5.0
Delay*		
Fulfilled?:	☐ Yes	☐ No

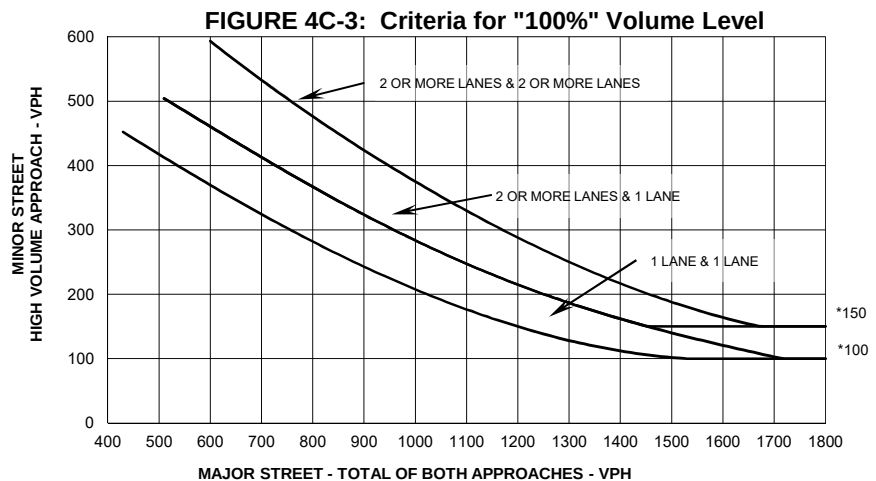
2. Volume on Minor Approach *(vehicles per hour)

Approach Lanes	1	2
Volume Criteria*	100	150
Volume*		
Fulfilled?:	☐ Yes	☐ No

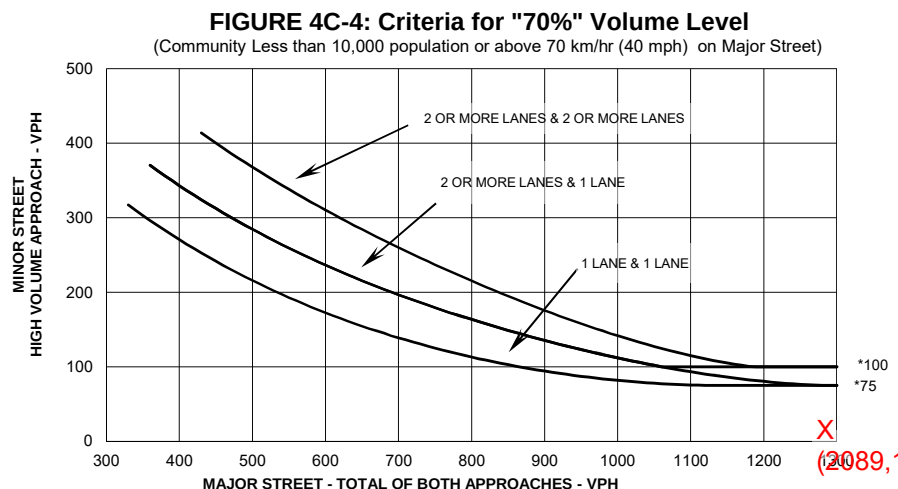
3. Total Entering Volume *(vehicles per hour)

No. of Approaches	3	4
Volume Criteria*	650	800
Volume*		
Fulfilled?:	☐ Yes	☐ No

Plot volume combination on the applicable figure below.



* Note: 150 vph applies as the lower threshold volume for a minor street approach with two or more lanes and 100 vph applies as the lower threshold volume threshold for a minor street approach with one lane.



* Note: 100 vph applies as the lower threshold volume for a minor street approach with two or more lanes and 75 vph applies as the lower threshold volume threshold for a minor street approach with one lane.

2020 Buildout AM Peak Hour TRAFFIC SIGNAL WARRANT SUMMARY

Form 750-020-01
TRAFFIC ENGINEERING - 07/99
Page 4 of 6

City: City of Deltona
County: Volusia County

Engineer: KHA Analyst
Date: July 17, 2019

Major Street: SB Approach - Normandy Boulevard
Minor Street: NBL-Normandy Boulevard at Driveway 3

Lanes: 1 Critical Approach Speed: 45
Lanes: 1

Volume Level Criteria

1. Is the critical speed of major street traffic > 70 km/h (40 mph) ? ☒ Yes ☐ No
 2. Is the intersection in a built-up area of isolated community of <10,000 population? ☐ Yes ☒ No
- If Question 1 or 2 above is answered "Yes", then use "70%" volume level ☒ 70% ☐ 100%

WARRANT 3 - PEAK HOUR

If all three criteria are fulfilled or the plotted point lies above the appropriate line, then the warrant is satisfied.

Applicable: ☒ Yes ☐ No
Satisfied: ☒ Yes ☐ No

Unusual condition justifying
use of warrant:

Record hour when criteria are fulfilled
and the corresponding delay or volume
in boxes provided.

Peak Hour		

Criteria

1. Delay on Minor Approach *(vehicle-hours)

Approach Lanes	1	2
Delay Criteria*	4.0	5.0
Delay*		
Fulfilled?:	☐ Yes	☐ No

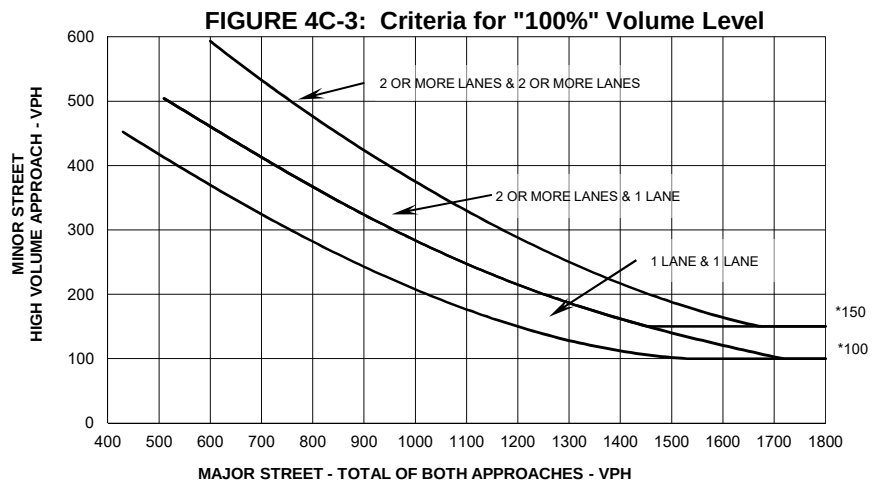
2. Volume on Minor Approach *(vehicles per hour)

Approach Lanes	1	2
Volume Criteria*	100	150
Volume*		
Fulfilled?:	☐ Yes	☐ No

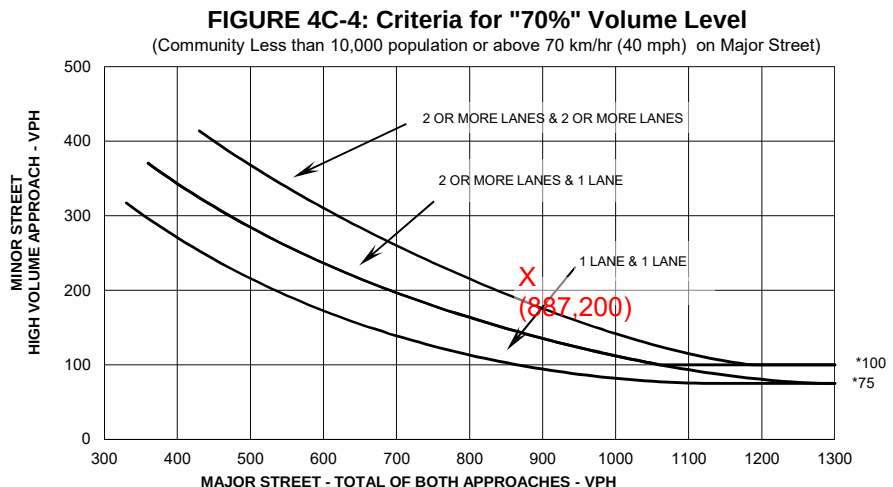
3. Total Entering Volume *(vehicles per hour)

No. of Approaches	3	4
Volume Criteria*	650	800
Volume*		
Fulfilled?:	☐ Yes	☐ No

Plot volume combination on the applicable figure below.



* Note: 150 vph applies as the lower threshold volume for a minor street approach with two or more lanes and 100 vph applies as the lower threshold volume threshold for a minor street approach with one lane.



* Note: 100 vph applies as the lower threshold volume for a minor street approach with two or more lanes and 75 vph applies as the lower threshold volume threshold for a minor street approach with one lane.

2020 Buildout AM Peak Hour TRAFFIC SIGNAL WARRANT SUMMARY

Form 750-020-01
TRAFFIC ENGINEERING - 07/99
Page 4 of 6

City: City of Deltona
County: Volusia County

Engineer: KHA Analyst
Date: July 17, 2019

Major Street: SB Approach - Normandy Boulevard
Minor Street: NBL-Normandy Boulevard at Driveway 4

Lanes: 1 Critical Approach Speed: 45
Lanes: 1

Volume Level Criteria

1. Is the critical speed of major street traffic > 70 km/h (40 mph) ? ☒ Yes ☐ No
 2. Is the intersection in a built-up area of isolated community of <10,000 population? ☐ Yes ☒ No
- If Question 1 or 2 above is answered "Yes", then use "70%" volume level ☒ 70% ☐ 100%

WARRANT 3 - PEAK HOUR

If all three criteria are fulfilled or the plotted point lies above the appropriate line, then the warrant is satisfied.

Applicable: ☐ Yes ☒ No
Satisfied: ☐ Yes ☒ No

Unusual condition justifying
use of warrant:

Record hour when criteria are fulfilled
and the corresponding delay or volume
in boxes provided.

Peak Hour		

Criteria

1. Delay on Minor Approach *(vehicle-hours)

Approach Lanes	1	2
Delay Criteria*	4.0	5.0
Delay*		
Fulfilled?:	☐ Yes	☐ No

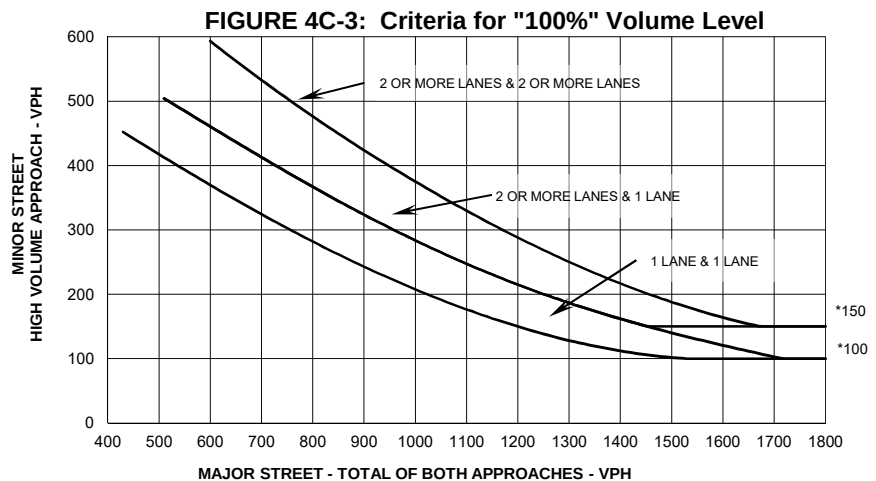
2. Volume on Minor Approach *(vehicles per hour)

Approach Lanes	1	2
Volume Criteria*	100	150
Volume*		
Fulfilled?:	☐ Yes	☐ No

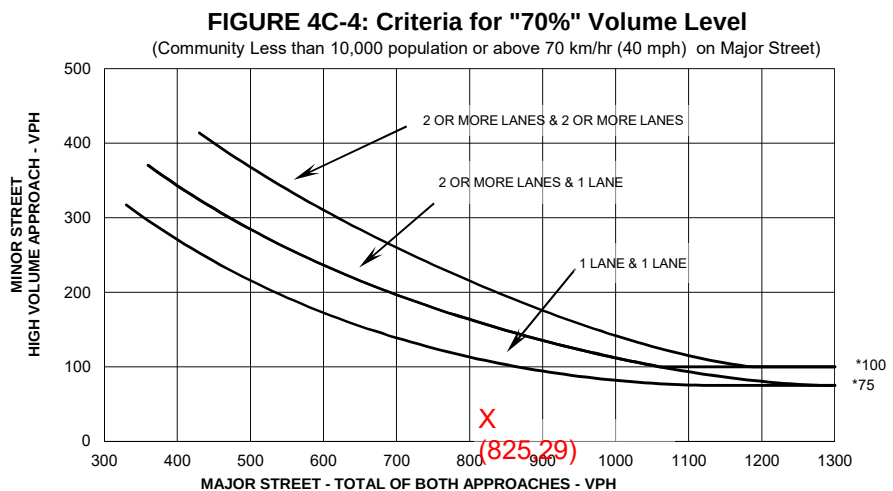
3. Total Entering Volume *(vehicles per hour)

No. of Approaches	3	4
Volume Criteria*	650	800
Volume*		
Fulfilled?:	☐ Yes	☐ No

Plot volume combination on the applicable figure below.



* Note: 150 vph applies as the lower threshold volume for a minor street approach with two or more lanes and 100 vph applies as the lower threshold volume threshold for a minor street approach with one lane.



* Note: 100 vph applies as the lower threshold volume for a minor street approach with two or more lanes and 75 vph applies as the lower threshold volume threshold for a minor street approach with one lane.

2020 Buildout PM Peak Hour TRAFFIC SIGNAL WARRANT SUMMARY

Form 750-020-01
TRAFFIC ENGINEERING - 07/99
Page 4 of 6

City: City of Deltona
County: Volusia County

Engineer: KHA Analyst
Date: July 17, 2019

Major Street: Normandy Boulevard
Minor Street: Driveway 1

Lanes: 1 Critical Approach Speed: 45
Lanes: 1

Volume Level Criteria

1. Is the critical speed of major street traffic > 70 km/h (40 mph) ? ☒ Yes ☐ No
2. Is the intersection in a built-up area of isolated community of <10,000 population? ☐ Yes ☒ No

If Question 1 or 2 above is answered "Yes", then use "70%" volume level ☒ 70% ☐ 100%

WARRANT 3 - PEAK HOUR

If all three criteria are fulfilled or the plotted point lies above the appropriate line, then the warrant is satisfied.

Applicable: ☐ Yes ☒ No
Satisfied: ☐ Yes ☒ No

Unusual condition justifying
use of warrant:

Record hour when criteria are fulfilled
and the corresponding delay or volume
in boxes provided.

Peak Hour		

Criteria

1. Delay on Minor Approach *(vehicle-hours)

Approach Lanes	1	2
Delay Criteria*	4.0	5.0
Delay*		
Fulfilled?:	☐ Yes	☐ No

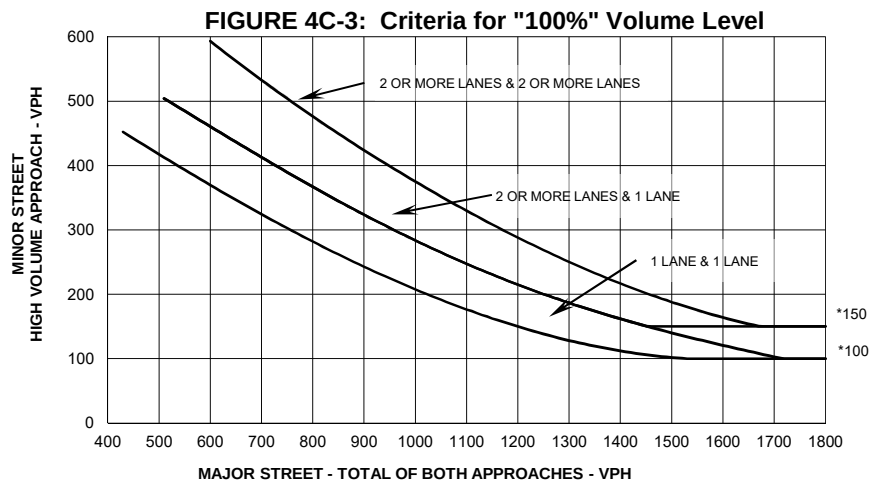
2. Volume on Minor Approach *(vehicles per hour)

Approach Lanes	1	2
Volume Criteria*	100	150
Volume*		
Fulfilled?:	☐ Yes	☐ No

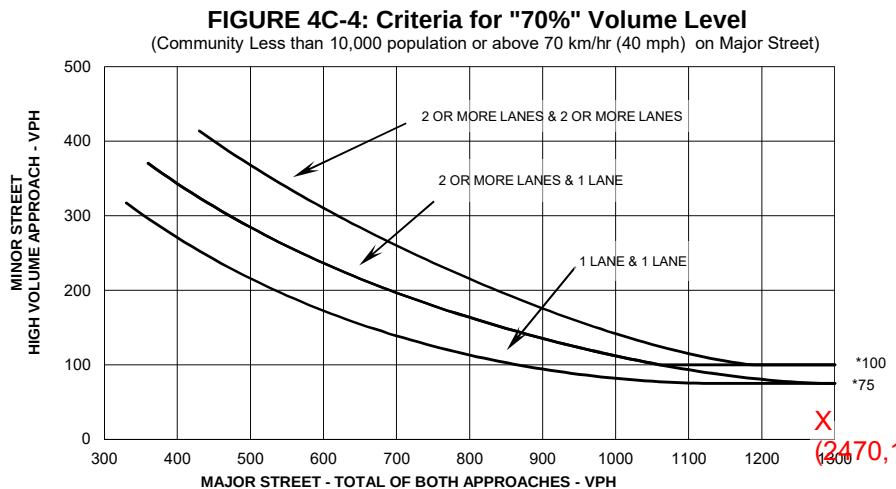
3. Total Entering Volume *(vehicles per hour)

No. of Approaches	3	4
Volume Criteria*	650	800
Volume*		
Fulfilled?:	☐ Yes	☐ No

Plot volume combination on the applicable figure below.



* Note: 150 vph applies as the lower threshold volume for a minor street approach with two or more lanes and 100 vph applies as the lower threshold volume threshold for a minor street approach with one lane.



* Note: 100 vph applies as the lower threshold volume for a minor street approach with two or more lanes and 75 vph applies as the lower threshold volume threshold for a minor street approach with one lane.

2020 Buildout PM Peak Hour TRAFFIC SIGNAL WARRANT SUMMARY

Form 750-020-01
TRAFFIC ENGINEERING - 07/99
Page 4 of 6

City: City of Deltona
County: Volusia County

Engineer: KHA Analyst
Date: July 17, 2019

Major Street: Normandy Boulevard
Minor Street: Driveway 2

Lanes: 1 Critical Approach Speed: 45
Lanes: 1

Volume Level Criteria

1. Is the critical speed of major street traffic > 70 km/h (40 mph) ? ☒ Yes ☐ No
 2. Is the intersection in a built-up area of isolated community of <10,000 population? ☐ Yes ☒ No
- If Question 1 or 2 above is answered "Yes", then use "70%" volume level ☒ 70% ☐ 100%

WARRANT 3 - PEAK HOUR

If all three criteria are fulfilled or the plotted point lies above the appropriate line, then the warrant is satisfied.

Applicable: ☒ Yes ☐ No
Satisfied: ☒ Yes ☐ No

Unusual condition justifying
use of warrant:

Record hour when criteria are fulfilled
and the corresponding delay or volume
in boxes provided.

Peak Hour		

Criteria

1. Delay on Minor Approach *(vehicle-hours)

Approach Lanes	1	2
Delay Criteria*	4.0	5.0
Delay*		
Fulfilled?:	☐ Yes	☐ No

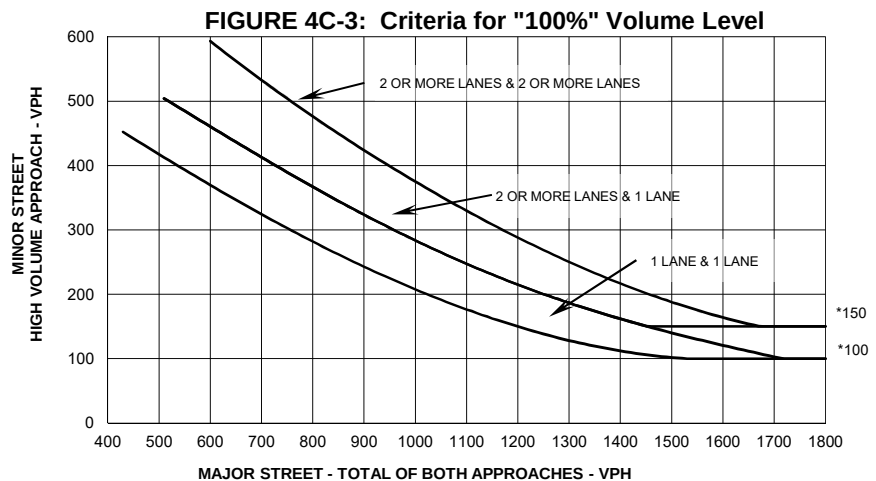
2. Volume on Minor Approach *(vehicles per hour)

Approach Lanes	1	2
Volume Criteria*	100	150
Volume*		
Fulfilled?:	☐ Yes	☐ No

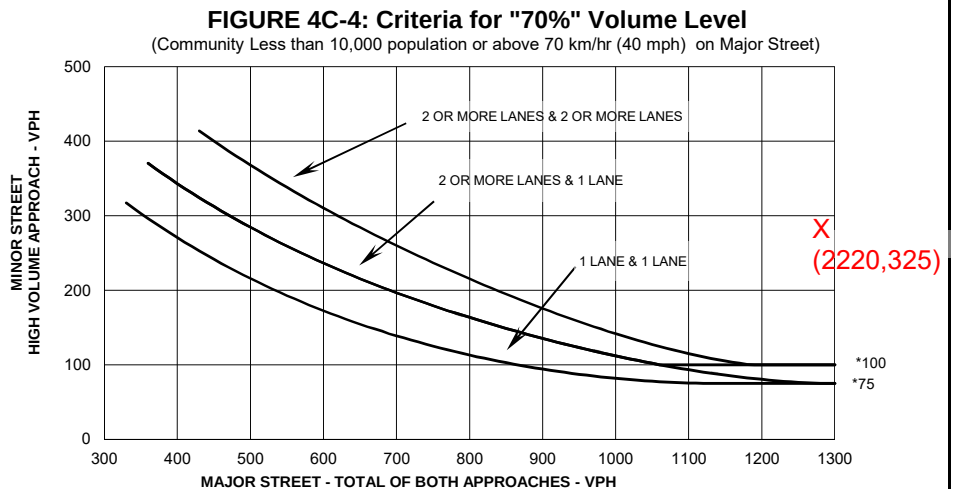
3. Total Entering Volume *(vehicles per hour)

No. of Approaches	3	4
Volume Criteria*	650	800
Volume*		
Fulfilled?:	☐ Yes	☐ No

Plot volume combination on the applicable figure below.



* Note: 150 vph applies as the lower threshold volume for a minor street approach with two or more lanes and 100 vph applies as the lower threshold volume threshold for a minor street approach with one lane.



* Note: 100 vph applies as the lower threshold volume for a minor street approach with two or more lanes and 75 vph applies as the lower threshold volume threshold for a minor street approach with one lane.

2020 Buildout PM Peak Hour TRAFFIC SIGNAL WARRANT SUMMARY

Form 750-020-01
TRAFFIC ENGINEERING - 07/99
Page 4 of 6

City: City of Deltona
County: Volusia County

Engineer: KHA Analyst
Date: July 17, 2019

Major Street: SB Approach - Normandy Boulevard
Minor Street: NBL-Normandy Boulevard at Driveway 3

Lanes: 1 Critical Approach Speed: 45
Lanes: 1

Volume Level Criteria

1. Is the critical speed of major street traffic > 70 km/h (40 mph) ? ☒ Yes ☐ No
2. Is the intersection in a built-up area of isolated community of <10,000 population? ☐ Yes ☒ No

If Question 1 or 2 above is answered "Yes", then use "70%" volume level ☒ 70% ☐ 100%

WARRANT 3 - PEAK HOUR

If all three criteria are fulfilled or the plotted point lies above the appropriate line, then the warrant is satisfied.

Applicable: ☒ Yes ☐ No
Satisfied: ☒ Yes ☐ No

Unusual condition justifying
use of warrant:

Record hour when criteria are fulfilled
and the corresponding delay or volume
in boxes provided.

Peak Hour		

Criteria

1. Delay on Minor Approach *(vehicle-hours)

Approach Lanes	1	2
Delay Criteria*	4.0	5.0
Delay*		
Fulfilled?:	☐ Yes	☐ No

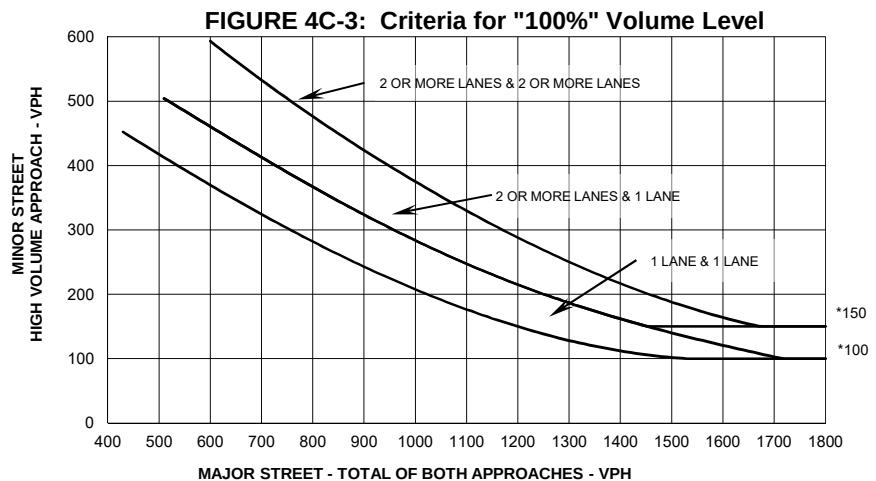
2. Volume on Minor Approach *(vehicles per hour)

Approach Lanes	1	2
Volume Criteria*	100	150
Volume*		
Fulfilled?:	☐ Yes	☐ No

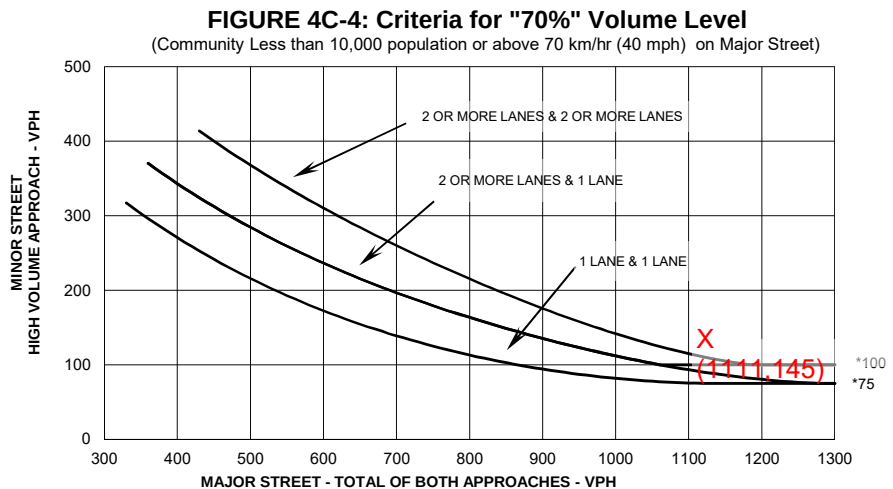
3. Total Entering Volume *(vehicles per hour)

No. of Approaches	3	4
Volume Criteria*	650	800
Volume*		
Fulfilled?:	☐ Yes	☐ No

Plot volume combination on the applicable figure below.



* Note: 150 vph applies as the lower threshold volume for a minor street approach with two or more lanes and 100 vph applies as the lower threshold volume threshold for a minor street approach with one lane.



* Note: 100 vph applies as the lower threshold volume for a minor street approach with two or more lanes and 75 vph applies as the lower threshold volume threshold for a minor street approach with one lane.

2020 Buildout PM Peak Hour TRAFFIC SIGNAL WARRANT SUMMARY

Form 750-020-01
TRAFFIC ENGINEERING - 07/99
Page 4 of 6

City: City of Deltona
County: Volusia County

Engineer: KHA Analyst
Date: July 17, 2019

Major Street: SB Approach - Normandy Boulevard
Minor Street: NBL-Normandy Boulevard at Driveway 4

Lanes: 1 Critical Approach Speed: 45
Lanes: 1

Volume Level Criteria

1. Is the critical speed of major street traffic > 70 km/h (40 mph) ? ☒ Yes ☐ No
2. Is the intersection in a built-up area of isolated community of <10,000 population? ☐ Yes ☒ No

If Question 1 or 2 above is answered "Yes", then use "70%" volume level ☒ 70% ☐ 100%

WARRANT 3 - PEAK HOUR

If all three criteria are fulfilled or the plotted point lies above the appropriate line, then the warrant is satisfied.

Applicable: ☐ Yes ☒ No
Satisfied: ☐ Yes ☒ No

Unusual condition justifying
use of warrant:

Record hour when criteria are fulfilled
and the corresponding delay or volume
in boxes provided.

Peak Hour		

Criteria

1. Delay on Minor Approach *(vehicle-hours)

Approach Lanes	1	2
Delay Criteria*	4.0	5.0
Delay*		
Fulfilled?:	☐ Yes	☐ No

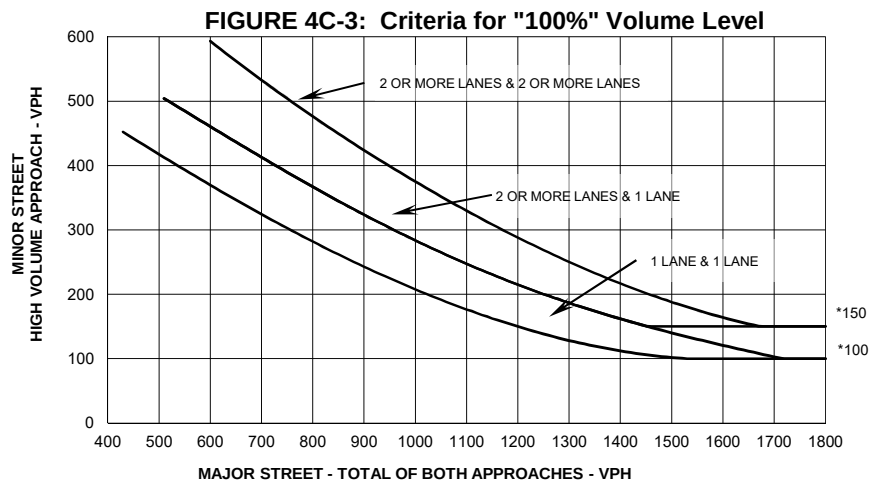
2. Volume on Minor Approach *(vehicles per hour)

Approach Lanes	1	2
Volume Criteria*	100	150
Volume*		
Fulfilled?:	☐ Yes	☐ No

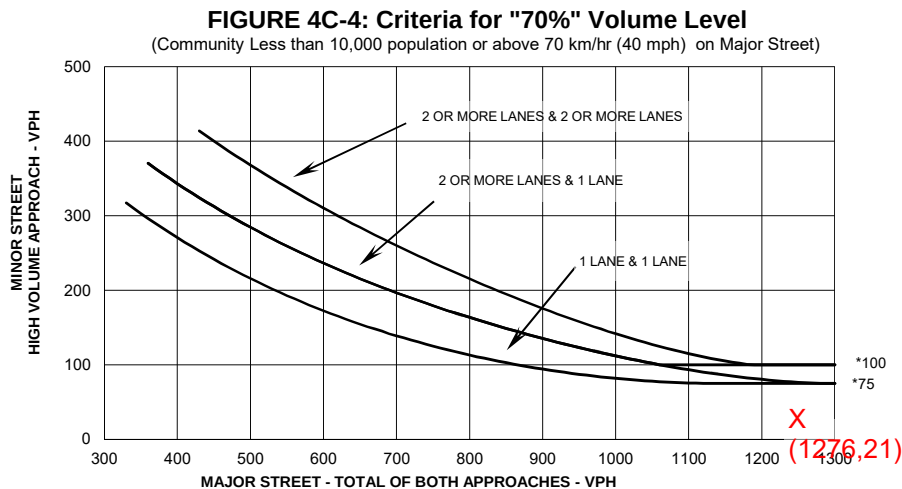
3. Total Entering Volume *(vehicles per hour)

No. of Approaches	3	4
Volume Criteria*	650	800
Volume*		
Fulfilled?:	☐ Yes	☐ No

Plot volume combination on the applicable figure below.



* Note: 150 vph applies as the lower threshold volume for a minor street approach with two or more lanes and 100 vph applies as the lower threshold volume threshold for a minor street approach with one lane.



* Note: 100 vph applies as the lower threshold volume for a minor street approach with two or more lanes and 75 vph applies as the lower threshold volume threshold for a minor street approach with one lane.