US 190 BUS (Shortcut Highway) and Adjacent Roadway Network
(Beth Drive to Hoover Drive)
RPC TASK FREMAUX: STATE PROJECT NO. H.013618
The City of Slidell, St. Tammany Parish, Louisiana

TRAFFIC CIRCULATION AND CORRIDOR ANALYSIS

PREPARED FOR

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1 - Introduction

The purpose of this project is to conduct a comprehensive traffic circulation and corridor analysis along US 190 BUS (Shortcut Highway) from Beth Drive (west of the I-10 interchange) to Hoover Drive (east of the I-10 interchange), and the surrounding roadway network between the I-10 Eastbound On/Off Ramps and Hoover Drive. The Need for the project is to address traffic problems and concerns along the corridor as identified by the City of Slidell and St. Tammany Parish. Portions of the study area are located within the city limits of Slidell while the remaining segments are in St. Tammany Parish. *A Study Location Map is provided in Figure 1 on the following page.*

Site visits, field inspections, and an array of traffic data was collected to provide detailed descriptions of existing traffic operational patterns. This resulted in roadway and intersection "Options for Improvements" to enhance traffic circulation and safety and reduce congestion.

The analysis looked specifically at the following intersections along the US 190 BUS (Shortcut Highway) corridor, starting from the west terminus of the study area.

- US 190 BUS (Shortcut Highway) @ Beth Drive
- US 190 BUS (Shortcut Highway) @ Nellie Drive
- US 190 BUS (Shortcut Highway) @ Lindberg Drive Extension & Town Center Boulevard
- US 190 BUS (Shortcut Highway) @ I-10 Westbound Ramps
- US 190 BUS (Shortcut Highway) @ I-10 Eastbound Ramps
- US 190 BUS (Shortcut Highway) @ East I-10 Service Road & Beech Avenue
- US 190 BUS (Shortcut Highway) @ Oak Avenue
- US 190 BUS (Shortcut Highway) @ S. Walnut Street
- US 190 BUS (Shortcut Highway) @ Brookter Road
- US 190 BUS (Shortcut Highway) @ Morrow Drive
- US 190 BUS (Shortcut Highway) @ Hoover Drive

In addition, the following intersections from the surrounding roadway network were included in the assessment.

- East I-10 Service Road @ Lawes Street
- Morrow Drive @ Lawes Street
- Hoover Drive @ Lawes Street
- Brookter Road @ Foxbriar Court

Aerial views of the study area showing the US 190 BUS (Shortcut Highway) corridor and the adjacent roadway network are provided Figure 2A and 2B on the following pages.

Following is a description of the work performed for the Traffic Circulation and Corridor Analysis.

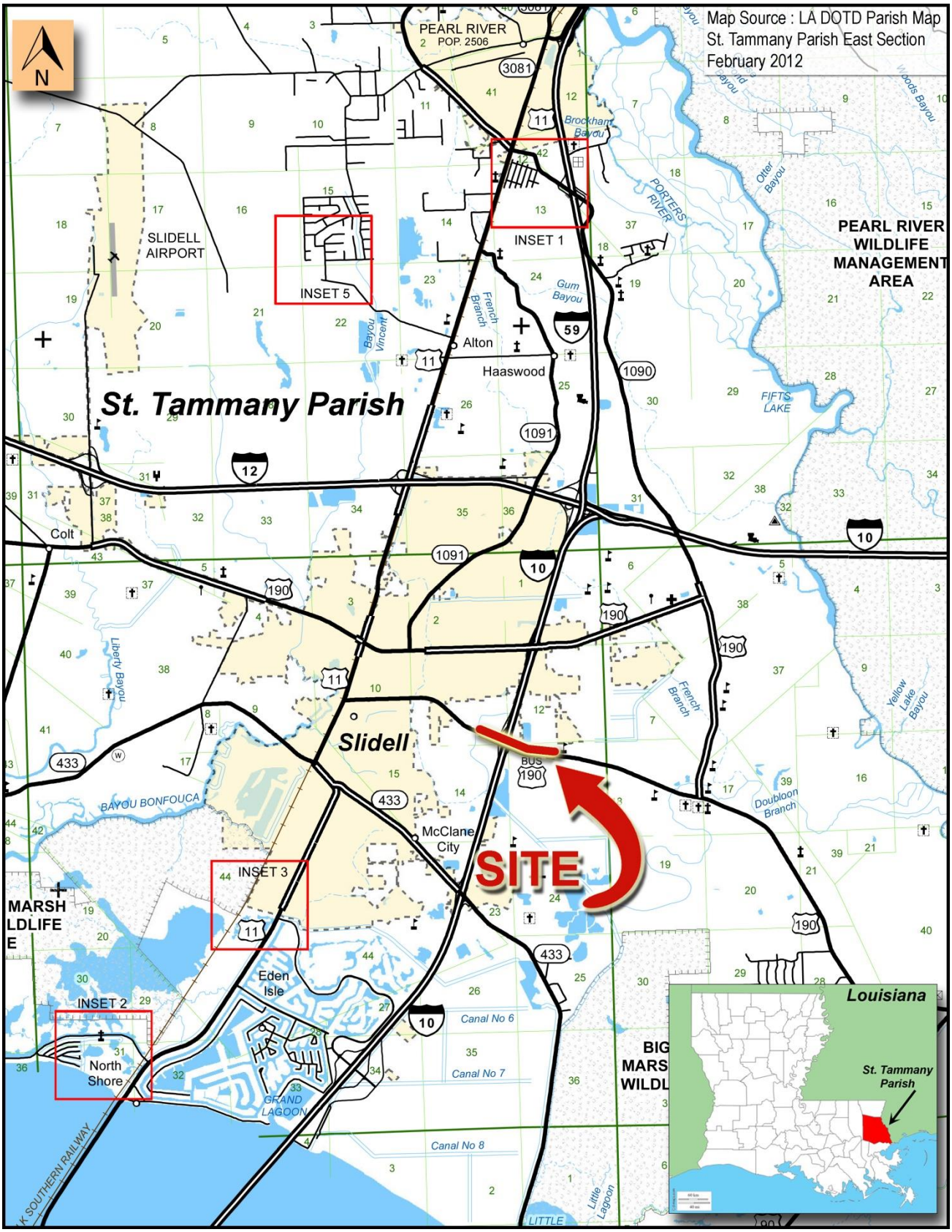


FIGURE 1 – STUDY LOCATION MAP

FIGURE 2A – AERIAL VIEW OF STUDY AREA (US 190 BUSINESS CORRIDOR)

FIGURE 2B – AERIAL VIEW OF STUDY AREA (ADJACENT ROADWAY NETWORK)

2 - Existing Conditions

2-1 Roadway Characteristics

The US 190 BUS (Shortcut Highway) corridor within the study area contains four distinct roadway sections. Starting from the west and moving east, the first is a five-lane undivided concrete roadway with a dedicated center left-turn lane between Beth Drive and Nellie Drive. From Nellie Drive the second section becomes a four-lane divided (raised median) concrete road through the I-10 interchange to its intersection with the East I-10 Service Road, with exclusive turn lanes provided at key intersections. US 190 BUS (Shortcut Highway) becomes an asphalt highway approximately 200 feet east of the East I-10 Service Road. The third section proceeds from the East I-10 Service Road and transitions from a four-lane divided with a striped median to a three-lane highway with a dedicated center left-turn lane at a point approximately 550 feet west of Hoover Drive. From there the fourth section continues as a three-lane asphalt highway with a dedicated center left-turn lane to the east terminus of the study area at Hoover Drive. *Figure 3A and 3B on the following pages shows the four typical roadway sections along US 190 BUS (Shortcut Highway) within the study area.*

All roadways assessed in the circulation study of the surrounding network (East I-10 Service Road, Lawes Street, Morrow Drive, Hoover Drive, and Brookter Road) are two-lane asphalt roadways.

Drainage along the US 190 BUS (Shortcut Highway) corridor from the beginning of the study area in the west at Beth Drive to its intersection with Lindberg Drive Extension & Town Center Parkway is by a curb and gutter subsurface system. The remaining sections and roadways within the study area drain to open ditches.

2-2 Existing Traffic Controls

The US 190 BUS (Shortcut Highway) corridor within the study area has three intersections presently controlled by fully actuated traffic signals utilizing mast arm installations and ground mounted controllers. They are part of a coordinated traffic signal system that operates with an 80 second cycle during the A.M. and P.M. peak hours and are located at the following intersections.

US 190 BUS (Shortcut Highway) @ Lindberg Drive Extension & Town Center Parkway
US 190 BUS (Shortcut Highway) @ I-10 Westbound On/Off Ramps
US 190 BUS (Shortcut Highway) @ I-10 Eastbound On/Off Ramps

All other intersections within the US 190 BUS (Shortcut Highway) corridor are controlled by stop signs on the side street approaches with the main highway allowed free-flowing conditions.

Stop signs control all the intersections included in the adjacent roadway network study area.

US 190 BUS (Shortcut Highway) has a posted speed limit of 40 miles per hour from the beginning of the study area at Beth Drive to Lindberg Drive Extension & Town Center Parkway, and 45 miles per hour from there to the eastern terminus of the study area at Hoover Drive.

Section 1 - US 190 BUS (Shortcut Highway)
(Beth Drive to Nellie Drive)

Section 2 - US 190 BUS (Shortcut Highway)
(Nellie Drive to I-10 East Service Road)

FIGURE 3A – TYPICAL ROADWAY SECTION (SECTIONS 1 & 2)

Section 3 - US 190 BUS (Shortcut Highway)
(I-10 East Service Road to 550′ West of Hoover Drive)

Section 4 - US 190 BUS (Shortcut Highway)
(550′ West of Hoover Drive to Hoover Drive)

FIGURE 3B – TYPICAL ROADWAY SECTION (SECTIONS 3 & 4)

2-3 Surrounding Land Use

Land use along the US 190 Business (Shortcut Highway) corridor is primary commercial west of the I-10 interchange. Most prominent is the Fremaux Town Center located in the southwest quadrant of the interchange. This large development is one of the largest in Slidell and consists of a variety of major retail shopping stores, restaurants, and other commercial businesses providing services to customers. Access to the center from US 190 Business (Shortcut Highway) is via Town Center Parkway. Other businesses within this area are accessed by local side street connections via Beth Dive Drive, Nellie Drive, and Lindberg Drive Extension. *Figure 4A shown below provides an aerial view of the land use in this area.*

FIGURE 4A – SURROUNDING LAND USE (WEST OF I-10)

Land use along the study corridor east of the I-10 interchange is primarily residential in nature with access provided by local streets and individual driveway connections. *Figure 4B below provides an aerial view of the residential areas east of I-10.*

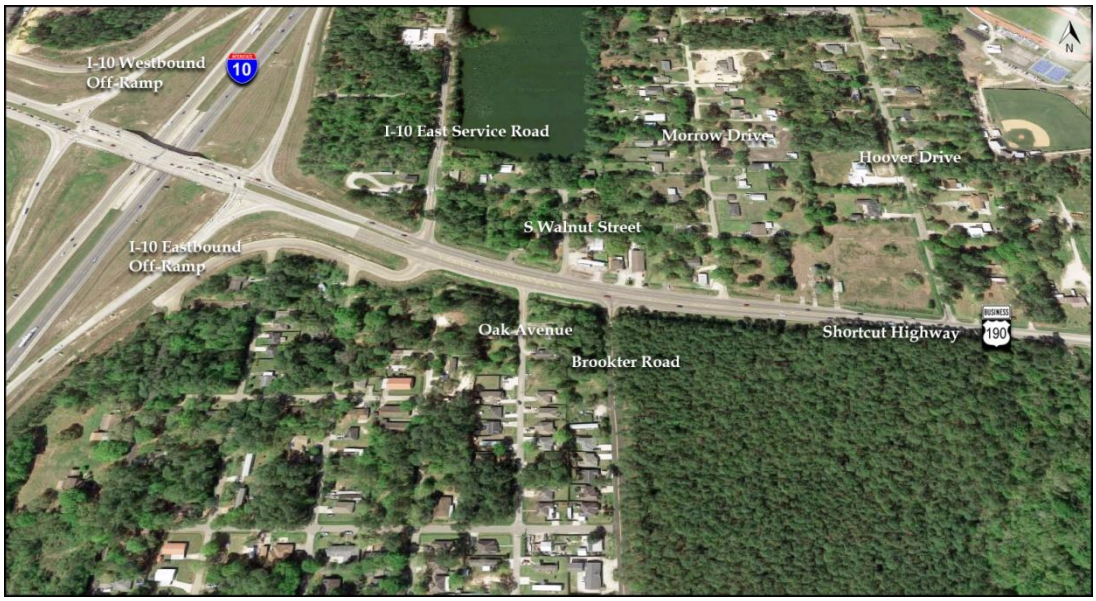


FIGURE 4B – SURROUNDING LAND USE (EAST OF I-10)

2-4 Traffic Data Collection

48-Hour Traffic Volume and Classification counts were conducted along US 190 BUS (Shortcut Highway) in October 2018. These counts were collected at two points along the corridor: The first to the west of the I-10 interchange between Nellie Drive and Town Center Parkway, and the second to the east of the I-10 interchange between Morrow Drive and Hoover Drive. These counts were later supplemented by updated 48-Hour Traffic volume counts in September 2019. The volume counts were collected in fifteen minute intervals with hourly subtotals and used to determine the Average Daily Traffic along the highway and target periods to perform Peak Hour Turning Movement Counts.

The counts indicate the following Average Daily Traffic for US 190 BUS (Shortcut Highway) during the weekday.

US 190 BUS (Shortcut Highway) West of I-10	26,400 Vehicles per Day (ADT)
US 190 BUS (Shortcut Highway) East of I-10	20,000 Vehicles per Day (ADT)

Peak Hour Turning Movement Counts (TMC) with Unmet Demand at signalized intersections and Observed Queues at unsignalized intersections were collected at the intersections included in the study area for the weekday A.M. and P.M. peak hours. The 48-hour Traffic Volume counts were used to target the weekday peak periods to conduct these turning movement counts. Based on these counts, the peak hours for the US 190 BUS (Shortcut Highway) corridor for this study were determined to occur between 7:15–8:15 A.M. and 4:30–5:30 P.M.

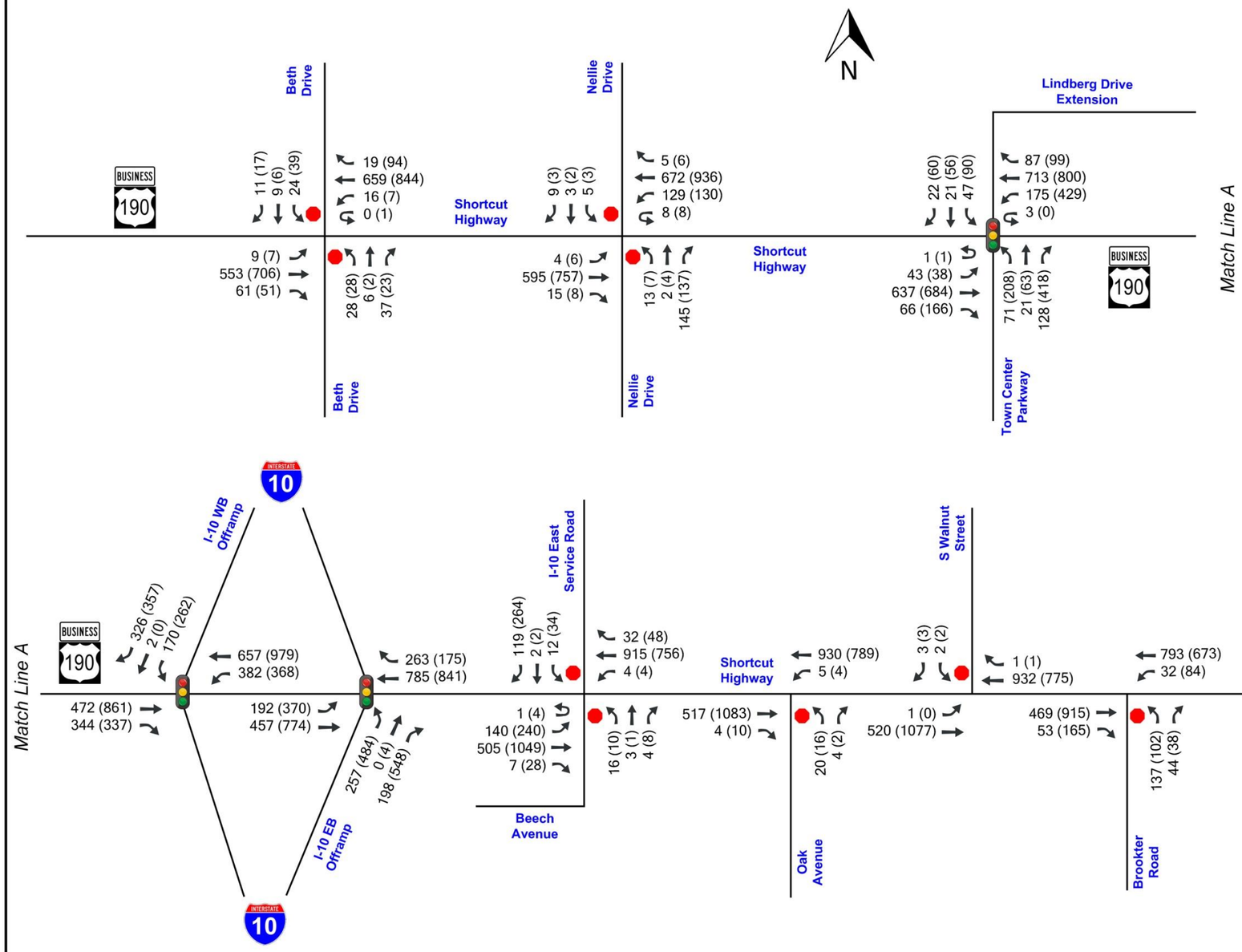
The following pages provide the raw Peak Hour TMC's, the recorded Unmet Demand and Observed Queues, and the final Peak Hour TMC's in Figures 5A, 5B, and 5C, respectively.

US 190 BUS (Shortcut Highway) Corridor

From Beth Drive to Hoover Drive

The City of Slidell, St. Tammany Parish

Louisiana



(Raw) Peak Hour Turning Movement Counts

Corridor A.M. Peak Hour
7:15 - 8:15am
(September 18, 2019)

Corridor P.M. Peak Hour
4:30 - 5:30 p.m.
(September 17, 2019)

XX (XX) = AM Peak (PM Peak)

Performed By:

J.V. Burkes & Associates

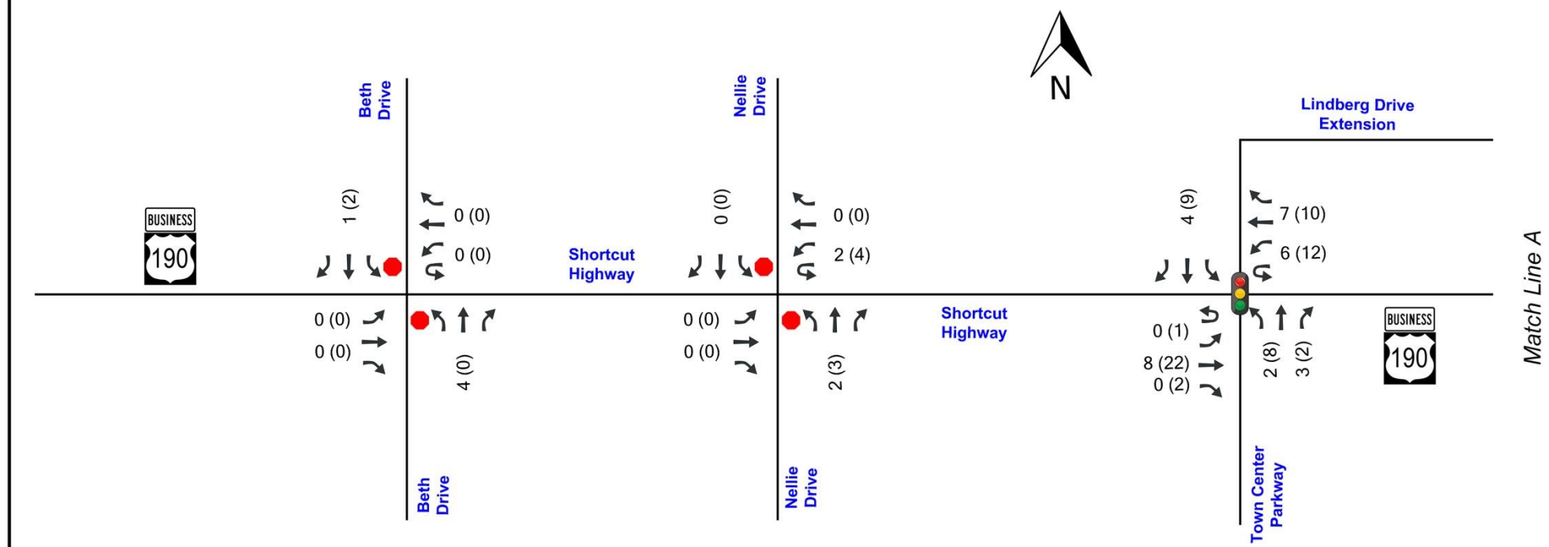
FIGURE 5A – (RAW) PEAK HOUR TURNING MOVEMENT COUNTS

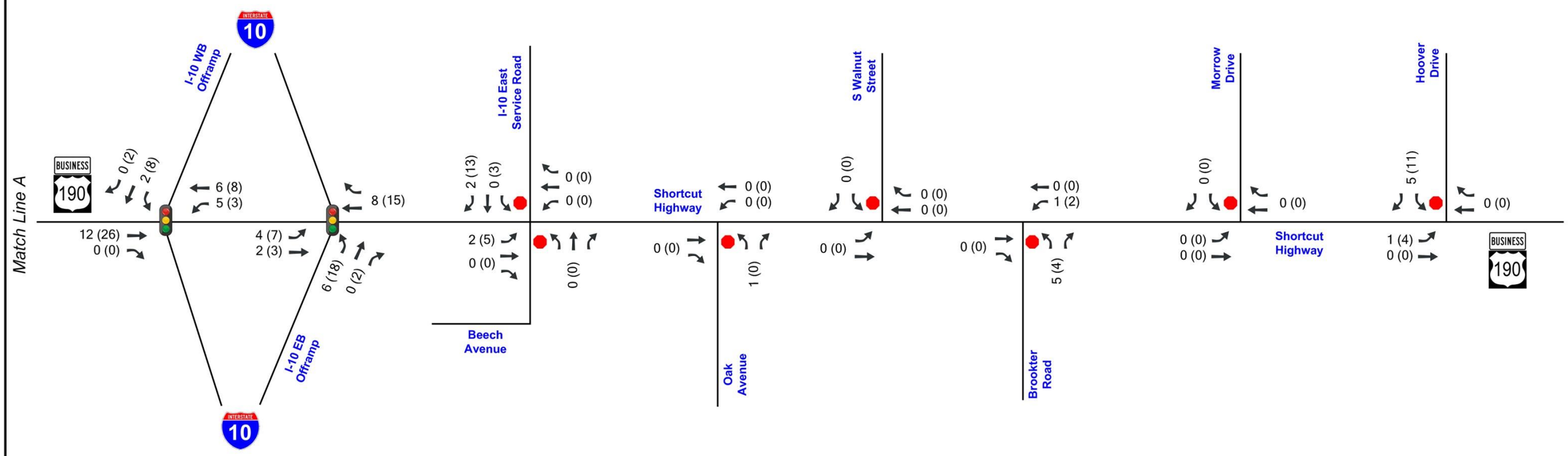
US 190 BUS (Shortcut Highway) Corridor

From Beth Drive to Hoover Drive

The City of Slidell, St. Tammany Parish

Louisiana





Unmet Demand and Observed Queue

NOTE: Unmet Demand (Signalized Intersections) and Observed Queue (Unsignalized Intersections) measured at end of each 15-minute interval. Figures shown are those not accounted for in (Raw) Peak Hour Traffic Counts.

Corridor A.M. Peak Hour
7:15 - 8:15am
(September 18, 2019)

Corridor P.M. Peak Hour
4:30 - 5:30 p.m.
(September 17, 2019)

XX (XX) = AM Peak (PM Peak)

Performed By:
J.V. Burkes & Associates

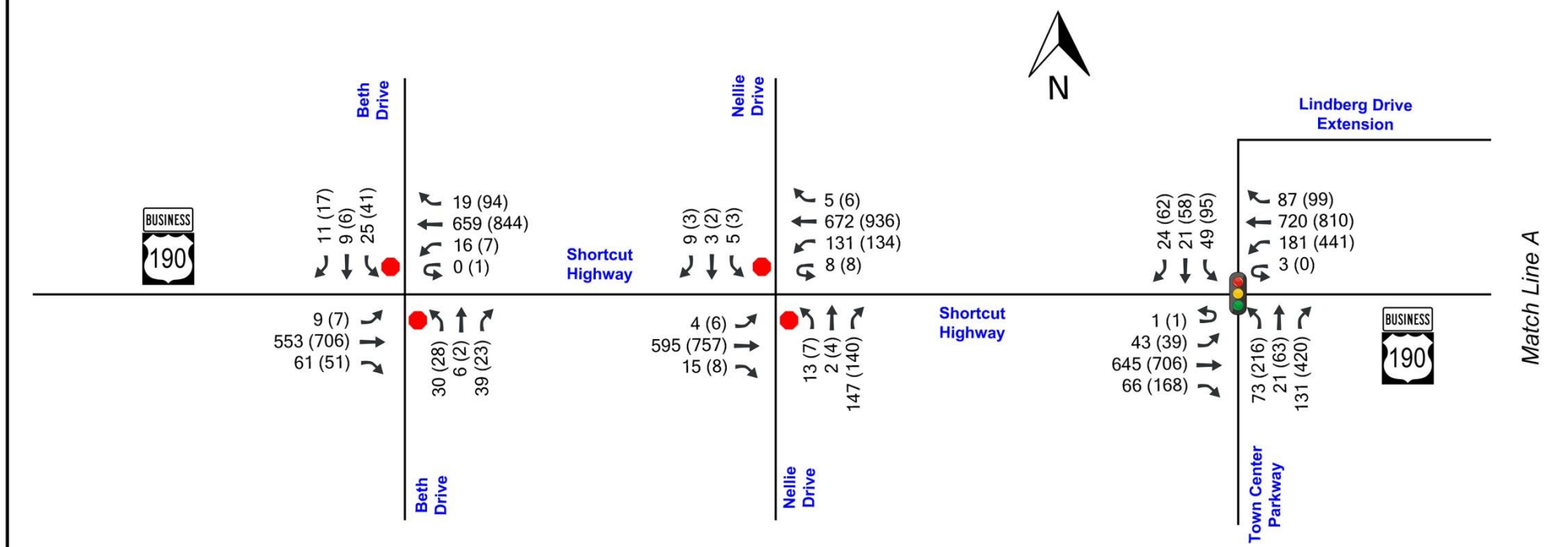
FIGURE 5B – UNMET DEMAND AND OBSERVED QUEUE

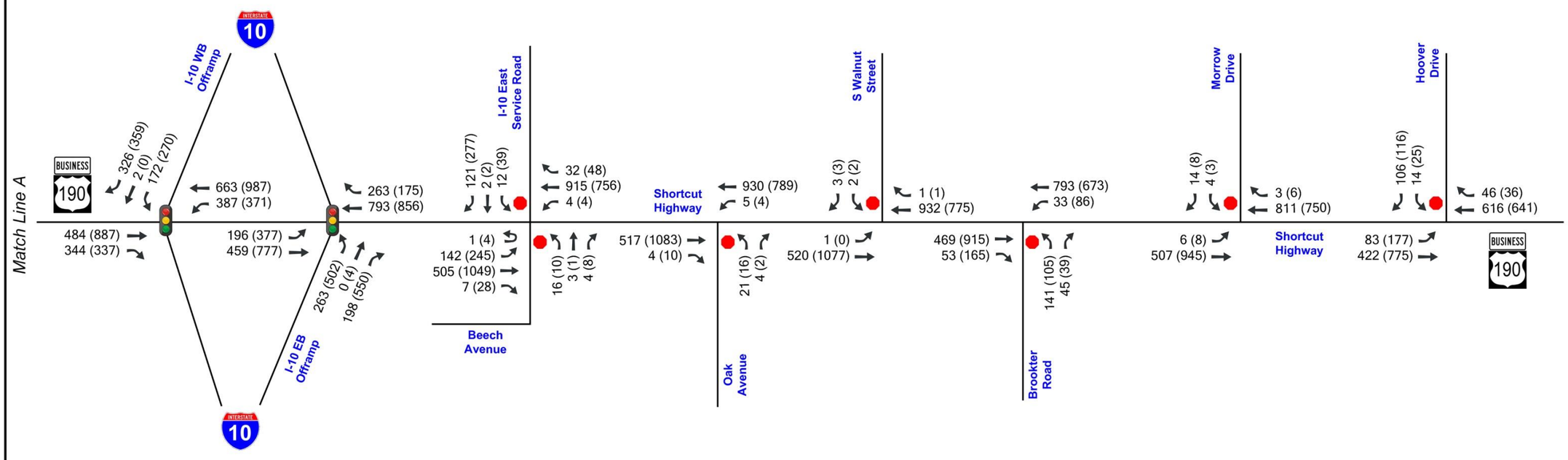
US 190 BUS (Shortcut Highway) Corridor

From Beth Drive to Hoover Drive

The City of Slidell, St. Tammany Parish

Louisiana





(Final) Peak Hour Turning Movement Counts

Corridor A.M. Peak Hour
7:15 - 8:15am

Corridor P.M. Peak Hour
4:30 - 5:30 p.m.

XX (XX) = AM Peak (PM Peak)

Performed By:

J.V. Burkes & Associates

FIGURE 5C – (FINAL) PEAK HOUR TURNING MOVEMENT COUNTS

2-5 Crash History (3 Years)

A Crash History of the US 190 BUS (Shortcut Highway) corridor within the study area was compiled encompassing a three-year period (2015, 2016, and 2017) of available authorized crash data. Five types of crashes are noted during this three-year time period. *Table 1 presented below provides a summary of the type and number of crashes along the US 190 BUS (Shortcut Highway) within the study area.*

US 190 BUS (Shortcut Highway) Corridor between Beth Drive and Hoover Drive					
Control-Section 013-13 (Mileposts 1.33 - 2.31)		2015	2016	2017	Total Crashes
Crash Types	Rear-End	26	36	28	90
	Right-Angle	32	28	20	80
	Side-Swipe (Same Dir)	5	5	7	17
	Left-Turn/Right-Turn	26	18	18	62
	Other	4	3	2	9
Crash Summary	Total Crashes	93	90	75	258
	Fatal Crashes	0	0	0	0
	Injury Crashes	24	26	17	67

TABLE 1 – CRASH TABLE

Figure 6A, 6B, 6C, and 6D on the following page provides Collision Diagrams along the US 190 BUS (Shortcut Highway) corridor during the three-year time period specified.

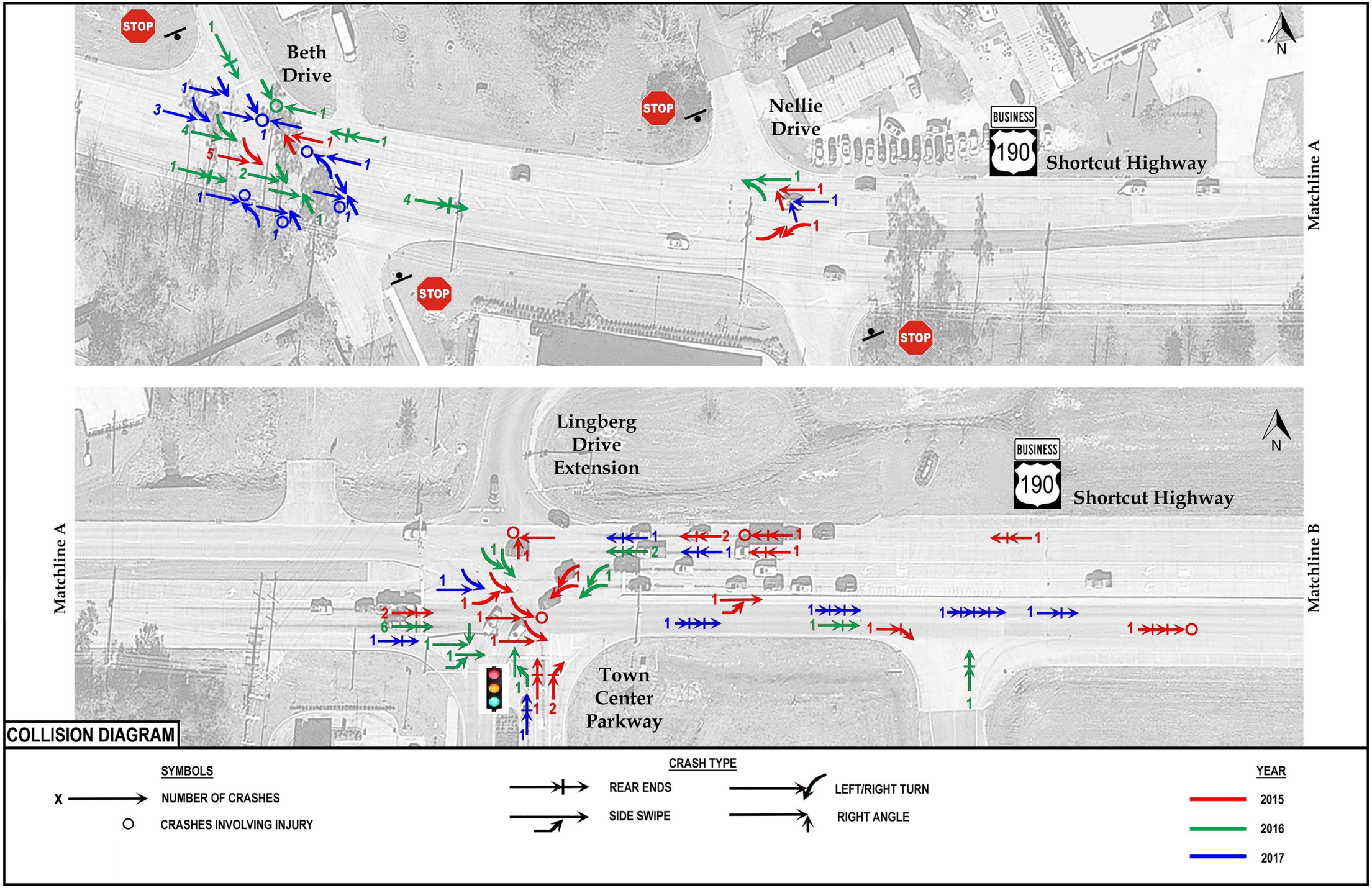


FIGURE 6A – COLLISION DIAGRAM

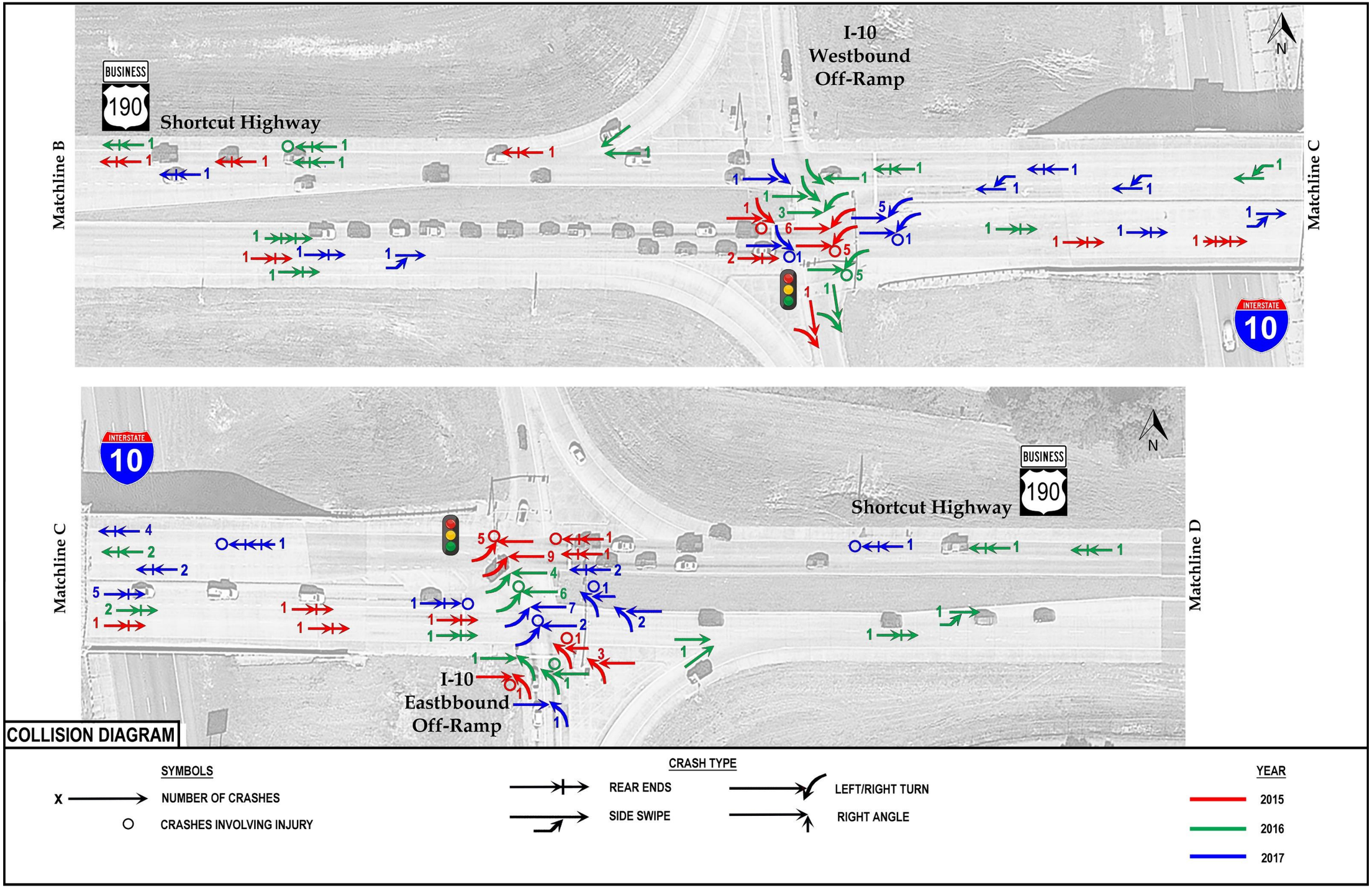


FIGURE 6B – COLLISION DIAGRAM

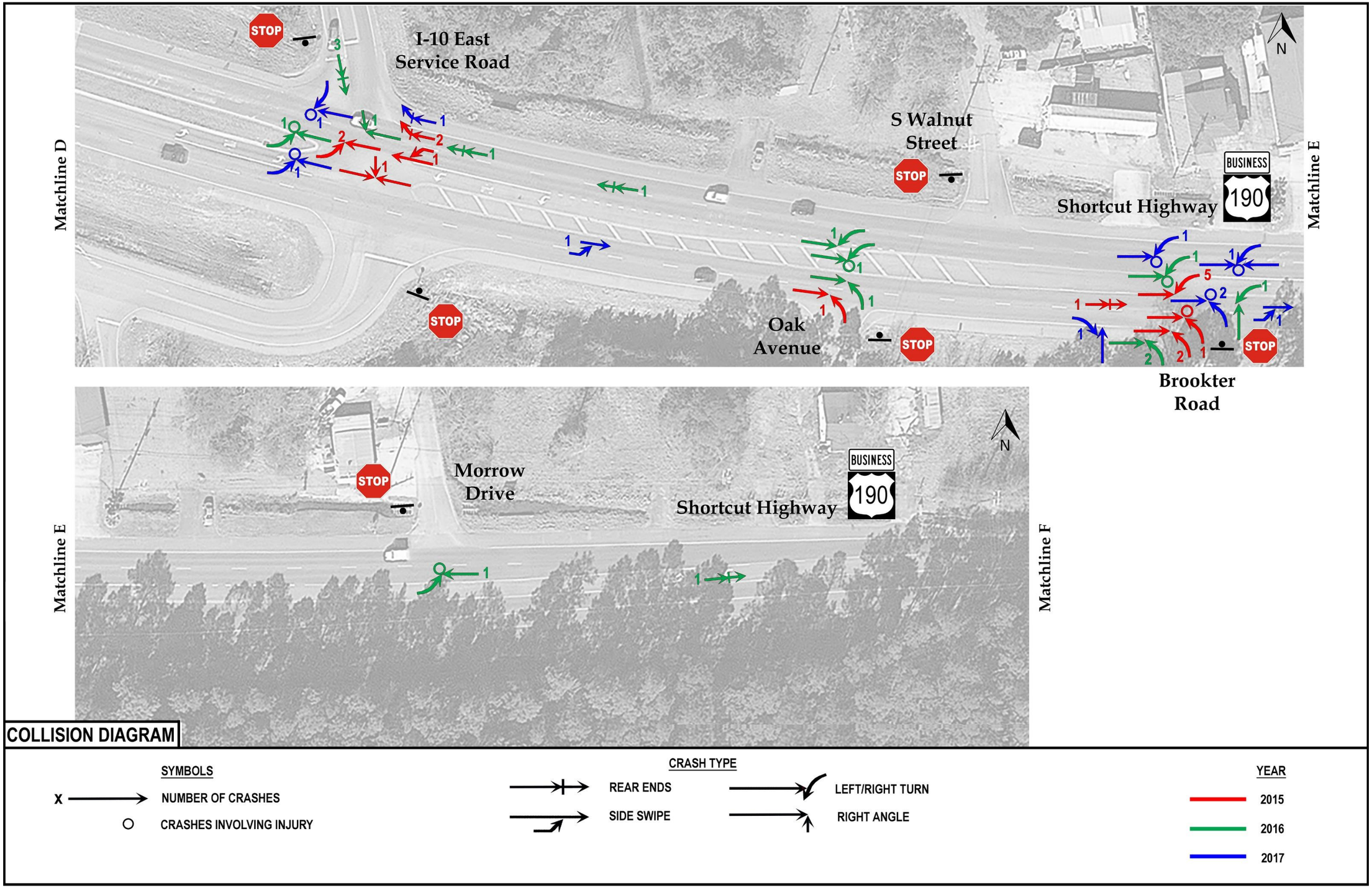
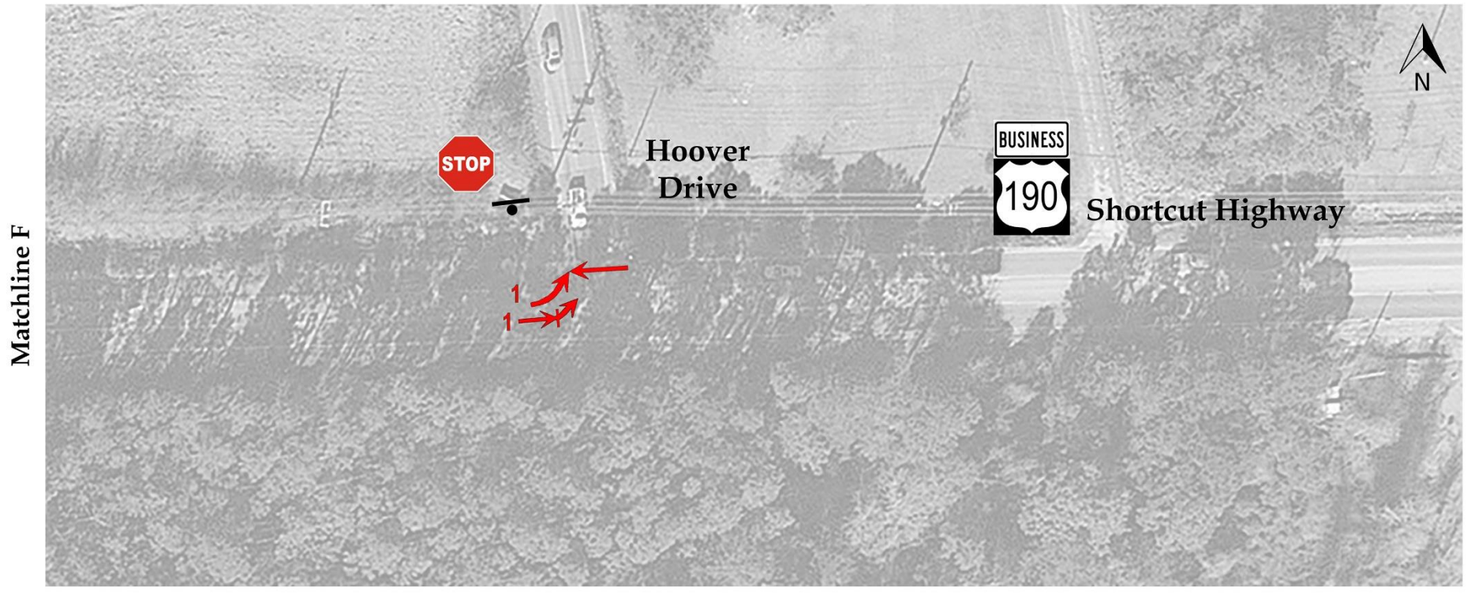


FIGURE 6C – COLLISION DIAGRAM



COLLISION DIAGRAM

SYMBOLS
X NUMBER OF CRASHES
CRASHES INVOLVING INJURY

CRASH TYPE
REAR ENDS
SIDE SWIPE
LEFT/RIGHT TURN
RIGHT ANGLE

YEAR
2015
2016
2017

FIGURE 6D – COLLISION DIAGRAM

2-6 Level of Service and 95th Percentile Queue Length Analysis

A Level of Service (LOS) analysis of existing conditions was performed on intersections included in the study area weekday A.M. and P.M. peak hours. The analysis is based on existing highway configuration, traffic controls, and collected traffic counts. Using Synchro Software (Version 10) software, volume to capacity (v/c) ratios, delay times (seconds per vehicle) and corresponding Level of Service (LOS) designations were calculated for each approach lane and for the overall intersection. *The results of the capacity analysis of existing conditions are presented below in Table 2A below and Table 2B on the following page.*

Existing Conditions

Intersection	Approach Movement		A.M. Peak Hour DELAY (Sec/Veh)	A.M. Peak Hour LOS	P.M. Peak Hour DELAY (Sec/Veh)	P.M. Peak Hour LOS
US 190 Business (Shortcut Highway) (EB & WB) @ Beth Drive (NB & SB) Two-Way Stop	EB	LT	8.8	A	9.5	A
		Thru	0.0	A	0.0	A
		Thru/RT	0.0	A	0.0	A
	WB	LT	9.0	A	9.5	A
		Thru	0.0	A	0.0	A
		Thru/RT	0.0	A	0.0	A
	NB	LT/Thru/RT	13.9	B	15.6	C
	SB	LT/Thru/RT	14.6	B	16.1	C
	Intersection LOS		1.3	A	1.1	A
US 190 Business (Shortcut Highway) (EB & WB) @ Nellie Drive (NB & SB) Two-Way Stop	EB	LT	8.6	A	9.4	A
		Thru	0.0	A	0.0	A
		Thru/RT	0.0	A	0.0	A
	WB	UT/LT	9.6	A	10.5	B
		Thru	0.0	A	0.0	A
		Thru/RT	0.0	A	0.0	A
	NB	LT/Thru/RT	13.4	B	14.8	B
	SB	LT/Thru/RT	15.3	C	22.3	C
	Intersection LOS		2.3	A	1.9	A
US 190 Business (Shortcut Highway) (EB & WB) @ Town Center Parkway (NB) & I-10 West Service Road (Lindberg Drive Extension) (SB) Traffic Signal	EB	UT/LT	41.2	D	40.0	D
		Thru (2 Lns)	25.3	C	36.4	D
		RT	18.7	B	23.1	C
	WB	UT/LT (2 Lns)	137.0	F	50.7	D
		Thru	19.0	B	21.8	C
		Thru/RT	19.0	B	21.8	C
	NB	LT	34.6	C	42.6	D
		LT/Thru	34.5	C	42.3	D
		RT	33.0	C	32.3	C
	SB	LT/Thru/RT	44.3	D	65.6	E
	Intersection LOS		34.7	C	35.5	C
US 190 Business (Shortcut Highway) (EB & WB) @ I-10 WB On/Off Ramp (SB) Traffic Signal	EB	Thru (2 Lns)	6.0	A	28.4	C
		RT	0.3	A	0.2	A
	WB	LT	5.5	A	31.0	C
		Thru (2 Lns)	1.1	A	11.5	B
	SB	LT/Thru	38.9	D	50.8	D
		RT	0.3	A	0.4	A
	Intersection LOS		5.4	A	19.3	B

TABLE 2A – LEVEL OF SERVICE ANALYSIS (EXISTING CONDITIONS)

2-6 Level of Service and 95th Percentile Queue Length Analysis (Continued)

Existing Conditions

Intersection	Approach Movement		A.M. Peak Hour DELAY (Sec/Veh)	A.M. Peak Hour LOS	P.M. Peak Hour DELAY (Sec/Veh)	P.M. Peak Hour LOS
US 190 Business (Shortcut Highway) (EB & WB) @ I-10 EB On/Off Ramp (NB) **Traffic Signal**	EB	LT	10.2	B	49.2	D
		Thru (2 Lns)	3.7	A	8.3	A
	WB	Thru	14.4	B	28.3	C
		Thru/RT	14.4	B	28.3	C
	NB	LT	37.2	D	56.6	E
		LT/Thru	37.3	D	58.4	E
		RT	0.2	A	0.7	A
	Intersection LOS		13.3	B	25.8	C
US 190 Business (Shortcut Highway) (EB & WB) @ E I-10 Service Road (NB & SB) **Two-Way Stop**	EB	UT/LT	12.0	B	12.2	B
		Thru	0.0	A	0.0	A
		Thru/RT	0.0	A	0.0	A
	WB	LT	8.6	A	10.8	B
		Thru	0.0	A	0.0	A
		Thru/RT	0.0	A	0.0	A
	NB	LT/Thru/RT	31.4	D	1114.7	F
	SB	Lt/Thru	23.9	C	43.6	E
		RT	14.6	B	18.3	C
	Intersection LOS		2.6	A	12.7	B
US 190 Business (Shortcut Highway) (EB & WB) @ Oak Street (NB) **One-Way Stop**	EB	Thru	0.0	A	0.0	A
		Thru/RT	0.0	A	0.0	A
	WB	LT	8.6	A	10.0	B
		Thru (2 Lns)	0.0	A	0.0	A
	NB	LT/Thru/RT	13.5	B	15.7	C
	Intersection LOS		0.3	A	0.2	A
US 190 Business (Shortcut Highway) (EB & WB) @ S Walnut Street (SB) **One-Way Stop**	EB	LT	10.3	B	9.6	A
		Thru (2 Lns)	0.0	A	0.0	A
	WB	Thru	0.0	A	0.0	A
		Thru/RT	0.0	A	0.0	A
	SB	LT/Thru/RT	14.2	B	12.8	B
	Intersection LOS		0.1	A	0.0	A
US 190 Business (Shortcut Highway) (EB & WB) @ Brookter Road (NB) **One-Way Stop**	EB	Thru	0.0	A	0.0	A
		Thru/RT	0.0	A	0.0	A
	WB	LT	8.7	A	10.6	B
		Thru (2 Lns)	0.0	A	0.0	A
	NB	LT/Thru/RT	18.1	C	19.8	C
	Intersection LOS		2.4	A	1.9	A
US 190 Business (Shortcut Highway) (EB & WB) @ Morrow Drive (SB) **One-Way Stop**	EB	LT	9.8	A	9.5	A
		Thru	0.0	A	0.0	A
	WB	Thru	0.0	A	0.0	A
		Thru/RT	0.0	A	0.0	A
	SB	LT/Thru/RT	12.8	B	14.2	B
	Intersection LOS		0.2	A	0.1	A
US 190 Business (Shortcut Highway) (EB & WB) @ Hoover Drive (SB) **One-Way Stop**	EB	LT	9.5	A	10.3	B
		Thru	0.0	A	0.0	A
	WB	Thru/RT	0.0	A	0.0	A
	SB	LT/Thru/RT	16.9	C	22.6	C
	Intersection LOS		2.2	A	2.8	A

TABLE 2B – LEVEL OF SERVICE ANALYSIS (EXISTING CONDITIONS)

2-6 Level of Service and 95th Percentile Queue Length Analysis (Continued)

Synchro Software (Version 10) was also used to calculate the 95th Percentile Queue Lengths for each approach lane. *Table 3A below provides the results of the 95th Percentile Queue Length analysis during the weekday A.M. and P.M. peak hours.*

Existing Conditions

Intersection	Approach Movement		A.M. Peak Hour 95th Percentile Queue Length (ft.)	P.M. Peak Hour 95th Percentile Queue Length (ft.)
US 190 Business (Shortcut Highway) (EB & WB) @ Beth Drive (NB & SB) **Two-Way Stop**	EB	LT	1.0	1.0
		Thru	0.0	0.0
		Thru/RT	0.0	0.0
	WB	LT	1.0	1.0
		Thru	0.0	0.0
		Thru/RT	0.0	0.0
	NB	LT/Thru/RT	15.0	12.0
	SB	LT/Thru/RT	10.0	16.0
US 190 Business (Shortcut Highway) (EB & WB) @ Nellie Drive (NB & SB) **Two-Way Stop**	EB	LT	0.0	1.0
		Thru	0.0	0.0
		Thru/RT	0.0	0.0
	WB	UT/LT	14.0	17.0
		Thru	0.0	0.0
		Thru/RT	0.0	0.0
	NB	LT/Thru/RT	30.0	33.0
	SB	LT/Thru/RT	4.0	3.0
US 190 Business (Shortcut Highway) (EB & WB) @ Town Center Parkway (NB) & I-10 West Service Road (Lindberg Drive Extension) (SB) **Traffic Signal**	EB	UT/LT	55.0	51.0
		Thru (2 Lns)	218.0	291.0
		RT	0.0	37.0
	WB	UT/LT (2 Lns)	138.0	187.0
		Thru	238.0	239.0
		Thru/RT	238.0	239.0
	NB	LT	57.0	156.0
		LT/Thru	57.0	157.0
		RT	0.0	101.0
	SB	LT/Thru/RT	90.0	237.0
US 190 Business (Shortcut Highway) (EB & WB) @ I-10 WB On/Off Ramp (SB) **Traffic Signal**	EB	Thru (2 Lns)	43.0	262.0
		RT	6.0	0.0
	WB	LT	45.0	243.0
		Thru (2 Lns)	20.0	276.0
	SB	LT/Thru	155.0	272.0
		RT	0.0	0.0

TABLE 3A – 95TH PERCENTILE QUEUE LENGTHS (EXISTING CONDITIONS)

2-6 Level of Service and 95th Percentile Queue Length Analysis (Continued)

Existing Conditions

Intersection	Approach Movement		A.M. Peak Hour 95th Percentile Queue Length (ft.)	P.M. Peak Hour 95th Percentile Queue Length (ft.)
US 190 Business (Shortcut Highway) (EB & WB) @ I-10 EB On/Off Ramp (NB) **Traffic Signal**	EB	LT	40.0	289.0
		Thru (2 Lns)	41.0	143.0
	WB	Thru	264.0	385.0
		Thru/RT	264.0	385.0
	NB	LT	129.0	281.0
		LT/Thru	129.0	285.0
		RT	0.0	0.0
US 190 Business (Shortcut Highway) (EB & WB) @ E I-10 Service Road (NB & SB) **Two-Way Stop**	EB	UT/LT	22.0	39.0
		Thru	0.0	0.0
		Thru/RT	0.0	0.0
	WB	LT	0.0	0.0
		Thru	0.0	0.0
		Thru/RT	0.0	0.0
	NB	LT/Thru/RT	13.0	88.0
	SB	Lt/Thru	6.0	32.0
		RT	26.0	78.0
US 190 Business (Shortcut Highway) (EB & WB) @ Oak Street (NB) **One-Way Stop**	EB	Thru	0.0	0.0
		Thru/RT	0.0	0.0
	WB	LT	0.0	0.0
		Thru (2 Lns)	0.0	0.0
	NB	LT/Thru/RT	5.0	4.0
US 190 Business (Shortcut Highway) (EB & WB) @ S Walnut Street (SB) **One-Way Stop**	EB	LT	0.0	0.0
		Thru (2 Lns)	0.0	0.0
	WB	Thru	0.0	0.0
		Thru/RT	0.0	0.0
	SB	LT/Thru/RT	1.0	1.0
US 190 Business (Shortcut Highway) (EB & WB) @ Brookter Road (NB) **One-Way Stop**	EB	Thru	0.0	0.0
		Thru/RT	0.0	0.0
	WB	LT	3.0	11.0
		Thru (2 Lns)	0.0	0.0
	NB	LT/Thru/RT	52.0	46.0
US 190 Business (Shortcut Highway) (EB & WB) @ Morrow Drive (SB) **One-Way Stop**	EB	LT	1.0	1.0
		Thru	0.0	0.0
	WB	Thru	0.0	0.0
		Thru/RT	0.0	0.0
	SB	LT/Thru/RT	3.0	2.0
US 190 Business (Shortcut Highway) (EB & WB) @ Hoover Drive (SB) **One-Way Stop**	EB	LT	8.0	21.0
		Thru	0.0	0.0
	WB	Thru/RT	0.0	0.0
	SB	LT/Thru/RT	31.0	52.0

TABLE 3B – 95TH PERCENTILE QUEUE LENGTHS (EXISTING CONDITIONS)

3 – Options for Improvements

To fully assess traffic operational issues and road deficiencies along the US 190 BUS (Shortcut Highway) corridor and the adjacent roadways and intersections within the study area, numerous field inspections were conducted, and field observations noted. Video files collected for the peak hour traffic counts were also utilized to take a deeper look at the actual operation of the intersections and roadways. Results from in-office computer analysis of existing data covered in the previous section were thoroughly reviewed to identify potential problems. This included the computational results of Level of Service and the 95th Percentile Queue Length analyses, and review of the crash diagrams along the corridor. This approach recognizes that on-site field inspections will identify traffic operational and safety issues that are not seen in statistical analysis of collected data, but also that the review and analysis of collected data may reveal issues not readily apparent from field observations.

The following proposed "Options for Improvements" seek to provide feasible solutions that specifically address the areas of congestions and roadway deficiencies identified in the field inspections and analysis of existing traffic data. These proposed options endeavor to provide a practical strategy for implementing the improvements in phases that sequentially build on each other. However, this recommended approach does not preclude the development of one comprehensive project to cover all the proposed improvements, but allows funding agencies flexibility to consider implementing needed improvements in stages that correlate to available funding. Failure to consider a phased approach and potential funding limitations can result in recommendations that prove cost prohibitive and never reach fruition.

The study identified the following ten "Options for Improvements" for consideration that meet the goal of providing specific transportation solutions to address identified traffic operational and safety issues, can be implemented in a timely manner, and recognizes potential funding limitations. The ten options are listed as follows.

1. US 190 BUS (Shortcut Highway) @ Nellie Drive Intersection Modification
2. I-10 Westbound Off-Ramp Capacity Improvements and Auxiliary Lane between the I-10 Westbound Off-Ramp and Lindberg Drive Extension
3. US 190 BUS (Shortcut Highway) Eastbound Advance Left-Turn Lane @ I-10 Westbound Off-Ramp
4. Lindberg Drive Extension Capacity Improvements @ US 190 BUS (Shortcut Highway)
5. I-10 Eastbound Off-Ramp Capacity Improvements and Auxiliary Lane between the I-10 Eastbound Off-Ramp and Brookter Road
6. US 190 BUS (Shortcut Highway) Westbound Advance Left-Turn Lane and Right-Turn Lane @ I-10 Eastbound On/Off Ramps
7. US 190 BUS (Shortcut Highway) @ Hoover Drive Roundabout and Corridor Improvements between I-10 East Service Road and Hoover Drive.
8. Hoover Drive Extension south of proposed roundabout @ US 190 BUS (Shortcut Highway)
9. Left-turn lane installation along I-10 East Service Road @ Lawes Street
10. Hoover Drive @ Lawes Street Intersection Improvements

3 – Options for Improvements (Continued)

The following are detailed descriptions and concept drawings of each improvement option presented to address identified roadway deficiencies. Level of Service and 95th Percentile Queue analyses were conducted to assess the proposed improvements that considers the expected traffic growth in the corridor (1.4% per year as developed by the RPC and consistent with travel forecasting outputs for the area as defined in the St. Tammany Metropolitan Transportation Plan 2019-2048) and for the design year (20 Years). "Opinion of Probable Construction Costs" is provided for each option with detailed Summary of Estimated Quantities provided in the Supporting Material section.

3-1. US 190 BUS (Shortcut Highway) @ Nellie Drive Intersection Modification

This option calls for modification to the intersection of US 190 BUS (Shortcut Highway) @ Nellie Drive to address increased turning movements and conflicts resulting from nearby commercial development, specifically a RaceTrac service station in the southwest quadrant of the intersection.

This location is presently a full-access four-way intersection with US 190 BUS (Shortcut Highway) east and west approaches allowed free-flowing operation while the Nellie Drive north and south approaches are governed by stop signs. Nellie Drive approaches the highway at skewed angles due to the curvature of the US 190 BUS (Shortcut Highway) at the intersection. East of the Nellie Drive intersection, US 190 BUS (Shortcut Highway) is a four-lane divided concrete highway with a grass median. West of the intersection it is a four-lane undivided highway with a striped median. Left-turn lanes are provided on both US 190 BUS (Shortcut Highway) approaches to the intersection.

The addition of the RaceTrac service station has resulted in a significant increase in turning movements at the Nellie Drive intersection. Access to the service station is from the adjacent streets of Nellie Drive and Beth Drive. Most notable are the number of left-turning vehicles from the US 190 BUS (Shortcut Highway) east approach to Nellie Drive to enter the service station (134 during the P.M. peak hour), and the significant right-turning vehicles from Nellie Drive to US 190 BUS (Shortcut Highway) as vehicles exit the service station and proceed toward I-10 (140 during the P.M. peak Hour). Although the peak hour turning movement counts reveal existing left-turn movements from both approaches of Nellie Drive to the main highway are low (less than 20 vehicles during each peak hour), the skewed approaches of the side streets, and high traffic volumes and curvature of the main highway, can make this a difficult movement.

To address this problem, and eliminate conflicts at the intersection, the intersection can be modified to restrict left-turn movements from the Nellie Drive approaches. This can include a J-turn installation between Nellie Drive and Town Center Parkway to afford motorist leaving Nellie Drive from the south approach and desiring to go westbound on US 190 (Shortcut Highway) a place to make a U-turn. Motorist from Nellie Drive can also access Beth Drive to make this movement.

An overview drawing of this Option for Improvement is shown in Figure 7 on the following page. A comparison table of Level of Service between existing conditions and the improvement is provided in Table 4 on the following pages.

A Summary of Estimated Quantities was prepared for this option (See Supporting Material) the Opinion of Probable Construction Costs for the project is as follows.

Opinion of Probable Construction Costs = **$ 375,000.00**

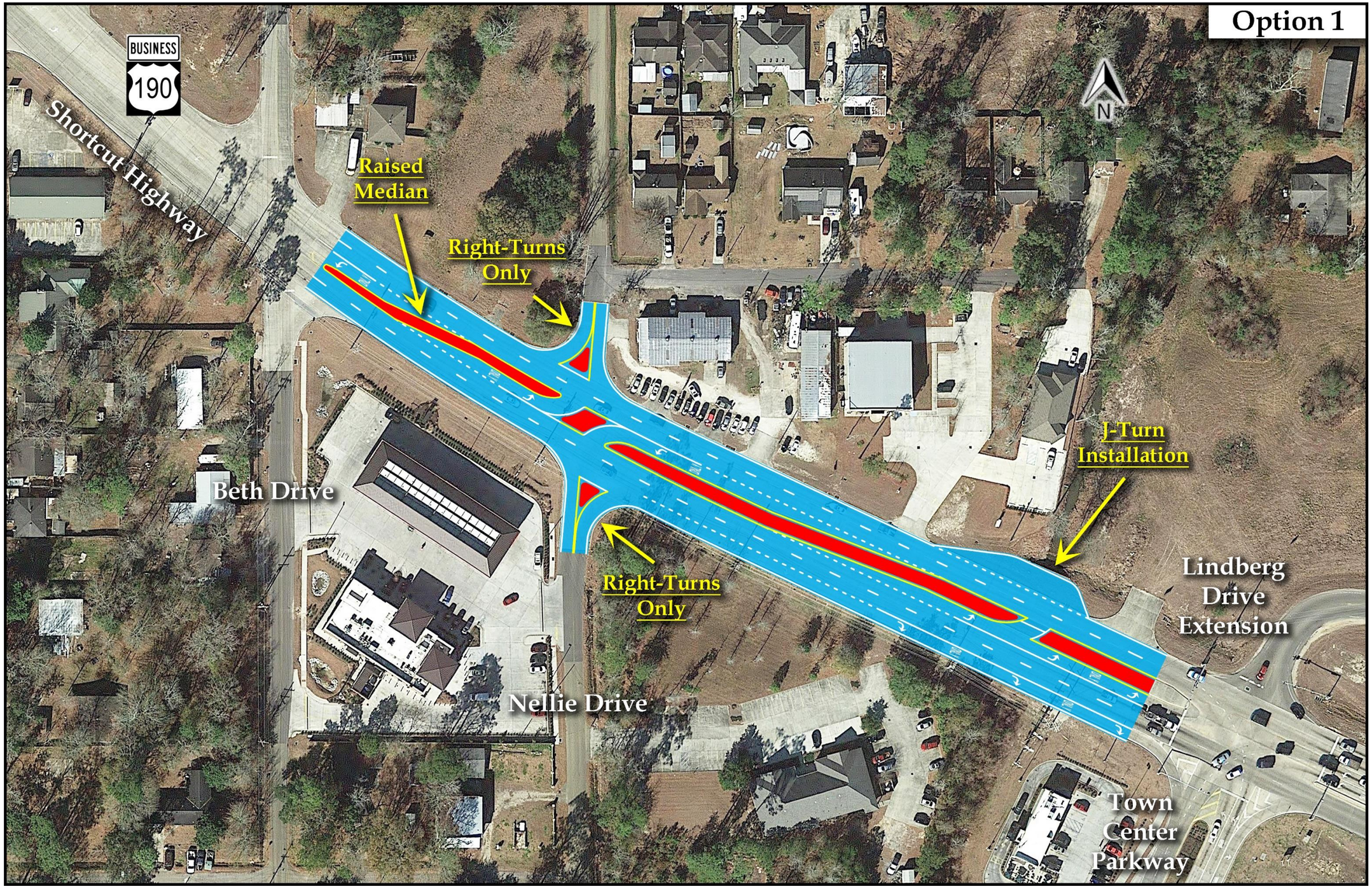


FIGURE 7 – OPTION FOR IMPROVEMENT 1

Intersection	Approach Movement		A.M. Peak Hour			
			Existing Geometry		Option 1	
			DELAY (Sec/Veh)	LOS	DELAY (Sec/Veh)	LOS
US 190 Business (Shortcut Highway) (EB & WB) @ Nellie Drive (NB & SB) Two-Way Stop	EB	LT	9.5	A	9.5	A
		Thru	0.0	A	0.0	A
		Thru/RT	0.0	A	0.0	A
	WB	LT	11.1	B	11.1	B
		Thru	0.0	A	0.0	A
		Thru/RT	0.0	A	0.0	A
	NB	LT/Thru/RT	18.5	C	NA	NA
		RT	NA	NA	15.4	C
	SB	LT/Thru/RT	31.4	D	NA	NA
		RT	NA	NA	9.6	A
	Intersection LOS		3.1	A	2.6	A

1.4% Growth Rate, 20-Year Design

Intersection	Approach Movement		P.M. Peak Hour			
			Existing Geometry		Option 1	
			DELAY (Sec/Veh)	LOS	DELAY (Sec/Veh)	LOS
US 190 Business (Shortcut Highway) (EB & WB) @ Nellie Drive (NB & SB) Two-Way Stop	EB	LT	11.5	B	11.5	B
		Thru	0.0	A	0.0	A
		Thru/RT	0.0	A	0.0	A
	WB	LT	13.0	B	13.0	B
		Thru	0.0	A	0.0	A
		Thru/RT	0.0	A	0.0	A
	NB	LT/Thru/RT	23.6	C	NA	NA
		RT	NA	NA	18.1	C
	SB	LT/Thru/RT	117.2	F	NA	NA
		RT	NA	NA	11.0	B
	Intersection LOS		3.1	A	2.3	A

1.4% Growth Rate, 20-Year Design

TABLE 4 – LEVEL OF SERVICE COMPARISON TABLE
OPTION 1

3-2. I-10 Westbound Off-Ramp Capacity Improvements and Auxiliary Lane between the I-10 Westbound Off-Ramp and Lindberg Drive Extension

This option for improvement adds lane capacity to the I-10 Westbound Off-Ramp and installs an auxiliary lane between the I-10 Westbound Off-Ramp and Lindberg Drive Extension. The purpose is to facilitate the efficient flow of traffic from the off-ramp and prevent queueing on the ramp onto the I-10 mainline.

The I-10 Westbound Off-Ramp on its approach to US 190 BUS (Shortcut Highway) presently provides one shared left-turn/thru lane and a sweeping channelized right turn lane. The shared left-turn/thru lane is controlled by a traffic signal while the channelized right-turn operates as a yield condition at its connection with US 190 BUS (Shortcut Highway). The traffic signal is a fully actuated traffic signal utilizing mast arm installations and ground mounted controller. It is part of a coordinated traffic signal system (3 intersections) that operates with an 80 second cycle during the A.M. and P.M. peak hours.

Peak hour observations during the mid-day and P.M. peak hours revealed that traffic on the I-10 Westbound Off-Ramp will occasionally back up onto the I-10 mainline. This condition routinely occurs during the Christmas holiday shopping season and other high trafficked shopping days of the year, as motorist travel to the Fremaux Town Center located in the southwest quadrant of the interchange. This large development consists of a variety of major retail shopping stores, restaurants, and other commercial businesses providing services to customers. Spot checks at times revealed over half the motorist making right-turns from the I-10 Westbound Off-Ramp were destined for the Fremaux Town Center. This required these motorists to quickly cross two lanes of through traffic on US 190 BUS (Shortcut Highway) to reach the dual left-turn lanes at the Town Center Parkway intersection.

Improvements to address these traffic operation and safety concerns related to the queueing of traffic onto the I-10 mainline can be addresses by adding lane capacity to the I-10 Westbound Off-Ramp. Specifically, an additional left-turn lane can be installed on the approach to provide dual left-turn ability. In addition, an adjacent right-turn lane controlled by the traffic signal can be added to provide a safer means for motorist enroute to the Fremaux Town Center to enter the US 190 BUS (Shortcut Highway) westbound travel lanes to access the dual left-turn lanes at the Town Center Parkway intersection. These improvements can be further augmented by installing an auxiliary lane from the I-10 Westbound Off-Ramp to Lindberg Drive Extension, thus allowing free-flow movement from the channelized right-turn lane and a right-turn lane along US 190 BUS (Shortcut Highway) @ Lindberg Drive Extension.

An overview drawing of this Option for Improvement is shown in Figure 8 on the following page. A comparison table of Level of Service between existing conditions and the improvement is provided in Table 5 on the following pages.

A Summary of Estimated Quantities was prepared for this option (See Supporting Material) the Opinion of Probable Construction Costs for the project is as follows.

Opinion of Probable Construction Costs = **$ 625,000.00**

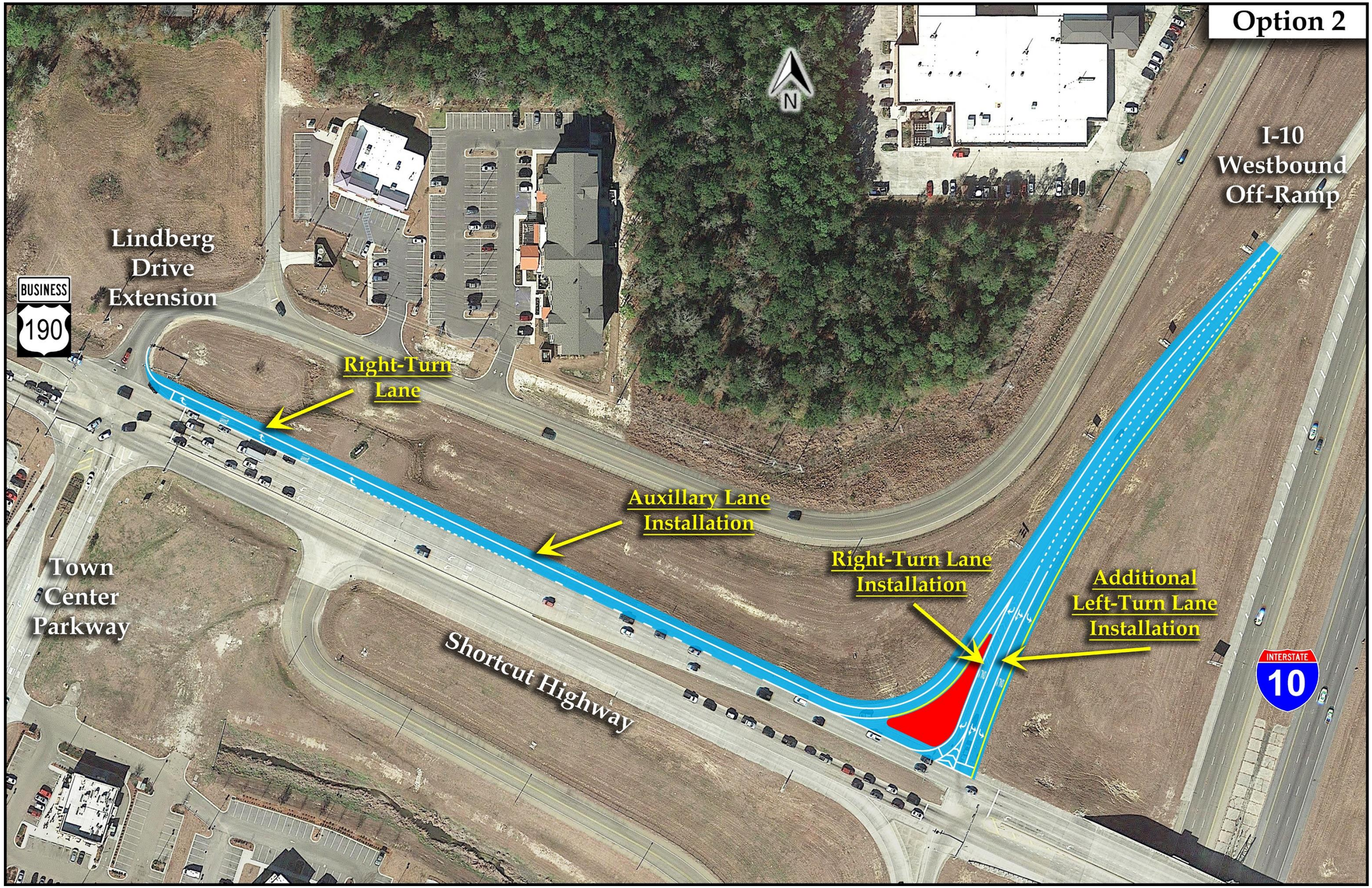


FIGURE 8 – OPTION FOR IMPROVEMENT 2

Intersection	Approach Movement		A.M. Peak Hour			
			Existing Geometry		Option 2	
			DELAY (Sec/Veh)	LOS	DELAY (Sec/Veh)	LOS
US 190 Business (Shortcut Highway) (EB & WB) @ Town Center Parkway (NB) & I-10 West Service Road (Lindberg Drive Extension) (SB) Traffic Signal	EB	UT/LT	52.4	D	52.4	D
		Thru (2 Lns)	35.2	D	35.2	D
		RT	20.1	C	20.1	C
	WB	UT/LT (2 Lns)	268.6	F	267.3	F
		Thru	25.3	C	NA	NA
		Thru/RT	25.3	C	NA	NA
		Thru (2 Lns)	NA	NA	22.0	C
		RT	NA	NA	57.0	E
	NB	LT	34.5	C	34.5	C
		LT/Thru	34.5	C	34.5	C
		RT	32.7	C	32.7	C
	SB	LT/Thru/RT	47.4	D	47.4	D
	Intersection LOS		52.4	D	52.5	D
US 190 Business (Shortcut Highway) (EB & WB) @ I-10 WB On/Off Ramp (SB) Traffic Signal	EB	Thru (2 Lns)	10.0	B	28.4	C
		RT	0.3	A	0.2	A
	WB	LT	21.6	C	31.0	C
		Thru (2 Lns)	2.6	A	11.5	B
	SB	LT	NA	NA	50.8	D
		LT/Thru	49.2	D		
		RT	0.5	A		
		RT @ Signal	NA	NA	0.4	A
	Intersection LOS		10.0	A	19.3	B

1.4% Growth Rate, 20-Year Design

Intersection	Approach Movement		P.M. Peak Hour			
			Existing Geometry		Option 2	
			DELAY (Sec/Veh)	LOS	DELAY (Sec/Veh)	LOS
US 190 Business (Shortcut Highway) (EB & WB) @ Town Center Parkway (NB) & I-10 West Service Road (Lindberg Drive Extension) (SB) Traffic Signal	EB	UT/LT	46.1	D	46.1	D
		Thru (2 Lns)	102.8	F	102.8	F
		RT	24.2	C	24.2	C
	WB	UT/LT (2 Lns)	89.0	F	86.5	F
		Thru	67.9	E	NA	NA
		Thru/RT	67.9	E	NA	NA
		Thru (2 Lns)	NA	NA	36.9	D
		RT	NA	NA	50.6	D
	NB	LT	57.2	E	57.2	E
		LT/Thru	56.7	E	56.7	E
		RT	57.2	E	57.2	E
	SB	LT/Thru/RT	157.3	F	157.3	F
	Intersection LOS		79.7	E	70.9	E
US 190 Business (Shortcut Highway) (EB & WB) @ I-10 WB On/Off Ramp (SB) Traffic Signal	EB	Thru (2 Lns)	59.1	E	59.1	E
		RT	0.0	A	0.0	A
	WB	LT	65.2	E	41.4	D
		Thru (2 Lns)	12.9	B	11.2	B
	SB	LT	NA	NA	38.1	D
		LT/Thru	104.4	F	38.1	D
		RT	0.5	A	33.0	C
		RT @ Signal	NA	NA	0.3	A
	Intersection LOS		36.7	D	28.8	C

1.4% Growth Rate, 20-Year Design

TABLE 5 – LEVEL OF SERVICE COMPARISON TABLE
OPTION 2

3-3. US 190 BUS (Shortcut Highway) Eastbound Advance Left-Turn Lane @ I-10 Westbound Off/On Ramps

This improvement installs an advance left-turn lane on the eastbound approach of US 190 BUS (Shortcut Highway) to the signalized intersection at the I-10 Westbound On/Off Ramps. The advance left-turn lane will promote efficient traffic flow along the US 190 BUS (Shortcut Highway) eastbound corridor by reducing congestion on the approach to the intersection caused by heavy left-turning traffic at the I-10 interchange.

The US 190 BUS (Shortcut Highway) eastbound approach to its intersection with the I-10 Westbound On/Off-Ramps presently consist of two through lanes and an exclusive right-turn lane. Immediately east of the intersection an exclusive left-turn lane develops on the approach to the I-10 Eastbound On-Ramp. The intersection is controlled by a traffic signal with the US 190 BUS (Shortcut Highway) eastbound approach right-turn lane operating as a yield condition at its connection with I-10 Westbound On-Ramp. The traffic signal is a fully actuated traffic signal utilizing mast arm installations and ground mounted controller. It is part of a coordinated traffic signal system (3 intersections) that operates with an 80 second cycle during the A.M. and P.M. peak hours.

Field observations revealed significant queueing on the inside through lane of the US 190 BUS (Shortcut Highway) eastbound approach to the I-10 Westbound Off-Ramp. This condition occurred throughout the day and was a result of the heavy traffic demand seeking the left-turn lane provided immediately downstream of this intersection at the I-10 Eastbound On-Ramp. This had the effect of relegating the corridor eastbound through movement to one lane of traffic at the intersection.

To remedy this problem, an advance left-turn lane can be provided along the US 190 BUS (Shortcut Highway) eastbound approach to its intersection with the I-10 Westbound On/Off Ramps. This lane will provide direct access the left-turn lane at the I-10 Eastbound On-Ramp. The advance turn lane can be readily installed in the adjacent grass median.

An overview drawing of this Option for Improvement is shown in Figure 9 on the following page. A comparison table of Level of Service between existing conditions and the improvement is provided in Table 6 on the following pages.

A Summary of Estimated Quantities was prepared for this option (See Supporting Material) the Opinion of Probable Construction Costs for the project is as follows.

Opinion of Probable Construction Costs = **$ 275,000.00**

FIGURE 9 – OPTION FOR IMPROVEMENT 3

Intersection	Approach Movement		A.M. Peak Hour			
			Existing Geometry		Option 3	
			DELAY (Sec/Veh)	LOS	DELAY (Sec/Veh)	LOS
US 190 Business (Shortcut Highway) (EB & WB) @ I-10 WB On/Off Ramp (SB) Traffic Signal	EB	Thru (2 Lns)	10.0	B	NA	NA
		Thru (3 Lns)	NA	NA	9.1	A
		RT	0.3	A	0.3	A
	WB	LT	21.6	C	15.8	B
		Thru (2 Lns)	2.6	A	2.6	A
	SB	LT/Thru	49.2	D	49.2	D
		RT	0.5	A	0.5	A
	Intersection LOS		10.0	A	8.9	A

1.4% Growth Rate, 20-Year Design

Intersection	Approach Movement		P.M. Peak Hour			
			Existing Geometry		Option 3	
			DELAY (Sec/Veh)	LOS	DELAY (Sec/Veh)	LOS
US 190 Business (Shortcut Highway) (EB & WB) @ I-10 WB On/Off Ramp (SB) Traffic Signal	EB	Thru (2 Lns)	59.1	E	NA	NA
		Thru (3 Lns)	NA	NA	31.1	C
		RT	0.0	A	0.0	A
	WB	LT	65.2	E	64.2	E
		Thru (2 Lns)	12.9	B	12.9	B
	SB	LT/Thru	104.4	F	104.4	F
		RT	0.5	A	0.5	A
	Intersection LOS		36.7	D	28.8	C

1.4% Growth Rate, 20-Year Design

TABLE 6 – LEVEL OF SERVICE COMPARISON TABLE
OPTION 3

3-4. Lindberg Drive Extension Capacity Improvements @ US 190 BUS (Shortcut Highway)

This improvement will add capacity on the Lindberg Drive Extension approach to the signalized intersection with US 190 BUS (Shortcut Highway) thus promoting traffic flow and reducing congestion on the roadway.

The Lindberg Drive Extension on its approach to US 190 BUS (Shortcut Highway) provides a single lane that allows left-turn, thru, and right-turn movements. The intersection is controlled by a traffic signal with the Lindberg Drive Extension approach operated with an exclusive side-street split-phase. The traffic signal is a fully actuated traffic signal utilizing mast arm installations and ground mounted controller. It is part of a coordinated traffic signal system (3 intersections) that operates with an 80 second cycle during the A.M. and P.M. peak hours.

Due to lack of capacity on the Lindberg Drive Extension approach, the roadway is unable to match the traffic demands, thus creating significant queueing of vehicles which at times exceed 1000 feet in length. When this occurs, motorist must wait through two or more traffic signal cycles to receive service.

This option for improvement will bring needed capacity to the Lindberg Drive Extension approach to its intersection with US 190 BUS (Shortcut Highway). It will provide three lanes on the approach that includes a left-turn lane, shared left-turn/thru lane, and a right-turn lane. It will also allow the development of a three-lane section with a dedicated center left-turn lane along Lindberg Drive Extension as you leave the intersection to access the adjacent businesses.

An overview drawing of this Option for Improvement is shown in Figure 10 on the following page. A comparison table of Level of Service between existing conditions and the improvement is provided in Table 7 on the following pages.

A Summary of Estimated Quantities was prepared for this option (See Supporting Material) the Opinion of Probable Construction Costs for the project is as follows.

Opinion of Probable Construction Costs = **$ 440,000.00**

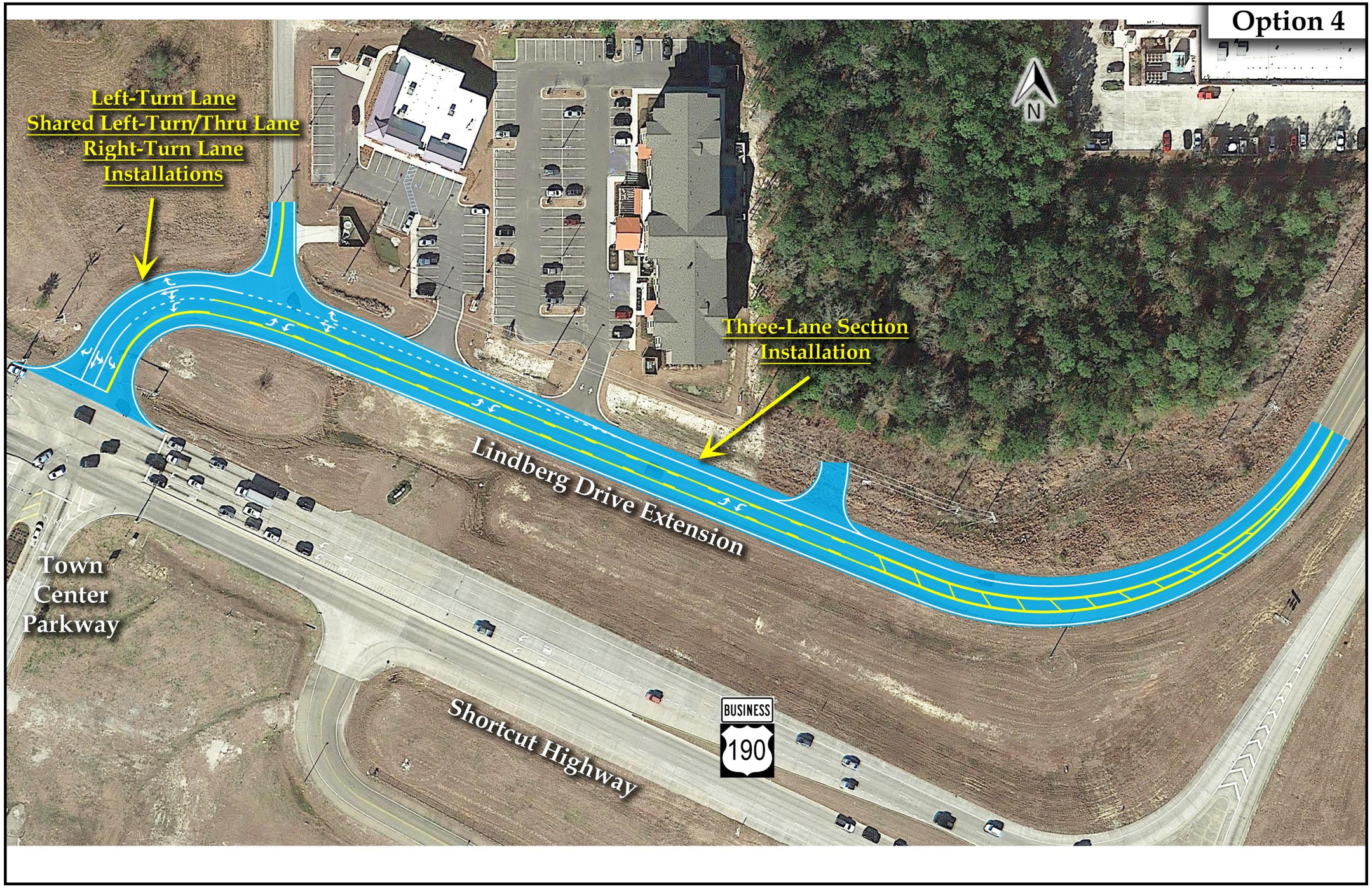


FIGURE 10 – OPTION FOR IMPROVEMENT 4

Intersection	Approach Movement		A.M. Peak Hour			
			Existing Geometry		Option 4	
			DELAY (Sec/Veh)	LOS	DELAY (Sec/Veh)	LOS
US 190 Business (Shortcut Highway) (EB & WB) @ Town Center Parkway (NB) & I-10 West Service Road (Lindberg Drive Extension) (SB) Traffic Signal	EB	UT/LT	52.4	D	52.4	D
		Thru (2 Lns)	35.2	D	39.2	D
		RT	20.1	C	20.8	C
	WB	UT/LT (2 Lns)	268.6	F	267.1	F
		Thru	25.3	C	23.2	C
		Thru/RT	25.3	C	23.2	C
	NB	LT	34.5	C	34.5	C
		LT/Thru	34.5	C	34.5	C
		RT	32.7	C	32.7	C
	SB	LT/Thru/RT	47.4	D	NA	NA
		LT	NA	NA	37.1	D
		LT/Thru	NA	NA	37.0	D
		RT	NA	NA	34.3	C
	Intersection LOS		52.4	D	52.2	D

1.4% Growth Rate, 20-Year Design

Intersection	Approach Movement		P.M. Peak Hour			
			Existing Geometry		Option 4	
			DELAY (Sec/Veh)	LOS	DELAY (Sec/Veh)	LOS
US 190 Business (Shortcut Highway) (EB & WB) @ Town Center Parkway (NB) & I-10 West Service Road (Lindberg Drive Extension) (SB) Traffic Signal	EB	UT/LT	46.1	D	46.1	D
		Thru (2 Lns)	102.8	F	102.8	F
		RT	24.2	C	24.2	C
	WB	UT/LT (2 Lns)	89.0	F	72.3	E
		Thru	67.9	E	67.9	E
		Thru/RT	67.9	E	67.9	E
	NB	LT	57.2	E	49.2	D
		LT/Thru	56.7	E	48.6	D
		RT	57.2	E	51.2	D
	SB	LT/Thru/RT	157.3	F	NA	NA
		LT	NA	NA	36.0	C
		LT/Thru	NA	NA	35.8	C
		RT	NA	NA	31.4	C
	Intersection LOS		79.7	E	58.3	E

1.4% Growth Rate, 20-Year Design

TABLE 7 – LEVEL OF SERVICE COMPARISON TABLE
OPTION 4

3-5. I-10 Eastbound Off-Ramp Capacity Improvements and Auxiliary Lane between the I-10 Eastbound Off-Ramp and Brookter Road

This option for improvement adds lane capacity to the I-10 Eastbound Off-Ramp and installs an auxiliary lane between the I-10 Eastbound Off-Ramp and Brookter Road. The purpose is to facilitate the efficient flow of traffic from the off-ramp and prevent queueing on the ramp onto the I-10 mainline.

The I-10 Eastbound Off-Ramp on its approach to US 190 BUS (Shortcut Highway) presently provides a left-turn lane, shared left-turn/thru lane, and a sweeping channelized right turn lane. The left-turn lane and shared left-turn/thru lane are controlled by a traffic signal while the channelized right-turn operates as a yield condition at its connection with US 190 BUS (Shortcut Highway). The traffic signal is a fully actuated traffic signals utilizing mast arm installations and ground mounted controllers. It is part of a coordinated traffic signal system (3 intersections) that operates with an 80 second cycle during the A.M. and P.M. peak hours.

Peak hour observations during P.M. peak hours revealed that traffic on the I-10 Eastbound Off-Ramp will occasionally back up onto the I-10 mainline. This condition routinely occurs during the weekday late afternoon period as motorists return home from the New Orleans region and south Slidell. Observations revealed a notable amount of motorist making right-turns from the I-10 Eastbound Off-Ramp were headed to the I-10 East Service Road that provides access to a Walmart Super Center and Lowes store. This required these motorists to quickly cross two lanes of through traffic on US 190 BUS (Shortcut Highway) to reach the left-turn lane on the US 190 BUS (Shortcut Highway) eastbound approach to the I-10 East Service Road.

Additional lane capacity on the I-10 Eastbound Off-Ramp can be provided to address these traffic operation and safety concerns related to the queueing of traffic onto the I-10 mainline. Specifically, an additional right-turn lane controlled by the traffic signal can be added to provide a safer means for motorist enroute to the I-10 East Service Road to enter the US 190 BUS (Shortcut Highway) eastbound travel lanes to access the left-turn lane at the I-10 East Service Road. This improvement can be further supplemented by installing an auxiliary lane from the I-10 Eastbound Off-Ramp to Brookter Road, thus allowing free-flow movement from the channelized right-turn lane and a right-turn lane along US 190 BUS (Shortcut Highway) @ Brookter Road.

An overview drawing of this Option for Improvement is shown in Figure 11 on the following page. A comparison table of Level of Service between existing conditions and the improvement is provided in Table 8 on the following pages.

A Summary of Estimated Quantities was prepared for this option (See Supporting Material) the Opinion of Probable Construction Costs for the project is as follows.

Opinion of Probable Construction Costs = **$ 380,000.00**

FIGURE 11 – OPTION FOR IMPROVEMENT 5

Intersection	Approach Movement		A.M. Peak Hour			
			Existing Geometry		Option 5	
			DELAY (Sec/Veh)	LOS	DELAY (Sec/Veh)	LOS
US 190 Business (Shortcut Highway) (EB & WB) @ I-10 EB On/Off Ramp (NB) Traffic Signal	EB	LT	44.9	D	46.4	D
		Thru (2 Lns)	4.7	A	4.8	A
	WB	Thru	22.5	C	22.6	C
		Thru/RT	22.5	C	22.6	C
	NB	LT	43.2	D	45.1	D
		LT/Thru	43.9	D	45.1	D
		RT	0.2	A	0.2	A
		RT @ Signal	NA	NA	31.9	C
	Intersection LOS		21.3	C	21.5	C
US 190 Business (Shortcut Highway) (EB & WB) @ Brookter Road (NB) One-Way Stop	EB	Thru	0.0	A	NA	NA
		Thru/RT	0.0	A	NA	NA
		Thru (2 Lns)	NA	NA	0.0	A
		RT	NA	NA	0.0	A
	WB	LT	9.4	A	9.4	A
		Thru (2 Lns)	0.0	A	0.0	A
	NB	LT/Thru/RT	33.4	D	31.2	D
	Intersection LOS		4.3	A	4.0	A

1.4% Growth Rate, 20-Year Design

Intersection	Approach Movement		P.M. Peak Hour			
			Existing Geometry		Option 5	
			DELAY (Sec/Veh)	LOS	DELAY (Sec/Veh)	LOS
US 190 Business (Shortcut Highway) (EB & WB) @ I-10 EB On/Off Ramp (NB) Traffic Signal	EB	LT	95.5	F	95.5	F
		Thru (2 Lns)	8.9	A	8.9	A
	WB	Thru	102.9	F	102.9	F
		Thru/RT	102.9	F	102.9	F
	NB	LT	122.0	F	142.2	F
		LT/Thru	127.4	F	142.2	F
		RT	1.1	A	0.8	A
		RT @ Signal	NA	NA	39.6	D
	Intersection LOS		65.6	E	61.4	E
US 190 Business (Shortcut Highway) (EB & WB) @ Brookter Road (NB) One-Way Stop	EB	Thru	0.0	A	NA	NA
		Thru/RT	0.0	A	NA	NA
		Thru (2 Lns)	NA	NA	0.0	A
		RT	NA	NA	0.0	A
	WB	LT	16.6	C	16.6	C
		Thru (2 Lns)	0.0	A	0.0	A
	NB	LT/Thru/RT	143.7	F	101.8	F
	Intersection LOS		11.2	B	8.1	A

1.4% Growth Rate, 20-Year Design

TABLE 8 – LEVEL OF SERVICE COMPARISON TABLE
OPTION 5

3-6. US 190 BUS (Shortcut Highway) Westbound Advance Left-Turn Lane and Right-Turn Lane @ I-10 Eastbound On/Off Ramps

This improvement installs an advance left-turn lane and exclusive right-turn lane on the westbound approach of US 190 BUS (Shortcut Highway) to the signalized intersection at the I-10 Eastbound On/Off Ramps. The advance left-turn lane will promote efficient traffic flow along the US 190 BUS (Shortcut Highway) westbound corridor by reducing congestion on the approach to the intersection caused by heavy left-turning traffic at the I-10 interchange. The exclusive right-turn lane will provide efficient movement of traffic to the I-10 Eastbound On-Ramp thus improving traffic flow along the US 190 BUS (Shortcut Highway) westbound corridor.

The US 190 BUS (Shortcut Highway) westbound approach to its intersection with the I-10 Eastbound On/Off-Ramps presently consist of two through lanes and a channelized right-turn lane. Immediately east of the intersection an exclusive left-turn lane develops on the approach to the I-10 Westbound On-Ramp. The intersection is controlled by a traffic signal with the US 190 BUS (Shortcut Highway) westbound approach channelized right-turn lane operating as a yield condition at its connection with I-10 Eastbound On-Ramp. The traffic signal is a fully actuated traffic signals utilizing mast arm installations and ground mounted controller. It is part of a coordinated traffic signal system (3 intersections) that operates with an 80 second cycle during the A.M. and P.M. peak hours.

During field observations significant queueing was seen on the inside through lane of the US 190 BUS (Shortcut Highway) westbound approach to the I-10 Eastbound On/Off Ramps. This condition was mainly problematic during the A.M. and P.M. peak hours due to heavy traffic demand seeking the left-turn lane provided immediately downstream of this intersection at the I-10 Westbound On-Ramp. This had the effect of relegating the corridor westbound through movement to one lane of traffic at the intersection.

To address this issue, an advance left-turn lane can be provided along the US 190 BUS (Shortcut Highway) westbound approach to its intersection with the I-10 Eastbound On/Off Ramps. This lane will provide direct access to the left-turn lane at the I-10 Eastbound On-Ramp and can be readily installed in the adjacent grass median. Further improvement to the corridor westbound through movement can occur with the installation of an exclusive right-turn lane to directly access the I-10 Eastbound On-Ramp.

An overview drawing of this Option for Improvement is shown in Figure 12 on the following page. A comparison table of Level of Service between existing conditions and the improvement is provided in Table 9 on the following pages.

A Summary of Estimated Quantities was prepared for this option (See Supporting Material) the Opinion of Probable Construction Costs for the project is as follows.

Opinion of Probable Construction Costs = **$ 365,000.00**

FIGURE 12 – OPTION FOR IMPROVEMENT 6

Intersection	Approach Movement		A.M. Peak Hour			
			Existing Geometry		Option 6	
			DELAY (Sec/Veh)	LOS	DELAY (Sec/Veh)	LOS
US 190 Business (Shortcut Highway) (EB & WB) @ I-10 EB On/Off Ramp (NB) Traffic Signal	EB	LT	44.9	D	12.1	B
		Thru (2 Lns)	4.7	A	4.7	A
	WB	Thru	22.5	C	NA	NA
		Thru/RT	22.5	C	NA	NA
		Thru (3 Lns)	NA	NA	12.5	B
		RT	NA	NA	11.3	B
	NB	LT	43.2	D	43.2	D
		LT/Thru	43.9	D	43.9	D
		RT	0.2	A	0.2	A
	Intersection LOS		21.3	C	13.4	B

1.4% Growth Rate, 20-Year Design

Intersection	Approach Movement		P.M. Peak Hour			
			Existing Geometry		Option 6	
			DELAY (Sec/Veh)	LOS	DELAY (Sec/Veh)	LOS
US 190 Business (Shortcut Highway) (EB & WB) @ I-10 EB On/Off Ramp (NB) Traffic Signal	EB	LT	95.5	F	93.6	F
		Thru (2 Lns)	8.9	A	8.9	A
	WB	Thru	102.9	F	NA	NA
		Thru/RT	102.9	F	NA	NA
		Thru (3 Lns)	NA	NA	23.2	C
		RT	NA	NA	17.8	B
	NB	LT	122.0	F	122.0	E
		LT/Thru	127.4	F	127.4	E
		RT	1.1	A	1.1	A
	Intersection LOS		65.6	E	39.8	D

1.4% Growth Rate, 20-Year Design

TABLE 9 – LEVEL OF SERVICE COMPARISON TABLE
OPTION 6

3-7. US 190 BUS (Shortcut Highway) @ Hoover Drive Roundabout and Corridor Improvements between I-10 East Service Road and Hoover Drive

This option calls for the installation of a roundabout at the intersection of US 190 BUS (Shortcut Highway) @ Hoover Drive and corridor improvement along the US 190 BUS (Shortcut Highway) corridor between the I-10 East Service Road and Hoover Drive. The improvement will increase efficient traffic flow throughout the corridor and bring additional safety to the main highway and adjacent roadway network.

The US 190 BUS (Shortcut Highway) corridor between the I-10 East Service Road & Hoover Drive consists of two typical sections. Beginning at the I-10 East Service Road, the highway is a four-lane divided asphalt roadway with a striped median that transition to a three-lane section highway with a dedicated center left-turn lane at a point approximately 550 feet west of Hoover Drive. All side street approaches within this specific area, including Hoover Drive, are two-lane and two-way roadways operated with stop sign control.

All side street approaches between the I-10 East Service Road and Hoover Drive are afforded full-access movements. This includes the I-10 East Service Road, Oak Avenue, S Walnut Avenue, Brookter Road, Morrow Drive, and Hoover Drive. This introduces many conflicts along the US 190 BUS (Shortcut Highway) corridor that negatively impact safety and traffic flow.

This option brings access management techniques to the corridor to promote safety and efficient traffic flow along the highway and side street approaches. Specifically, the improvements call for installation of a raised median along the corridor and the side street approaches limited to right-turn movements only. To accomplish this, the improvement requires locations along US 190 BUS (Shortcut Highway) for motorists to make U-turns in lieu of the left-turns from the side streets. For motorist north of US 190 BUS (Shortcut Highway) between S Walnut Street and Morrow Drive, U-turns can occur at the I-10 East Service Road and Brookter Road where turn lanes can be provided. Motorists along the I-10 East Service Road wanting to proceed eastbound on the corridor will need to reroute to Hoover Drive via Lawes Street, and then to a roundabout at the intersection of US 190 (Shortcut Highway) @ Hoover Drive. This roundabout will also allow U-turns for motorists south of US 190 BUS (Shortcut Highway) desiring to proceed west toward the I-10 interchange.

An overview drawing of this Option for Improvement is shown in Figure 13 on the following page. Comparison tables of Level of Service between existing conditions and the improvement are provided in Table 10A and 10B on the following pages.

A Summary of Estimated Quantities was prepared for this option (See Supporting Material) the Opinion of Probable Construction Costs for the project is as follows.

Opinion of Probable Construction Costs = **$3,100,000.00**

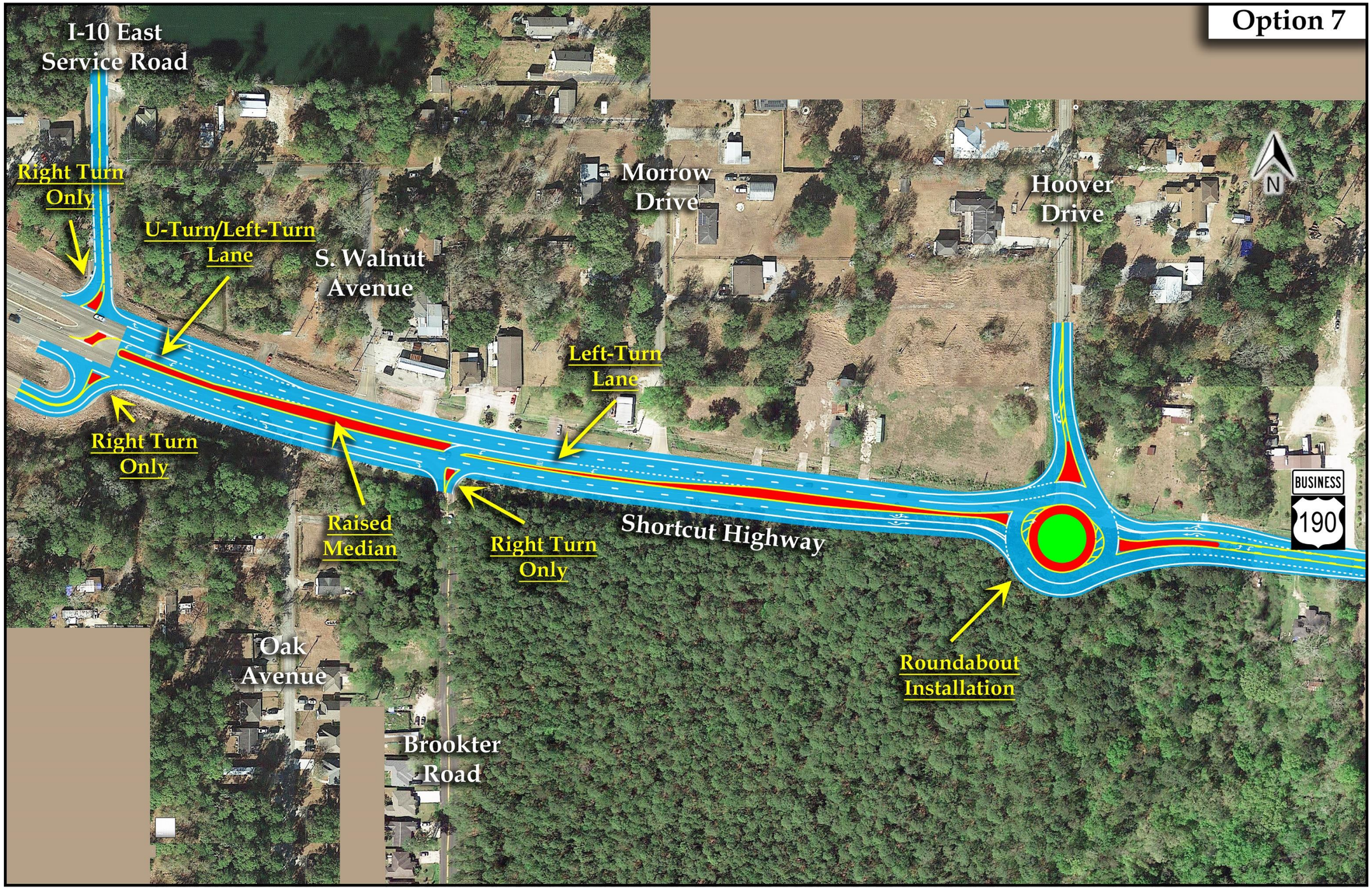


FIGURE 13 – OPTION FOR IMPROVEMENT 7

Intersection	Approach Movement		A.M. Peak Hour			
			Existing Geometry		Option 7	
			DELAY (Sec/Veh)	LOS	DELAY (Sec/Veh)	LOS
US 190 Business (Shortcut Highway) (EB & WB) @ E I-10 Service Road (NB & SB) **Two-Way Stop**	EB	UT/LT	16.6	C	17.5	C
		Thru	0.0	A	NA	NA
		Thru (2 Lns)	NA	NA	0.0	A
		Thru/RT	0.0	A	0.0	A
	WB	LT	9.0	A	9.2	A
		Thru	0.0	A	0.0	A
		Thru/RT	0.0	A	0.0	A
	NB	LT/Thru/RT	803.6	F	NA	NA
		RT	NA	NA	10.0	A
	SB	Lt/Thru	38.8	E	NA	NA
		RT	20.7	C	21.8	C
	Intersection LOS		13.4	B	3.0	A
US 190 Business (Shortcut Highway) (EB & WB) @ Oak Street (NB) **One-Way Stop**	EB	Thru	0.0	A	NA	NA
		Thru/RT	0.0	A	NA	NA
		Thru (2 Lns)	NA	NA	0.0	A
		Thru/RT	NA	NA	0.0	A
	WB	LT	9.2	A	NA	NA
		Thru	0.0	A	0.0	A
		Thru/RT	0.0	A	0.0	A
	NB	LT/Thru/RT	16.1	C	NA	NA
		RT	NA	NA	10.1	B
	Intersection LOS		0.3	A	0.2	A
US 190 Business (Shortcut Highway) (EB & WB) @ S Walnut Street (SB) **One-Way Stop**	EB	LT	12.0	B	NA	NA
		Thru (2 Lns)	0.0	A	NA	NA
		Thru (3 Lns)	NA	NA	0.0	A
	WB	Thru	0.0	A	0.0	A
		Thru/RT	0.0	A	0.0	A
	SB	LT/Thru/RT	18.0	C	NA	NA
		RT	NA	NA	14.5	B
	Intersection LOS		0.1	A	0.1	A
US 190 Business (Shortcut Highway) (EB & WB) @ Brookter Road (NB) **One-Way Stop**	EB	Thru	0.0	A	NA	NA
		Thru/RT	0.0	A	NA	NA
		Thru (2 Lns)	NA	NA	0.0	A
		RT	NA	NA	0.0	A
	WB	LT	9.4	A	9.7	A
		Thru (2 Lns)	0.0	A	0.0	A
	NB	LT/Thru/RT	33.4	D	NA	NA
		RT	NA	NA	14.6	B
	Intersection LOS		4.3	A	1.7	A
US 190 Business (Shortcut Highway) (EB & WB) @ Morrow Drive (SB) **One-Way Stop**	EB	LT	11.1	B	NA	NA
		Thru	0.0	A	0.0	A
	WB	Thru	0.0	A	0.0	A
		Thru/RT	0.0	A	0.0	A
	SB	LT/Thru/RT	15.1	C	NA	NA
		RT	NA	NA	25.7	D
	Intersection LOS		0.3	A	0.3	A
US 190 Business (Shortcut Highway) (EB & WB) @ Hoover Drive (SB) **One-Way Stop**	EB	LT	10.9	B	NA	NA
		Thru	0.0	A	NA	NA
	WB	Thru/RT	0.0	A	NA	NA
	SB	LT/Thru/RT	27.5	D	NA	NA
	Intersection LOS		3.3	A	NA	NA
US 190 Business (Shortcut Highway) (EB & WB) @ Hoover Drive (SB) **Roundabout**	EB	LT/Thru	NA	NA	0.3	A
		Thru	NA	NA	0.3	A
	WB	Thru	NA	NA	3.5	A
		Thru/RT	NA	NA	3.3	A
	SB	LT/RT	NA	NA	9.3	A
	Intersection LOS		NA	NA	2.5	A

1.4% Growth Rate, 20-Year Design

TABLE 10A – LEVEL OF SERVICE COMPARISON TABLE
OPTION 7

Intersection	Approach Movement		P.M. Peak Hour			
			Existing Geometry		Option 7	
			DELAY (Sec/Veh)	LOS	DELAY (Sec/Veh)	LOS
US 190 Business (Shortcut Highway) (EB & WB) @ E I-10 Service Road (NB & SB) **Two-Way Stop**	EB	UT/LT	18.4	C	15.1	B
		Thru	0.0	A	NA	NA
		Thru (2 Lns)	NA	NA	0.0	A
		Thru/RT	0.0	A	0.0	A
	WB	LT	13.3	B	9.2	B
		Thru	0.0	A	0.0	A
		Thru/RT	0.0	A	0.0	A
	NB	LT/Thru/RT	330.0	F	NA	NA
		RT	NA	NA	9.9	A
	SB	Lt/Thru	330.0	F	NA	NA
		RT	42.1	E	55.9	F
	Intersection LOS		86.6	F	9.7	A
US 190 Business (Shortcut Highway) (EB & WB) @ Oak Street (NB) **One-Way Stop**	EB	Thru	0.0	A	NA	NA
		Thru/RT	0.0	A	NA	NA
		Thru (2 Lns)	NA	NA	0.0	A
		Thru/RT	NA	NA	0.0	A
	WB	LT	13.6	B	NA	NA
		Thru	0.0	A	0.0	A
		Thru/RT	0.0	A	0.0	A
	NB	LT/Thru/RT	31.1	D	NA	NA
		RT	NA	NA	12.6	B
	Intersection LOS		0.3	A	0.1	A
US 190 Business (Shortcut Highway) (EB & WB) @ S Walnut Street (SB) **One-Way Stop**	EB	LT	10.7	B	NA	NA
		Thru (2 Lns)	0.0	A	NA	NA
		Thru (3 Lns)	NA	NA	0.0	A
	WB	Thru	0.0	A	0.0	A
		Thru/RT	0.0	A	0.0	A
	SB	LT/Thru/RT	16.1	C	NA	NA
		RT	NA	NA	13.3	B
	Intersection LOS		0.0	A	0.0	A
US 190 Business (Shortcut Highway) (EB & WB) @ Brookter Road (NB) **One-Way Stop**	EB	Thru	0.0	A	NA	NA
		Thru/RT	0.0	A	NA	NA
		Thru (2 Lns)	NA	NA	0.0	A
		RT	NA	NA	0.0	A
	WB	LT	16.6	B	14.1	B
		Thru (2 Lns)	0.0	A	0.0	A
	NB	LT/Thru/RT	143.7	F	NA	NA
		RT	NA	NA	23.3	C
	Intersection LOS		11.2	A	1.6	A
US 190 Business (Shortcut Highway) (EB & WB) @ Morrow Drive (SB) **One-Way Stop**	EB	LT	10.7	B	NA	NA
		Thru	0.0	A	0.0	A
	WB	Thru	0.0	A	0.0	A
		Thru/RT	0.0	A	0.0	A
	SB	LT/Thru/RT	16.9	B	NA	NA
		RT	NA	NA	14.3	B
	Intersection LOS		0.2	A	0.1	A
US 190 Business (Shortcut Highway) (EB & WB) @ Hoover Drive (SB) **One-Way Stop**	EB	LT	12.7	B	NA	NA
		Thru	0.0	A	NA	NA
	WB	Thru/RT	0.0	A	NA	NA
	SB	LT/Thru/RT	66.7	F	NA	NA
	Intersection LOS		6.6	A	NA	NA
US 190 Business (Shortcut Highway) (EB & WB) @ Hoover Drive (SB) **Roundabout**	EB	LT/Thru	NA	NA	1.3	B
		Thru	NA	NA	1.2	A
	WB	Thru	NA	NA	7.2	A
		Thru/RT	NA	NA	6.7	A
	SB	LT/RT	NA	NA	15.4	B
	Intersection LOS		NA	NA	4.5	A

1.4% Growth Rate, 20-Year Design

TABLE 10B – LEVEL OF SERVICE COMPARISON TABLE
OPTION 7

3-8. Hoover Drive Extension South of Proposed Roundabout @ US 190 BUS

This improvement builds upon Option 7 and extends the Hoover Drive connection at the potential roundabout at US 190 BUS (Shortcut Highway) south to connect at Brookter Road. This Hoover Drive Extension will improve traffic circulation of the adjacent roadway network and further enhance the safety features brought to the US 190 BUS (Shortcut Highway) corridor by Option 7.

Existing Hoover Drive north of US 190 BUS (Shortcut Highway) is a two-lane, two-way, asphalt roadway operated with a stop sign at its intersection with US 190 BUS (Shortcut Highway). South of the intersection and west to Brookter Road is undeveloped wooded property.

To facilitate efficient movement between Brookter Road and Hoover Drive, a new road can be installed (Hoover Drive Extension) that connects at a modified intersection with Brookter Road to the roundabout along US 190 BUS (Shortcut Highway) from the south. Collected traffic counts shows Brookter Road and Hoover Drive contributing notable traffic movements to and from the I-10 interchange and this new connection to the roundabout will provide for the efficient movement of this traffic. In addition to improving the traffic circulation of the adjacent roadway network, this new roadway can also accommodate and provide access for future development that will likely occur in the presently vacant wooded tracts.

An overview drawing of this Option for Improvement is shown in Figure 14 on the following page. A comparison table of Level of Service between existing conditions and the improvement is provided in Table 11 on the following pages.

A Summary of Estimated Quantities was prepared for this option (See Supporting Material) the Opinion of Probable Construction Costs for the project is as follows.

Opinion of Probable Construction Costs = **$ 775,000.00**

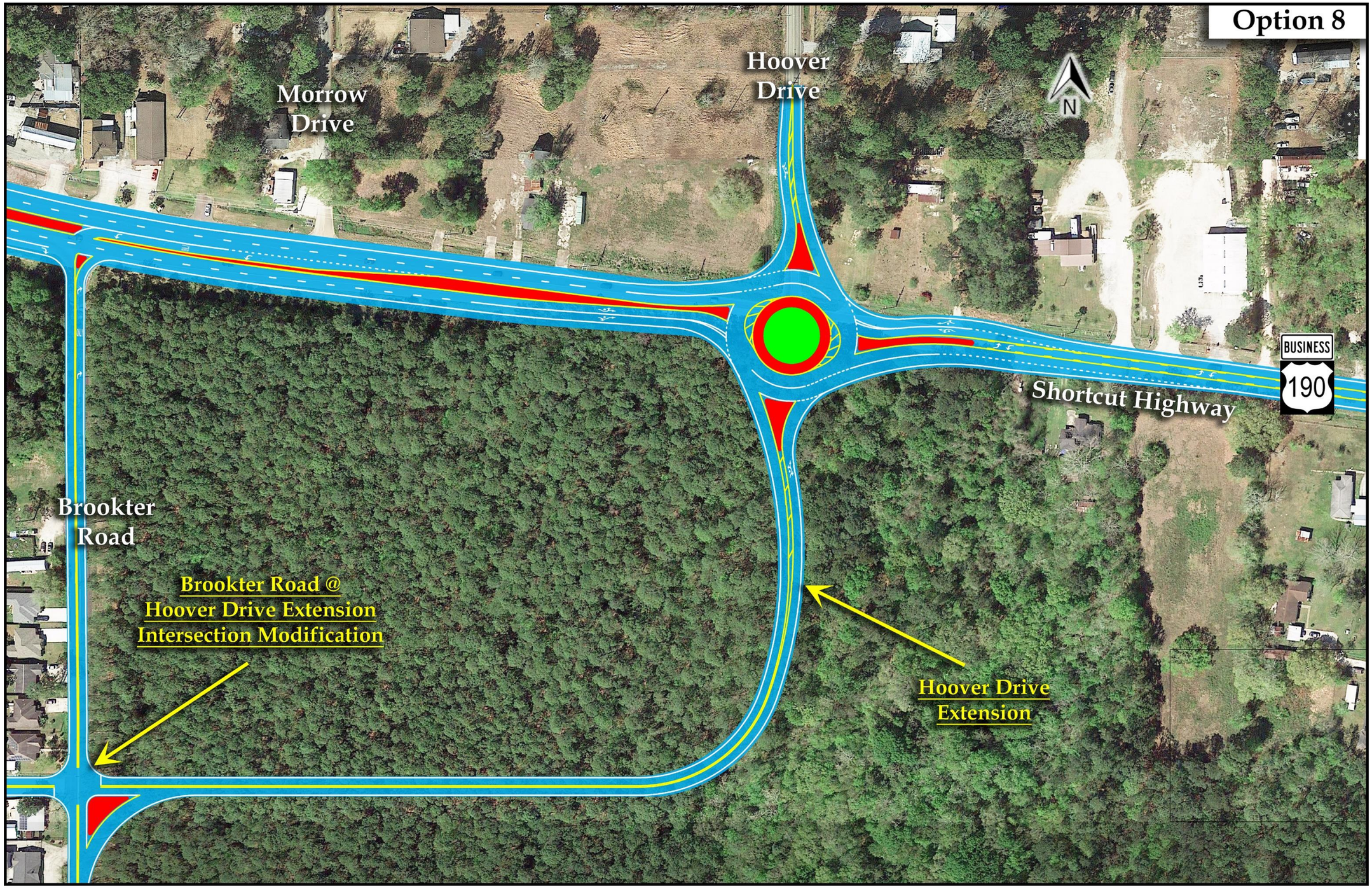


FIGURE 14 – OPTION FOR IMPROVEMENT 8

Intersection	Approach Movement		A.M. Peak Hour			
			Existing Geometry		Option 8	
			DELAY (Sec/Veh)	LOS	DELAY (Sec/Veh)	LOS
US 190 Business (Shortcut Highway) (EB & WB) @ Hoover Drive (SB) **One-Way Stop**	EB	LT	12.1	B	NA	NA
		Thru	0.0	A	NA	NA
	WB	Thru/RT	0.0	A	NA	NA
	SB	LT/Thru/RT	27.5	D	NA	NA
	Intersection LOS		3.3	A	NA	NA
US 190 Business (Shortcut Highway) (EB & WB) @ Hoover Drive Extension (NB) & Hoover Drive (SB) **Roundabout**	EB	LT/Thru	NA	NA	0.9	A
		Thru/RT	NA	NA	0.9	A
	WB	LT/Thru	NA	NA	4.1	A
		Thru/RT	NA	NA	3.8	A
	NB	LT/Thru/RT	NA	NA	5.6	A
	SB	LT/Thru/RT	NA	NA	11.0	B
	Intersection LOS		NA	NA	3.8	A

1.4% Growth Rate, 20-Year Design

Intersection	Approach Movement		P.M. Peak Hour			
			Existing Geometry		Option 8	
			DELAY (Sec/Veh)	LOS	DELAY (Sec/Veh)	LOS
US 190 Business (Shortcut Highway) (EB & WB) @ Hoover Drive (SB) **One-Way Stop**	EB	LT	12.7	B	NA	NA
		Thru	0.0	A	NA	NA
	WB	Thru/RT	0.0	A	NA	NA
	SB	LT/Thru/RT	66.7	F	NA	NA
	Intersection LOS		6.6	A	NA	NA
US 190 Business (Shortcut Highway) (EB & WB) @ Hoover Drive Extension (NB) & Hoover Drive (SB) **Roundabout**	EB	LT/Thru	NA	NA	3.5	A
		Thru/RT	NA	NA	3.4	A
	WB	LT/Thru	NA	NA	8.5	A
		Thru/RT	NA	NA	7.9	A
	NB	LT/Thru/RT	NA	NA	17.5	B
	SB	LT/Thru/RT	NA	NA	14.7	B
	Intersection LOS		NA	NA	7.2	A

1.4% Growth Rate, 20-Year Design

TABLE 11 – LEVEL OF SERVICE COMPARISON TABLE
OPTION 8

3-9. Left-turn lane installation along I-10 East Service Road @ Lawes Street

This improvement will see the installation of an exclusive left-turn lane on the I-10 East Service Road southbound approach to Lawes Street. The option works with improvements presented in Option 7 and will promote traffic circulation of the adjacent roadway.

The I-10 East Service Road at Lawes Street is a two-lane, two-way asphalt road operated with free-flowing conditions. Lawes Street is also a two-lane, two-way asphalt road operated with stop sign control. The intersection is situated immediately south of an abrupt curve in the alignment of the I-10 East Service Road.

As noted for the access management improvements described in of Option 7, motorists along the I-10 East Service Road wanting to proceed eastbound on the corridor will need to reroute to Lawes Street and then Hoover Drive. This will result in bringing increase left-turn movements from the I-10 East Service Road southbound approach to Lawes Street. The service road does not presently provide an exclusive left-turn lane at Lawes Street.

This improvement option works in conjunction with Option 7 presented earlier and will bring an exclusive left-turn lane to the I-10 East Service Road southbound approach to Lawes Street. In addition, the improvements will flatten the abrupt curve in the service roadway located immediately north of this intersection.

An overview drawing of this Option for Improvement is shown in Figure 15 on the following page. A comparison table of Level of Service between existing conditions and the improvement is provided in Table 12 on the following pages.

A Summary of Estimated Quantities was prepared for this option (See Supporting Material) the Opinion of Probable Construction Costs for the project is as follows.

Opinion of Probable Construction Costs = **$ 320,000.00**

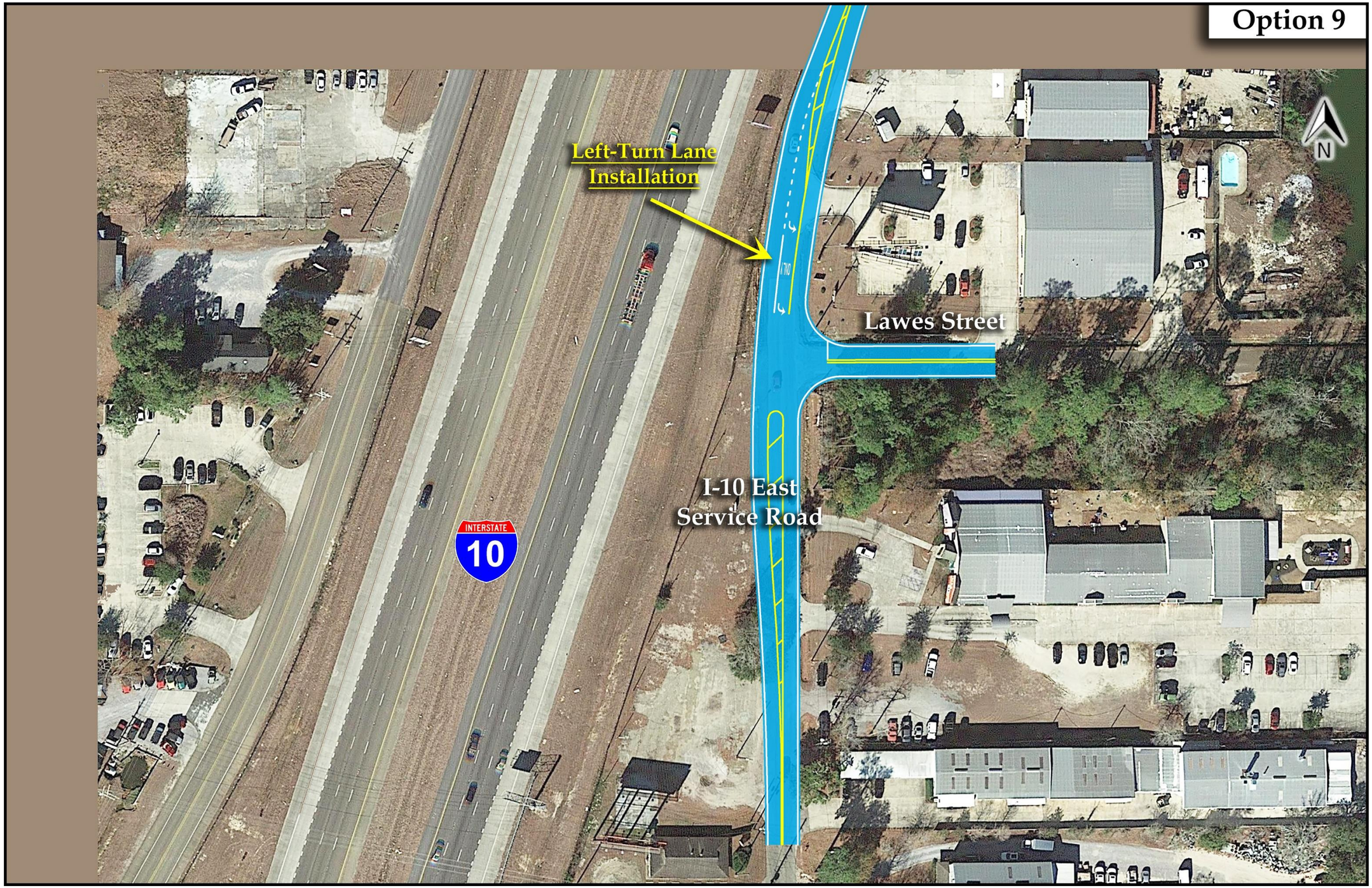


FIGURE 15 – OPTION FOR IMPROVEMENT 9

Intersection	Approach Movement		A.M. Peak Hour			
			Existing Geometry		Option 9	
			DELAY (Sec/Veh)	LOS	DELAY (Sec/Veh)	LOS
I-10 East Service Road (NB & SB) @ Lawes Street (WB) One-Way Stop	NB	Thru/RT	0.0	A	0.0	A
	SB	LT/Thru	1.1	A	NA	NA
		LT	NA	NA	7.8	A
		Thru/RT	NA	NA	0.0	A
	WB	LT/RT	10.5	B	10.5	B
	Intersection LOS		1.4	A	1.4	A

1.4% Growth Rate, 20-Year Design

Intersection	Approach Movement		P.M. Peak Hour			
			Existing Geometry		Option 9	
			DELAY (Sec/Veh)	LOS	DELAY (Sec/Veh)	LOS
I-10 East Service Road (NB & SB) @ Lawes Street (WB) One-Way Stop	NB	Thru/RT	0.0	A	0.0	A
	SB	LT/Thru	1.9	A	NA	NA
		LT	NA	NA	8.4	A
		Thru/RT	NA	NA	0.0	A
	WB	LT/RT	14.1	B	14.1	B
	Intersection LOS		2.1	A	1.8	A

1.4% Growth Rate, 20-Year Design

TABLE 12 – LEVEL OF SERVICE COMPARISON TABLE
OPTION 9

3-10. Hoover Drive @ Lawes Street Intersection Improvements

This option will bring improvements to the intersection of Hoover Drive @ Lawes Street by increasing lane widths and turning radius at the intersection. The option works with improvements presented Option 7 and will promote traffic circulation of the adjacent roadway.

Both Hoover Drive and Lawes Street are two-lane, two-way asphalt roads. The intersection is operated with all-way stop conditions. Hoover Drive provides 10-foot travel lanes while Lawes Street has narrow 9-foot lanes. The intersection is characterized by turnouts with small turning radius.

As described with the access management improvements listed in of Option 7, motorists along the I-10 East Service Road wanting to proceed eastbound on the corridor will need to reroute to the intersection of Lawes Street @ Hoover Drive. This will bring increased traffic demand and turning movements to this intersection.

To accommodate this increased traffic load, this option will make improvements to the Lawes Street @ Hoover Drive intersection. The improvements will consist of widening the approach lanes in the immediate vicinity of the intersection and increasing the turning radius in the four corners.

An overview drawing of this Option for Improvement is shown in Figure 16 on the following page.

A Summary of Estimated Quantities was prepared for this option (See Supporting Material) the Opinion of Probable Construction Costs for the project is as follows.

Opinion of Probable Construction Costs = **$ 85,000.00**

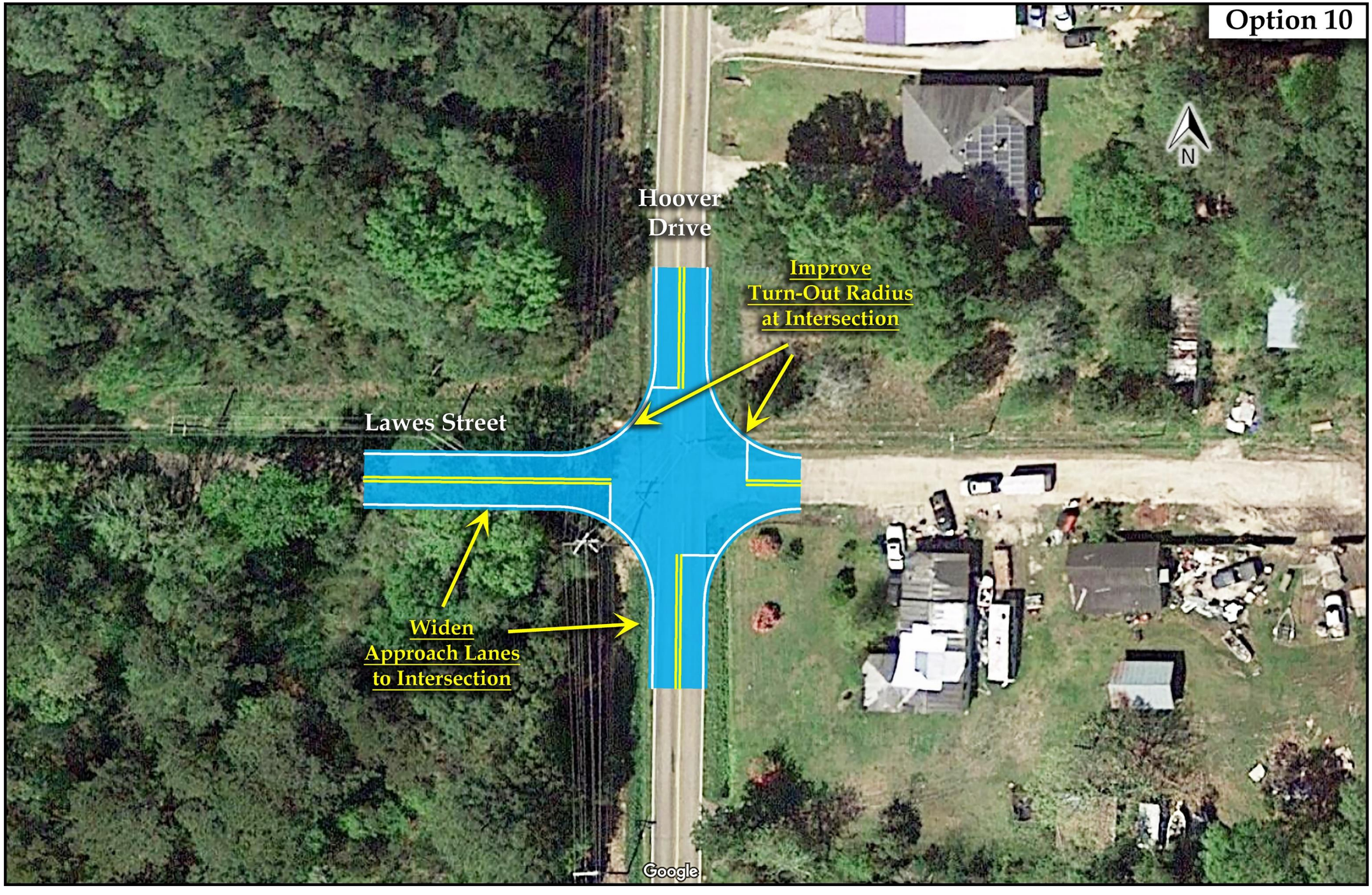


FIGURE 16 – OPTION FOR IMPROVEMENT 10

SUPPORTING MATERIAL

Tuesday *September 10, 2019*

US 190 BUS (Shortcut Highway) between Nellie Drive & Town Center Parkway

The City of Slidell, St. Tammany Parish, Louisiana

Major Street: EB & WB
US 190 BUS (Shortcut Highway) (EB)
US 190 BUS (Shortcut Highway) (WB)

Time Start	Major Street				
	EB	WB	Total		
12 A.M.	67	86	153		
1 A.M.	43	35	78		
2 A.M.	33	27	60		
3 A.M.	61	38	99		
4 A.M.	149	91	240		
5 A.M.	355	209	564		
6 A.M.	715	389	1104		
7 A.M.	895	768	1663		
8 A.M.	803	703	1506		
9 A.M.	725	630	1355		
10 A.M.	698	632	1330		
11 A.M.	769	684	1453		
12 P.M.	855	838	1693		
1 P.M.	844	876	1720		
2 P.M.	930	865	1795		
3 P.M.	970	966	1936		
4 P.M.	1033	1046	2079		
5 P.M.	1055	1175	2230		
6 P.M.	822	939	1761		
7 P.M.	671	654	1325		
8 P.M.	545	451	996		
9 P.M.	336	293	629		
10 P.M.	195	170	365		
11 P.M.	113	131	244		
Total	13682	12696	26378		

Wednesday *September 11, 2019*

US 190 BUS (Shortcut Highway) between Nellie Drive & Town Center Parkway

The City of Slidell, St. Tammany Parish, Louisiana

Major Street: EB & WB

US 190 BUS (Shortcut Highway) (EB)

US 190 BUS (Shortcut Highway) (WB)

Time Start	Major Street				
	EB	WB	Total		
12 A.M.	75	66	141		
1 A.M.	46	33	79		
2 A.M.	53	22	75		
3 A.M.	46	26	72		
4 A.M.	139	70	209		
5 A.M.	356	197	553		
6 A.M.	656	386	1042		
7 A.M.	887	775	1662		
8 A.M.	829	765	1594		
9 A.M.	732	609	1341		
10 A.M.	792	601	1393		
11 A.M.	781	724	1505		
12 P.M.	899	799	1698		
1 P.M.	917	860	1777		
2 P.M.	938	851	1789		
3 P.M.	1033	1044	2077		
4 P.M.	1075	1090	2165		
5 P.M.	1032	1134	2166		
6 P.M.	816	853	1669		
7 P.M.	676	654	1330		
8 P.M.	437	452	889		
9 P.M.	315	323	638		
10 P.M.	181	171	352		
11 P.M.	98	136	234		
Total	13809	12641	26450		

Tuesday - Wednesday (Average)

September 10-11, 2019

US 190 BUS (Shortcut Highway) between Nellie Drive & Town Center Parkway

The City of Slidell, St. Tammany Parish, Louisiana

Major Street: EB & WB

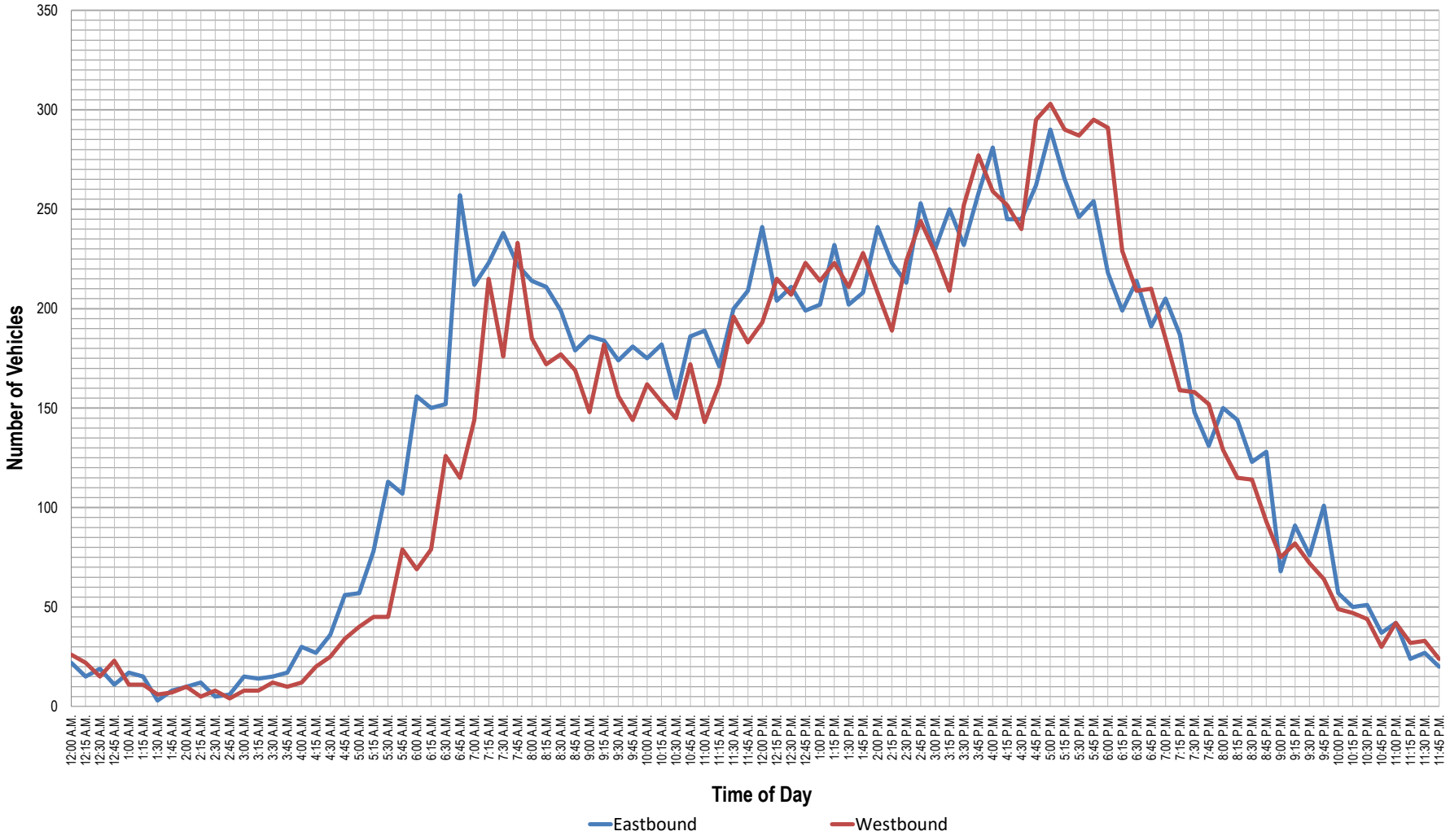
US 190 BUS (Shortcut Highway) (EB)

US 190 BUS (Shortcut Highway) (WB)

Time Start	Major Street				
	EB	WB	Total		
12 A.M.	71	76	147		
1 A.M.	45	34	79		
2 A.M.	43	25	68		
3 A.M.	54	32	86		
4 A.M.	144	81	225		
5 A.M.	356	203	559		
6 A.M.	686	388	1073		
7 A.M.	891	772	1663		
8 A.M.	816	734	1550		
9 A.M.	729	620	1348		
10 A.M.	745	617	1362		
11 A.M.	775	704	1479		
12 P.M.	877	819	1696		
1 P.M.	881	868	1749		
2 P.M.	934	858	1792		
3 P.M.	1002	1005	2007		
4 P.M.	1054	1068	2122		
5 P.M.	1044	1155	2198		
6 P.M.	819	896	1715		
7 P.M.	674	654	1328		
8 P.M.	491	452	943		
9 P.M.	326	308	634		
10 P.M.	188	171	359		
11 P.M.	106	134	239		
Total	13746	12669	26414		

US 190 BUS (Shortcut Highway) between Nellie Drive & Town Center Parkway

The City of Slidell, St. Tammany Parish



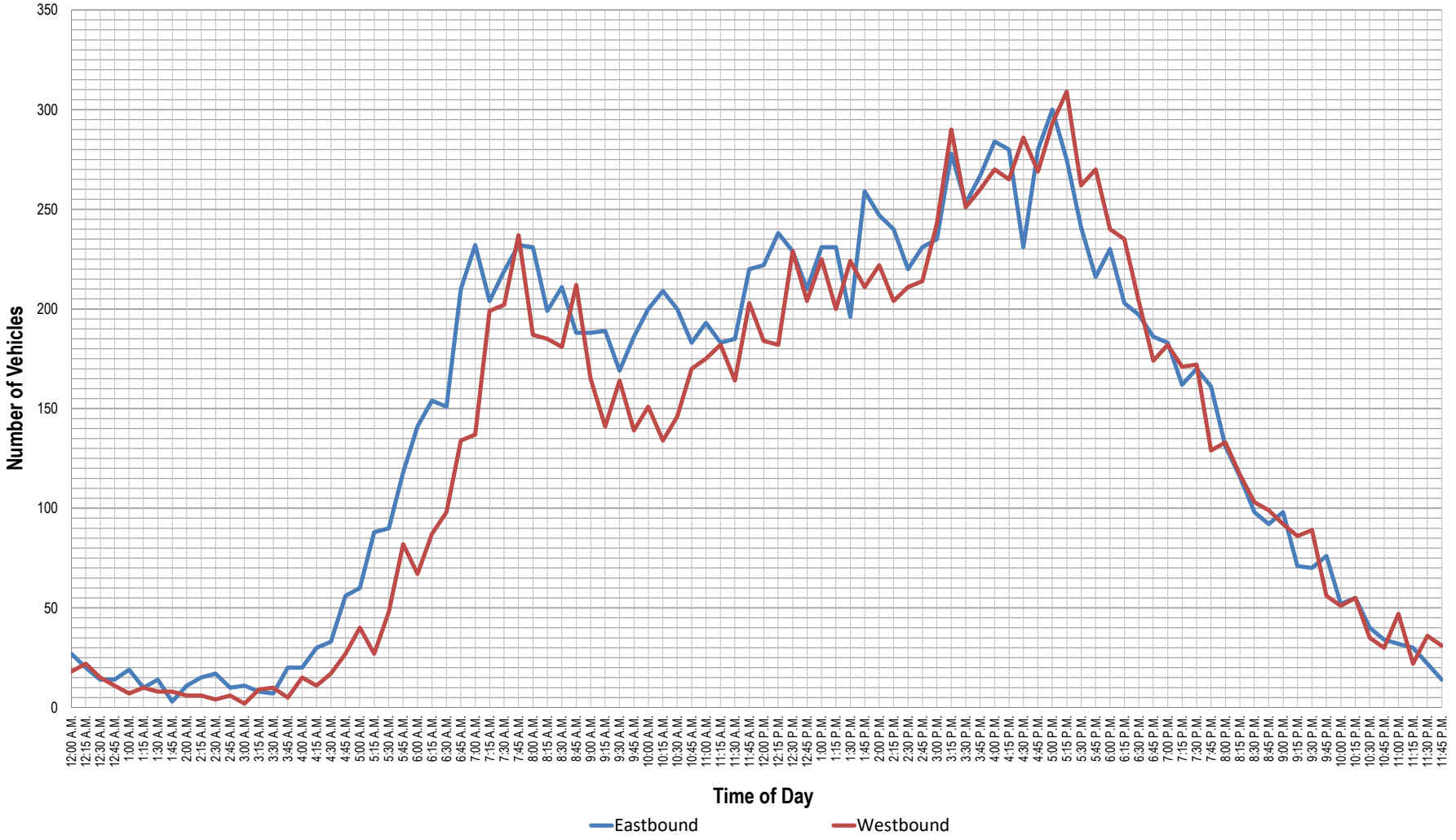
Tuesday
September 10, 2019

24-Hour, 15-Minute Interval Traffic Volumes

Eastbound US 190 BUS (Shortcut Highway)
Westbound US 190 BUS (Shortcut Highway)

US 190 BUS (Shortcut Highway) between Nellie Drive & Town Center Parkway

The City of Slidell, St. Tammany Parish



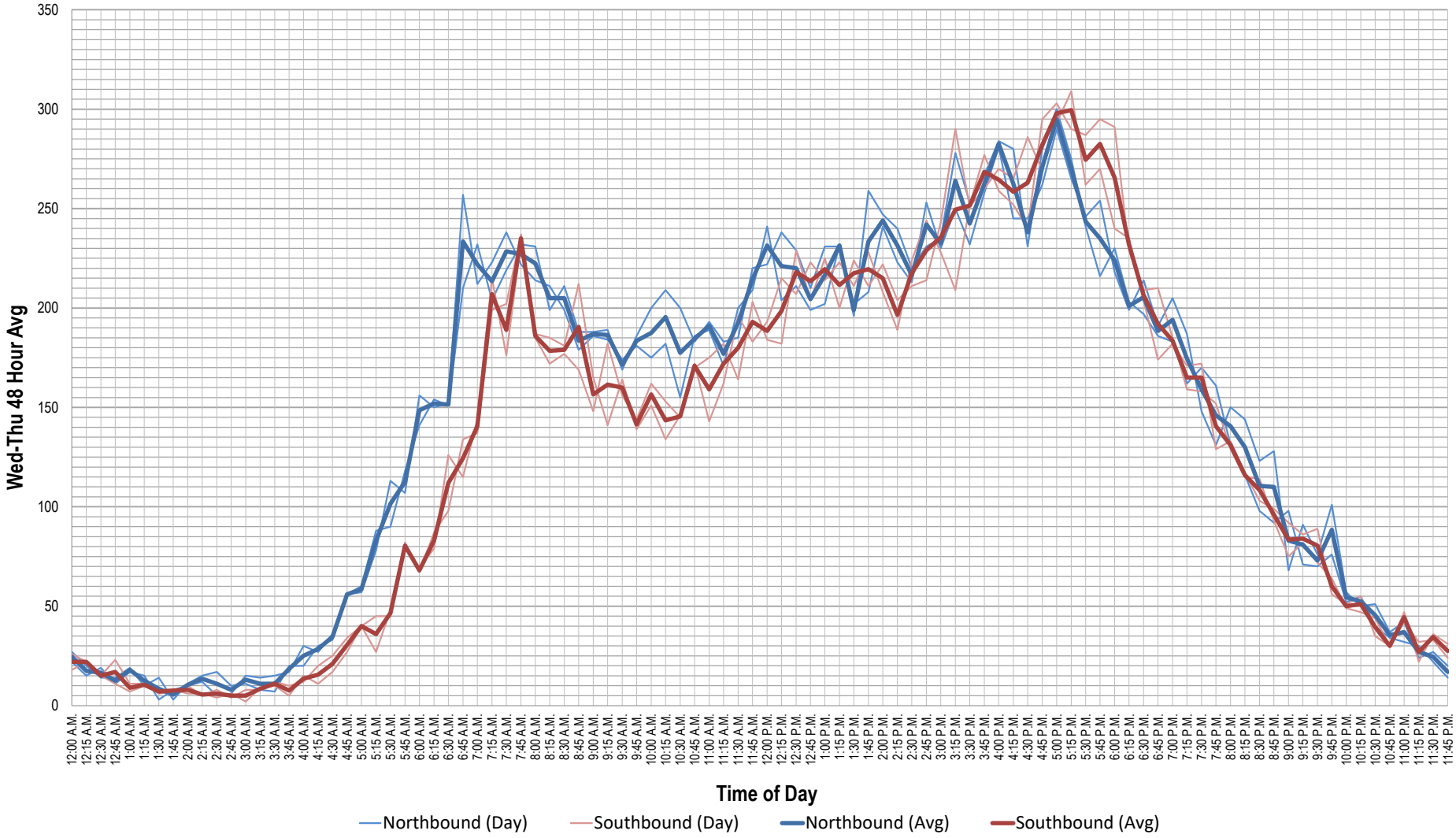
Wednesday
September 11, 2019

24-Hour, 15-Minute Interval Traffic Volumes

Eastbound US 190 BUS (Shortcut Highway)
Westbound US 190 BUS (Shortcut Highway)

US 190 BUS (Shortcut Highway) between Nellie Drive & Town Center Parkway

The City of Slidell, St. Tammany Parish



Tuesday - Wednesday (48-Hour Average)

September 10-11, 2019

24-Hour, 15-Minute Interval Traffic Volumes

Eastbound US 190 BUS (Shortcut Highway)
Westbound US 190 BUS (Shortcut Highway)

Tuesday *September 10, 2019*

US 190 BUS (Shortcut Highway) between Morrow Drive & Hoover Drive

The City of Slidell, St. Tammany Parish, Louisiana

Major Street: EB & WB
US 190 BUS (Shortcut Highway) (EB)
US 190 BUS (Shortcut Highway) (WB)

Time Start	Major Street				
	EB	WB	Total		
12 A.M.	55	42	97		
1 A.M.	28	14	42		
2 A.M.	19	14	33		
3 A.M.	24	48	72		
4 A.M.	32	139	171		
5 A.M.	73	335	408		
6 A.M.	379	582	961		
7 A.M.	514	813	1327		
8 A.M.	456	703	1159		
9 A.M.	393	580	973		
10 A.M.	402	509	911		
11 A.M.	473	538	1011		
12 P.M.	502	635	1137		
1 P.M.	530	574	1104		
2 P.M.	691	679	1370		
3 P.M.	782	757	1539		
4 P.M.	938	781	1719		
5 P.M.	1018	783	1801		
6 P.M.	767	467	1234		
7 P.M.	597	294	891		
8 P.M.	458	189	647		
9 P.M.	232	170	402		
10 P.M.	133	131	264		
11 P.M.	92	73	165		
Total	9588	9850	19438		

Wednesday *September 11, 2019*

US 190 BUS (Shortcut Highway) between Morrow Drive & Hoover Drive

The City of Slidell, St. Tammany Parish, Louisiana

Major Street: EB & WB
US 190 BUS (Shortcut Highway) (EB)
US 190 BUS (Shortcut Highway) (WB)

Time Start	Major Street				
	EB	WB	Total		
12 A.M.	46	33	79		
1 A.M.	23	20	43		
2 A.M.	11	17	28		
3 A.M.	18	40	58		
4 A.M.	32	144	176		
5 A.M.	75	326	401		
6 A.M.	342	560	902		
7 A.M.	559	807	1366		
8 A.M.	465	717	1182		
9 A.M.	397	573	970		
10 A.M.	452	514	966		
11 A.M.	482	511	993		
12 P.M.	651	592	1243		
1 P.M.	599	558	1157		
2 P.M.	767	685	1452		
3 P.M.	813	762	1575		
4 P.M.	962	745	1707		
5 P.M.	1054	821	1875		
6 P.M.	861	668	1529		
7 P.M.	643	558	1201		
8 P.M.	426	322	748		
9 P.M.	262	227	489		
10 P.M.	143	100	243		
11 P.M.	85	38	123		
Total	10168	10338	20506		

Tuesday - Wednesday (Average)

September 10-11, 2019

US 190 BUS (Shortcut Highway) between Morrow Drive & Hoover Drive

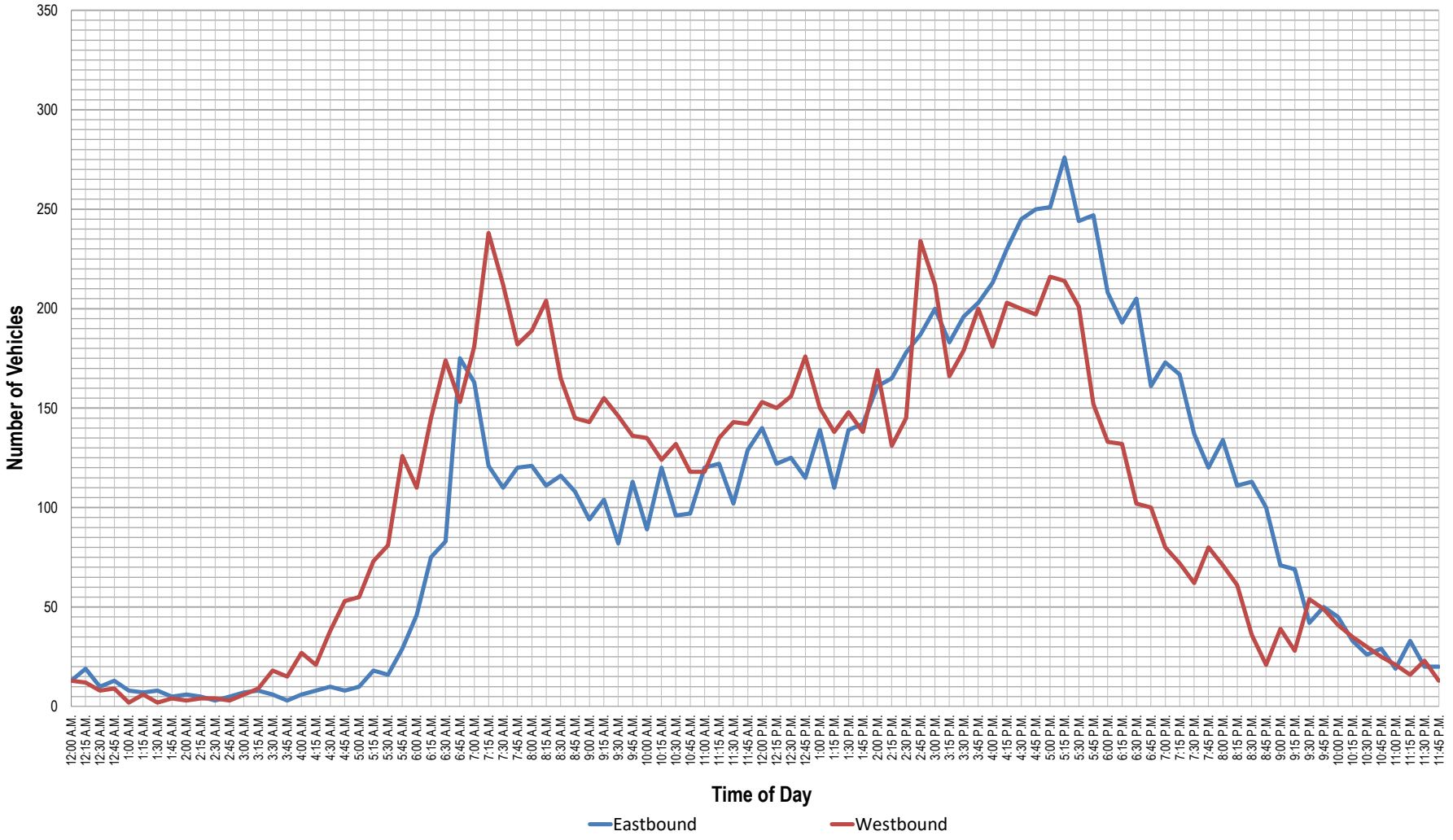
The City of Slidell, St. Tammany Parish, Louisiana

Major Street: EB & WB
US 190 BUS (Shortcut Highway) (EB)
US 190 BUS (Shortcut Highway) (WB)

Time Start	Major Street				
	EB	WB	Total		
12 A.M.	51	38	88		
1 A.M.	26	17	43		
2 A.M.	15	16	31		
3 A.M.	21	44	65		
4 A.M.	32	142	174		
5 A.M.	74	331	405		
6 A.M.	361	571	932		
7 A.M.	537	810	1347		
8 A.M.	461	710	1171		
9 A.M.	395	577	972		
10 A.M.	427	512	939		
11 A.M.	478	525	1002		
12 P.M.	577	614	1190		
1 P.M.	565	566	1131		
2 P.M.	729	682	1411		
3 P.M.	798	760	1557		
4 P.M.	950	763	1713		
5 P.M.	1036	802	1838		
6 P.M.	814	568	1382		
7 P.M.	620	426	1046		
8 P.M.	442	256	698		
9 P.M.	247	199	446		
10 P.M.	138	116	254		
11 P.M.	89	56	144		
Total	9878	10094	19972		

US 190 BUS (Shortcut Highway) between Morrow Drive & Hoover Drive

The City of Slidell, St. Tammany Parish



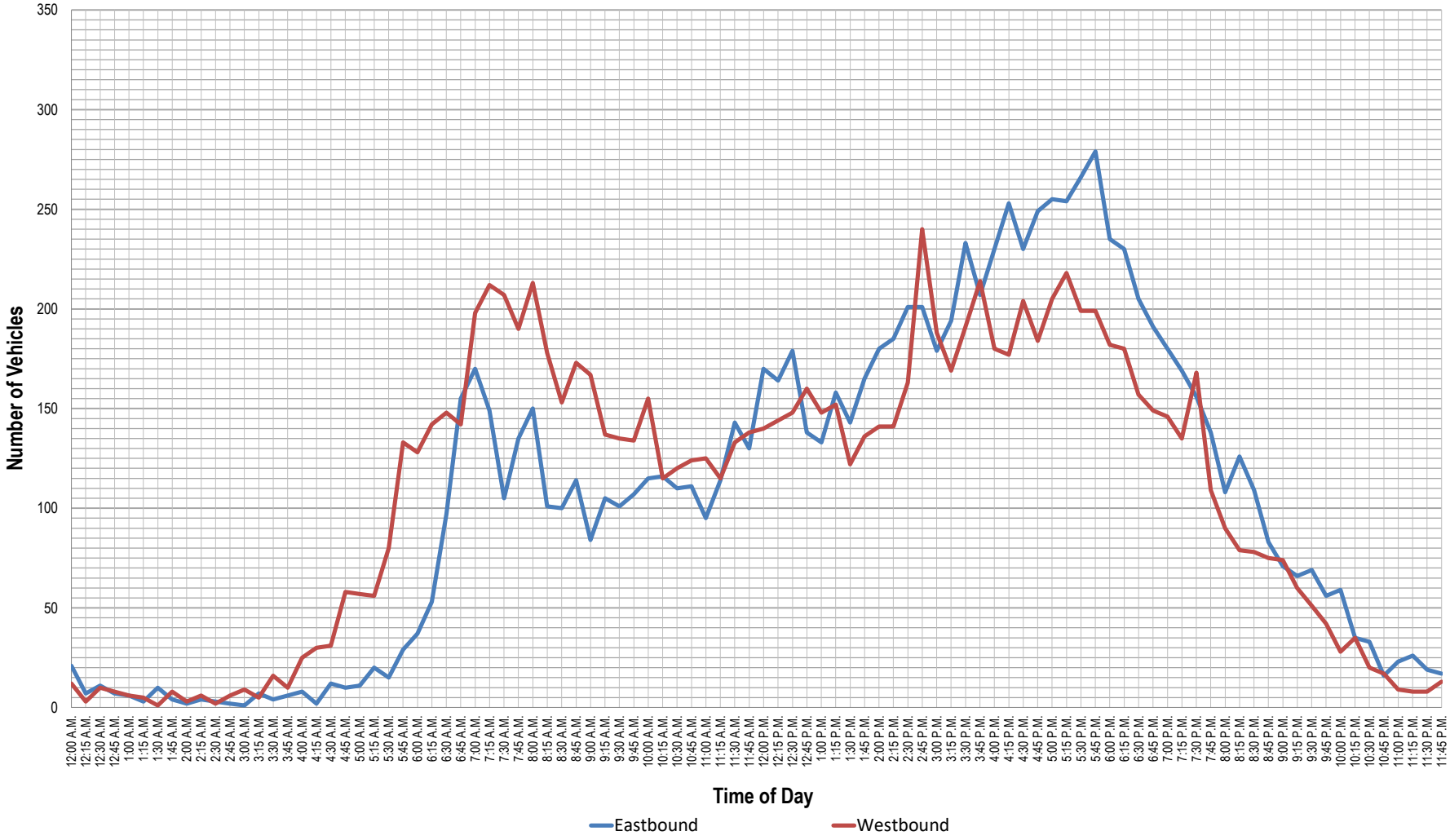
Tuesday
September 10, 2019

24-Hour, 15-Minute Interval Traffic Volumes

Eastbound US 190 BUS (Shortcut Highway)
Westbound US 190 BUS (Shortcut Highway)

US 190 BUS (Shortcut Highway) between Morrow Drive & Hoover Drive

The City of Slidell, St. Tammany Parish



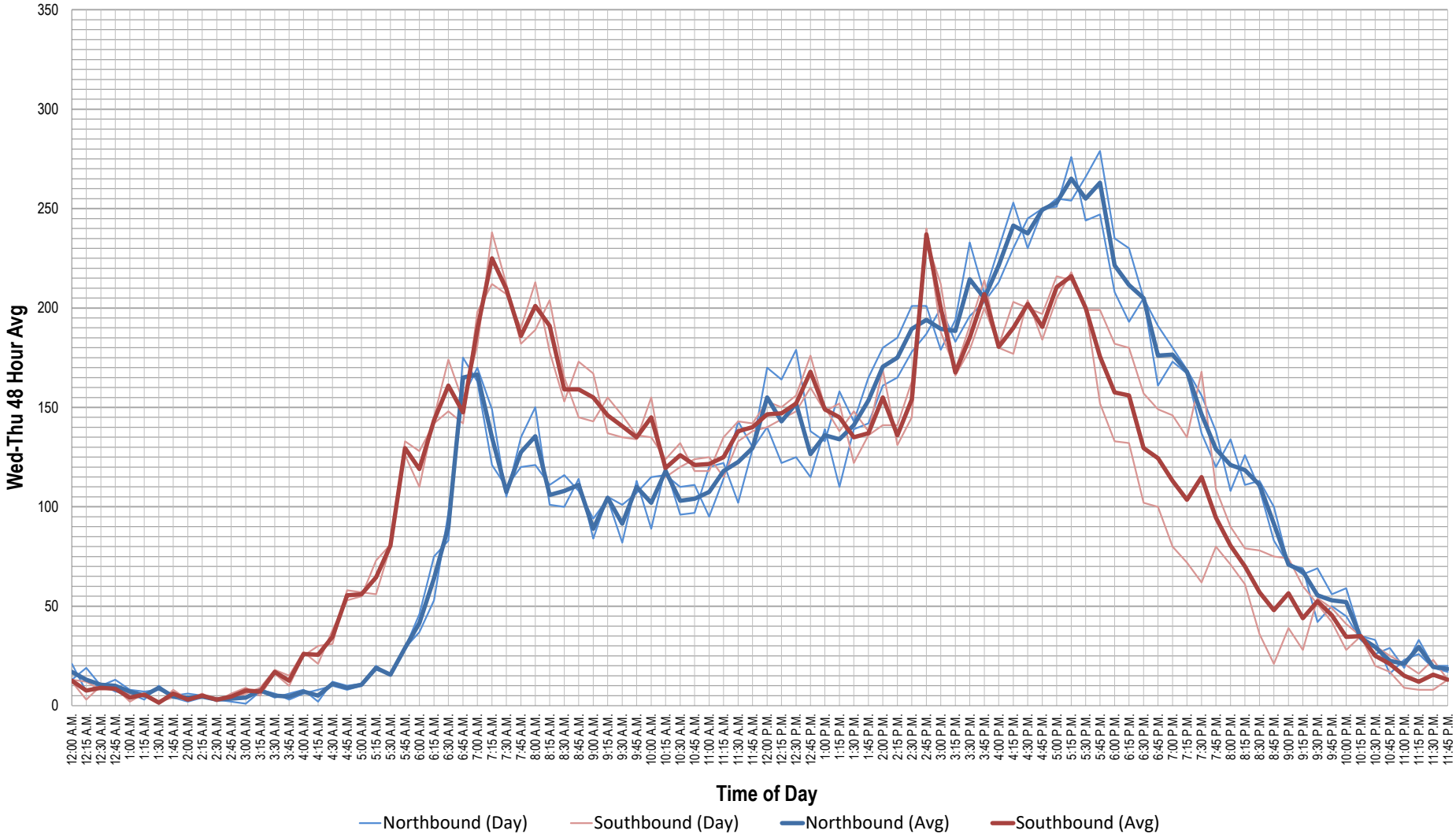
Wednesday
September 11, 2019

24-Hour, 15-Minute Interval Traffic Volumes

Eastbound US 190 BUS (Shortcut Highway)
Westbound US 190 BUS (Shortcut Highway)

US 190 BUS (Shortcut Highway) between Morrow Drive & Hoover Drive

The City of Slidell, St. Tammany Parish



Tuesday - Wednesday (48-Hour Average)

September 10-11, 2019

24-Hour, 15-Minute Interval Traffic Volumes

Eastbound **US 190 BUS (Shortcut Highway)**
Westbound **US 190 BUS (Shortcut Highway)**

Unit Type: PicoCount 4500 V2.35
SN: 16122110
ID: JVB 4500 Counter 1

Location: US 190 BUS (Shortcut Highway)
Comment: between Nellie Drive and Town Center parkway

Study Date: Tuesday, September 10, 2019

Time Start	Eastbound	Westbound	Total	Time Start	Eastbound	Westbound	Total
12:00 AM	22	26	48	12:00 PM	241	193	434
12:15 AM	15	22	37	12:15 PM	204	215	419
12:30 AM	19	15	34	12:30 PM	211	207	418
12:45 AM	11	23	34	12:45 PM	199	223	422
1:00 AM	17	11	28	1:00 PM	202	214	416
1:15 AM	15	11	26	1:15 PM	232	223	455
1:30 AM	3	6	9	1:30 PM	202	211	413
1:45 AM	8	7	15	1:45 PM	208	228	436
2:00 AM	10	10	20	2:00 PM	241	208	449
2:15 AM	12	5	17	2:15 PM	223	189	412
2:30 AM	5	8	13	2:30 PM	213	224	437
2:45 AM	6	4	10	2:45 PM	253	244	497
3:00 AM	15	8	23	3:00 PM	230	228	458
3:15 AM	14	8	22	3:15 PM	250	209	459
3:30 AM	15	12	27	3:30 PM	232	252	484
3:45 AM	17	10	27	3:45 PM	258	277	535
4:00 AM	30	12	42	4:00 PM	281	259	540
4:15 AM	27	20	47	4:15 PM	245	252	497
4:30 AM	36	25	61	4:30 PM	245	240	485
4:45 AM	56	34	90	4:45 PM	262	295	557
5:00 AM	57	40	97	5:00 PM	290	303	593
5:15 AM	78	45	123	5:15 PM	265	290	555
5:30 AM	113	45	158	5:30 PM	246	287	533
5:45 AM	107	79	186	5:45 PM	254	295	549
6:00 AM	156	69	225	6:00 PM	218	291	509
6:15 AM	150	79	229	6:15 PM	199	229	428
6:30 AM	152	126	278	6:30 PM	214	209	423
6:45 AM	257	115	372	6:45 PM	191	210	401
7:00 AM	212	144	356	7:00 PM	205	185	390
7:15 AM	223	215	438	7:15 PM	187	159	346
7:30 AM	238	176	414	7:30 PM	148	158	306
7:45 AM	222	233	455	7:45 PM	131	152	283
8:00 AM	214	185	399	8:00 PM	150	129	279
8:15 AM	211	172	383	8:15 PM	144	115	259
8:30 AM	199	177	376	8:30 PM	123	114	237
8:45 AM	179	169	348	8:45 PM	128	93	221
9:00 AM	186	148	334	9:00 PM	68	75	143
9:15 AM	184	182	366	9:15 PM	91	82	173
9:30 AM	174	156	330	9:30 PM	76	72	148
9:45 AM	181	144	325	9:45 PM	101	64	165
10:00 AM	175	162	337	10:00 PM	57	49	106
10:15 AM	182	153	335	10:15 PM	50	47	97
10:30 AM	155	145	300	10:30 PM	51	44	95
10:45 AM	186	172	358	10:45 PM	37	30	67
11:00 AM	189	143	332	11:00 PM	42	42	84
11:15 AM	171	162	333	11:15 PM	24	32	56
11:30 AM	200	196	396	11:30 PM	27	33	60
11:45 AM	209	183	392	11:45 PM	20	24	44
Totals	5313	4292	9605	Totals	8369	8404	16773
				24-Hour Total	**13682**	**12696**	**26378**

Unit Type: PicoCount 4500 V2.35
SN: 16122110
ID: JVB 4500 Counter 1

Location: US 190 BUS (Shortcut Highway)
Comment: between Nellie Drive and Town Center parkway

Study Date: Wednesday, September 11, 2019

Time Start	Eastbound	Westbound	Total	Time Start	Eastbound	Westbound	Total
12:00 AM	27	18	45	12:00 PM	222	184	406
12:15 AM	20	22	42	12:15 PM	238	182	420
12:30 AM	14	15	29	12:30 PM	229	229	458
12:45 AM	14	11	25	12:45 PM	210	204	414
1:00 AM	19	7	26	1:00 PM	231	225	456
1:15 AM	10	10	20	1:15 PM	231	200	431
1:30 AM	14	8	22	1:30 PM	196	224	420
1:45 AM	3	8	11	1:45 PM	259	211	470
2:00 AM	11	6	17	2:00 PM	247	222	469
2:15 AM	15	6	21	2:15 PM	240	204	444
2:30 AM	17	4	21	2:30 PM	220	211	431
2:45 AM	10	6	16	2:45 PM	231	214	445
3:00 AM	11	2	13	3:00 PM	235	243	478
3:15 AM	8	9	17	3:15 PM	278	290	568
3:30 AM	7	10	17	3:30 PM	253	251	504
3:45 AM	20	5	25	3:45 PM	267	260	527
4:00 AM	20	15	35	4:00 PM	284	270	554
4:15 AM	30	11	41	4:15 PM	280	265	545
4:30 AM	33	17	50	4:30 PM	231	286	517
4:45 AM	56	27	83	4:45 PM	280	269	549
5:00 AM	60	40	100	5:00 PM	300	293	593
5:15 AM	88	27	115	5:15 PM	275	309	584
5:30 AM	90	48	138	5:30 PM	241	262	503
5:45 AM	118	82	200	5:45 PM	216	270	486
6:00 AM	141	67	208	6:00 PM	230	240	470
6:15 AM	154	87	241	6:15 PM	203	235	438
6:30 AM	151	98	249	6:30 PM	197	204	401
6:45 AM	210	134	344	6:45 PM	186	174	360
7:00 AM	232	137	369	7:00 PM	183	182	365
7:15 AM	204	199	403	7:15 PM	162	171	333
7:30 AM	219	202	421	7:30 PM	170	172	342
7:45 AM	232	237	469	7:45 PM	161	129	290
8:00 AM	231	187	418	8:00 PM	131	133	264
8:15 AM	199	185	384	8:15 PM	116	117	233
8:30 AM	211	181	392	8:30 PM	98	103	201
8:45 AM	188	212	400	8:45 PM	92	99	191
9:00 AM	188	165	353	9:00 PM	98	92	190
9:15 AM	189	141	330	9:15 PM	71	86	157
9:30 AM	169	164	333	9:30 PM	70	89	159
9:45 AM	186	139	325	9:45 PM	76	56	132
10:00 AM	200	151	351	10:00 PM	52	51	103
10:15 AM	209	134	343	10:15 PM	55	55	110
10:30 AM	200	146	346	10:30 PM	40	35	75
10:45 AM	183	170	353	10:45 PM	34	30	64
11:00 AM	193	175	368	11:00 PM	32	47	79
11:15 AM	183	182	365	11:15 PM	30	22	52
11:30 AM	185	164	349	11:30 PM	22	36	58
11:45 AM	220	203	423	11:45 PM	14	31	45
Totals	5392	4274	9666	Totals	8417	8367	16784
				24-Hour Total	**13809**	**12641**	**26450**

Unit Type: PicoCount 2500 V2.40
SN: 18012369
ID: JVB 2500 Counter 1

Location: US 190 BUS (Shortcut Highway)
Comment: between Morrow Drive and Hoover Drive

Study Date: Tuesday, September 10, 2019

Time Start	Eastbound	Total	Time Start	Eastbound	Total
12:00 AM	13	13	12:00 PM	140	140
12:15 AM	19	19	12:15 PM	122	122
12:30 AM	10	10	12:30 PM	125	125
12:45 AM	13	13	12:45 PM	115	115
1:00 AM	8	8	1:00 PM	139	139
1:15 AM	7	7	1:15 PM	110	110
1:30 AM	8	8	1:30 PM	139	139
1:45 AM	5	5	1:45 PM	142	142
2:00 AM	6	6	2:00 PM	161	161
2:15 AM	5	5	2:15 PM	165	165
2:30 AM	3	3	2:30 PM	178	178
2:45 AM	5	5	2:45 PM	187	187
3:00 AM	7	7	3:00 PM	200	200
3:15 AM	8	8	3:15 PM	183	183
3:30 AM	6	6	3:30 PM	196	196
3:45 AM	3	3	3:45 PM	203	203
4:00 AM	6	6	4:00 PM	213	213
4:15 AM	8	8	4:15 PM	230	230
4:30 AM	10	10	4:30 PM	245	245
4:45 AM	8	8	4:45 PM	250	250
5:00 AM	10	10	5:00 PM	251	251
5:15 AM	18	18	5:15 PM	276	276
5:30 AM	16	16	5:30 PM	244	244
5:45 AM	29	29	5:45 PM	247	247
6:00 AM	46	46	6:00 PM	208	208
6:15 AM	75	75	6:15 PM	193	193
6:30 AM	83	83	6:30 PM	205	205
6:45 AM	175	175	6:45 PM	161	161
7:00 AM	163	163	7:00 PM	173	173
7:15 AM	121	121	7:15 PM	167	167
7:30 AM	110	110	7:30 PM	137	137
7:45 AM	120	120	7:45 PM	120	120
8:00 AM	121	121	8:00 PM	134	134
8:15 AM	111	111	8:15 PM	111	111
8:30 AM	116	116	8:30 PM	113	113
8:45 AM	108	108	8:45 PM	100	100
9:00 AM	94	94	9:00 PM	71	71
9:15 AM	104	104	9:15 PM	69	69
9:30 AM	82	82	9:30 PM	42	42
9:45 AM	113	113	9:45 PM	50	50
10:00 AM	89	89	10:00 PM	45	45
10:15 AM	120	120	10:15 PM	33	33
10:30 AM	96	96	10:30 PM	26	26
10:45 AM	97	97	10:45 PM	29	29
11:00 AM	120	120	11:00 PM	19	19
11:15 AM	122	122	11:15 PM	33	33
11:30 AM	102	102	11:30 PM	20	20
11:45 AM	129	129	11:45 PM	20	20
Totals	2848	2848	Totals	6740	6740
			24-Hour Total	**9588**	**0**	**9588**

Unit Type: PicoCount 2500 V2.40
SN: 18012369
ID: JVB 2500 Counter 1

Location: US 190 BUS (Shortcut Highway)
Comment: between Morrow Drive and Hoover Drive

Study Date: Wednesday, September 11, 2019

Time Start	Eastbound	Total	Time Start	Eastbound	Total
12:00 AM	21	21	12:00 PM	170	170
12:15 AM	7	7	12:15 PM	164	164
12:30 AM	11	11	12:30 PM	179	179
12:45 AM	7	7	12:45 PM	138	138
1:00 AM	6	6	1:00 PM	133	133
1:15 AM	3	3	1:15 PM	158	158
1:30 AM	10	10	1:30 PM	143	143
1:45 AM	4	4	1:45 PM	165	165
2:00 AM	2	2	2:00 PM	180	180
2:15 AM	4	4	2:15 PM	185	185
2:30 AM	3	3	2:30 PM	201	201
2:45 AM	2	2	2:45 PM	201	201
3:00 AM	1	1	3:00 PM	179	179
3:15 AM	7	7	3:15 PM	194	194
3:30 AM	4	4	3:30 PM	233	233
3:45 AM	6	6	3:45 PM	207	207
4:00 AM	8	8	4:00 PM	230	230
4:15 AM	2	2	4:15 PM	253	253
4:30 AM	12	12	4:30 PM	230	230
4:45 AM	10	10	4:45 PM	249	249
5:00 AM	11	11	5:00 PM	255	255
5:15 AM	20	20	5:15 PM	254	254
5:30 AM	15	15	5:30 PM	266	266
5:45 AM	29	29	5:45 PM	279	279
6:00 AM	37	37	6:00 PM	235	235
6:15 AM	53	53	6:15 PM	230	230
6:30 AM	97	97	6:30 PM	205	205
6:45 AM	155	155	6:45 PM	191	191
7:00 AM	170	170	7:00 PM	180	180
7:15 AM	149	149	7:15 PM	169	169
7:30 AM	105	105	7:30 PM	156	156
7:45 AM	135	135	7:45 PM	138	138
8:00 AM	150	150	8:00 PM	108	108
8:15 AM	101	101	8:15 PM	126	126
8:30 AM	100	100	8:30 PM	109	109
8:45 AM	114	114	8:45 PM	83	83
9:00 AM	84	84	9:00 PM	71	71
9:15 AM	105	105	9:15 PM	66	66
9:30 AM	101	101	9:30 PM	69	69
9:45 AM	107	107	9:45 PM	56	56
10:00 AM	115	115	10:00 PM	59	59
10:15 AM	116	116	10:15 PM	35	35
10:30 AM	110	110	10:30 PM	33	33
10:45 AM	111	111	10:45 PM	16	16
11:00 AM	95	95	11:00 PM	23	23
11:15 AM	114	114	11:15 PM	26	26
11:30 AM	143	143	11:30 PM	19	19
11:45 AM	130	130	11:45 PM	17	17
Totals	2902	2902	Totals	7266	7266
			24-Hour Total	**10168**	**10168**

Unit Type: PicoCount 4500 V2.35
SN: 16122109
ID: JVB 4500 Counter 2

Location: US 190 BUS (Shortcut Highway)
Comment: between Morrow Drive and Hoover Drive

Study Date: Tuesday, September 10, 2019

Time Start	Westbound	Total	Time Start	Westbound	Total
12:00 AM	13	13	12:00 PM	153	153
12:15 AM	12	12	12:15 PM	150	150
12:30 AM	8	8	12:30 PM	156	156
12:45 AM	9	9	12:45 PM	176	176
1:00 AM	2	2	1:00 PM	150	150
1:15 AM	6	6	1:15 PM	138	138
1:30 AM	2	2	1:30 PM	148	148
1:45 AM	4	4	1:45 PM	138	138
2:00 AM	3	3	2:00 PM	169	169
2:15 AM	4	4	2:15 PM	131	131
2:30 AM	4	4	2:30 PM	145	145
2:45 AM	3	3	2:45 PM	234	234
3:00 AM	6	6	3:00 PM	212	212
3:15 AM	9	9	3:15 PM	166	166
3:30 AM	18	18	3:30 PM	179	179
3:45 AM	15	15	3:45 PM	200	200
4:00 AM	27	27	4:00 PM	181	181
4:15 AM	21	21	4:15 PM	203	203
4:30 AM	38	38	4:30 PM	200	200
4:45 AM	53	53	4:45 PM	197	197
5:00 AM	55	55	5:00 PM	216	216
5:15 AM	73	73	5:15 PM	214	214
5:30 AM	81	81	5:30 PM	201	201
5:45 AM	126	126	5:45 PM	152	152
6:00 AM	110	110	6:00 PM	133	133
6:15 AM	145	145	6:15 PM	132	132
6:30 AM	174	174	6:30 PM	102	102
6:45 AM	153	153	6:45 PM	100	100
7:00 AM	181	181	7:00 PM	80	80
7:15 AM	238	238	7:15 PM	72	72
7:30 AM	212	212	7:30 PM	62	62
7:45 AM	182	182	7:45 PM	80	80
8:00 AM	189	189	8:00 PM	71	71
8:15 AM	204	204	8:15 PM	61	61
8:30 AM	165	165	8:30 PM	36	36
8:45 AM	145	145	8:45 PM	21	21
9:00 AM	143	143	9:00 PM	39	39
9:15 AM	155	155	9:15 PM	28	28
9:30 AM	146	146	9:30 PM	54	54
9:45 AM	136	136	9:45 PM	49	49
10:00 AM	135	135	10:00 PM	41	41
10:15 AM	124	124	10:15 PM	35	35
10:30 AM	132	132	10:30 PM	30	30
10:45 AM	118	118	10:45 PM	25	25
11:00 AM	118	118	11:00 PM	21	21
11:15 AM	135	135	11:15 PM	16	16
11:30 AM	143	143	11:30 PM	23	23
11:45 AM	142	142	11:45 PM	13	13
Totals	4317	4317	Totals	5533	5533
			24-Hour Total	**9850**	**0**	**9850**

Unit Type: PicoCount 4500 V2.35
SN: 16122109
ID: JVB 4500 Counter 2

Location: US 190 BUS (Shortcut Highway)
Comment: between Morrow Drive and Hoover Drive

Study Date: Wednesday, September 11, 2019

Time Start	Westbound	Total	Time Start	Westbound	Total
12:00 AM	12	12	12:00 PM	140	140
12:15 AM	3	3	12:15 PM	144	144
12:30 AM	10	10	12:30 PM	148	148
12:45 AM	8	8	12:45 PM	160	160
1:00 AM	6	6	1:00 PM	148	148
1:15 AM	5	5	1:15 PM	152	152
1:30 AM	1	1	1:30 PM	122	122
1:45 AM	8	8	1:45 PM	136	136
2:00 AM	3	3	2:00 PM	141	141
2:15 AM	6	6	2:15 PM	141	141
2:30 AM	2	2	2:30 PM	163	163
2:45 AM	6	6	2:45 PM	240	240
3:00 AM	9	9	3:00 PM	188	188
3:15 AM	5	5	3:15 PM	169	169
3:30 AM	16	16	3:30 PM	191	191
3:45 AM	10	10	3:45 PM	214	214
4:00 AM	25	25	4:00 PM	180	180
4:15 AM	30	30	4:15 PM	177	177
4:30 AM	31	31	4:30 PM	204	204
4:45 AM	58	58	4:45 PM	184	184
5:00 AM	57	57	5:00 PM	205	205
5:15 AM	56	56	5:15 PM	218	218
5:30 AM	80	80	5:30 PM	199	199
5:45 AM	133	133	5:45 PM	199	199
6:00 AM	128	128	6:00 PM	182	182
6:15 AM	142	142	6:15 PM	180	180
6:30 AM	148	148	6:30 PM	157	157
6:45 AM	142	142	6:45 PM	149	149
7:00 AM	198	198	7:00 PM	146	146
7:15 AM	212	212	7:15 PM	135	135
7:30 AM	207	207	7:30 PM	168	168
7:45 AM	190	190	7:45 PM	109	109
8:00 AM	213	213	8:00 PM	90	90
8:15 AM	178	178	8:15 PM	79	79
8:30 AM	153	153	8:30 PM	78	78
8:45 AM	173	173	8:45 PM	75	75
9:00 AM	167	167	9:00 PM	74	74
9:15 AM	137	137	9:15 PM	60	60
9:30 AM	135	135	9:30 PM	51	51
9:45 AM	134	134	9:45 PM	42	42
10:00 AM	155	155	10:00 PM	28	28
10:15 AM	115	115	10:15 PM	35	35
10:30 AM	120	120	10:30 PM	20	20
10:45 AM	124	124	10:45 PM	17	17
11:00 AM	125	125	11:00 PM	9	9
11:15 AM	115	115	11:15 PM	8	8
11:30 AM	133	133	11:30 PM	8	8
11:45 AM	138	138	11:45 PM	13	13
Totals	4262	4262	Totals	6076	6076
			24-Hour Total	**10338**	**10338**

J. V. Burkes & Associates

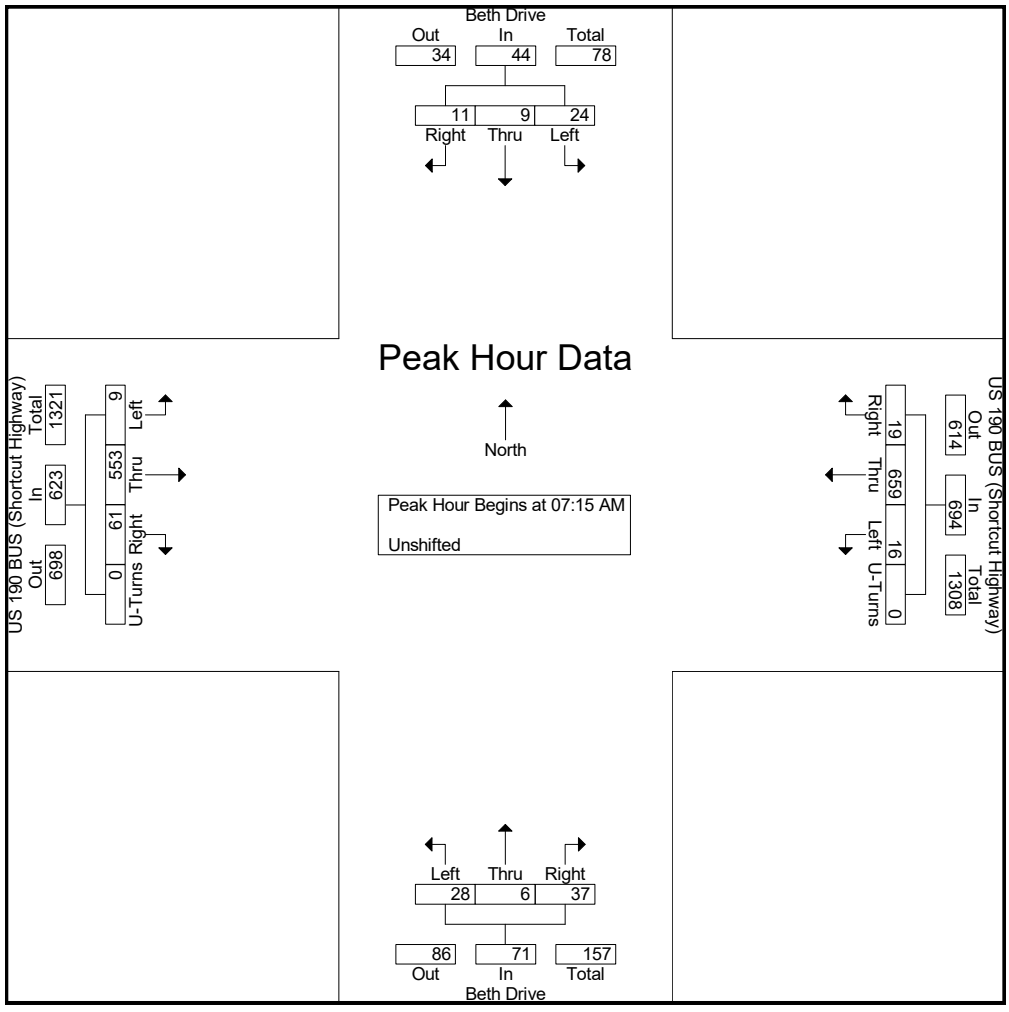
1805 Shortcut Highway
Slidell, LA, 70458

US 190 BUS (Shortcut Highway) @ Beth Drive

The City of Slidell, St. Tammany Parish, Louisiana

File Name : AM PEAK HOUR 091819
Site Code : 00000000
Start Date : 9/18/2019
Page No : 2

	Beth Drive From North				US 190 BUS (Shortcut Highway) From East					Beth Drive From South				US 190 BUS (Shortcut Highway) From West					
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	U-Turns	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	U-Turns	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1																			
Peak Hour for Entire Intersection Begins at 07:15 AM																			
07:15 AM	2	1	5	8	4	140	3	0	147	11	1	7	19	10	117	4	0	131	305
07:30 AM	2	1	5	8	5	160	3	0	168	11	2	8	21	22	129	3	0	154	351
07:45 AM	4	5	10	19	3	187	6	0	196	10	2	8	20	12	137	0	0	149	384
08:00 AM	3	2	4	9	7	172	4	0	183	5	1	5	11	17	170	2	0	189	392
Total Volume	11	9	24	44	19	659	16	0	694	37	6	28	71	61	553	9	0	623	1432
% App. Total	25	20.5	54.5		2.7	95	2.3	0		52.1	8.5	39.4		9.8	88.8	1.4	0		
PHF	.688	.450	.600	.579	.679	.881	.667	.000	.885	.841	.750	.875	.845	.693	.813	.563	.000	.824	.913



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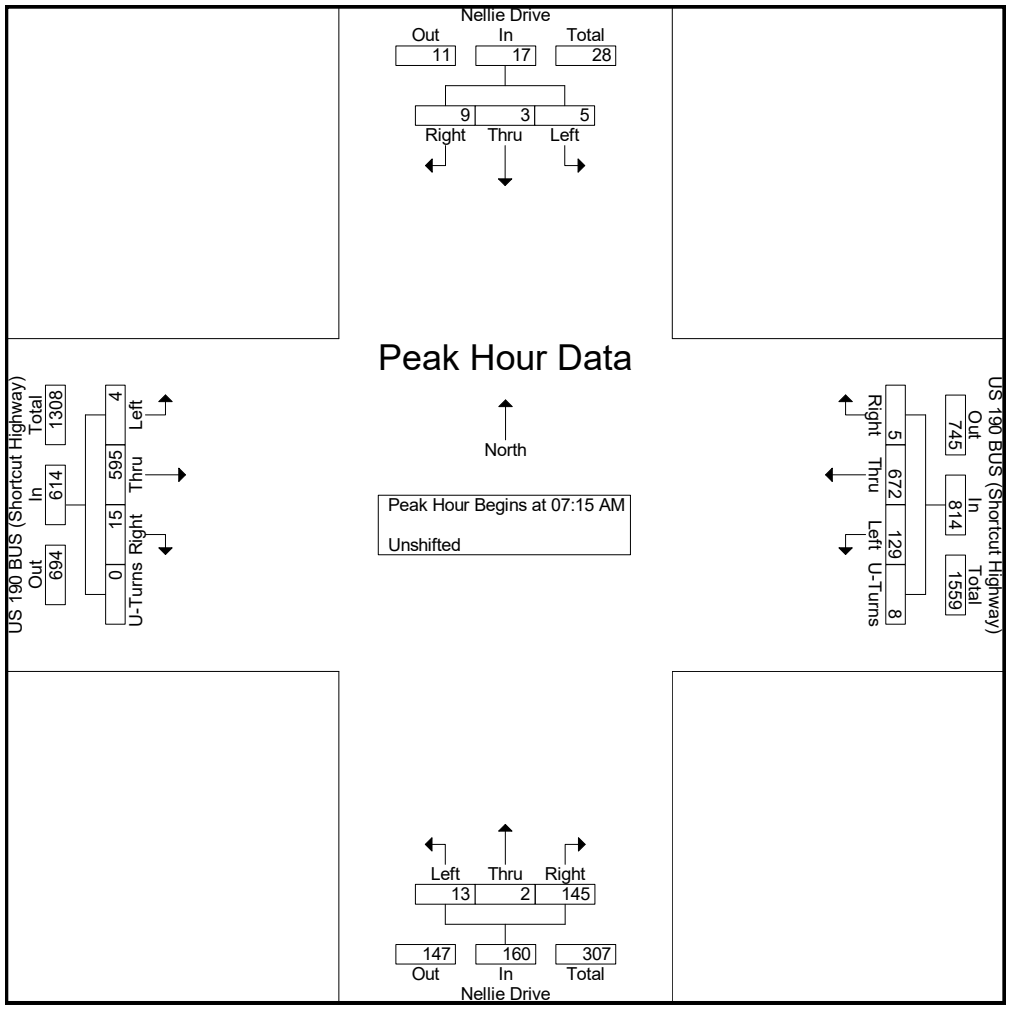
1805 Shortcut Highway
Slidell, LA, 70458

US 190 BUS (Shortcut Highway) @ Nellie Drive

The City of Slidell, St. Tammany Parish, Louisiana

File Name : AM PEAK HOUR 091819
Site Code : 00000000
Start Date : 9/18/2019
Page No : 2

	Nellie Drive From North				US 190 BUS (Shortcut Highway) From East					Nellie Drive From South				US 190 BUS (Shortcut Highway) From West					
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	U-Turns	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	U-Turns	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1																			
Peak Hour for Entire Intersection Begins at 07:15 AM																			
07:15 AM	4	0	3	7	2	140	29	2	173	31	2	3	36	6	126	1	0	133	349
07:30 AM	1	1	1	3	1	163	46	2	212	42	0	5	47	4	140	1	0	145	407
07:45 AM	3	2	0	5	1	190	30	2	223	39	0	2	41	4	152	1	0	157	426
08:00 AM	1	0	1	2	1	179	24	2	206	33	0	3	36	1	177	1	0	179	423
Total Volume	9	3	5	17	5	672	129	8	814	145	2	13	160	15	595	4	0	614	1605
% App. Total	52.9	17.6	29.4		0.6	82.6	15.8	1		90.6	1.2	8.1		2.4	96.9	0.7	0		
PHF	.563	.375	.417	.607	.625	.884	.701	1.00	.913	.863	.250	.650	.851	.625	.840	1.00	.000	.858	.942



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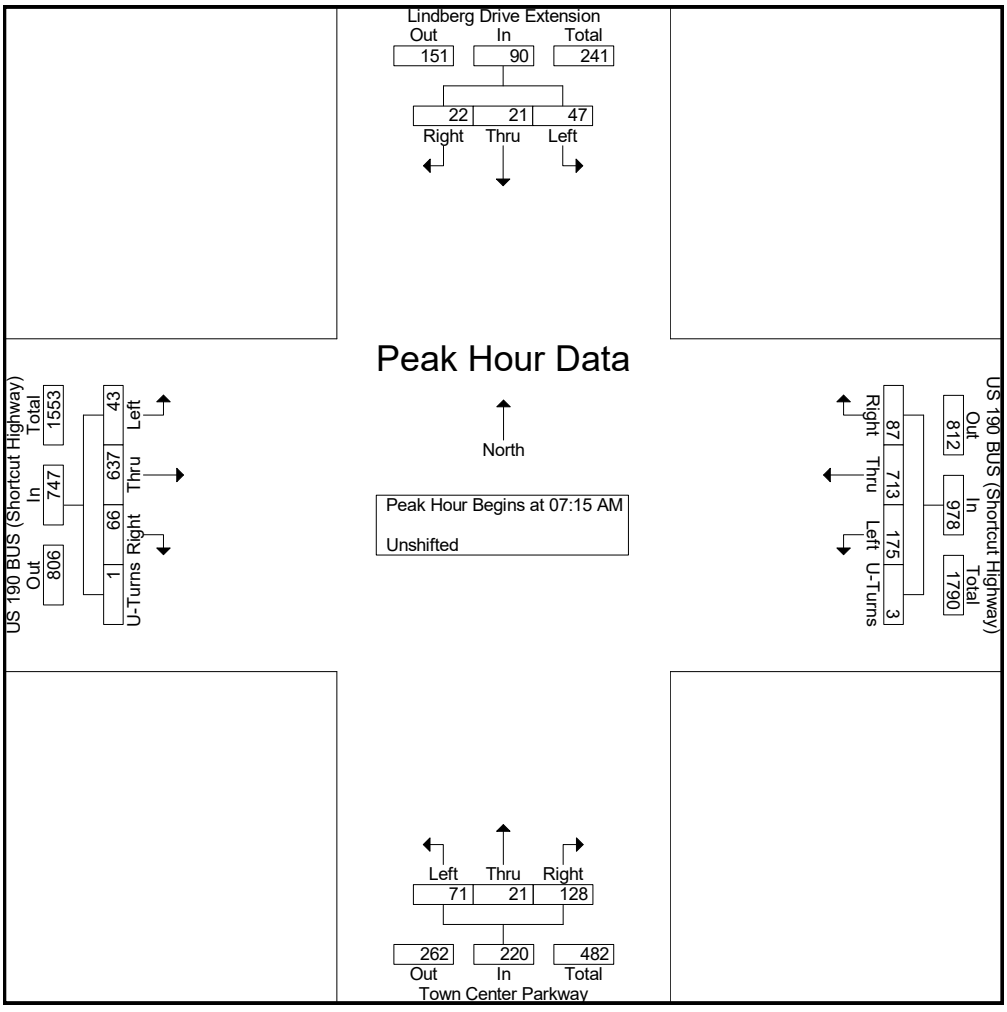
1805 Shortcut Highway
Slidell, LA, 70458

US 190 BUS (Shortcut Highway) @ Town Center Parkway & Lindberg Drive Extension

The City of Slidell, St. Tammany Parish, Louisiana

File Name : AM PEAK HOUR 091819
Site Code : 00000000
Start Date : 9/18/2019
Page No : 2

	Lindberg Drive Extension From North				US 190 BUS (Shortcut Highway) From East					Town Center Parkway From South				US 190 BUS (Shortcut Highway) From West					
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	U-Turns	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	U-Turns	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1																			
Peak Hour for Entire Intersection Begins at 07:15 AM																			
07:15 AM	5	2	10	17	16	145	50	1	212	33	5	17	55	13	128	15	1	157	441
07:30 AM	5	7	8	20	18	179	35	0	232	31	8	26	65	10	164	8	0	182	499
07:45 AM	6	6	19	31	28	202	39	2	271	37	0	12	49	19	168	6	0	193	544
08:00 AM	6	6	10	22	25	187	51	0	263	27	8	16	51	24	177	14	0	215	551
Total Volume	22	21	47	90	87	713	175	3	978	128	21	71	220	66	637	43	1	747	2035
% App. Total	24.4	23.3	52.2		8.9	72.9	17.9	0.3		58.2	9.5	32.3		8.8	85.3	5.8	0.1		
PHF	.917	.750	.618	.726	.777	.882	.858	.375	.902	.865	.656	.683	.846	.688	.900	.717	.250	.869	.923



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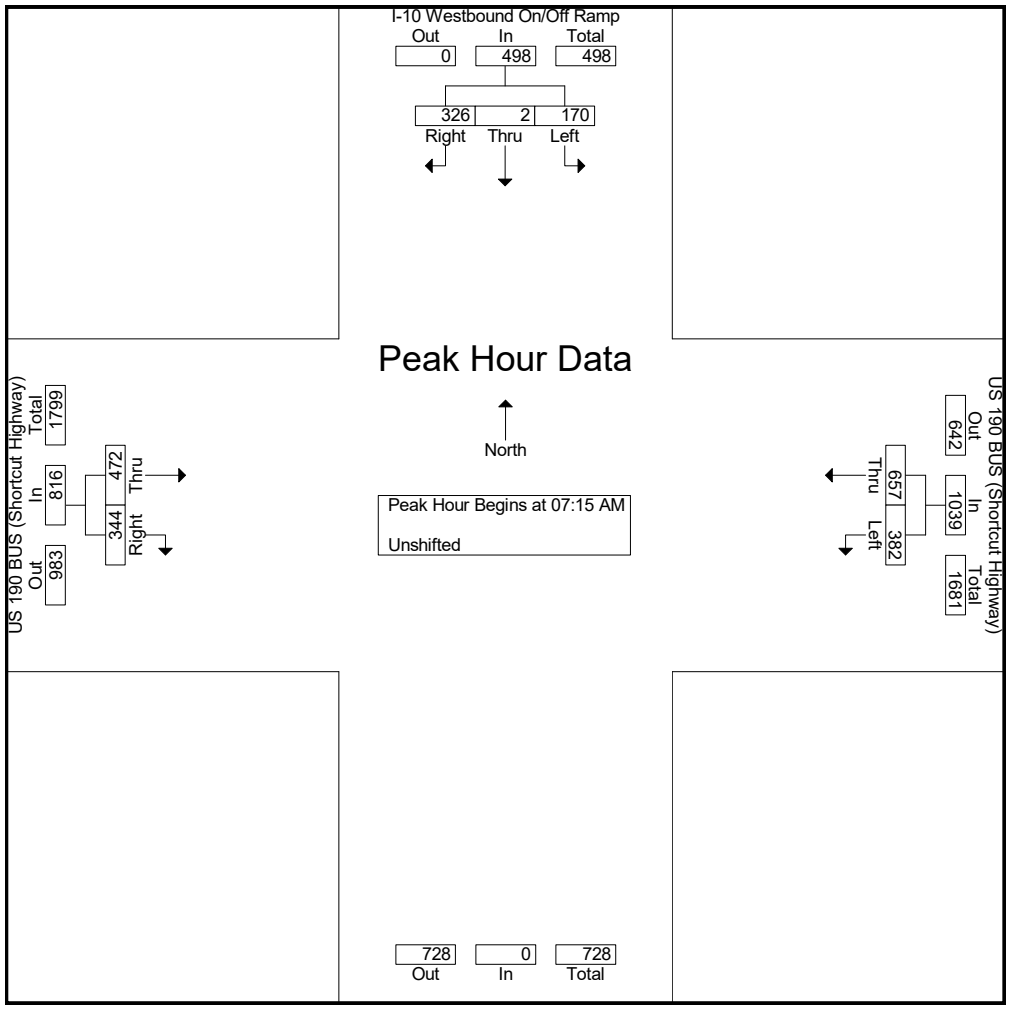
1805 Shortcut Highway
Slidell, LA, 70458

US 190 BUS (Shortcut Highway) @ I-10 WB Ramps

The City of Slidell, St. Tammany Parish, Louisiana

File Name : AM PEAKS 091819
Site Code : 00000000
Start Date : 9/18/2019
Page No : 2

	I-10 Westbound On/Off Ramp From North				US 190 BUS (Shortcut Highway) From East			From South	US 190 BUS (Shortcut Highway) From West			
Start Time	Right	Thru	Left	App. Total	Thru	Left	App. Total	App. Total	Right	Thru	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1												
Peak Hour for Entire Intersection Begins at 07:15 AM												
07:15 AM	71	2	43	116	147	112	259	0	92	84	176	551
07:30 AM	70	0	37	107	166	115	281	0	84	121	205	593
07:45 AM	108	0	43	151	164	80	244	0	90	134	224	619
08:00 AM	77	0	47	124	180	75	255	0	78	133	211	590
Total Volume	326	2	170	498	657	382	1039	0	344	472	816	2353
% App. Total	65.5	0.4	34.1		63.2	36.8			42.2	57.8		
PHF	.755	.250	.904	.825	.913	.830	.924	.000	.935	.881	.911	.950



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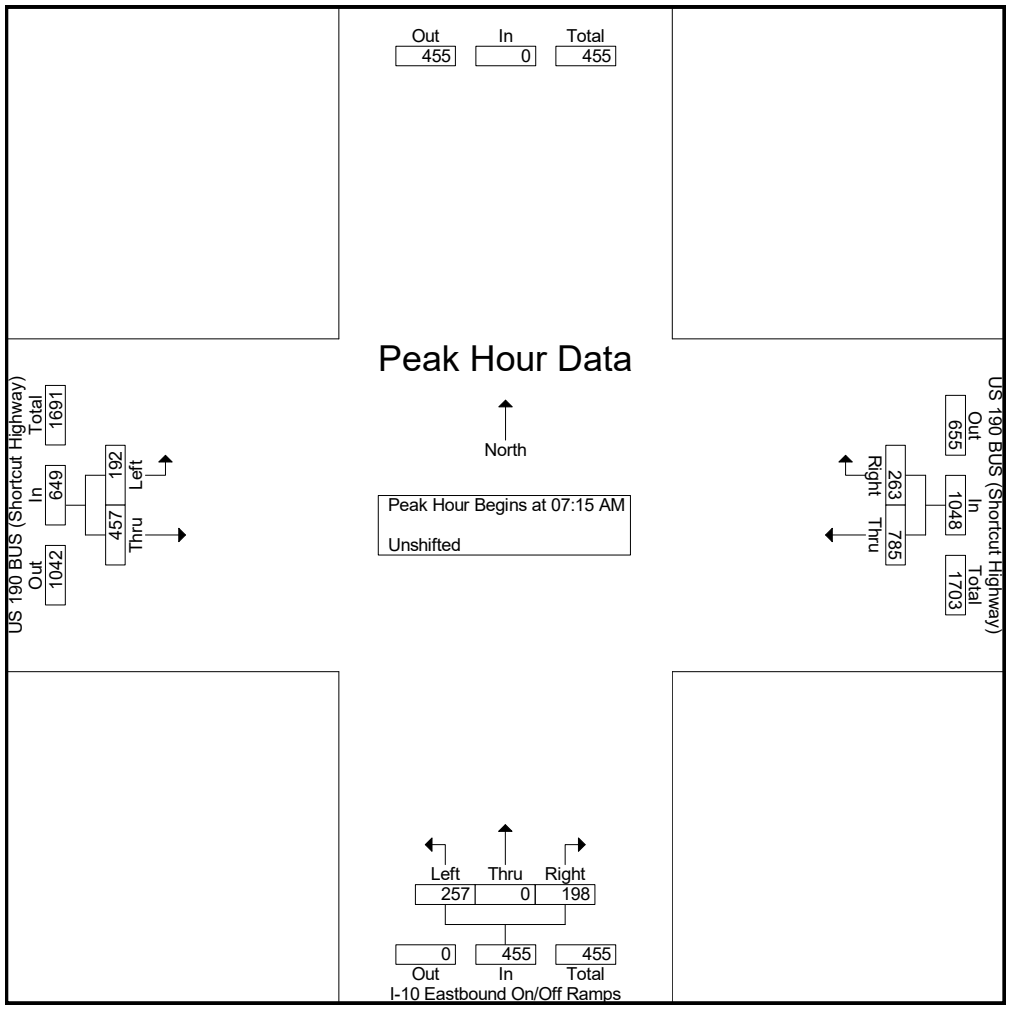
1805 Shortcut Highway
Slidell, LA, 70458

US 190 BUS (Shortcut Highway) @ I-10 EB Ramps

The City of Slidell, St. Tammany Parish, Louisiana

File Name : AM PEAK 091819
Site Code : 00000000
Start Date : 9/18/2019
Page No : 2

	From North	US 190 BUS (Shortcut Highway) From East			I-10 Eastbound On/Off Ramps From South				US 190 BUS (Shortcut Highway) From West			
Start Time	App. Total	Right	Thru	App. Total	Right	Thru	Left	App. Total	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1												
Peak Hour for Entire Intersection Begins at 07:15 AM												
07:15 AM	0	78	207	285	60	0	43	103	88	40	128	516
07:30 AM	0	77	217	294	40	0	64	104	111	49	160	558
07:45 AM	0	60	171	231	47	0	85	132	107	72	179	542
08:00 AM	0	48	190	238	51	0	65	116	151	31	182	536
Total Volume	0	263	785	1048	198	0	257	455	457	192	649	2152
% App. Total		25.1	74.9		43.5	0	56.5		70.4	29.6		
PHF	.000	.843	.904	.891	.825	.000	.756	.862	.757	.667	.891	.964



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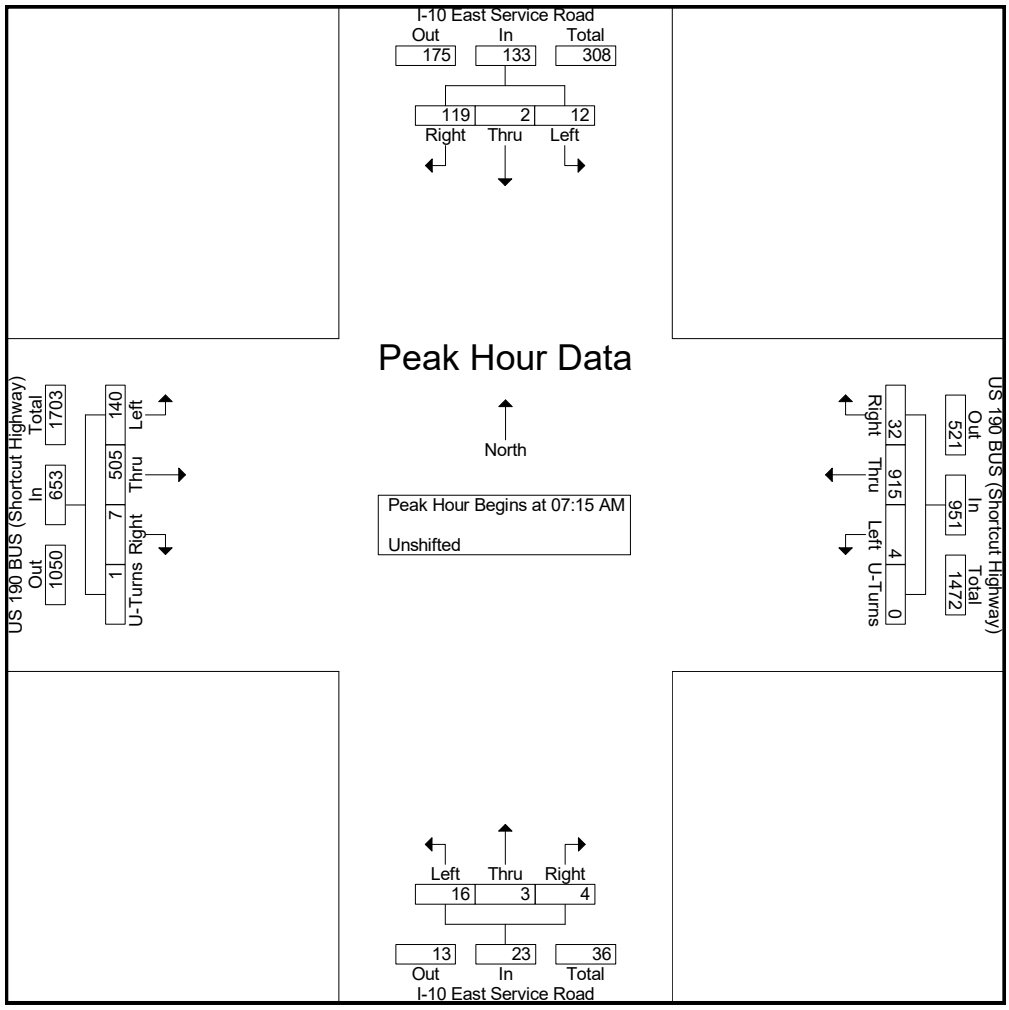
1805 Shortcut Highway
Slidell, LA, 70458

US 190 BUS (Shortcut Highway) @ I-10 East Service Road

The City of Slidell, St. Tammany Parish, Louisiana

File Name : AM PEAK HOUR 091819
Site Code : 00000000
Start Date : 9/18/2019
Page No : 2

	I-10 East Service Road From North				US 190 BUS (Shortcut Highway) From East					I-10 East Service Road From South				US 190 BUS (Shortcut Highway) From West					
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	U-Turns	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	U-Turns	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1																			
Peak Hour for Entire Intersection Begins at 07:15 AM																			
07:15 AM	42	1	3	46	4	246	0	0	250	1	0	4	5	1	112	34	0	147	448
07:30 AM	32	1	3	36	7	262	0	0	269	1	1	4	6	3	125	20	1	149	460
07:45 AM	18	0	2	20	12	199	2	0	213	1	0	6	7	1	114	38	0	153	393
08:00 AM	27	0	4	31	9	208	2	0	219	1	2	2	5	2	154	48	0	204	459
Total Volume	119	2	12	133	32	915	4	0	951	4	3	16	23	7	505	140	1	653	1760
% App. Total	89.5	1.5	9		3.4	96.2	0.4	0		17.4	13	69.6		1.1	77.3	21.4	0.2		
PHF	.708	.500	.750	.723	.667	.873	.500	.000	.884	1.00	.375	.667	.821	.583	.820	.729	.250	.800	.957



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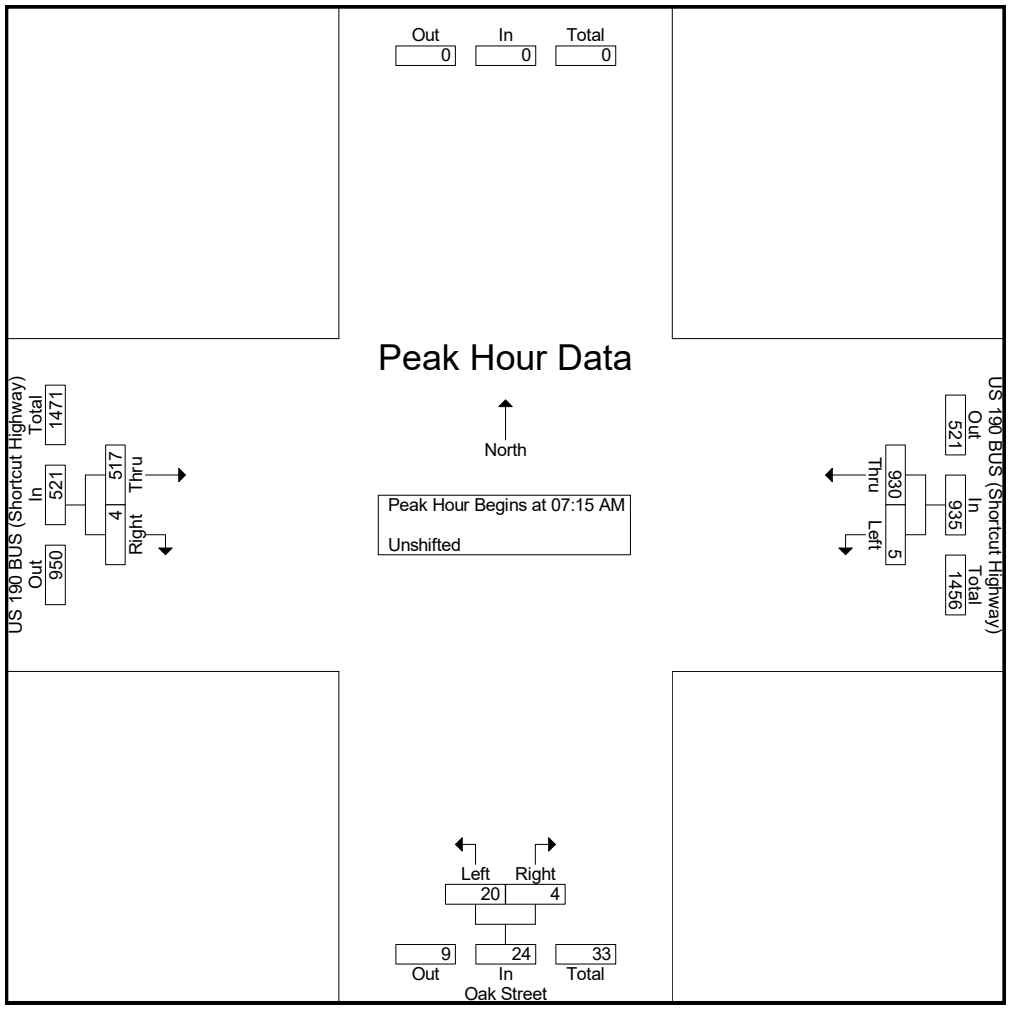
1805 Shortcut Highway
Slidell, LA, 70458

US 190 BUS (Shortcut Highway) @ Oak Street

The City of Slidell, St. Tammany Parish, Louisiana

File Name : AM PEAK HOUR 091819
Site Code : 00000000
Start Date : 9/18/2019
Page No : 2

	From North	US 190 BUS (Shortcut Highway) From East			Oak Street From South			US 190 BUS (Shortcut Highway) From West			
Start Time	App. Total	Thru	Left	App. Total	Right	Left	App. Total	Right	Thru	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1											
Peak Hour for Entire Intersection Begins at 07:15 AM											
07:15 AM	0	245	1	246	0	5	5	2	114	116	367
07:30 AM	0	262	2	264	2	6	8	1	128	129	401
07:45 AM	0	210	1	211	1	4	5	0	117	117	333
08:00 AM	0	213	1	214	1	5	6	1	158	159	379
Total Volume	0	930	5	935	4	20	24	4	517	521	1480
% App. Total		99.5	0.5		16.7	83.3		0.8	99.2		
PHF	.000	.887	.625	.885	.500	.833	.750	.500	.818	.819	.923



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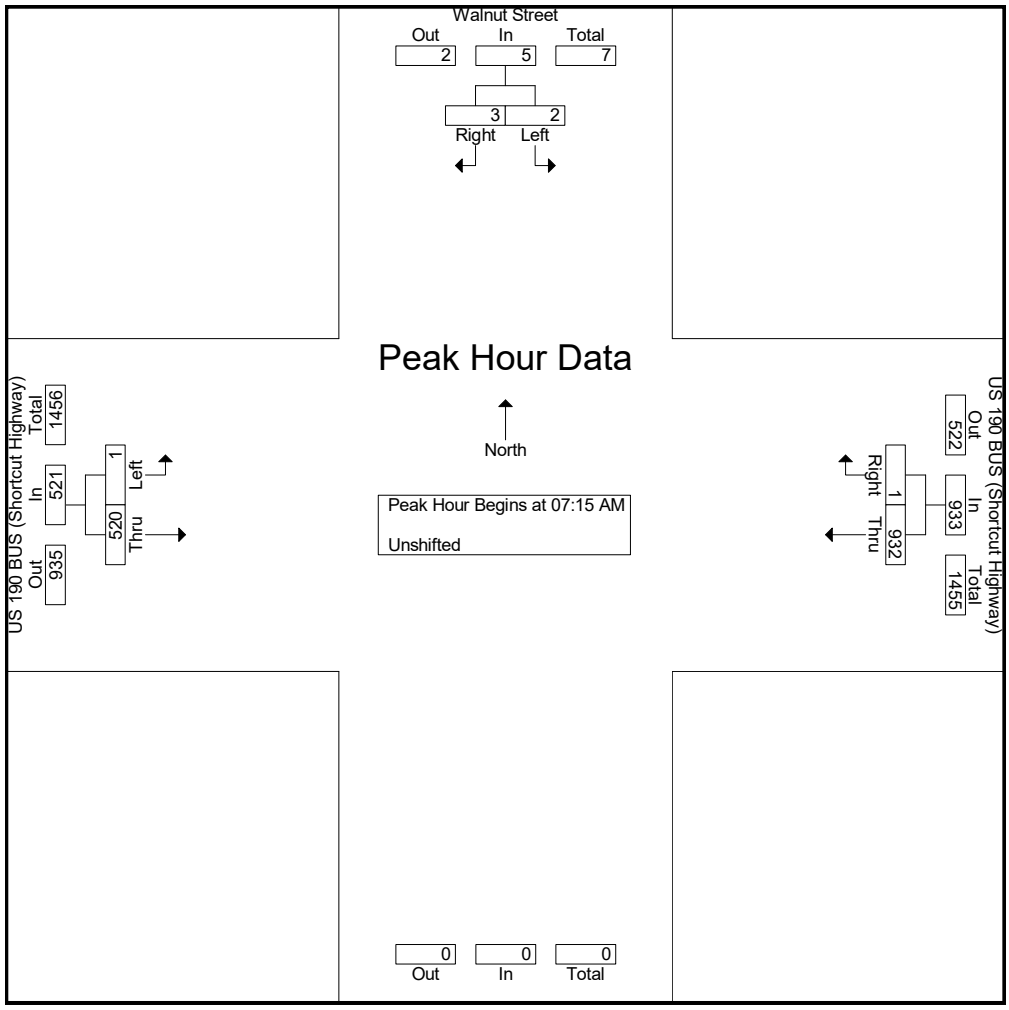
1805 Shortcut Highway
Slidell, LA, 70458

US 190 BUS (Shortcut Highway) @ Walnut Street

The City of Slidell, St. Tammany Parish, Louisiana

File Name : AM PEAK HOUR 091819
Site Code : 00000000
Start Date : 9/18/2019
Page No : 2

	Walnut Street From North			US 190 BUS (Shortcut Highway) From East			From South	US 190 BUS (Shortcut Highway) From West			
Start Time	Right	Left	App. Total	Right	Thru	App. Total	App. Total	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1											
Peak Hour for Entire Intersection Begins at 07:15 AM											
07:15 AM	1	0	1	1	245	246	0	114	0	114	361
07:30 AM	1	0	1	0	263	263	0	129	1	130	394
07:45 AM	1	1	2	0	210	210	0	118	0	118	330
08:00 AM	0	1	1	0	214	214	0	159	0	159	374
Total Volume	3	2	5	1	932	933	0	520	1	521	1459
% App. Total	60	40		0.1	99.9			99.8	0.2		
PHF	.750	.500	.625	.250	.886	.887	.000	.818	.250	.819	.926



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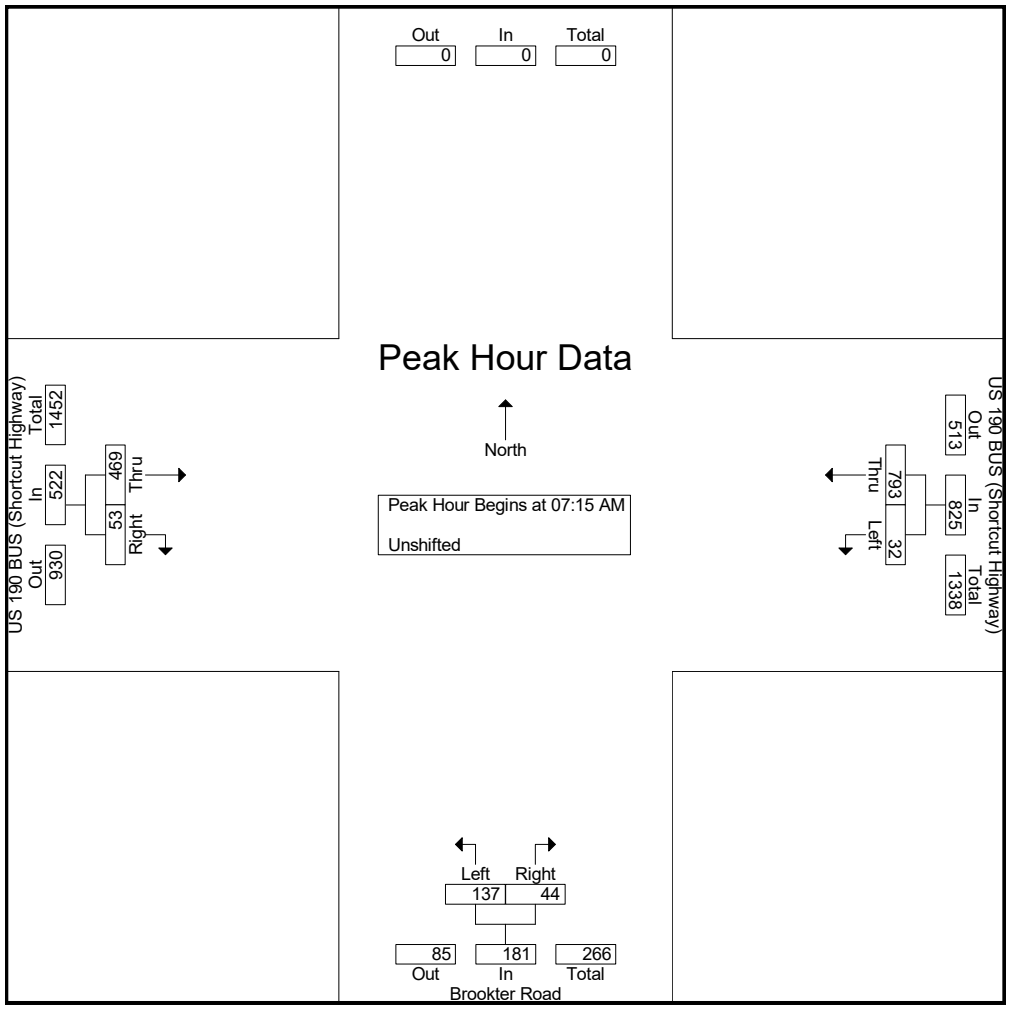
1805 Shortcut Highway
Slidell, LA, 70458

US 190 BUS (Shortcut Highway) @ Brookter Road

The City of Slidell, St. Tammany Parish, Louisiana

File Name : AM PEAK HOUR 091819
Site Code : 00000000
Start Date : 9/18/2019
Page No : 2

	From North	US 190 BUS (Shortcut Highway) From East			Brookter Road From South			US 190 BUS (Shortcut Highway) From West			
Start Time	App. Total	Thru	Left	App. Total	Right	Left	App. Total	Right	Thru	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1											
Peak Hour for Entire Intersection Begins at 07:15 AM											
07:15 AM	0	211	7	218	5	34	39	12	102	114	371
07:30 AM	0	224	6	230	8	36	44	14	115	129	403
07:45 AM	0	176	8	184	14	32	46	14	105	119	349
08:00 AM	0	182	11	193	17	35	52	13	147	160	405
Total Volume	0	793	32	825	44	137	181	53	469	522	1528
% App. Total		96.1	3.9		24.3	75.7		10.2	89.8		
PHF	.000	.885	.727	.897	.647	.951	.870	.946	.798	.816	.943



J. V. Burkes & Associates

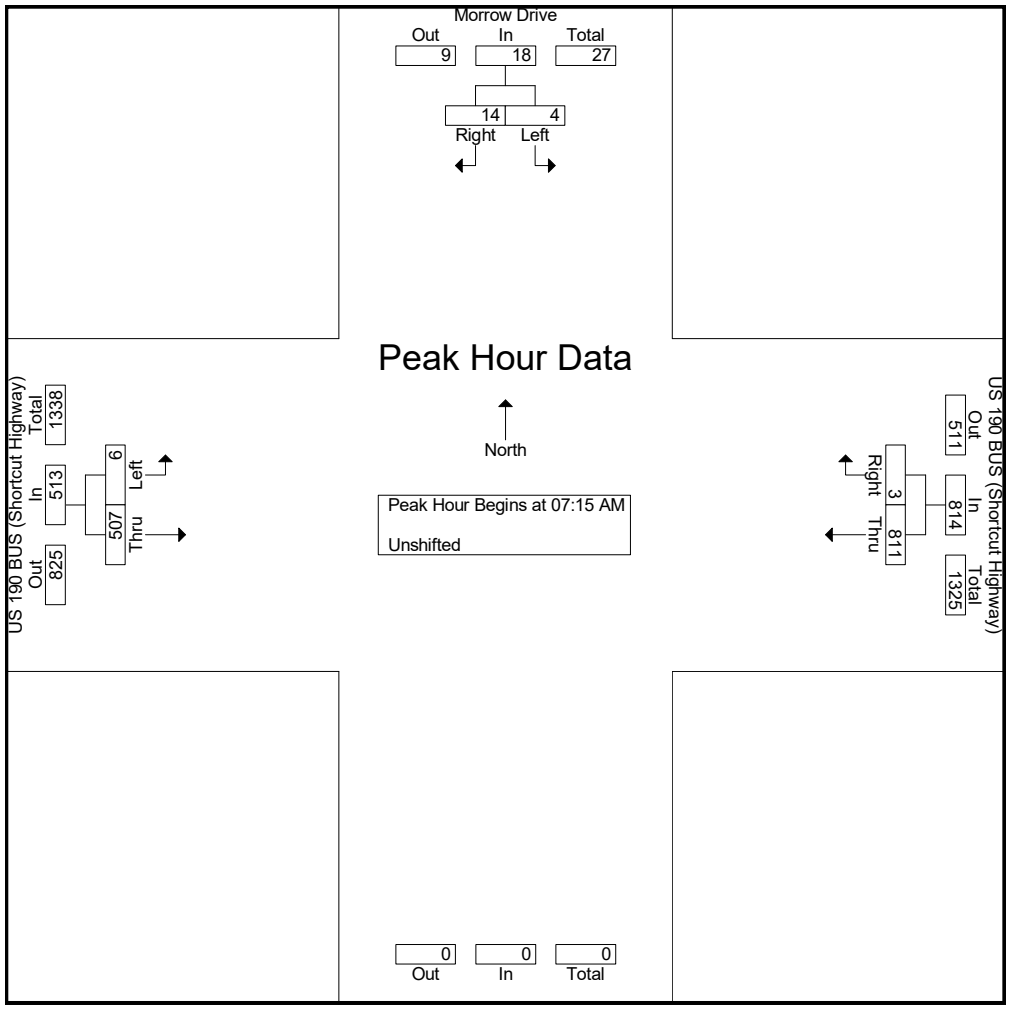
1805 Shortcut Highway
Slidell, LA, 70458

US 190 BUS (Shortcut Highway) @ Morrow Drive

The City of Slidell, St. Tammany Parish, Louisiana

File Name : AM Peak Hour 091819
Site Code : 00000000
Start Date : 9/18/2019
Page No : 2

	Morrow Drive From North			US 190 BUS (Shortcut Highway) From East			From South	US 190 BUS (Shortcut Highway) From West			
Start Time	Right	Left	App. Total	Right	Thru	App. Total	App. Total	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1											
Peak Hour for Entire Intersection Begins at 07:15 AM											
07:15 AM	1	1	2	0	217	217	0	106	1	107	326
07:30 AM	6	2	8	0	224	224	0	121	2	123	355
07:45 AM	5	0	5	1	180	181	0	117	2	119	305
08:00 AM	2	1	3	2	190	192	0	163	1	164	359
Total Volume	14	4	18	3	811	814	0	507	6	513	1345
% App. Total	77.8	22.2		0.4	99.6			98.8	1.2		
PHF	.583	.500	.563	.375	.905	.908	.000	.778	.750	.782	.937



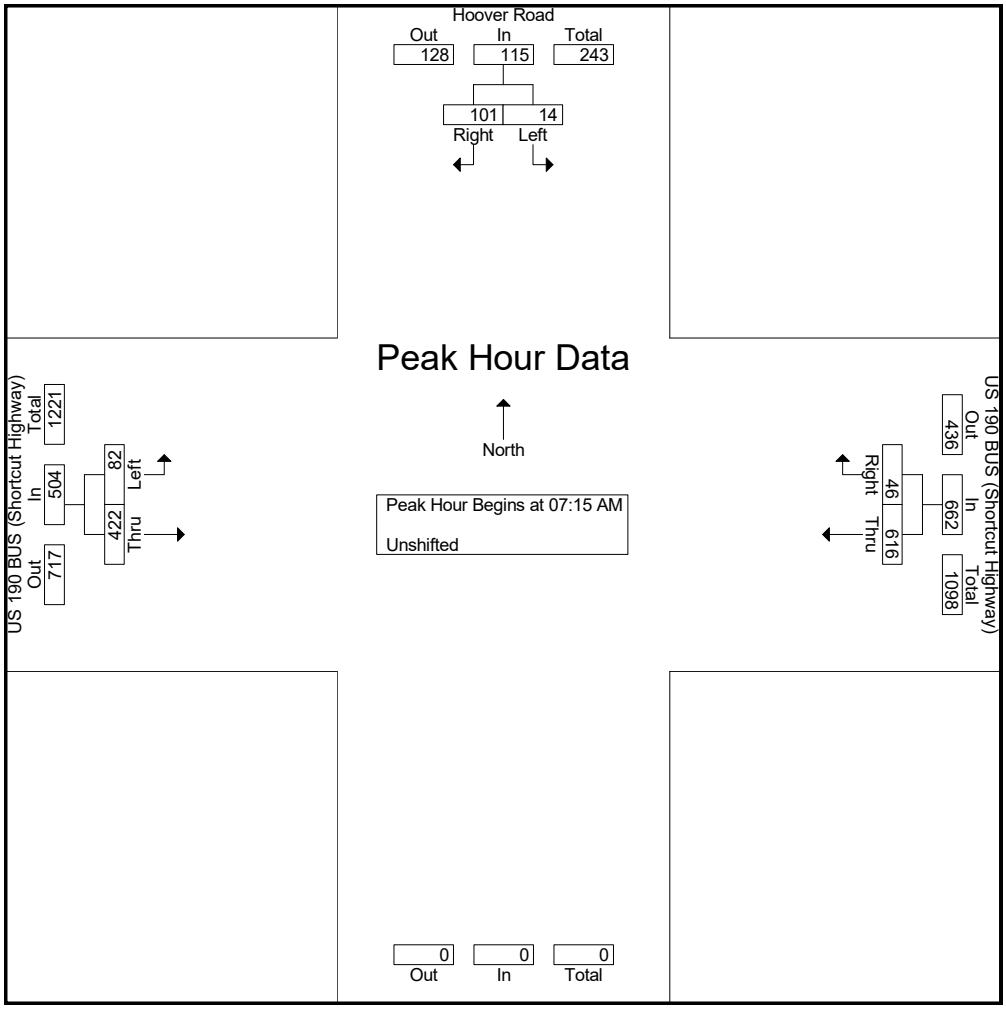
J. V. Burkes & Associates

1805 Shortcut Highway
Slidell, LA, 70458

US 190 BUS (Shortcut Highway) @ Hoover Drive

File Name : AM PEAK HOUR 091819
Site Code : 00000000
Start Date : 9/18/2019
Page No : 2

	Hoover Road From North			US 190 BUS (Shortcut Highway) From East			From South	US 190 BUS (Shortcut Highway) From West			
Start Time	Right	Left	App. Total	Right	Thru	App. Total	App. Total	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1											
Peak Hour for Entire Intersection Begins at 07:15 AM											
07:15 AM	36	2	38	18	154	172	0	70	30	100	310
07:30 AM	25	2	27	11	172	183	0	105	12	117	327
07:45 AM	25	2	27	7	135	142	0	100	19	119	288
08:00 AM	15	8	23	10	155	165	0	147	21	168	356
Total Volume	101	14	115	46	616	662	0	422	82	504	1281
% App. Total	87.8	12.2		6.9	93.1			83.7	16.3		
PHF	.701	.438	.757	.639	.895	.904	.000	.718	.683	.750	.900



J. V. Burkes & Associates

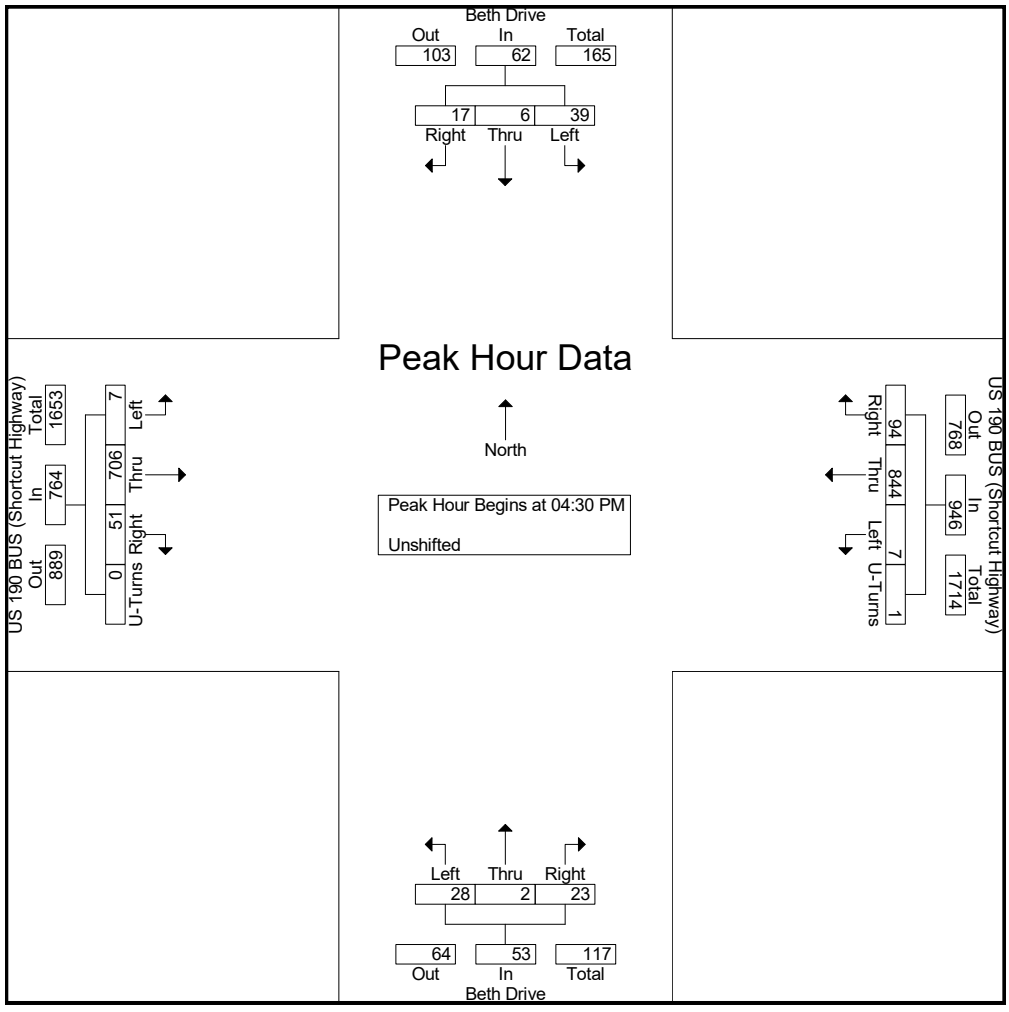
1805 Shortcut Highway
Slidell, LA, 70458

US 190 BUS (Shortcut Highway) @ Beth Drive

The City of Slidell, St. Tammany Parish, Louisiana

File Name : PM Peak Hour 091719
Site Code : 00000000
Start Date : 9/17/2019
Page No : 2

	Beth Drive From North				US 190 BUS (Shortcut Highway) From East					Beth Drive From South				US 190 BUS (Shortcut Highway) From West					
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	U-Turns	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	U-Turns	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1																			
Peak Hour for Entire Intersection Begins at 04:30 PM																			
04:30 PM	6	1	7	14	18	219	0	0	237	8	0	6	14	10	178	1	0	189	454
04:45 PM	4	1	10	15	17	206	1	0	224	4	0	5	9	16	178	0	0	194	442
05:00 PM	3	3	9	15	31	221	3	0	255	4	1	6	11	14	189	3	0	206	487
05:15 PM	4	1	13	18	28	198	3	1	230	7	1	11	19	11	161	3	0	175	442
Total Volume	17	6	39	62	94	844	7	1	946	23	2	28	53	51	706	7	0	764	1825
% App. Total	27.4	9.7	62.9		9.9	89.2	0.7	0.1		43.4	3.8	52.8		6.7	92.4	0.9	0		
PHF	.708	.500	.750	.861	.758	.955	.583	.250	.927	.719	.500	.636	.697	.797	.934	.583	.000	.927	.937



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1805 Shortcut Highway
Slidell, LA, 70458

US 190 BUS (Shortcut Highway) @ Nellie Drive

The City of Slidell, St. Tammany Parish, Louisiana

File Name : PM Peak Hour 091719
Site Code : 00000000
Start Date : 9/17/2019
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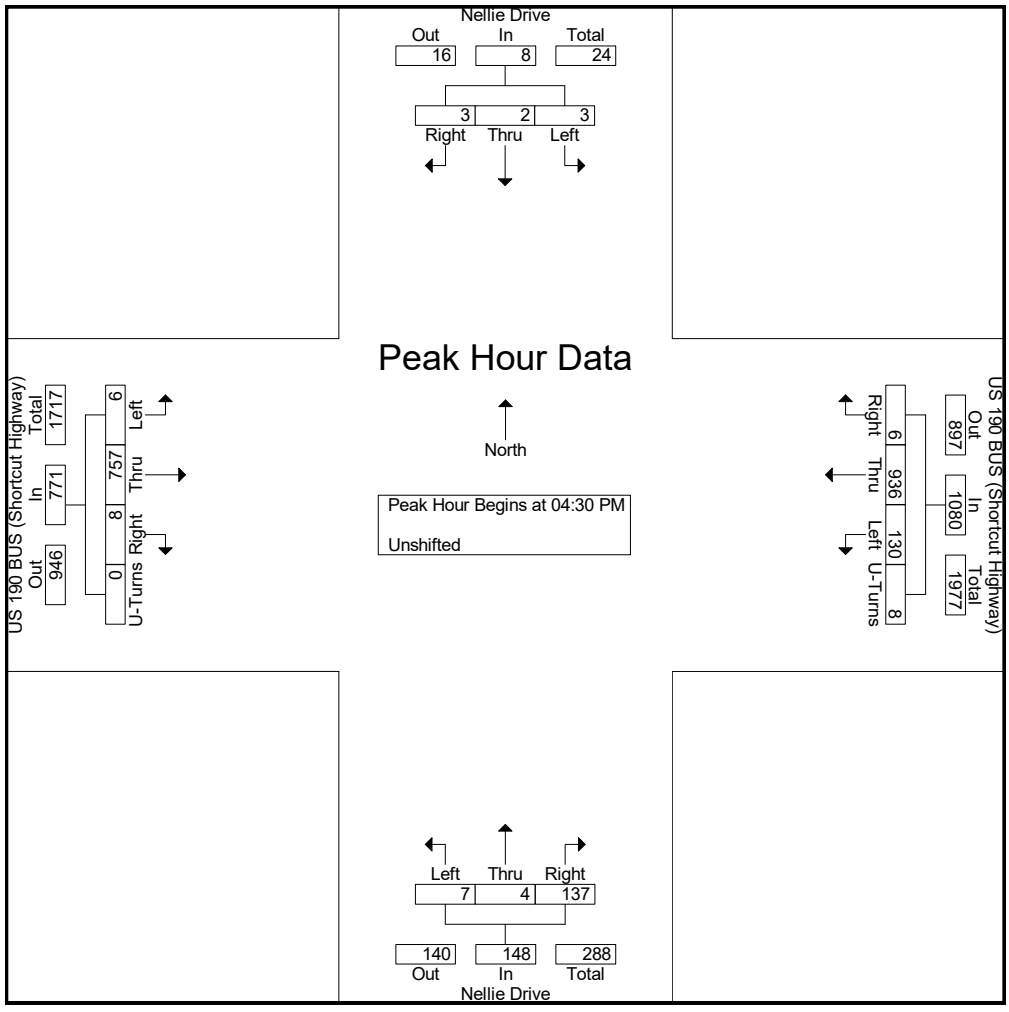
	Nellie Drive From North				US 190 BUS (Shortcut Highway) From East					Nellie Drive From South				US 190 BUS (Shortcut Highway) From West					
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	U-Turns	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	U-Turns	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1																			
Peak Hour for Entire Intersection Begins at 04:30 PM																			
04:30 PM	1	1	1	3	1	234	31	2	268	31	1	2	34	2	191	0	0	193	498
04:45 PM	1	0	1	2	0	223	34	0	257	26	3	1	30	1	189	3	0	193	482
05:00 PM	1	1	0	2	4	250	26	6	286	44	0	3	47	3	198	2	0	203	538
05:15 PM	0	0	1	1	1	229	39	0	269	36	0	1	37	2	179	1	0	182	489
Total Volume	3	2	3	8	6	936	130	8	1080	137	4	7	148	8	757	6	0	771	2007
% App. Total	37.5	25	37.5		0.6	86.7	12	0.7		92.6	2.7	4.7		1	98.2	0.8	0		
PHF	.750	.500	.750	.667	.375	.936	.833	.333	.944	.778	.333	.583	.787	.667	.956	.500	.000	.950	.933



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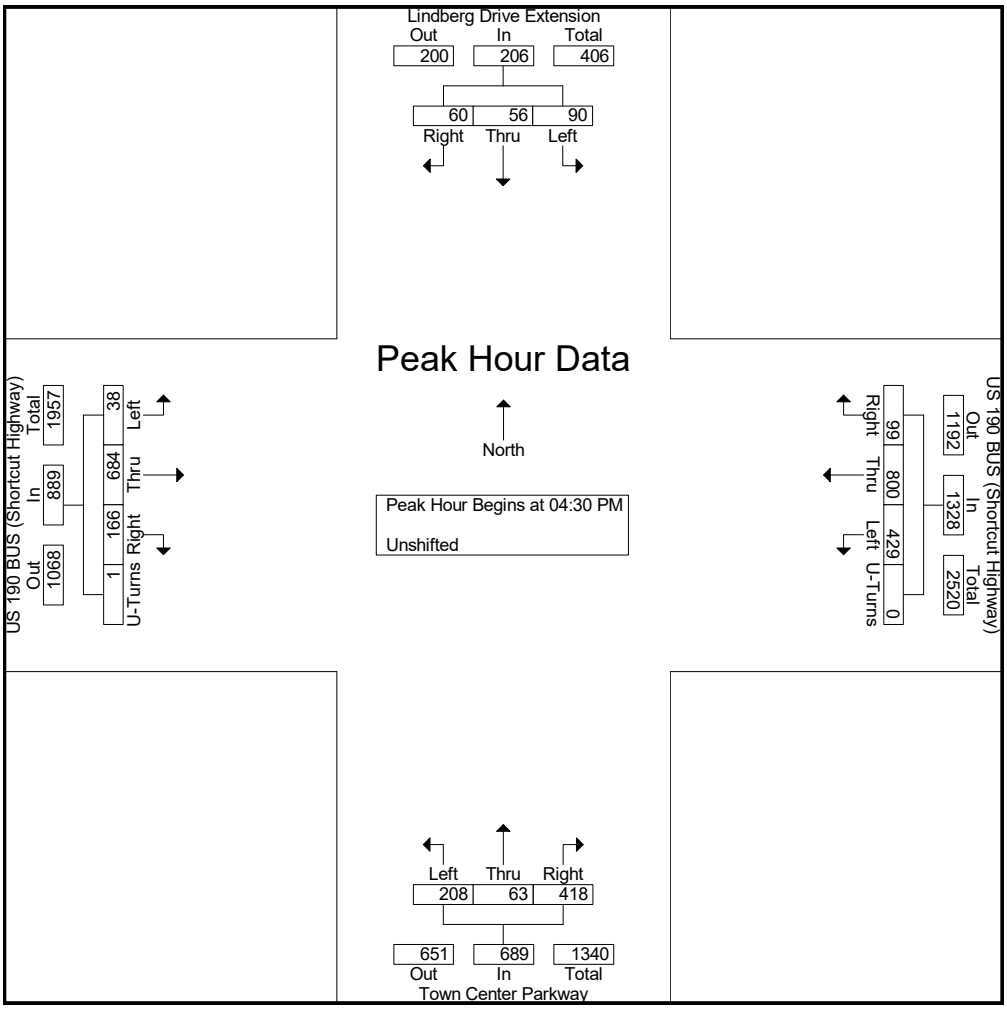
1805 Shortcut Highway
Slidell, LA, 70458

US 190 BUS (Shortcut Highway) @ Town Center Parkway & Lindberg Drive Extension

The City of Slidell, St. Tammany Parish, Louisiana

File Name : PM Peak Hour 091719
Site Code : 00000000
Start Date : 9/17/2019
Page No : 2

	Lindberg Drive Extension From North				US 190 BUS (Shortcut Highway) From East					Town Center Parkway From South				US 190 BUS (Shortcut Highway) From West					
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	U-Turns	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	U-Turns	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1																			
Peak Hour for Entire Intersection Begins at 04:30 PM																			
04:30 PM	21	16	24	61	23	182	108	0	313	87	19	52	158	34	172	7	0	213	745
04:45 PM	10	15	21	46	21	194	105	0	320	118	13	47	178	46	159	10	0	215	759
05:00 PM	12	14	27	53	17	216	106	0	339	95	16	55	166	44	188	11	1	244	802
05:15 PM	17	11	18	46	38	208	110	0	356	118	15	54	187	42	165	10	0	217	806
Total Volume	60	56	90	206	99	800	429	0	1328	418	63	208	689	166	684	38	1	889	3112
% App. Total	29.1	27.2	43.7		7.5	60.2	32.3	0		60.7	9.1	30.2		18.7	76.9	4.3	0.1		
PHF	.714	.875	.833	.844	.651	.926	.975	.000	.933	.886	.829	.945	.921	.902	.910	.864	.250	.911	.965



J. V. Burkes & Associates

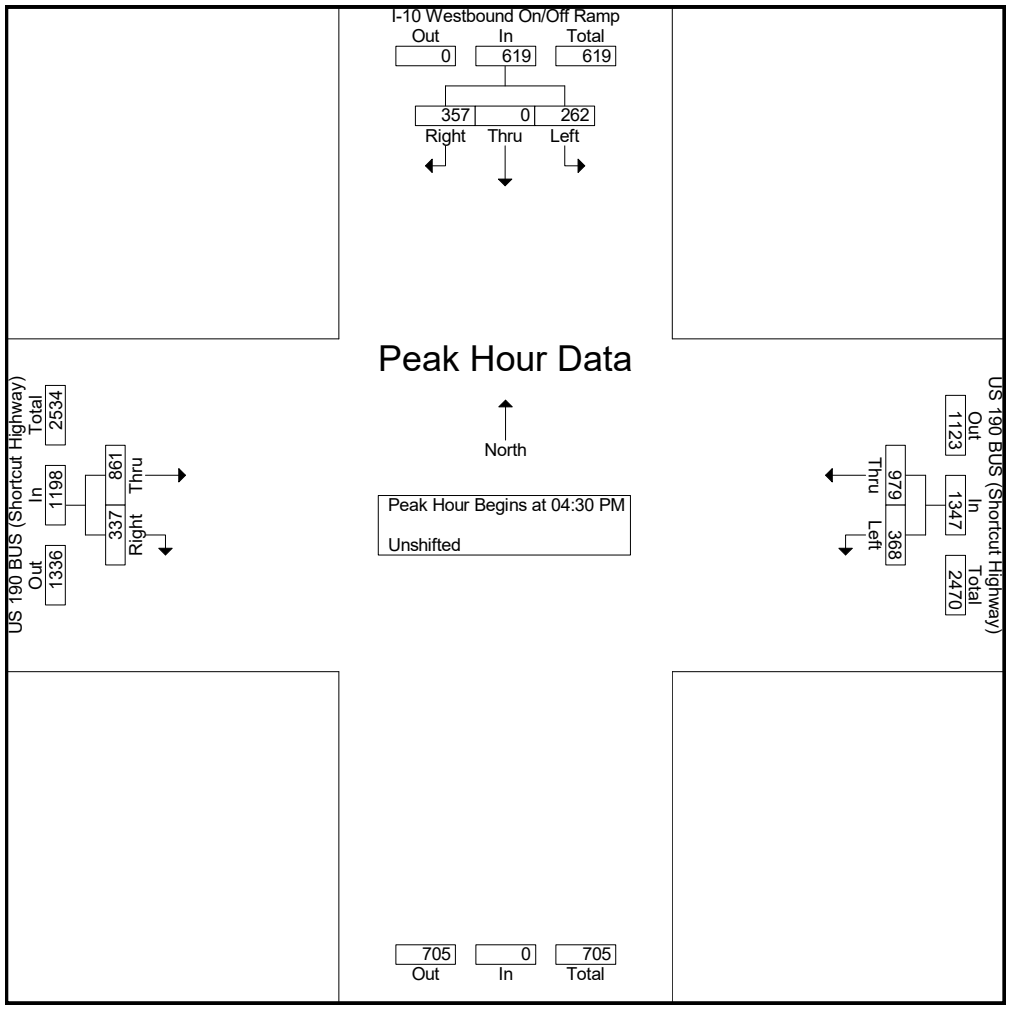
1805 Shortcut Highway
Slidell, LA, 70458

US 190 BUS (Shortcut Highway) @ I-10 WB Ramps

The City of Slidell, St. Tammany Parish, Louisiana

File Name : PM Peak Hour 091719
Site Code : 00000000
Start Date : 9/17/2019
Page No : 2

	I-10 Westbound On/Off Ramp From North				US 190 BUS (Shortcut Highway) From East			From South	US 190 BUS (Shortcut Highway) From West			
Start Time	Right	Thru	Left	App. Total	Thru	Left	App. Total	App. Total	Right	Thru	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1												
Peak Hour for Entire Intersection Begins at 04:30 PM												
04:30 PM	102	0	64	166	225	78	303	0	75	212	287	756
04:45 PM	89	0	69	158	237	74	311	0	92	203	295	764
05:00 PM	87	0	66	153	251	101	352	0	80	233	313	818
05:15 PM	79	0	63	142	266	115	381	0	90	213	303	826
Total Volume	357	0	262	619	979	368	1347	0	337	861	1198	3164
% App. Total	57.7	0	42.3		72.7	27.3			28.1	71.9		
PHF	.875	.000	.949	.932	.920	.800	.884	.000	.916	.924	.957	.958



J. V. Burkes & Associates

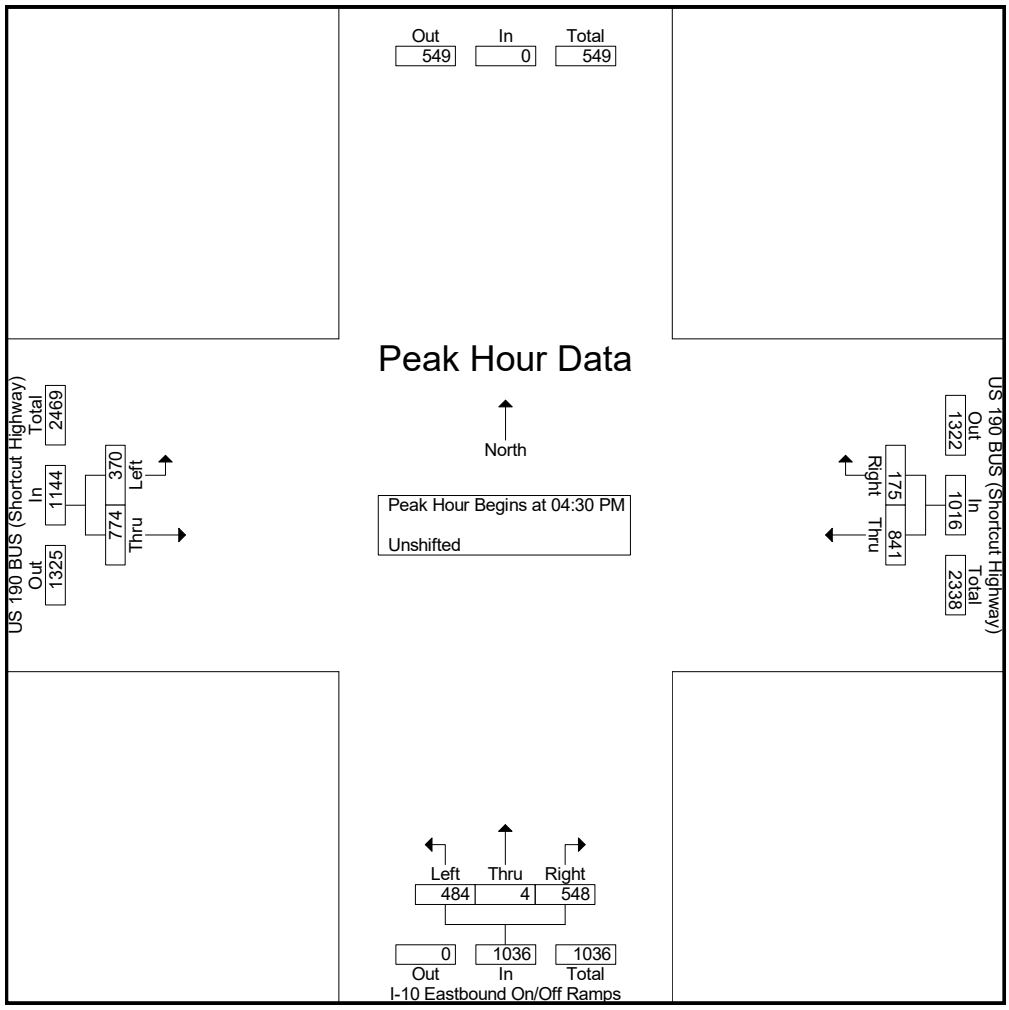
1805 Shortcut Highway
Slidell, LA, 70458

US 190 BUS (Shortcut Highway) @ I-10 EB Ramps

The City of Slidell, St. Tammany Parish, Louisiana

File Name : PM Peak Hour 091719
Site Code : 00000000
Start Date : 9/17/2019
Page No : 2

	From North	US 190 BUS (Shortcut Highway) From East			I-10 Eastbound On/Off Ramps From South				US 190 BUS (Shortcut Highway) From West			
Start Time	App. Total	Right	Thru	App. Total	Right	Thru	Left	App. Total	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1												
Peak Hour for Entire Intersection Begins at 04:30 PM												
04:30 PM	0	54	174	228	131	1	110	242	208	95	303	773
04:45 PM	0	43	189	232	122	1	122	245	182	85	267	744
05:00 PM	0	37	226	263	159	1	121	281	213	94	307	851
05:15 PM	0	41	252	293	136	1	131	268	171	96	267	828
Total Volume	0	175	841	1016	548	4	484	1036	774	370	1144	3196
% App. Total		17.2	82.8		52.9	0.4	46.7		67.7	32.3		
PHF	.000	.810	.834	.867	.862	1.00	.924	.922	.908	.964	.932	.939



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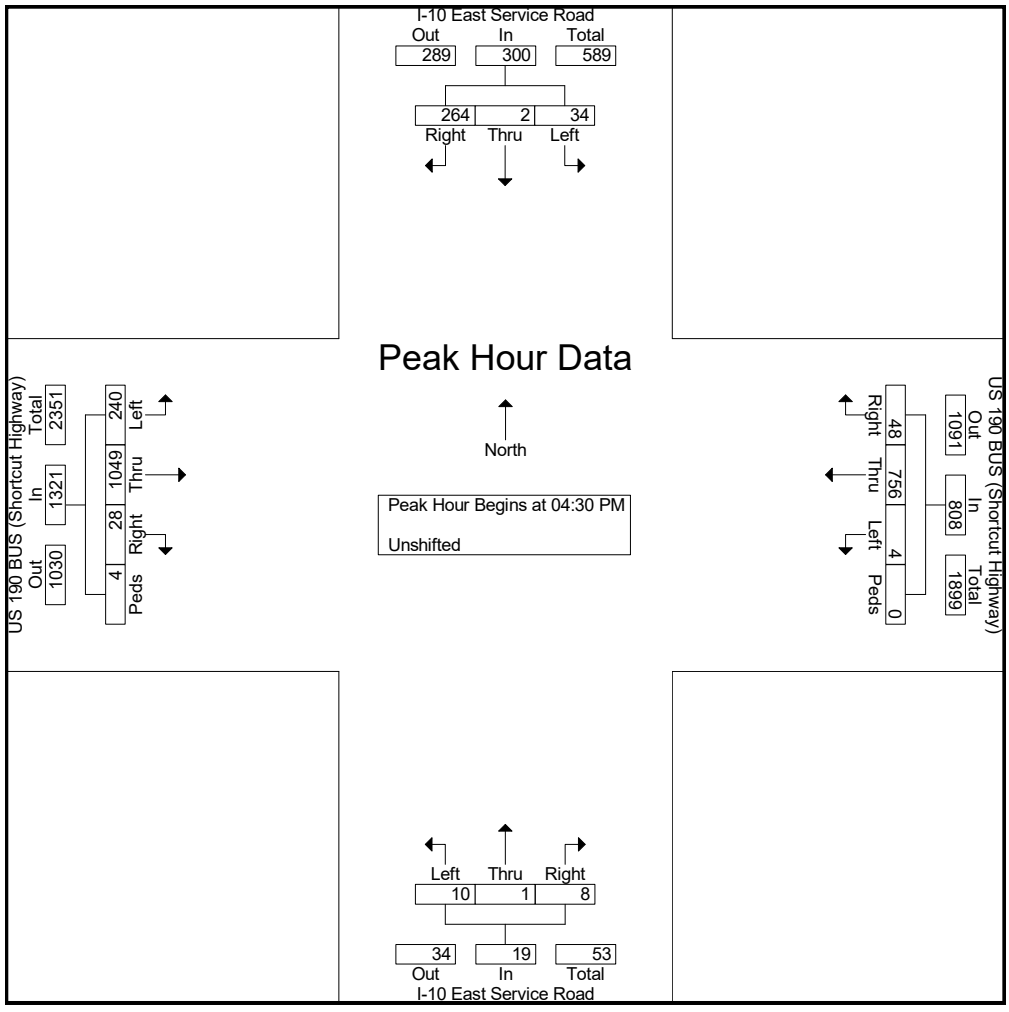
1805 Shortcut Highway
Slidell, LA, 70458

US 190 BUS (Shortcut Highway) @ I-10 East Service Road

The City of Slidell, St. Tammany Parish, Louisiana

File Name : PM Peak Hour 091719
Site Code : 00000000
Start Date : 9/17/2019
Page No : 2

	I-10 East Service Road From North				US 190 BUS (Shortcut Highway) From East					I-10 East Service Road From South				US 190 BUS (Shortcut Highway) From West					
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1																			
Peak Hour for Entire Intersection Begins at 04:30 PM																			
04:30 PM	65	0	8	73	17	160	1	0	178	0	0	2	2	6	279	49	1	335	588
04:45 PM	63	0	10	73	12	167	1	0	180	4	0	4	8	8	232	66	0	306	567
05:00 PM	74	1	8	83	13	196	0	0	209	2	1	1	4	9	298	58	3	368	664
05:15 PM	62	1	8	71	6	233	2	0	241	2	0	3	5	5	240	67	0	312	629
Total Volume	264	2	34	300	48	756	4	0	808	8	1	10	19	28	1049	240	4	1321	2448
% App. Total	88	0.7	11.3		5.9	93.6	0.5	0		42.1	5.3	52.6		2.1	79.4	18.2	0.3		
PHF	.892	.500	.850	.904	.706	.811	.500	.000	.838	.500	.250	.625	.594	.778	.880	.896	.333	.897	.922



J. V. Burkes & Associates

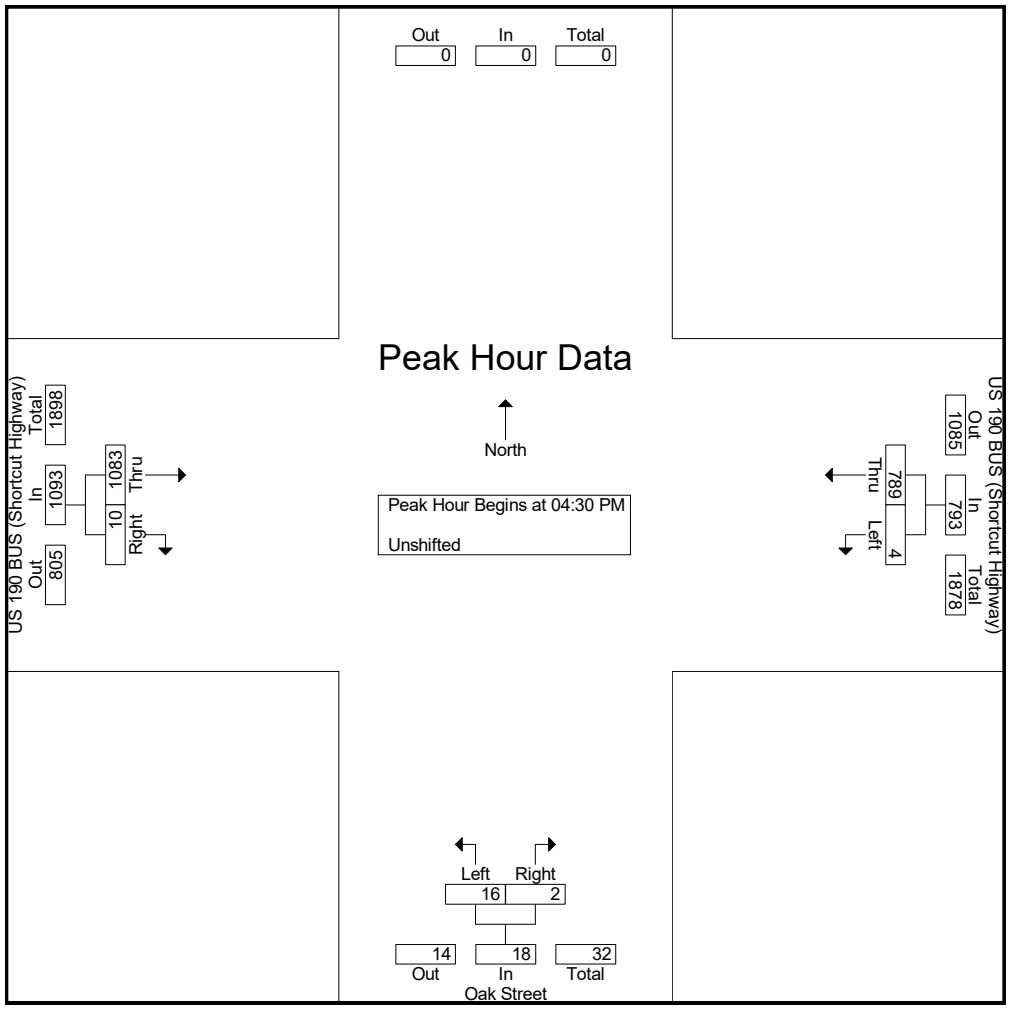
1805 Shortcut Highway
Slidell, LA, 70458

US 190 BUS (Shortcut Highway) @ Oak Street

The City of Slidell, St. Tammany Parish, Louisiana

File Name : PM Peak Hour 091719
Site Code : 00000000
Start Date : 9/17/2019
Page No : 2

	From North	US 190 BUS (Shortcut Highway) From East			Oak Street From South			US 190 BUS (Shortcut Highway) From West			
Start Time	App. Total	Thru	Left	App. Total	Right	Left	App. Total	Right	Thru	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1											
Peak Hour for Entire Intersection Begins at 04:30 PM											
04:30 PM	0	171	1	172	0	6	6	1	287	288	466
04:45 PM	0	177	0	177	0	4	4	4	244	248	429
05:00 PM	0	205	2	207	0	3	3	3	302	305	515
05:15 PM	0	236	1	237	2	3	5	2	250	252	494
Total Volume	0	789	4	793	2	16	18	10	1083	1093	1904
% App. Total		99.5	0.5		11.1	88.9		0.9	99.1		
PHF	.000	.836	.500	.836	.250	.667	.750	.625	.897	.896	.924



J. V. Burkes & Associates

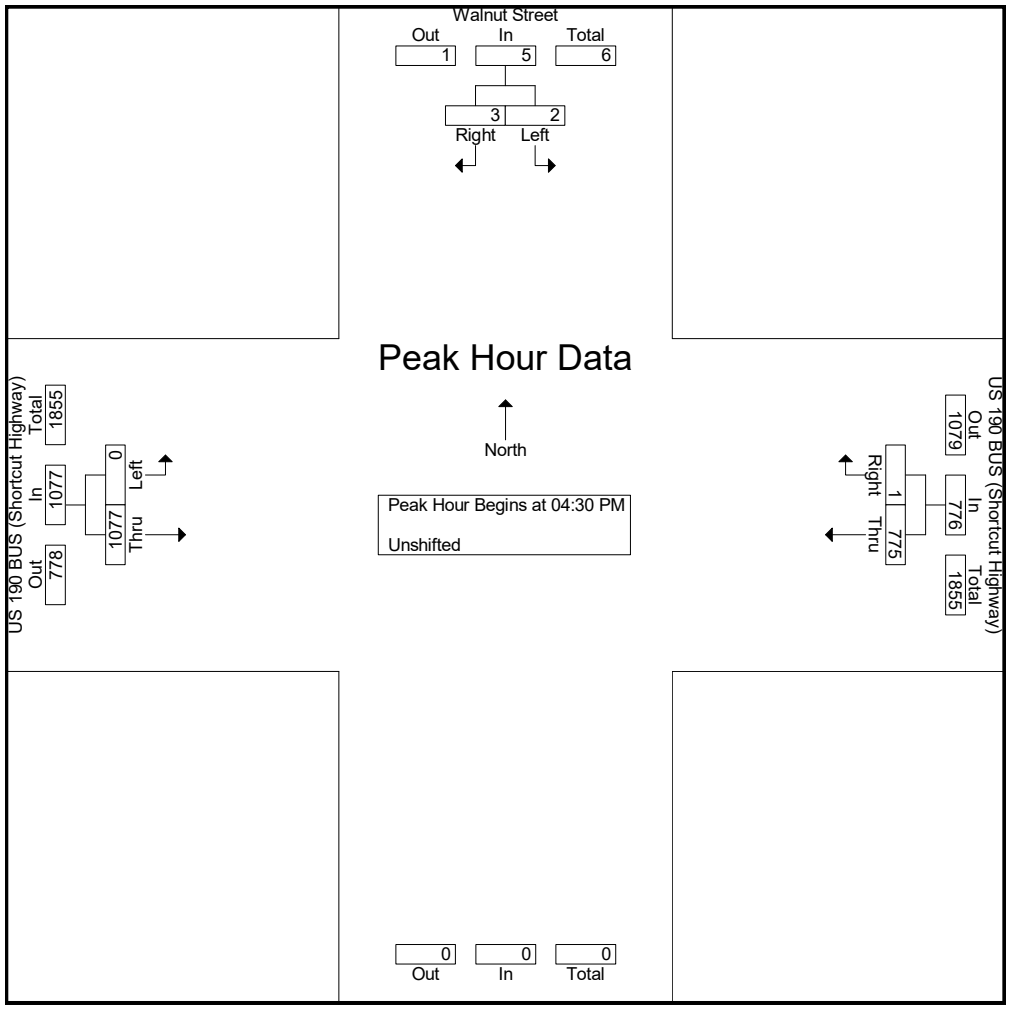
1805 Shortcut Highway
Slidell, LA, 70458

US 190 BUS (Shortcut Highway) @ Walnut Street

The City of Slidell, St. Tammany Parish, Louisiana

File Name : PM Peak Hour 091719
Site Code : 00000000
Start Date : 9/17/2019
Page No : 2

	Walnut Street From North			US 190 BUS (Shortcut Highway) From East			From South	US 190 BUS (Shortcut Highway) From West			
Start Time	Right	Left	App. Total	Right	Thru	App. Total	App. Total	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1											
Peak Hour for Entire Intersection Begins at 04:30 PM											
04:30 PM	0	1	1	0	165	165	0	287	0	287	453
04:45 PM	0	1	1	1	175	176	0	241	0	241	418
05:00 PM	0	0	0	0	203	203	0	299	0	299	502
05:15 PM	3	0	3	0	232	232	0	250	0	250	485
Total Volume	3	2	5	1	775	776	0	1077	0	1077	1858
% App. Total	60	40		0.1	99.9			100	0		
PHF	.250	.500	.417	.250	.835	.836	.000	.901	.000	.901	.925



J. V. Burkes & Associates

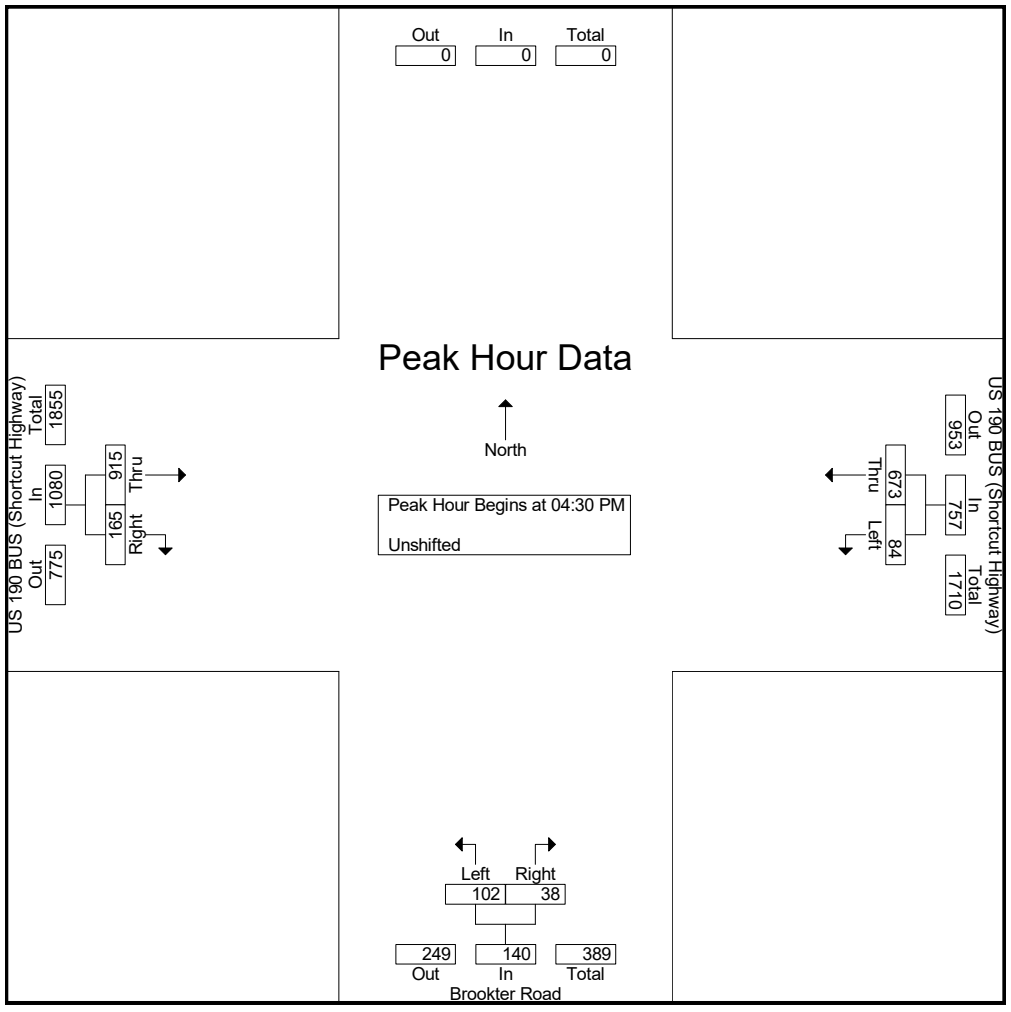
1805 Shortcut Highway
Slidell, LA, 70458

US 190 BUS (Shortcut Highway) @ Brookter Road

The City of Slidell, St. Tammany Parish, Louisiana

File Name : PM Peak Hour 091719
Site Code : 00000000
Start Date : 9/17/2019
Page No : 2

	From North	US 190 BUS (Shortcut Highway) From East			Brookter Road From South			US 190 BUS (Shortcut Highway) From West			
Start Time	App. Total	Thru	Left	App. Total	Right	Left	App. Total	Right	Thru	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1											
Peak Hour for Entire Intersection Begins at 04:30 PM											
04:30 PM	0	134	22	156	7	29	36	35	253	288	480
04:45 PM	0	150	16	166	11	22	33	37	204	241	440
05:00 PM	0	182	16	198	5	21	26	48	251	299	523
05:15 PM	0	207	30	237	15	30	45	45	207	252	534
Total Volume	0	673	84	757	38	102	140	165	915	1080	1977
% App. Total		88.9	11.1		27.1	72.9		15.3	84.7		
PHF	.000	.813	.700	.799	.633	.850	.778	.859	.904	.903	.926



J. V. Burkes & Associates

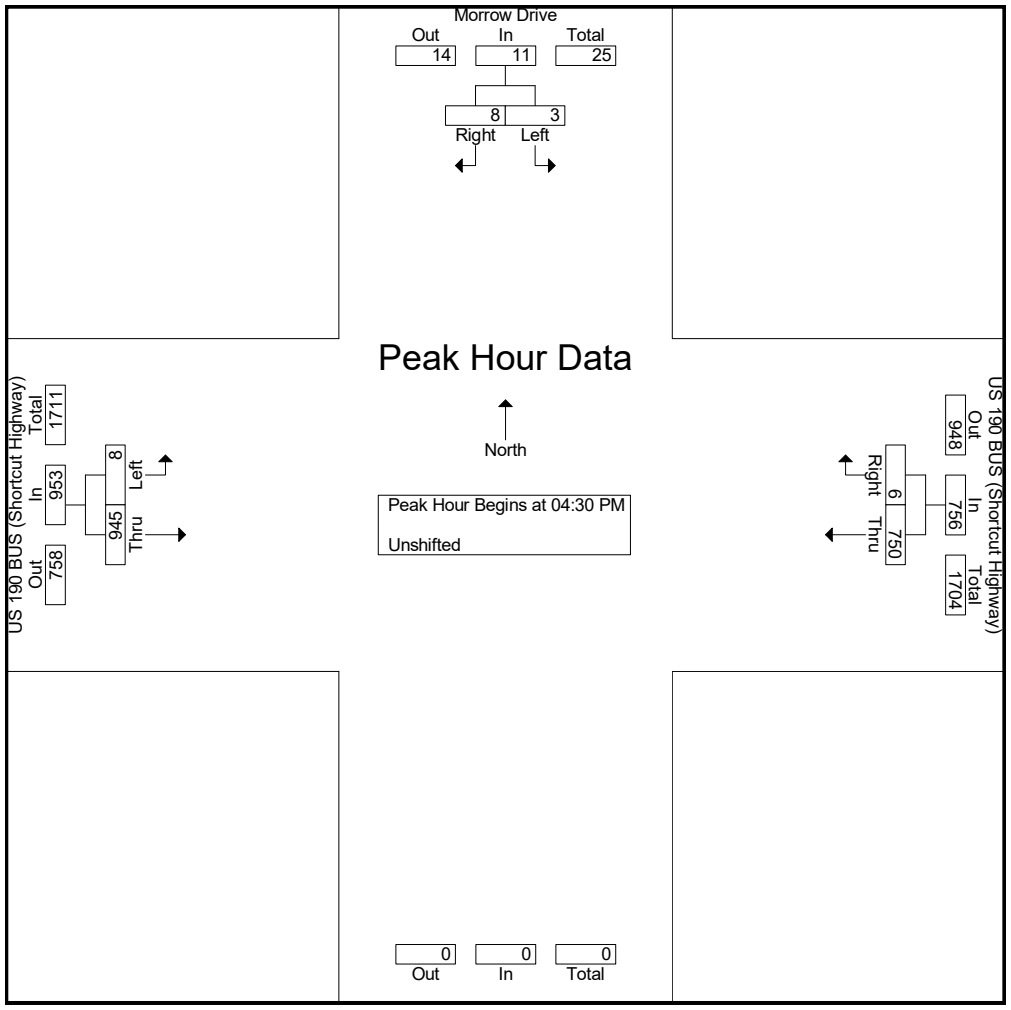
1805 Shortcut Highway
Slidell, LA, 70458

US 190 BUS (Shortcut Highway) @ Morrow Drive

The City of Slidell, St. Tammany Parish, Louisiana

File Name : PM Peak Hour 091719
Site Code : 00000000
Start Date : 9/17/2019
Page No : 2

	Morrow Drive From North			US 190 BUS (Shortcut Highway) From East			From South	US 190 BUS (Shortcut Highway) From West			
Start Time	Right	Left	App. Total	Right	Thru	App. Total	App. Total	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1											
Peak Hour for Entire Intersection Begins at 04:30 PM											
04:30 PM	1	0	1	1	155	156	0	258	2	260	417
04:45 PM	2	2	4	2	166	168	0	212	3	215	387
05:00 PM	3	0	3	2	194	196	0	254	2	256	455
05:15 PM	2	1	3	1	235	236	0	221	1	222	461
Total Volume	8	3	11	6	750	756	0	945	8	953	1720
% App. Total	72.7	27.3		0.8	99.2			99.2	0.8		
PHF	.667	.375	.688	.750	.798	.801	.000	.916	.667	.916	.933



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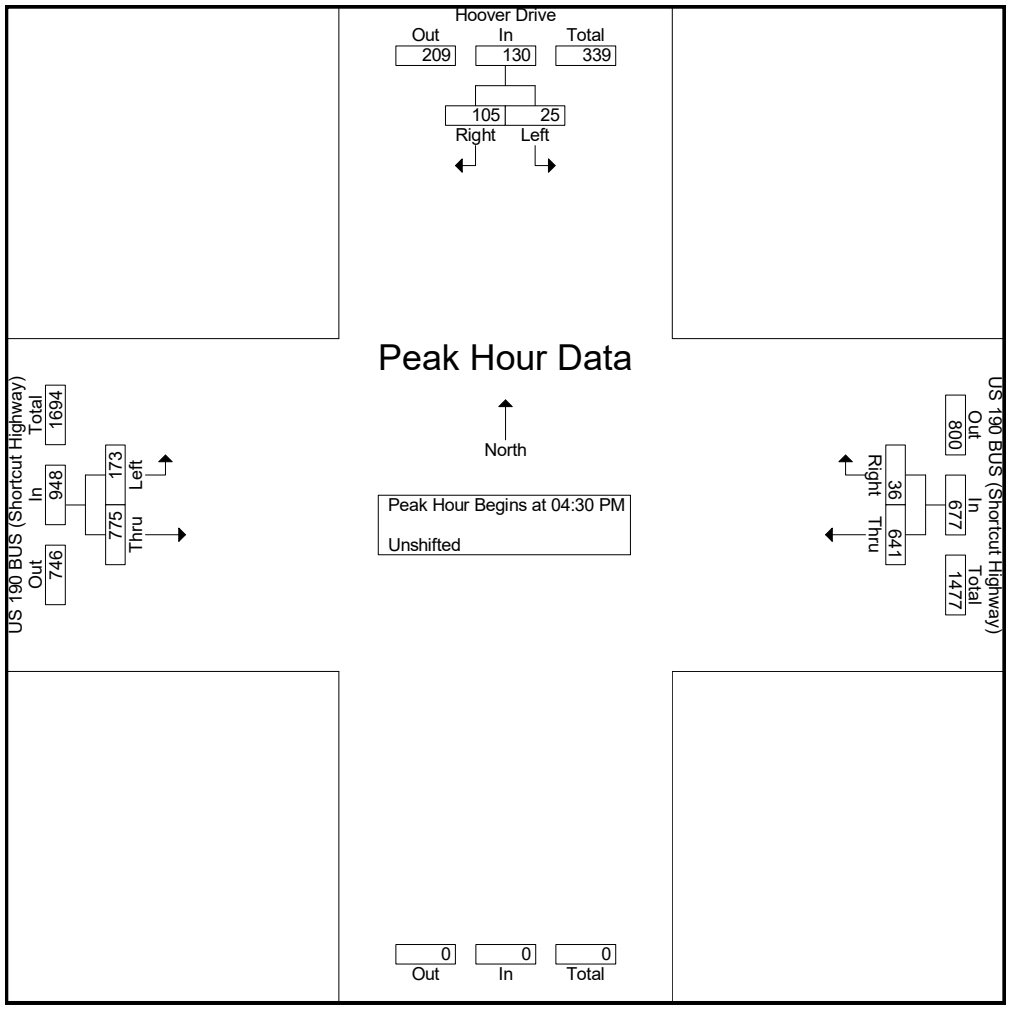
1805 Shortcut Highway
Slidell, LA, 70458

US 190 BUS (Shortcut Highway) @ Hoover Drive

The City of Slidell, St. Tammany Parish, Louisiana

File Name : PM Peak Hour 091719
Site Code : 00000000
Start Date : 9/17/2019
Page No : 2

	Hoover Drive From North			US 190 BUS (Shortcut Highway) From East			From South	US 190 BUS (Shortcut Highway) From West			
Start Time	Right	Left	App. Total	Right	Thru	App. Total	App. Total	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1											
Peak Hour for Entire Intersection Begins at 04:30 PM											
04:30 PM	25	7	32	11	124	135	0	223	34	257	424
04:45 PM	16	3	19	10	147	157	0	167	46	213	389
05:00 PM	35	8	43	8	165	173	0	202	51	253	469
05:15 PM	29	7	36	7	205	212	0	183	42	225	473
Total Volume	105	25	130	36	641	677	0	775	173	948	1755
% App. Total	80.8	19.2		5.3	94.7			81.8	18.2		
PHF	.750	.781	.756	.818	.782	.798	.000	.869	.848	.922	.928



LADOTD Crash List

US190B Traffic Circulation and Corridor Analysis
Beth Drive to Hoover Drive

Control-Section 013-13 between logmiles 1.326 and 2.313
2015-01-01 to 2017-12-31

Csect	Log Mile	Route	Mile Point	tot acc	pdo acc	fat acc	inj acc	num fat	num inj	crash date	most harm evt	manner coll	crash type	surf cond	crash num	par ish	hour	int	iv agy	dir trav	move prior
013-13	1.88	0190Y	1.88	1	1	0	0	0	0	2015-01-08	MV in Trans	Rt Angle	2 vehicles	dry	20150007363	52	18	1	A	EW	IB
013-13	1.33	0190Y	1.33	1	1	0	0	0	0	2015-01-13	MV in Trans	Rt Angle	2 vehicles	dry	150113143824856	52	14	1	B	SE	IB
013-13	1.33	0190Y	1.33	1	1	0	0	0	0	2015-01-25	MV in Trans	Left Turn-g	2 vehicles	dry	150211065338349	52	17	1	B	SE	IB
013-13	1.93	0190Y	1.93	1	1	0	0	0	0	2015-02-03	MV in Trans	Left Turn-f	2 vehicles	dry	20150008145	52	16	1	A	EW	II
013-13	1.75	0190Y	1.75	1	0	0	1	0	5	2015-02-06	MV in Trans	Rt Angle	2 vehicles	dry	20150006521	52	18	1	A	EW	BI
013-13	2.13	0190Y	2.13	1	1	0	0	0	0	2015-02-09	MV in Trans	Left Turn-f	2 vehicles	dry	20150010343	52	15	0	A	WE	IB
013-13	1.56	0190Y	1.56	1	1	0	0	0	0	2015-02-11	MV in Trans	S Swipe(sd)	2 vehicles	dry	150211132532051	52	10	0	B	EE	JB
013-13	1.81	0190Y	1.81	1	0	0	1	0	2	2015-02-17	MV in Trans	Rt Angle	2 vehicles	dry	20150009757	52	17	1	A	EW	IB
013-13	1.33	0190Y	1.33	1	1	0	0	0	0	2015-03-08	MV in Trans	Left Turn-g	2 vehicles	dry	150308115323152	52	15	1	B	SE	IB
013-13	1.81	0190Y	1.81	1	1	0	0	0	0	2015-03-08	Traff Sign Supp	Non Coll	Vertical fixed	dry	20150012977	52	00	1	A	W	G
013-13	1.65	0190Y	1.65	1	1	0	0	0	0	2015-03-14	MV in Trans	Rear End	2 vehicles	dry	20150014295	52	10	1	A	WW	DA
013-13	1.63	0190Y	1.63	1	0	0	1	0	3	2015-03-15	MV in Trans	Rear End	3+ vehicles	dry	150319085444894	52	16	0	B	EEE	BAA
013-13	1.75	0190Y	1.75	1	1	0	0	0	0	2015-03-17	MV in Trans	Left Turn-f	2 vehicles	dry	20150016422	52	11	1	A	WE	IB
013-13	2.12	0190Y	2.12	1	0	0	1	0	1	2015-03-18	MV in Trans	Rt Angle	2 vehicles	dry	20150011957	52	12	1	A	NE	IB
013-13	1.52	0190Y	1.52	1	0	0	1	0	2	2015-03-21	MV in Trans	Rt Angle	2 vehicles	dry	150405091237054	52	20	1	B	NW	BB
013-13	1.75	0190Y	1.75	1	1	0	0	0	0	2015-03-21	MV in Trans	Left Turn-f	2 vehicles	dry	20150016677	52	20	1	A	WE	IB
013-13	1.33	0190Y	1.33	1	0	0	1	0	1	2015-03-29	MV in Trans	Rt Angle	2 vehicles	dry	150329024944701	52	00	1	B	NW	BB
013-13	1.54	0190Y	1.54	1	0	0	1	0	1	2015-04-02	MV in Trans	Left Turn-f	2 vehicles	dry	150402221556232	52	21	1	B	SE	IB
013-13	1.54	0190Y	1.54	1	1	0	0	0	0	2015-04-04	MV in Trans	Rear End	2 vehicles	dry	150407190010106	52	16	0	B	NN	JA
013-13	2.13	0190Y	2.13	1	1	0	0	0	0	2015-04-04	MV in Trans	Rt Angle	2 vehicles	dry	20150017435	52	17	0	A	WE	BB
013-13	1.88	0190Y	1.88	1	1	0	0	0	0	2015-04-06	MV in Trans	Rt Angle	2 vehicles	dry	20150018027	52	18	1	A	WE	BI

LADOTD Crash List

US190B Traffic Circulation and Corridor Analysis
Beth Drive to Hoover Drive

Control-Section 013-13 between logmiles 1.326 and 2.313
2015-01-01 to 2017-12-31

Csect	Log Mile	Route	Mile Point	tot acc	pdo acc	fat acc	inj acc	num fat	num inj	crash date	most harm evt	manner coll	crash type	surf cond	crash num	par ish	hour	int	iv agy	dir trav	move prior
013-13	1.56	0190Y	1.56	1	1	0	0	0	0	2015-04-09	MV in Trans	Rear End	2 vehicles	dry	20150018593	52	08	0	A	WW	HA
013-13	2.07	0190Y	2.07	1	1	0	0	0	0	2015-04-18	MV in Trans	Rt Angle	2 vehicles	wet	20150011520	52	18	0	A	NW	BH
013-13	1.76	0190Y	1.76	1	0	0	1	0	3	2015-04-19	MV in Trans	Rt Angle	2 vehicles	dry	20150017568	52	18	1	A	EW	BI
013-13	2.01	0190Y	2.01	1	1	0	0	0	0	2015-04-23	MV in Trans	Left Turn-f	2 vehicles	dry	20150021812	52	18	1	A	EW	IB
013-13	1.88	0190Y	1.88	1	1	0	0	0	0	2015-04-28	MV in Trans	Rear End	2 vehicles	dry	20150016186	52	12	0	A	WW	BA
013-13	1.89	0190Y	1.89	1	0	0	1	0	2	2015-04-29	MV in Trans	Rt Angle	2 vehicles	dry	20150018516	52	05	1	A	NW	IB
013-13	1.40	0190Y	1.40	1	1	0	0	0	0	2015-05-15	MV in Trans	Rt Angle	2 vehicles	dry	150515235159980	52	23	1	B	NW	BB
013-13	1.61	0190Y	1.61	1	1	0	0	0	0	2015-05-17	MV in Trans	Rear End	2 vehicles	dry	20150022382	52	16	0	A	WW	BA
013-13	1.68	0190Y	1.68	1	1	0	0	0	0	2015-05-19	MV in Trans	S Swipe(sd)	2 vehicles	dry	20150023255	52	08	0	A	WW	HB
013-13	2.12	0190Y	2.12	1	1	0	0	0	0	2015-05-20	MV in Trans	Rt Angle	2 vehicles	dry	20150024664	52	14	0	A	NE	IB
013-13	1.55	0190Y	1.55	1	1	0	0	0	0	2015-05-23	MV in Trans	Rear End	2 vehicles	wet	150524190432886	52	19	0	B	WW	BA
013-13	1.50	0190Y	1.50	1	1	0	0	0	0	2015-05-26	MV in Trans	Rear End	2 vehicles	dry	150526153408339	52	11	0	B	NN	BB
013-13	1.89	0190Y	1.89	1	0	0	1	0	1	2015-05-28	MV in Trans	Rear End	2 vehicles	dry	20150024653	52	19	1	A	WW	BA
013-13	1.53	0190Y	1.53	1	1	0	0	0	0	2015-06-04	MV in Trans	Other	2 vehicles	dry	150604123418565	52	14	1	B	ES	II
013-13	1.88	0190Y	1.88	1	1	0	0	0	0	2015-06-08	MV in Trans	Rear End	Commercial	dry	20150021920	52	11	0	A	EE	BA
013-13	1.75	0190Y	1.75	1	0	0	1	0	1	2015-06-09	MV in Trans	Left Turn-f	2 vehicles	dry	20150027426	52	14	0	A	WE	IB
013-13	1.99	0190Y	1.99	1	1	0	0	0	0	2015-06-09	MV in Trans	S Swipe(sd)	2 vehicles	dry	20150023997	52	23	0	A	WW	HB
013-13	1.59	0190Y	1.59	1	1	0	0	0	0	2015-06-10	MV in Trans	Rear End	2 vehicles	dry	150611105420397	52	12	1	B	SS	BJ
013-13	1.75	0190Y	1.75	1	1	0	0	0	0	2015-06-11	MV in Trans	Rt Angle	2 vehicles	dry	20150014157	52	11	1	A	WW	BI
013-13	1.80	0190Y	1.80	1	1	0	0	0	0	2015-06-26	MV in Trans	Left Turn-f	2 vehicles	dry	20150028648	52	21	0	A	WE	IB
013-13	1.88	0190Y	1.88	1	1	0	0	0	0	2015-07-15	MV in Trans	Left Turn-f	2 vehicles	dry	20150028686	52	21	1	A	EW	IB

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US190B Traffic Circulation and Corridor Analysis
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Control-Section 013-13 between logmiles 1.326 and 2.313
2015-01-01 to 2017-12-31

Csect	Log Mile	Route	Mile Point	tot acc	pdo acc	fat acc	inj acc	num fat	num inj	crash date	most harm evt	manner coll	crash type	surf cond	crash num	par ish	hour	int	iv agy	dir trav	move prior
013-13	1.72	0190Y	1.72	1	1	0	0	0	0	2015-07-17	MV in Trans	Rear End	2 vehicles	dry	20150031654	52	10	0	A	EE	BA
013-13	1.82	0190Y	1.82	1	1	0	0	0	0	2015-07-22	MV in Trans	Rear End	3+ vehicles	dry	20150021529	52	17	1	A	EEE	BAA
013-13	1.83	0190Y	1.83	1	0	0	1	0	1	2015-07-27	MV in Trans	Rt Angle	3+ vehicles	dry	20150033112	52	18	1	A	ENN	BBB
013-13	1.69	0190Y	1.69	1	1	0	0	0	0	2015-07-28	MV in Trans	Rear End	2 vehicles	dry	20150031861	52	15	0	A	EE	BA
013-13	2.00	0190Y	2.00	1	1	0	0	0	0	2015-08-02	MV in Trans	Right Turn-h	2 vehicles	dry	20150031864	52	10	1	A	WW	JA
013-13	2.12	0190Y	2.12	1	1	0	0	0	0	2015-08-02	MV in Trans	Rear End	2 vehicles	dry	20150031895	52	21	0	A	EE	BP
013-13	2.29	0190Y	2.29	1	0	0	1	0	1	2015-08-02	Tree	Non Coll	Vertical fixed	dry	20150032774	52	02	1	A	S	G
013-13	1.54	0190Y	1.54	1	1	0	0	0	0	2015-08-04	MV in Trans	Left Turn-g	2 vehicles	dry	150804131524230	52	13	1	B	WW	II
013-13	1.87	0190Y	1.87	1	0	0	1	0	2	2015-08-05	MV in Trans	Rt Angle	2 vehicles	dry	20150031866	52	12	1	A	EW	IB
013-13	2.31	0190Y	2.31	1	1	0	0	0	0	2015-08-06	MV in Trans	Left Turn-g	2 vehicles	dry	20150033206	52	16	1	A	EE	IA
013-13	1.50	0190Y	1.50	1	1	0	0	0	0	2015-08-14	MV in Trans	Rear End	2 vehicles	dry	150816181553153	52	17	0	B	EE	BA
013-13	1.52	0190Y	1.52	1	1	0	0	0	0	2015-08-14	MV in Trans	S Swipe(sd)	2 vehicles	dry	150816073435495	52	08	1	B	EE	HB
013-13	2.12	0190Y	2.12	1	1	0	0	0	0	2015-08-17	MV in Trans	Rt Angle	2 vehicles	dry	20150034222	52	20	0	A	WW	II
013-13	1.83	0190Y	1.83	1	1	0	0	0	0	2015-08-20	MV in Trans	Left Turn-f	2 vehicles	dry	20150035808	52	14	1	A	ES	BI
013-13	1.55	0190Y	1.55	1	1	0	0	0	0	2015-08-21	MV in Trans	Rear End	2 vehicles	wet	150822034344807	52	18	0	B	WW	QA
013-13	2.31	0190Y	2.31	1	1	0	0	0	0	2015-08-21	MV in Trans	Rt Angle	2 vehicles	dry	20150034223	52	16	0	A	EW	IB
013-13	1.78	0190Y	1.78	1	0	0	1	0	1	2015-08-22	MV in Trans	Rear End	2 vehicles	dry	20150031452	52	12	0	A	EW	BA
013-13	1.83	0190Y	1.83	1	1	0	0	0	0	2015-09-09	MV in Trans	Left Turn-f	2 vehicles	dry	20150038605	52	16	1	A	EW	IB
013-13	1.75	0190Y	1.75	1	1	0	0	0	0	2015-09-11	MV in Trans	Rear End	2 vehicles	wet	20150037228	52	13	1	A	EE	BQ
013-13	1.82	0190Y	1.82	1	1	0	0	0	0	2015-09-15	MV in Trans	Left Turn-g	2 vehicles	dry	20150039631	52	20	1	A	EW	IB
013-13	1.81	0190Y	1.81	1	1	0	0	0	0	2015-09-16	MV in Trans	Rear End	2 vehicles	dry	20150039454	52	13	1	A	EE	BA

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US190B Traffic Circulation and Corridor Analysis
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Control-Section 013-13 between logmiles 1.326 and 2.313
2015-01-01 to 2017-12-31

Csect	Log Mile	Route	Mile Point	tot acc	pdo acc	fat acc	inj acc	num fat	num inj	crash date	most harm evt	manner coll	crash type	surf cond	crash num	par ish	hour	int	iv agy	dir trav	move prior
013-13	2.14	0190Y	2.14	1	1	0	0	0	0	2015-09-23	MV in Trans	Other	2 vehicles	dry	150924090440968	52	16	1	C	WE	MB
013-13	1.77	0190Y	1.77	1	1	0	0	0	0	2015-09-30	MV in Trans	Rear End	2 vehicles	dry	20150038405	52	14	1	A	EE	HQ
013-13	1.77	0190Y	1.77	1	1	0	0	0	0	2015-10-06	MV in Trans	Rt Angle	2 vehicles	dry	20150040027	52	13	1	A	WE	IB
013-13	1.52	0190Y	1.52	1	1	0	0	0	0	2015-10-13	MV in Trans	Rear End	2 vehicles	dry	1510171841442 84	52	19	0	B	EE	ZA
013-13	1.86	0190Y	1.86	1	0	0	1	0	1	2015-10-16	MV in Trans	Rt Angle	2 vehicles	dry	20150040897	52	19	0	A	EW	IB
013-13	1.86	0190Y	1.86	1	1	0	0	0	0	2015-10-16	MV in Trans	Rear End	2 vehicles	dry	20150040898	52	22	0	A	EE	BA
013-13	1.97	0190Y	1.97	1	1	0	0	0	0	2015-10-16	MV in Trans	Rt Angle	2 vehicles	dry	20150040896	52	16	0	A	WW	JB
013-13	1.79	0190Y	1.79	1	1	0	0	0	0	2015-10-17	MV in Trans	Left Turn-f	2 vehicles	dry	20150040899	52	19	0	A	EW	IB
013-13	1.83	0190Y	1.83	1	1	0	0	0	0	2015-10-22	MV in Trans	Right Turn-h	2 vehicles	dry	20150039639	52	19	1	A	EE	BB
013-13	1.82	0190Y	1.82	1	1	0	0	0	0	2015-10-29	MV in Trans	Rt Angle	2 vehicles	dry	20150044532	52	19	0	A	NW	IB
013-13	1.87	0190Y	1.87	1	1	0	0	0	0	2015-11-01	MV in Trans	Left Turn-f	2 vehicles	wet	20150043027	52	09	0	A	EW	IB
013-13	1.34	0190Y	1.34	1	1	0	0	0	0	2015-11-04	MV in Trans	Rt Angle	2 vehicles	dry	151104083046736	52	11	0	B	SE	IB
013-13	2.12	0190Y	2.12	1	1	0	0	0	0	2015-11-04	MV in Trans	Rt Angle	2 vehicles	dry	20150043028	52	13	0	A	NE	IB
013-13	1.35	0190Y	1.35	1	1	0	0	0	0	2015-11-08	MV in Trans	Left Turn-g	2 vehicles	dry	151112061610424	52	14	0	B	SE	IB
013-13	1.88	0190Y	1.88	1	1	0	0	0	0	2015-11-15	Overturned	Left Turn-f	2 vehicles	dry	20150041815	52	17	1	A	EW	IB
013-13	1.77	0190Y	1.77	1	0	0	1	0	2	2015-11-24	MV in Trans	Left Turn-f	2 vehicles	dry	20150046964	52	18	1	A	EW	BI
013-13	1.87	0190Y	1.87	1	0	0	1	0	1	2015-11-25	MV in Trans	Rt Angle	2 vehicles	dry	20150046070	52	19	1	A	EW	IB
013-13	1.99	0190Y	1.99	1	1	0	0	0	0	2015-11-25	MV in Trans	S Swipe(sd)	2 vehicles	dry	20150046276	52	12	0	A	WW	HB
013-13	1.83	0190Y	1.83	1	1	0	0	0	0	2015-11-27	MV in Trans	Rt Angle	2 vehicles	dry	20150046965	52	18	1	A	NW	IB
013-13	1.75	0190Y	1.75	1	0	0	1	0	2	2015-12-01	MV in Trans	Left Turn-f	2 vehicles	wet	20150046279	52	16	1	A	EW	BI
013-13	2.12	0190Y	2.12	1	1	0	0	0	0	2015-12-01	MV in Trans	Rt Angle	2 vehicles	wet	20150047214	52	14	0	A	WE	IB

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US190B Traffic Circulation and Corridor Analysis
Beth Drive to Hoover Drive

Control-Section 013-13 between logmiles 1.326 and 2.313
2015-01-01 to 2017-12-31

Csect	Log Mile	Route	Mile Point	tot acc	pdo acc	fat acc	inj acc	num fat	num inj	crash date	most harm evt	manner coll	crash type	surf cond	crash num	par ish	hour	int	iv agy	dir trav	move prior
013-13	1.83	0190Y	1.83	1	0	0	1	0	2	2015-12-02	MV in Trans	Rt Angle	2 vehicles	dry	20150046969	52	18	1	A	SE	IB
013-13	1.40	0190Y	1.40	1	1	0	0	0	0	2015-12-05	MV in Trans	Left Turn-f	2 vehicles	dry	151209063615893	52	16	1	B	EW	IA
013-13	1.83	0190Y	1.83	1	0	0	1	0	2	2015-12-05	MV in Trans	Rear End	2 vehicles	dry	20150047933	52	07	1	A	EE	BA
013-13	1.83	0190Y	1.83	1	1	0	0	0	0	2015-12-05	MV in Trans	Left Turn-f	2 vehicles	dry	20150048211	52	19	1	A	EW	IB
013-13	1.52	0190Y	1.52	1	1	0	0	0	0	2015-12-07	MV in Trans	Rear End	2 vehicles	dry	20150045906	52	10	0	A	EE	JA
013-13	2.00	0190Y	2.00	1	0	0	1	0	4	2015-12-07	MV in Trans	Rt Angle	3+ vehicles	dry	20150045907	52	14	0	A	SWE	BBB
013-13	1.88	0190Y	1.88	1	0	0	1	0	5	2015-12-10	MV in Trans	Rt Angle	2 vehicles	dry	20150047831	52	20	1	A	EW	IB
013-13	1.58	0190Y	1.58	1	0	0	1	0	2	2015-12-17	MV in Trans	Rear End	2 vehicles	dry	20150048005	52	18	0	A	WW	BA
013-13	1.53	0190Y	1.53	1	1	0	0	0	0	2015-12-21	MV in Trans	Rt Angle	2 vehicles	wet	151221142641053	52	14	1	B	ES	BI
Total	2015			93	69	0	24	0	48												
013-13	1.75	0190Y	1.75	1	1	0	0	0	0	2016-01-02	MV in Trans	Left Turn-f	2 vehicles	dry	20160001472	52	17	1	A	WE	IB
013-13	1.88	0190Y	1.88	1	1	0	0	0	0	2016-01-09	MV in Trans	Rt Angle	2 vehicles	dry	20160004181	52	22	0	A	NE	IB
013-13	1.92	0190Y	1.92	1	0	0	1	0	2	2016-01-10	MV in Trans	Left Turn-f	2 vehicles	dry	20160004228	52	19	1	A	EW	IB
013-13	1.52	0190Y	1.52	1	1	0	0	0	0	2016-01-11	MV in Trans	Rear End	2 vehicles	dry	160116100037058	52	07	0	B	EE	BA
013-13	1.89	0190Y	1.89	1	0	0	1	0	1	2016-01-15	MV in Trans	Rt Angle	2 vehicles	dry	20160000523	52	20	1	A	WE	BI
013-13	1.52	0190Y	1.52	1	1	0	0	0	0	2016-01-30	MV in Trans	Rear End	2 vehicles	dry	160130114244307	52	09	1	B	EE	BA
013-13	1.59	0190Y	1.59	1	1	0	0	0	0	2016-02-05	MV in Trans	Rear End	2 vehicles	dry	160205144219448	52	14	0	B	NN	BA
013-13	1.87	0190Y	1.87	1	0	0	1	0	2	2016-02-05	MV in Trans	Left Turn-f	2 vehicles	dry	20160007050	52	21	0	A	EW	IB
013-13	2.06	0190Y	2.06	1	1	0	0	0	0	2016-02-05	MV in Trans	Rt Angle	2 vehicles	dry	20160008632	52	20	0	A	NE	JB
013-13	1.83	0190Y	1.83	1	1	0	0	0	0	2016-02-06	MV in Trans	Rt Angle	2 vehicles	dry	20160010361	52	08	1	A	WE	IB

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US190B Traffic Circulation and Corridor Analysis
Beth Drive to Hoover Drive

Control-Section 013-13 between logmiles 1.326 and 2.313
2015-01-01 to 2017-12-31

Csect	Log Mile	Route	Mile Point	tot acc	pdo acc	fat acc	inj acc	num fat	num inj	crash date	most harm evt	manner coll	crash type	surf cond	crash num	par ish	hour	int	iv agy	dir trav	move prior
013-13	1.34	0190Y	1.34	1	1	0	0	0	0	2016-02-11	MV in Trans	Rt Angle	2 vehicles	dry	160215132239551	52	18	1	B	NE	BB
013-13	1.75	0190Y	1.75	1	0	0	1	0	1	2016-02-11	MV in Trans	Left Turn-f	2 vehicles	dry	20160008635	52	16	0	A	WE	IB
013-13	1.75	0190Y	1.75	1	0	0	1	0	1	2016-02-11	MV in Trans	Rt Angle	2 vehicles	dry	20160008636	52	19	0	A	NW	WF
013-13	1.33	0190Y	1.33	1	0	0	1	0	2	2016-02-15	MV in Trans	Rt Angle	2 vehicles	wet	160215234959977	52	22	1	B	SW	IB
013-13	2.13	0190Y	2.13	1	1	0	0	0	0	2016-02-15	MV in Trans	Rt Angle	2 vehicles	dry	20160010370	52	18	0	A	NE	IB
013-13	2.12	0190Y	2.12	1	1	0	0	0	0	2016-02-18	MV in Trans	Head on	2 vehicles	dry	20160010656	52	06	1	A	WN	IA
013-13	1.50	0190Y	1.50	1	1	0	0	0	0	2016-03-04	MV in Trans	Rear End	2 vehicles	dry	160316045031853	52	07	0	B	EE	QA
013-13	1.52	0190Y	1.52	1	1	0	0	0	0	2016-03-04	MV in Trans	Rear End	2 vehicles	dry	160304073736589	52	07	0	B	EE	BA
013-13	1.33	0190Y	1.33	1	0	0	1	0	1	2016-03-06	MV in Trans	Non Coll	Error	dry	160321044710738	52	09	1	B	E	B
013-13	1.34	0190Y	1.34	1	1	0	0	0	0	2016-03-07	MV in Trans	Rear End	2 vehicles	dry	160323010054529	52	07	0	B	EE	BA
013-13	2.07	0190Y	2.07	1	0	0	1	0	1	2016-03-12	MV in Trans	Rt Angle	2 vehicles	dry	20160013540	52	18	0	A	WE	IB
013-13	1.83	0190Y	1.83	1	1	0	0	0	0	2016-03-15	MV in Trans	Rear End	Commercial	dry	20160015305	52	13	0	A	EE	BA
013-13	1.53	0190Y	1.53	1	1	0	0	0	0	2016-03-16	MV in Trans	S Swipe(sd)	2 vehicles	dry	160316203209679	52	20	0	B	EE	HB
013-13	1.33	0190Y	1.33	1	0	0	1	0	1	2016-03-22	MV in Trans	Rear End	2 vehicles	dry	160326081924551	52	13	1	B	SS	II
013-13	1.83	0190Y	1.83	1	0	0	1	0	4	2016-03-30	MV in Trans	Left Turn-f	2 vehicles	dry	20160001479	52	16	1	A	EW	BI
013-13	1.53	0190Y	1.53	1	1	0	0	0	0	2016-04-04	MV in Trans	Rt Angle	2 vehicles	dry	160405113743408	52	10	0	B	WS	BB
013-13	1.83	0190Y	1.83	1	1	0	0	0	0	2016-04-06	Parked MV	S Swipe(sd)	Error	dry	20160015520	52		1	A	WW	GR
013-13	1.87	0190Y	1.87	1	1	0	0	0	0	2016-04-06	MV in Trans	Rear End	2 vehicles	dry	20160018843	52	14	0	A	EE	BQ
013-13	1.86	0190Y	1.86	1	0	0	1	0	2	2016-04-12	MV in Trans	Left Turn-f	2 vehicles	dry	20160015518	52		1	A	EW	IB
013-13	1.84	0190Y	1.84	1	1	0	0	0	0	2016-04-20	MV in Trans	Rt Angle	2 vehicles	dry	20160020308	52	16	0	A	EW	IB
013-13	1.95	0190Y	1.95	1	1	0	0	0	0	2016-04-22	MV in Trans	Rear End	2 vehicles	dry	20160020687	52	15	0	A	WW	BA

LADOTD Crash List

US190B Traffic Circulation and Corridor Analysis
Beth Drive to Hoover Drive

Control-Section 013-13 between logmiles 1.326 and 2.313
2015-01-01 to 2017-12-31

Csect	Log Mile	Route	Mile Point	tot acc	pdo acc	fat acc	inj acc	num fat	num inj	crash date	most harm evt	manner coll	crash type	surf cond	crash num	par ish	hour	int	iv agy	dir trav	move prior
013-13	2.02	0190Y	2.02	1	1	0	0	0	0	2016-04-22	MV in Trans	Rear End	Animal	dry	20160020686	52	15	0	A	WW	BA
013-13	1.60	0190Y	1.60	1	1	0	0	0	0	2016-05-06	MV in Trans	Rear End	2 vehicles	dry	20160020548	52	15	0	A	EE	BQ
013-13	1.83	0190Y	1.83	1	0	0	1	0	2	2016-05-10	MV in Trans	Rt Angle	2 vehicles	dry	20160023967	52	20	1	A	EW	BI
013-13	1.90	0190Y	1.90	1	1	0	0	0	0	2016-05-12	MV in Trans	Rear End	2 vehicles	dry	20160023555	52	16	1	A	EE	BQ
013-13	1.34	0190Y	1.34	1	1	0	0	0	0	2016-05-20	MV in Trans	Left Turn-g	2 vehicles	dry	160522174145130	52	16	1	B	SE	IB
013-13	1.66	0190Y	1.66	1	1	0	0	0	0	2016-05-25	MV in Trans	Rear End	2 vehicles	dry	20160023558	52	17	0	A	EE	BQ
013-13	2.20	0190Y	2.20	1	0	0	1	0	1	2016-06-11	MV in Trans	Left Turn-f	2 vehicles	dry	20160026867	52	17	0	A	WE	IB
013-13	2.12	0190Y	2.12	1	1	0	0	0	0	2016-06-14	MV in Trans	Rt Angle	2 vehicles	dry	20160025585	52	17	1	A	NE	IB
013-13	1.94	0190Y	1.94	1	1	0	0	0	0	2016-06-17	MV in Trans	Rt Angle	2 vehicles	dry	20160021379	52	14	1	A	NE	YB
013-13	1.88	0190Y	1.88	1	1	0	0	0	0	2016-06-20	MV in Trans	Rt Angle	2 vehicles	dry	20160027687	52	17	0	A	WW	IB
013-13	2.01	0190Y	2.01	1	1	0	0	0	0	2016-06-23	MV in Trans	Rt Angle	2 vehicles	dry	20160026655	52	15	0	A	SW	BB
013-13	1.84	0190Y	1.84	1	1	0	0	0	0	2016-06-26	MV in Trans	Rt Angle	2 vehicles	dry	20160027689	52	22	0	A	EW	IB
013-13	1.76	0190Y	1.76	1	1	0	0	0	0	2016-06-27	MV in Trans	Left Turn-f	2 vehicles	dry	20160026656	52	20	1	A	SE	IB
013-13	1.54	0190Y	1.54	1	1	0	0	0	0	2016-06-29	MV in Trans	Rear End	2 vehicles	dry	160629095558664	52	15	0	B	WW	BA
013-13	1.33	0190Y	1.33	1	0	0	1	0	2	2016-07-01	MV in Trans	Rear End	2 vehicles	dry	160702170234104	52	21	1	B	WW	BA
013-13	1.52	0190Y	1.52	1	1	0	0	0	0	2016-07-05	MV in Trans	Left Turn-g	2 vehicles	dry	160705160424361	52	15	0	B	WW	JI
013-13	1.83	0190Y	1.83	1	0	0	1	0	1	2016-07-06	MV in Trans	Left Turn-f	2 vehicles	dry	20160030001	52	07	1	A	EW	IB
013-13	1.70	0190Y	1.70	1	1	0	0	0	0	2016-07-07	MV in Trans	Rear End	2 vehicles	dry	160707001402309	52	21	0	C	WW	YA
013-13	1.34	0190Y	1.34	1	1	0	0	0	0	2016-07-10	MV in Trans	Rt Angle	2 vehicles	dry	160718100742603	52	11	1	B	SE	BB
013-13	1.52	0190Y	1.52	1	1	0	0	0	0	2016-07-11	MV in Trans	Rear End	2 vehicles	dry	160711205723719	52	19	0	B	EE	BB
013-13	1.78	0190Y	1.78	1	0	0	1	0	1	2016-07-15	MV in Trans	Rear End	2 vehicles	dry	20160030009	52	18	0	A	EE	BA

LADOTD Crash List

US190B Traffic Circulation and Corridor Analysis
Beth Drive to Hoover Drive

Control-Section 013-13 between logmiles 1.326 and 2.313
2015-01-01 to 2017-12-31

Csect	Log Mile	Route	Mile Point	tot acc	pdo acc	fat acc	inj acc	num fat	num inj	crash date	most harm evt	manner coll	crash type	surf cond	crash num	par ish	hour	int	iv agy	dir trav	move prior
013-13	1.34	0190Y	1.34	1	1	0	0	0	0	2016-07-29	MV in Trans	Left Turn-g	2 vehicles	dry	160801070905891	52	15	1	B	SE	IB
013-13	1.87	0190Y	1.87	1	0	0	1	0	1	2016-07-30	MV in Trans	Left Turn-f	2 vehicles	dry	20160030698	52	20	1	A	NW	IB
013-13	1.53	0190Y	1.53	1	1	0	0	0	0	2016-08-04	MV in Trans	S Swipe(sd)	2 vehicles	dry	160809093000159	52	13	0	B	SS	II
013-13	2.01	0190Y	2.01	1	1	0	0	0	0	2016-08-05	MV in Trans	Rear End	2 vehicles	wet	160805180121767	52	18	0	B	SS	BA
013-13	2.16	0190Y	2.16	1	0	0	1	0	2	2016-08-08	MV in Trans	Rear End	2 vehicles	dry	20160030520	52	15	0	A	EE	BP
013-13	1.75	0190Y	1.75	1	0	0	1	0	1	2016-08-17	MV in Trans	Left Turn-f	2 vehicles	dry	20160033225	52	21	0	A	WE	IB
013-13	1.88	0190Y	1.88	1	1	0	0	0	0	2016-08-23	MV in Trans	Left Turn-f	2 vehicles	dry	20160033200	52	18	1	A	EW	IB
013-13	1.83	0190Y	1.83	1	1	0	0	0	0	2016-08-29	MV in Trans	Rear End	2 vehicles	dry	20160035776	52	17	1	A	WW	BQ
013-13	1.68	0190Y	1.68	1	1	0	0	0	0	2016-09-06	MV in Trans	Rear End	2 vehicles	dry	20160034237	52	17	1	A	WW	BQ
013-13	2.00	0190Y	2.00	1	1	0	0	0	0	2016-09-13	MV in Trans	Rear End	2 vehicles	dry	20160037560	52	09	1	A	SS	BA
013-13	1.92	0190Y	1.92	1	1	0	0	0	0	2016-09-19	MV in Trans	S Swipe(sd)	2 vehicles	dry	20160036640	52	14	1	A	EE	HB
013-13	2.11	0190Y	2.11	1	0	0	1	0	2	2016-09-22	MV in Trans	Rt Angle	2 vehicles	dry	20160031680	52	16	1	A	WE	IB
013-13	1.33	0190Y	1.33	1	1	0	0	0	0	2016-09-25	MV in Trans	Left Turn-g	2 vehicles	dry	160926030732902	52	15	1	B	SE	IB
013-13	1.94	0190Y	1.94	1	1	0	0	0	0	2016-09-26	MV in Trans	Rear End	2 vehicles	dry	20160038707	52	03	0	A	WW	BA
013-13	1.53	0190Y	1.53	1	1	0	0	0	0	2016-09-30	MV in Trans	Rear End	Commercial	dry	160930105220110	52	10	1	B	EE	BA
013-13	1.34	0190Y	1.34	1	0	0	1	0	4	2016-10-06	MV in Trans	Rt Angle	2 vehicles	dry	161007072434789	52	17	1	B	SW	BB
013-13	2.01	0190Y	2.01	1	1	0	0	0	0	2016-10-07	MV in Trans	Rear End	2 vehicles	dry	161013080647096	52	11	1	B	SS	BA
013-13	1.83	0190Y	1.83	1	1	0	0	0	0	2016-10-09	MV in Trans	Right Turn-h	2 vehicles	dry	20160038519	52	13	1	A	EE	HB
013-13	1.71	0190Y	1.71	1	1	0	0	0	0	2016-10-14	MV in Trans	Rear End	3+ vehicles	dry	20160040357	52	18	0	A	EEE	BAA
013-13	1.33	0190Y	1.33	1	1	0	0	0	0	2016-10-21	MV in Trans	Rt Angle	2 vehicles	dry	161026113635058	52	15	1	B	SE	BB
013-13	1.40	0190Y	1.40	1	1	0	0	0	0	2016-10-23	MV in Trans	Left Turn-f	2 vehicles	dry	161023125702818	52	12	0	B	NW	IO

LADOTD Crash List

US190B Traffic Circulation and Corridor Analysis
Beth Drive to Hoover Drive

Control-Section 013-13 between logmiles 1.326 and 2.313
2015-01-01 to 2017-12-31

Csect	Log Mile	Route	Mile Point	tot acc	pdo acc	fat acc	inj acc	num fat	num inj	crash date	most harm evt	manner coll	crash type	surf cond	crash num	par ish	hour	int	iv agy	dir trav	move prior
013-13	1.53	0190Y	1.53	1	1	0	0	0	0	2016-10-24	MV in Trans	Rear End	2 vehicles	dry	161028081845769	52	09	0	B	NN	BA
013-13	1.81	0190Y	1.81	1	0	0	1	0	1	2016-10-25	MV in Trans	Rt Angle	2 vehicles	dry	20160041502	52	21	1	A	WE	IB
013-13	1.87	0190Y	1.87	1	0	0	1	0	2	2016-10-26	MV in Trans	Rt Angle	2 vehicles	dry	20160041285	52	07	1	A	EW	IB
013-13	1.83	0190Y	1.83	1	1	0	0	0	0	2016-10-27	MV in Trans	Rear End	2 vehicles	dry	20160043247	52	19	1	A	WW	BA
013-13	1.53	0190Y	1.53	1	1	0	0	0	0	2016-11-08	MV in Trans	S Swipe(sd)	2 vehicles	wet	161112101218818	52	16	0	B	NN	HB
013-13	1.54	0190Y	1.54	1	1	0	0	0	0	2016-11-10	MV in Trans	Rear End	2 vehicles	dry	161115020636342	52	17	0	B	WW	BA
013-13	2.03	0190Y	2.03	1	1	0	0	0	0	2016-11-17	MV in Trans	Rt Angle	2 vehicles	dry	20160047312	52	18	0	A	WE	IB
013-13	1.70	0190Y	1.70	1	1	0	0	0	0	2016-11-21	MV in Trans	Rt Angle	2 vehicles	dry	161205084953339	52	15	0	B	NS	BB
013-13	1.83	0190Y	1.83	1	1	0	0	0	0	2016-11-21	MV in Trans	Rear End	2 vehicles	dry	20160047313	52	06	1	A	EE	BQ
013-13	1.34	0190Y	1.34	1	0	0	1	0	1	2016-11-28	MV in Trans	Rt Angle	2 vehicles	dry	161129153953076	52	15	1	B	SE	B
013-13	1.53	0190Y	1.53	1	1	0	0	0	0	2016-12-07	MV in Trans	Other	2 vehicles	dry	161212072739606	52	14	0	B	ES	BB
013-13	1.75	0190Y	1.75	1	1	0	0	0	0	2016-12-10	MV in Trans	Rear End	2 vehicles	dry	20160047220	52	12	0	A	WW	BA
013-13	1.71	0190Y	1.71	1	1	0	0	0	0	2016-12-14	MV in Trans	Rear End	2 vehicles	wet	20160049953	52	19	0	A	EE	BA
013-13	1.83	0190Y	1.83	1	1	0	0	0	0	2016-12-17	MV in Trans	Rt Angle	2 vehicles	dry	20160045698	52	07	1	A	WE	IB
013-13	1.87	0190Y	1.87	1	0	0	1	0	3	2016-12-20	MV in Trans	Rt Angle	2 vehicles	dry	20160049715	52	20	1	A	EW	IB
013-13	1.71	0190Y	1.71	1	0	0	1	0	1	2016-12-22	MV in Trans	Rear End	2 vehicles	dry	20160050523	52	15	0	A	WW	BA
013-13	2.01	0190Y	2.01	1	1	0	0	0	0	2016-12-22	MV in Trans	Rear End	2 vehicles	dry	170101231000890	52	10	0	B	WW	BA
Total	2016			90	64	0	26	0	43												
013-13	2.13	0190Y	2.13	1	0	0	1	0	3	2017-01-02	MV in Trans	Rt Angle	3+ vehicles	dry	20170001682	52	12	0	A	WEW	IBB
013-13	1.66	0190Y	1.66	1	1	0	0	0	0	2017-01-09	MV in Trans	Rear End	2 vehicles	dry	20170005423	52	17	0	A	WW	BA

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US190B Traffic Circulation and Corridor Analysis
Beth Drive to Hoover Drive

Control-Section 013-13 between logmiles 1.326 and 2.313
2015-01-01 to 2017-12-31

Csect	Log Mile	Route	Mile Point	tot acc	pdo acc	fat acc	inj acc	num fat	num inj	crash date	most harm evt	manner coll	crash type	surf cond	crash num	par ish	hour	int	iv agy	dir trav	move prior
013-13	1.62	0190Y	1.62	1	1	0	0	0	0	2017-01-10	MV in Trans	Rear End	2 vehicles	dry	20170005697	52	15	0	A	EE	BQ
013-13	1.89	0190Y	1.89	1	1	0	0	0	0	2017-01-12	MV in Trans	Left Turn-f	2 vehicles	dry	20170002845	52	19	1	A	EW	IB
013-13	1.34	0190Y	1.34	1	1	0	0	0	0	2017-01-14	MV in Trans	Rt Angle	2 vehicles	dry	170117162105600	52	11	1	B	SE	BB
013-13	1.91	0190Y	1.91	1	0	0	1	0	4	2017-01-17	MV in Trans	Left Turn-f	2 vehicles	dry	20170000335	52	21	1	A	EW	IB
013-13	2.11	0190Y	2.11	1	1	0	0	0	0	2017-01-19	MV in Trans	S Swipe(sd)	Commercial	wet	20170005428	52	17	0	A	EE	HB
013-13	2.02	0190Y	2.02	1	1	0	0	0	0	2017-01-24	MV in Trans	S Swipe(sd)	2 vehicles	dry	20170009842	52	15	0	A	EE	HB
013-13	1.33	0190Y	1.33	1	0	0	1	0	2	2017-01-25	MV in Trans	Rt Angle	3+ vehicles	dry	170130074559203	52	14	1	B	SEW	BBA
013-13	2.12	0190Y	2.12	1	0	0	1	0	1	2017-01-25	MV in Trans	Rt Angle	2 vehicles	dry	20170010571	52	18	1	A	WE	IB
013-13	1.86	0190Y	1.86	1	0	0	1	0	1	2017-01-30	MV in Trans	Left Turn-f	2 vehicles	dry	20170009961	52	19	1	A	EW	IB
013-13	1.83	0190Y	1.83	1	1	0	0	0	0	2017-02-02	MV in Trans	Rt Angle	2 vehicles	dry	20170009486	52	19	1	A	WW	IB
013-13	2.00	0190Y	2.00	1	0	0	1	0	2	2017-02-02	MV in Trans	Rt Angle	2 vehicles	dry	20170007667	52	12	1	A	SW	JB
013-13	1.34	0190Y	1.34	1	1	0	0	0	0	2017-02-08	MV in Trans	Left Turn-g	2 vehicles	dry	170208103942096	52	08	0	B	SE	IB
013-13	1.89	0190Y	1.89	1	1	0	0	0	0	2017-02-14	MV in Trans	Rear End	2 vehicles	dry	20170010577	52	17	1	A	WW	BA
013-13	1.51	0190Y	1.51	1	1	0	0	0	0	2017-02-15	MV in Trans	Rear End	2 vehicles	dry	170215171508739	52	15	0	B	WW	BA
013-13	1.83	0190Y	1.83	1	1	0	0	0	0	2017-02-17	MV in Trans	Left Turn-f	2 vehicles	dry	20170010578	52	20	1	A	EW	IB
013-13	1.87	0190Y	1.87	1	0	0	1	0	1	2017-02-24	MV in Trans	Rear End	2 vehicles	dry	20170012156	52	20	1	A	EE	BA
013-13	1.83	0190Y	1.83	1	1	0	0	0	0	2017-02-26	MV in Trans	Rt Angle	2 vehicles	dry	20170012157	52	19	1	A	WE	IB
013-13	1.83	0190Y	1.83	1	1	0	0	0	0	2017-02-27	MV in Trans	Rear End	2 vehicles	dry	20170013533	52	14	1	A	EE	BA
013-13	1.83	0190Y	1.83	1	1	0	0	0	0	2017-03-01	MV in Trans	Rear End	Commercial	dry	20170013943	52	11	1	A	EE	BA
013-13	1.87	0190Y	1.87	1	1	0	0	0	0	2017-03-14	MV in Trans	Left Turn-g	2 vehicles	dry	20170016261	52	13	1	A	WE	II
013-13	1.83	0190Y	1.83	1	1	0	0	0	0	2017-03-21	MV in Trans	Rear End	2 vehicles	dry	20170016594	52	10	1	A	EE	BA

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US190B Traffic Circulation and Corridor Analysis
Beth Drive to Hoover Drive

Control-Section 013-13 between logmiles 1.326 and 2.313
2015-01-01 to 2017-12-31

Csect	Log Mile	Route	Mile Point	tot acc	pdo acc	fat acc	inj acc	num fat	num inj	crash date	most harm evt	manner coll	crash type	surf cond	crash num	par ish	hour	int	iv agy	dir trav	move prior
013-13	1.33	0190Y	1.33	1	1	0	0	0	0	2017-03-31	MV in Trans	Rt Angle	2 vehicles	dry	1704010900475 16	52	17	1	B	SE	IB
013-13	1.83	0190Y	1.83	1	1	0	0	0	0	2017-04-01	MV in Trans	Left Turn-f	2 vehicles	dry	20170016863	52	20	1	A	NW	IB
013-13	1.82	0190Y	1.82	1	1	0	0	0	0	2017-04-07	MV in Trans	Rear End	2 vehicles	dry	20170018261	52	13	1	A	EE	BA
013-13	1.78	0190Y	1.78	1	1	0	0	0	0	2017-04-17	MV in Trans	Left Turn-f	2 vehicles	dry	20170020343	52	10	1	A	SE	IB
013-13	1.88	0190Y	1.88	1	1	0	0	0	0	2017-04-18	MV in Trans	Left Turn-f	2 vehicles	dry	20170016349	52	22	1	A	EW	IB
013-13	1.41	0190Y	1.41	1	1	0	0	0	0	2017-04-19	MV in Trans	Other	2 vehicles	dry	1704260910517 17	52	15	1	B	NW	BB
013-13	1.83	0190Y	1.83	1	1	0	0	0	0	2017-04-19	MV in Trans	Left Turn-f	2 vehicles	dry	20170021392	52	11	1	A	NW	IB
013-13	1.80	0190Y	1.80	1	1	0	0	0	0	2017-04-20	MV in Trans	S Swipe(sd)	2 vehicles	dry	20170019359	52	17	1	A	WW	HB
013-13	1.34	0190Y	1.34	1	0	0	1	0	1	2017-04-24	MV in Trans	Rt Angle	2 vehicles	dry	1705090019172 36	52	06	1	B	NE	BB
013-13	1.83	0190Y	1.83	1	1	0	0	0	0	2017-04-27	MV in Trans	Rear End	2 vehicles	dry	20170023492	52	15	1	A	EE	BA
013-13	1.88	0190Y	1.88	1	1	0	0	0	0	2017-05-02	MV in Trans	Left Turn-f	2 vehicles	dry	20170016350	52	07	1	A	EW	IB
013-13	2.11	0190Y	2.11	1	0	0	1	0	3	2017-05-04	MV in Trans	Rt Angle	2 vehicles	wet	20170017537	52	07	0	A	NE	IB
013-13	1.55	0190Y	1.55	1	1	0	0	0	0	2017-05-11	MV in Trans	Rear End	2 vehicles	dry	20170022257	52	13	0	A	WW	HA
013-13	2.12	0190Y	2.12	1	1	0	0	0	0	2017-05-12	MV in Trans	Right Turn-i	2 vehicles	wet	20170013190	52	19	1	A	EN	JA
013-13	1.67	0190Y	1.67	1	1	0	0	0	0	2017-05-15	MV in Trans	Rear End	Motorcycle	dry	20170023065	52	16	0	A	EE	BA
013-13	1.93	0190Y	1.93	1	0	0	1	0	1	2017-05-21	MV in Trans	Rear End	2 vehicles	dry	20170026603	52	15	0	A	WW	BA
013-13	1.57	0190Y	1.57	1	1	0	0	0	0	2017-05-23	MV in Trans	Rear End	3+ vehicles	dry	1705261020375 40	52	17	1	B	EEE	BBB
013-13	2.12	0190Y	2.12	1	0	0	1	0	2	2017-05-25	MV in Trans	Rt Angle	2 vehicles	dry	20170026605	52	12	1	A	NE	IB
013-13	1.83	0190Y	1.83	1	1	0	0	0	0	2017-06-02	MV in Trans	Rear End	2 vehicles	dry	20170025425	52	08	1	A	WW	BA
013-13	1.83	0190Y	1.83	1	0	0	1	0	3	2017-06-07	MV in Trans	Rt Angle	2 vehicles	dry	20170027783	52	20	1	A	NW	IB
013-13	1.83	0190Y	1.83	1	1	0	0	0	0	2017-06-15	MV in Trans	Rt Angle	2 vehicles	dry	20170027846	52	20	1	A	WE	IB

LADOTD Crash List

US190B Traffic Circulation and Corridor Analysis
Beth Drive to Hoover Drive

Control-Section 013-13 between logmiles 1.326 and 2.313
2015-01-01 to 2017-12-31

Csect	Log Mile	Route	Mile Point	tot acc	pdo acc	fat acc	inj acc	num fat	num inj	crash date	most harm evt	manner coll	crash type	surf cond	crash num	par ish	hour	int	iv agy	dir trav	move prior
013-13	1.83	0190Y	1.83	1	1	0	0	0	0	2017-06-17	MV in Trans	Rear End	2 vehicles	dry	20170028687	52	23	1	A	WW	BA
013-13	1.61	0190Y	1.61	1	1	0	0	0	0	2017-06-20	Concr. Barrier	Non Coll	Other fixed	wet	20170027446	52	03	0	A	E	I
013-13	1.81	0190Y	1.81	1	1	0	0	0	0	2017-06-23	MV in Trans	Left Turn-g	2 vehicles	dry	20170022718	52	16	1	A	WW	BI
013-13	1.83	0190Y	1.83	1	1	0	0	0	0	2017-07-05	MV in Trans	Rt Angle	2 vehicles	dry	20170029257	52	17	1	A	EW	IB
013-13	1.81	0190Y	1.81	1	1	0	0	0	0	2017-07-23	MV in Trans	Rear End	2 vehicles	dry	20170029117	52	15	1	A	WW	BA
013-13	1.83	0190Y	1.83	1	0	0	1	0	2	2017-08-03	MV in Trans	Rt Angle	2 vehicles	dry	20170033353	52	21	1	A	ES	BI
013-13	1.83	0190Y	1.83	1	1	0	0	0	0	2017-08-21	MV in Trans	S Swipe(sd)	2 vehicles	wet	20170034324	52	12	1	A	WW	II
013-13	1.85	0190Y	1.85	1	0	0	1	0	1	2017-08-21	MV in Trans	Rear End	3+ vehicles	wet	20170035341	52	12	0	A	WWW	BAA
013-13	1.83	0190Y	1.83	1	1	0	0	0	0	2017-08-26	MV in Trans	Rt Angle	2 vehicles	dry	20170035344	52	12	1	A	WE	IB
013-13	1.83	0190Y	1.83	1	1	0	0	0	0	2017-09-10	MV in Trans	Rear End	3+ vehicles	dry	20170039101	52	19	1	A	WWW	BAA
013-13	1.34	0190Y	1.34	1	0	0	1	0	1	2017-09-11	MV in Trans	Rt Angle	2 vehicles	dry	170911094122589	52	08	1	B	NE	IB
013-13	1.81	0190Y	1.81	1	0	0	1	0	1	2017-09-21	MV in Trans	Left Turn-f	2 vehicles	dry	20170038294	52	06	1	A	WE	IB
013-13	2.01	0190Y	2.01	1	1	0	0	0	0	2017-10-04	MV in Trans	Right Turn-h	2 vehicles	dry	20170039905	52	14	1	A	WW	JI
013-13	1.33	0190Y	1.33	1	0	0	1	0	1	2017-10-13	MV in Trans	Rt Angle	3+ vehicles	dry	171014093344285	52	16	1	B	SEN	BBA
013-13	1.33	0190Y	1.33	1	1	0	0	0	0	2017-10-22	MV in Trans	S Swipe(sd)	2 vehicles	wet	171025072350178	52	12	1	B	SE	IB
013-13	1.83	0190Y	1.83	1	1	0	0	0	0	2017-10-24	MV in Trans	Left Turn-f	2 vehicles	dry	20170044833	52	19	1	A	EW	IB
013-13	1.81	0190Y	1.81	1	1	0	0	0	0	2017-10-31	MV in Trans	Rt Angle	2 vehicles	dry	20170043825	52	11	1	A	NE	BB
013-13	1.71	0190Y	1.71	1	1	0	0	0	0	2017-11-08	MV in Trans	S Swipe(sd)	2 vehicles	dry	20170046752	52	15	0	A	EE	HB
013-13	1.83	0190Y	1.83	1	1	0	0	0	0	2017-11-13	MV in Trans	Rear End	2 vehicles	dry	20170041187	52	15	1	A	WW	BA
013-13	1.53	0190Y	1.53	1	1	0	0	0	0	2017-11-15	MV in Trans	Left Turn-g	2 vehicles	dry	171212225010897	52	06	1	B	ES	BI
013-13	1.83	0190Y	1.83	1	1	0	0	0	0	2017-11-24	MV in Trans	Left Turn-e	2 vehicles	dry	20170047192	52	18	1	A	EW	IB

LADOTD Crash List

US190B Traffic Circulation and Corridor Analysis
Beth Drive to Hoover Drive

Control-Section 013-13 between logmiles 1.326 and 2.313
2015-01-01 to 2017-12-31

Csect	Log Mile	Route	Mile Point	tot acc	pdo acc	fat acc	inj acc	num fat	num inj	crash date	most harm evt	manner coll	crash type	surf cond	crash num	par ish	hour	int	iv agy	dir trav	move prior
013-13	1.83	0190Y	1.83	1	1	0	0	0	0	2017-12-02	MV in Trans	Rt Angle	2 vehicles	dry	20170043268	52	22	1	A	EW	IB
013-13	1.54	0190Y	1.54	1	1	0	0	0	0	2017-12-06	MV in Trans	Rear End	2 vehicles	wet	20170048767	52	15	1	A	WW	BA
013-13	1.61	0190Y	1.61	1	1	0	0	0	0	2017-12-06	MV in Trans	Rear End	3+ vehicles	wet	20170048768	52	16	0	A	EEE	BAA
013-13	1.62	0190Y	1.62	1	1	0	0	0	0	2017-12-19	MV in Trans	Rear End	3+ vehicles	dry	20170051512	52	15	0	A	EEEE	BAAA
013-13	1.83	0190Y	1.83	1	1	0	0	0	0	2017-12-21	MV in Trans	Rear End	2 vehicles	dry	20170039109	52	15	1	A	WW	BA
013-13	1.83	0190Y	1.83	1	1	0	0	0	0	2017-12-22	MV in Trans	Rear End	2 vehicles	dry	20170051513	52	14	1	A	EE	BA
013-13	1.83	0190Y	1.83	1	1	0	0	0	0	2017-12-23	MV in Trans	Rear End	2 vehicles	dry	20170051515	52	16	1	A	WW	BA
013-13	1.89	0190Y	1.89	1	1	0	0	0	0	2017-12-25	MV in Trans	Rear End	2 vehicles	dry	20170050181	52	01	1	A	WW	BA
013-13	1.83	0190Y	1.83	1	1	0	0	0	0	2017-12-26	MV in Trans	S Swipe(sd)	2 vehicles	dry	20170052462	52	16	1	A	EE	HB
013-13	1.51	0190Y	1.51	1	1	0	0	0	0	2017-12-31	Unknown	Rear End	2 vehicles	dry	171231194451981	52	19	0	B	SE	ZA
Total	2017			75	58	0	17	0	30												
Grand	Total			258	191	0	67	0	121												

report generated by nhollings@norpc.org on 12/10/2018 3:10:08 PM

Map Crashes

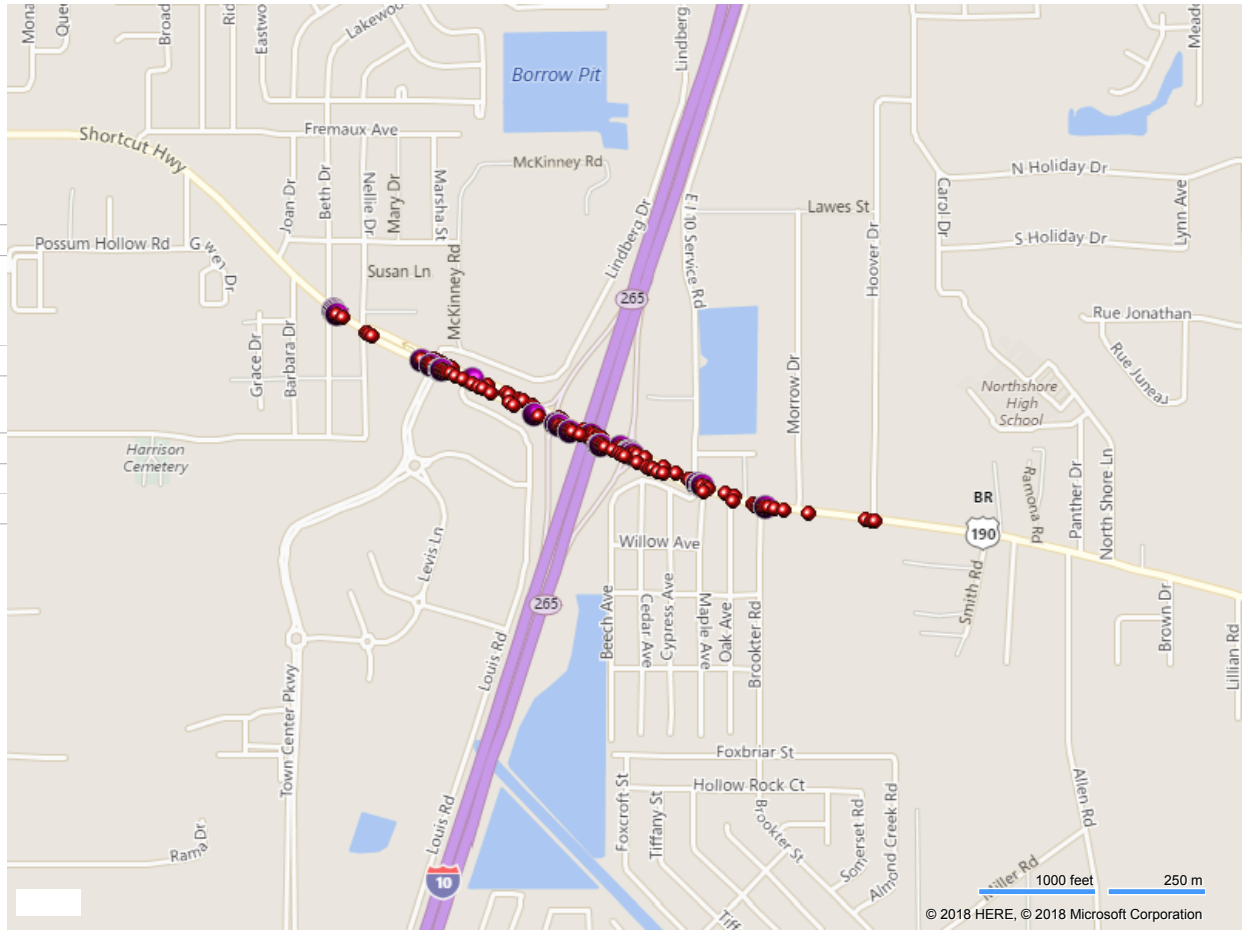
Add a point:
latitude,longitude:

Measure
Distance:

Current Position:
30.274532,-89.746044
Last Clicked Position:

Use Ctrl-Click to get the LRS ID and logmile of a point.

Crashes Control-Section 013-13 between logmiles 1.326 and 2.313 2015-01-01 to 2017-12-31



bigger Lat/Long Formats: (•) dd . ddddd ( ) dd : mm . mmm ( ) dd : mm : ss . s ( ) ddmmss

TRAFFIC SIGNAL INVENTORY

LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT/ TRAFFIC SECTION — District 62

TSI NO. 00754

SHEET: 1 OF 5

INTERSECTION: US 190 B (FREMAUX) @ I-10 WB ON/OFF RAMP

STATION ID: 754

CITY: SLIDELL

PARISH: ST TAMMANY

INSTALLATION DATE:

TYPE SIGNAL: FULLY-ACTUATED, TBC WITH GPS

LAST REVISION DATE:

PHASES		P2 / P6			P4			P1 / P6												FL
INTERVALS		1	2	3	4	5	6	7	8	9	10	11	12	10	11	12	16	17	18	
SIGNAL FACES	1	G	Y	R			R			R										Y
	2	G	Y	R			R			R										Y
	3	G	Y	R			R	←G/G	←Y/G	G										Y
	4	G	Y	R			R	G	G	G										Y
	5	G	Y	R			R	G	G	G										Y
	6			R	G	Y	R			R										R
	7			R	G	Y	R			R										R
	8																			
	9																			
	10																			
	11																			
	12																			
	13																			
	14																			
	15																			
	16																			

Hours of Flashing Operation: Emergency

TIME	SEC	27.0	5.0	1.0	14.0	5.0	1.0	21.0	5.0	1.0										Offset =
FO	SEC	0	/	0		20		47	/	0										0 sec
YP	SEC	6	/	5		89		5	/	5										
SPLIT	SEC	33	/	60		20		27	/	60										

PLAN = 1 CYCLE LENGTH = 80.0 TIMES OF OPERATION = 06:00 - 10:00 (6am - 10am) (S-S)

TIME	SEC	27.0	5.0	1.0	16.0	5.0	1.0	19.0	5.0	1.0										Offset =
FO	SEC	0	/	0		22		47	/	0										
YP	SEC	6	/	5		89		5	/	5										0 sec
SPLIT	SEC	33	/	58		22		25	/	58										

PLAN = 2 CYCLE LENGTH = 80.0 TIMES OF OPERATION = 10:00 - 20:00 (10am - 8pm) (S-S)

TIME	SEC	**FREE OPERATION**																		Offset =
FO	SEC																			sec
YP	SEC																			

PLAN = CYCLE LENGTH = TIMES OF OPERATION = 20:00 - 06:00 (8pm - 6am) (S-S)

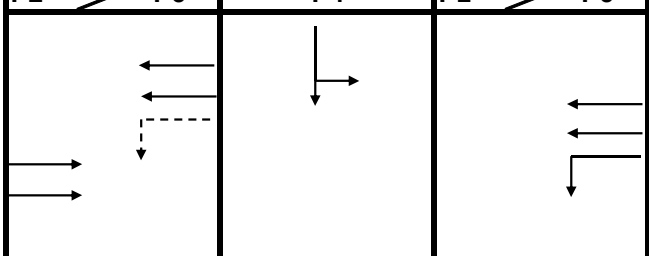
TIME	SEC																			Offset =
FO	SEC																			sec
YP	SEC																			

PLAN = CYCLE LENGTH = TIMES OF OPERATION =

TIME	SEC																			Offset =
FO	SEC																			sec
YP	SEC																			

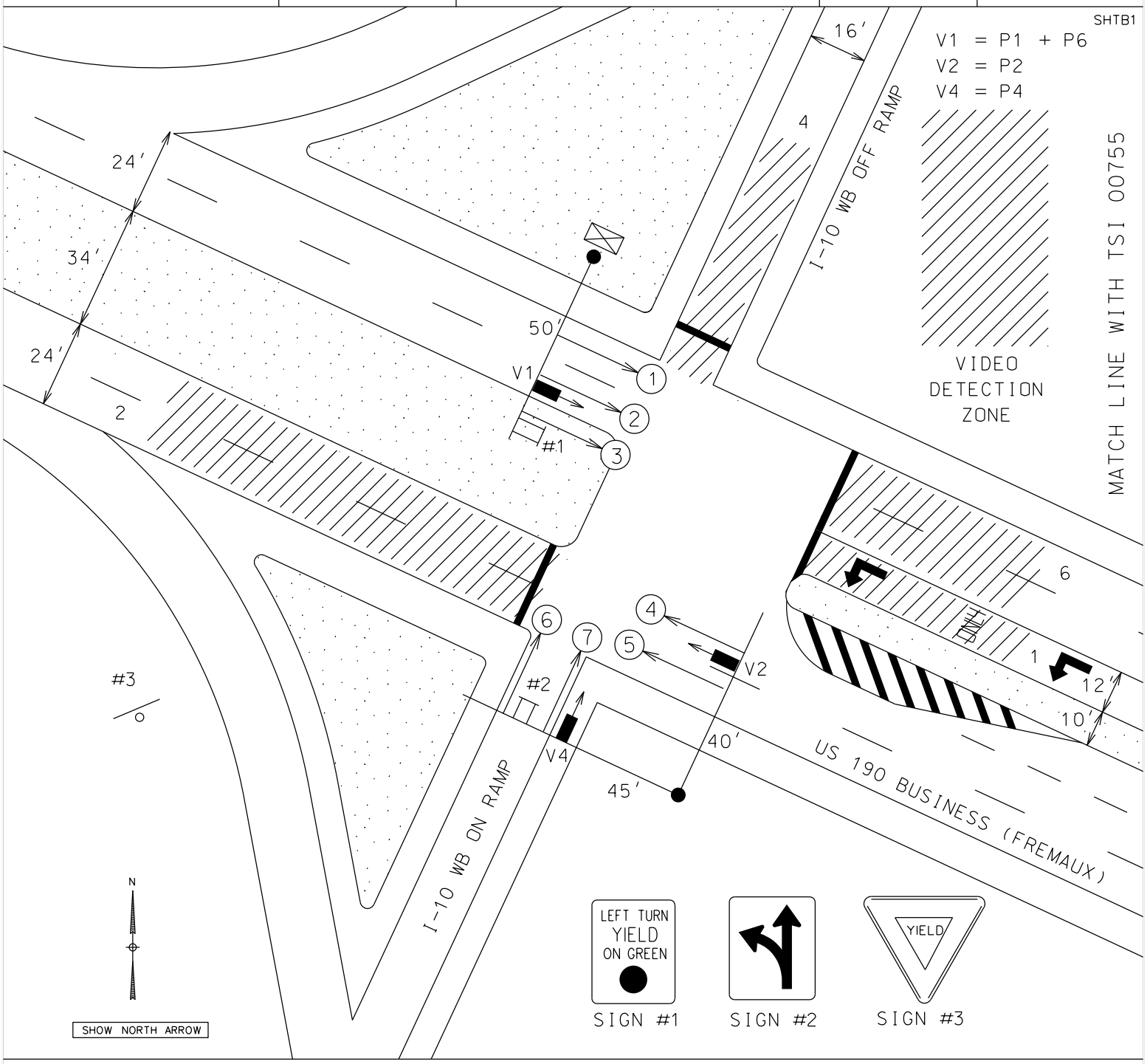
PLAN = CYCLE LENGTH = TIMES OF OPERATION =

PHASING



SIGNAL WARRANTS: 1,2,3	MAINTAINED BY: LADOTD	CONTROLLER MANUF: NAZTEC TS2	SYSTEM #:
MASTER/ SLAVE: MASTER	MASTER AT TSI #: 754	COORDINATED WITH TSI #'S: 735, 754, 755,	

CONTROL SECTION 013-13	HIGHWAY US 190B	PARISH ST TAMMANY	TSI NO. 00754	SHEET 2 OF 5



- WOOD POLE
- METAL POLE
- SPAN WIRE
- CONTROLLER
- STOP LINE
- PED CROSS WALK
- #2 SPAN WIRE SIGN & NO.
- #3 GROUND MOUNT SIGN & NO.
- #3 OVERHEAD SIGN & NO.
- L4 LOOP DETECTOR & NO.
- (2) PEDESTAL MOUNT SIGNAL & NO.
- (2) SIGNAL FACE & NO.
- [2] PEDESTRIAN SIGNAL & NO.
- PED BUTTON & SIGN
- PARALLEL PARKING

EXISTING SPEED LIMITS

US 190 B - 45 MPH

SIGNAL FACES	1, 2, 4-7					3				
TOTALS	6					1				
R - RED Y - YELLOW G - GREEN G - GREEN ARROW Y - YELLOW ARROW DK - DARK 12" - 12" DIA. LENS W - WALK DW - DON'T WALK FDW - FLASHING DON'T WALK	R 12" Y 12" G 12" LED					R 12" Y 12" G 12" LED				PED

TRAFFIC SIGNAL INVENTORY

TSI NO. 00754

LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT/ TRAFFIC SECTION — SHEET: 3 OF 5

CONTROL SECTION: 013-13 **HIGHWAY:** US 190 BUSINESS **PARISH:** ST TAMMANY

Phase Timing Parameters

Phase Designation		1	2		4		6		
Movement Description		↰	→		↓		←		
PARAMETER	RANGE								
MIN GREEN (MIN I)	0 - 99.0	5.0	15.0		5.0		15.0		
PASSAGE TIME	0 - 9.9	4.0	6.0		4.0		6.0		
MAX GREEN I (MAX I)	0 - 99.0	20.0	50.0		30.0		50.0		
MAX GREEN II (MAX II)	0 - 99.0	30.0	50.0		30.0		50.0		
YELLOW CLEARANCE (YEL)	3 - 9.9	5.0	5.0		5.0		5.0		
RED CLEARANCE (RED)	0 - 9.9	1.0	1.0		1.0		1.0		
WALK (WALK)	0 - 99.0								
PED CLEARANCE (P CLR)	0 - 99.0								
ADDED INITIAL GREEN	0 - 9.9								
TIME TO REDUCE	0 - 99.0								
TIME BEFORE REDUCTION	0 - 99.0								
MIN GAP	0 - 9.9								
MAX INITIAL GREEN	0 - 99								
WALK 2	0 - 99.0								
PED CLEARANCE 2	0 - 99.0								
MAX 3	0 - 99.0								
MAX EXTENSION	0 - 99.0								
RECALL	CODES	NON	MIN		NON		MIN		
LOOP # - DELAY (in sec.)	0 - 99.0								
LOOP # - EXTEND (in sec.)	0 - 9.9								

RECALL FUNCTIONS	
MON	MEMORY ON
NON	MEMORY OFF
MIN	MINIMUM
MAX	MAXIMUM
PMN	PEDESTRIAN AND MINIMUM
PMX	PEDESTRIAN AND MAXIMUM

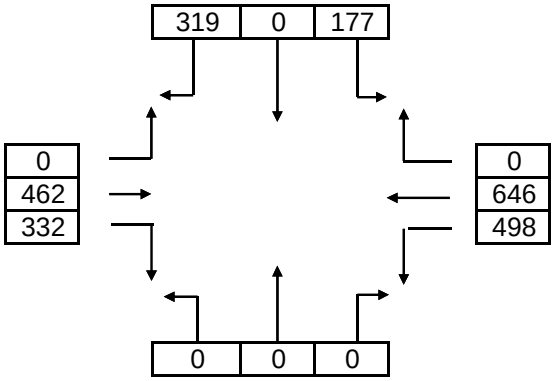
Note 1:

Note 2:

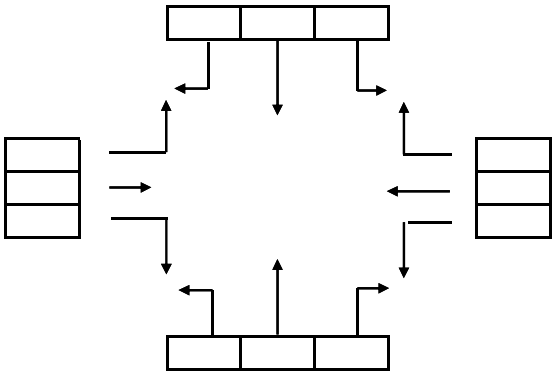
Note 3:

TRAFFIC SIGNAL INVENTORY	TSI NO. 00754
LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT/ TRAFFIC SECTION	SHEET: 4 OF 5

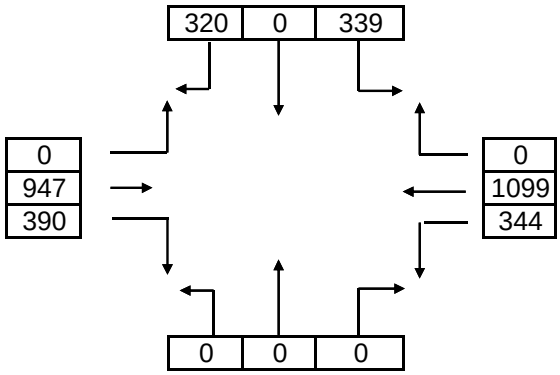
CONTROL SECTION: 013-13 **HIGHWAY:** US 190 BUSINESS **PARISH:** ST TAMMANY



AM PEAK HOUR: 7:00 - 8:00 A.M. 9-01-15



MIDDAY PEAK HOUR:



/\
|
SHOW NORTH ARROW

PM PEAK HOUR: 4:30 - 5:30 P.M. 9-01-15

TRAFFIC VOLUMES - VPH

Peak Hour Factor ( )

CAMERA #	ZONE SIZE	PHASE #	MOVEMENT DESCRIPTION
1	12' X 50'	1	WB US 190 B - LEFT
1	24' X 50'	6	WB US 190 B - THRU
4	12' X 50'	4	SB I-10 WB RAMP - THRU/LEFT
2	24' X 50'	2	EB US 190 B - THRU

TRAFFIC SIGNAL INVENTORY

TSI NO. **00754**

LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT/ TRAFFIC SECTION — SHEET: 5 OF 5

CONTROL SECTION: 013-13 **HIGHWAY:** US 190 BUSINESS **PARISH:** ST TAMMANY

Modification & Inspection Record

DATE	DESCRIPTION
09/25/08	I-10 RAMPS OPEN AND SIGNAL IS ACTIVATED
07/06/09	COUNTED AND RE-TIMED SIGNAL
03/30/11	CHANGED PLAN 2 CYCLE LENGTH FROM 60 TO 80 SEC

TRAFFIC SIGNAL INVENTORY

LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT/ TRAFFIC SECTION — District 62

TSI NO. 00755

SHEET: 1 OF 5

INTERSECTION: US 190 B (FREMAUX) @ I-10 EB ON/OFF RAMP

STATION ID: 755

CITY: SLIDELL

PARISH: ST TAMMANY

INSTALLATION DATE:

TYPE SIGNAL: FULLY-ACTUATED, TBC WITH GPS

LAST REVISION DATE:

PHASES	P2 / P6			P8			P2 / P5												FL
INTERVALS	1	2	3	4	5	6	7	8	9	10	11	12	10	11	12	16	17	18	
SIGNAL FACES 1	G	Y	R			R			R										Y
2	G	Y	R			R			R										Y
3	G	Y	R			R	←G/G	←Y/G	G										Y
4	G	Y	R			R	G	G	G										Y
5	G	Y	R			R	G	G	G										Y
6			R	G	Y	R			R										R
7			R	G	Y	R			R										R
8																			
9																			
10																			
11																			
12																			
13																			
14																			
15																			
16																			

Hours of Flashing Operation: Emergency

TIME SEC	40.0	5.0	1.0	13.0	5.0	1.0	9.0	5.0	1.0										Offset = 55 sec
FO SEC	0		0	19			0		34										
YP SEC	5		6	89			5		5										
SPLIT SEC	61		46	19			61		15										

PLAN = 1 CYCLE LENGTH = 80.0 TIMES OF OPERATION = 06:00 - 10:00 (6AM - 10AM) S-S

TIME SEC	29.0	5.0	1.0	15.0	5.0	1.0	18.0	5.0	1.0										Offset = 7 sec
FO SEC	0		0	21			0		45										
YP SEC	5		6	89			5		5										
SPLIT SEC	59		35	21			59		24										

PLAN = CYCLE LENGTH = 80.0 TIMES OF OPERATION = 10:00 - 20:00 (10AM - 8PM) S-S

TIME SEC / FO SEC / YP SEC — **FREE OPERATION** — Offset = sec

PLAN = CYCLE LENGTH = TIMES OF OPERATION = 20:00 - 06:00 (8PM - 6AM) S-S

TIME SEC / FO SEC / YP SEC — Offset = sec

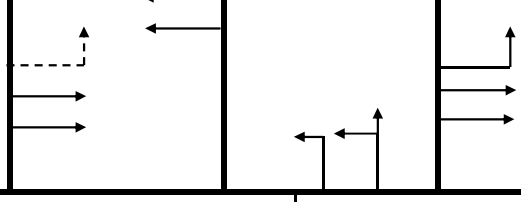
PLAN = CYCLE LENGTH = TIMES OF OPERATION =

TIME SEC / FO SEC / YP SEC — Offset = sec

PLAN = CYCLE LENGTH = TIMES OF OPERATION =

PHASING

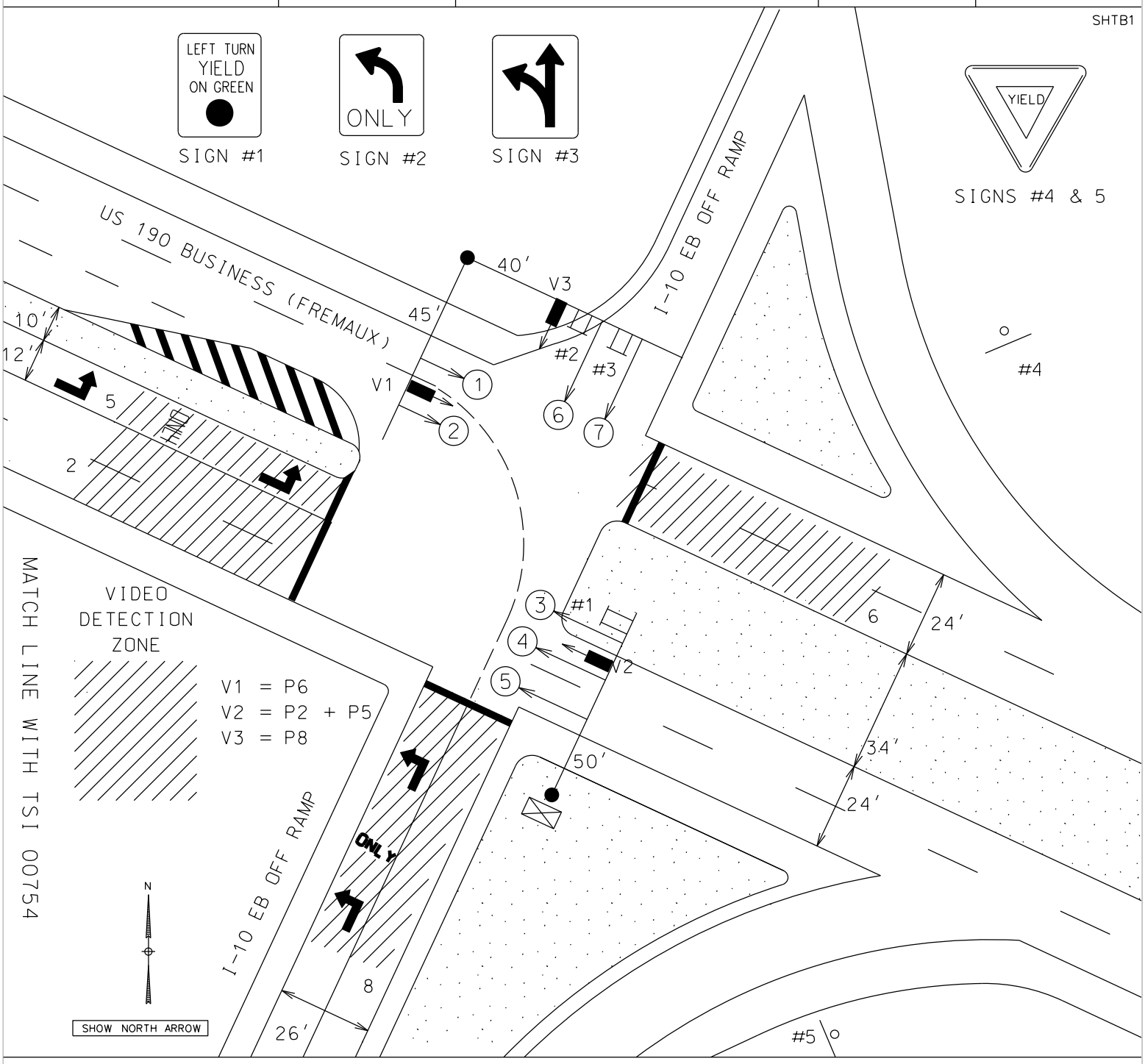
P2 / P6 | P8 | P2 / P5



SIGNAL WARRANTS: 1,2,3	MAINTAINED BY: LADOTD	CONTROLLER MANUF: NAZTEC TS2	SYSTEM #:
MASTER/ SLAVE: SLAVE	MASTER AT TSI #: 754	COORDINATED WITH TSI #'S: 735, 754, 755,	

CONTROL SECTION 013-13	HIGHWAY US 190B	PARISH ST TAMMANY	TSI NO. 00755	SHEET 2 OF 5

SHTB1



- WOOD POLE
- METAL POLE
- SPAN WIRE
- CONTROLLER
- STOP LINE
- PED CROSS WALK
- *2 SPAN WIRE SIGN & NO.
- *3 GROUND MOUNT SIGN & NO.
- *3 OVERHEAD SIGN & NO.
- L4 LOOP DETECTOR & NO.
- (2) PEDESTAL MOUNT SIGNAL & NO.
- (2) SIGNAL FACE & NO.
- [2] PEDESTRIAN SIGNAL & NO.
- PED BUTTON & SIGN
- PARALLEL PARKING

EXISTING SPEED LIMITS

US 190 B - 45 MPH

SIGNAL FACES	1, 2, 4-7					3				
TOTALS	6					1				
R - RED Y - YELLOW G - GREEN G - GREEN ARROW Y - YELLOW ARROW DK - DARK 12" - 12" DIA. LENS W - WALK DW - DON'T WALK FDW - FLASHING DON'T WALK	R Y G 12" LED					R Y Y G G 12" LED				PED

TRAFFIC SIGNAL INVENTORY			TSI NO. 00755
LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT/ TRAFFIC SECTION			SHEET: 3 OF 5
CONTROL SECTION: 013-13	**HIGHWAY:** US 190 BUSINESS		**PARISH:** ST TAMMANY

Phase Timing Parameters

Phase Designation			2			5	6		8
Movement Description			→			↱	←		↑
PARAMETER	RANGE								
MIN GREEN (MIN I)	0 - 99.0		12.0			5.0	12.0		5.0
PASSAGE TIME	0 - 9.9		6.0			4.0	6.0		4.0
MAX GREEN I (MAX I)	0 - 99.0		50.0			20.0	50.0		30.0
MAX GREEN II (MAX II)	0 - 99.0		50.0			20.0	50.0		30.0
YELLOW CLEARANCE (YEL)	3 - 9.9		5.0			5.0	5.0		5.0
RED CLEARANCE (RED)	0 - 9.9		1.0			1.0	1.0		1.0
WALK (WALK)	0 - 99.0								
PED CLEARANCE (P CLR)	0 - 99.0								
ADDED INITIAL GREEN	0 - 9.9								
TIME TO REDUCE	0 - 99.0								
TIME BEFORE REDUCTION	0 - 99.0								
MIN GAP	0 - 9.9								
MAX INITIAL GREEN	0 - 99								
WALK 2	0 - 99.0								
PED CLEARANCE 2	0 - 99.0								
MAX 3	0 - 99.0								
MAX EXTENSION	0 - 99.0								
RECALL	CODES		MIN			NON	MIN		NON
LOOP # - DELAY (in sec.)	0 - 99.0								
LOOP # - EXTEND (in sec.)	0 - 9.9								

RECALL FUNCTIONS	
MON	MEMORY ON
NON	MEMORY OFF
MIN	MINIMUM
MAX	MAXIMUM
PMN	PEDESTRIAN AND MINIMUM
PMX	PEDESTRIAN AND MAXIMUM

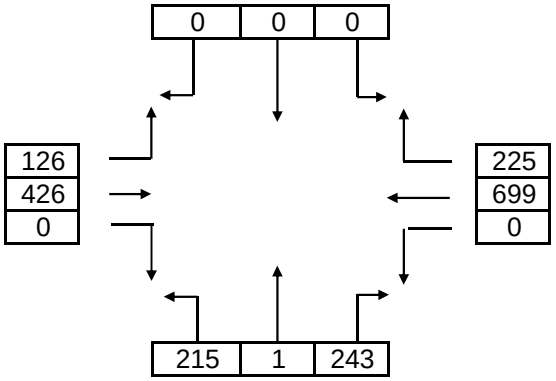
Note 1:

Note 2:

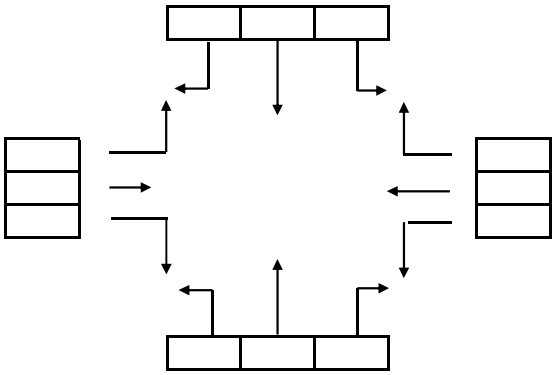
Note 3:

TRAFFIC SIGNAL INVENTORY	TSI NO. 00755
LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT/ TRAFFIC SECTION	SHEET: 4 OF 5

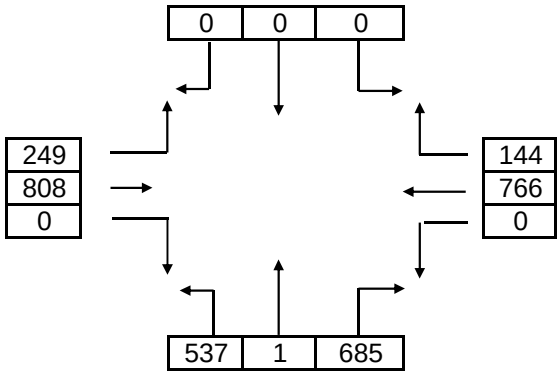
CONTROL SECTION: 013-13 **HIGHWAY:** US 190 BUSINESS **PARISH:** ST TAMMANY



AM PEAK HOUR: 7:00 - 8:00 8-19-15



MIDDAY PEAK HOUR:



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SHOW NORTH ARROW

PM PEAK HOUR: 4:30 - 5:30 8-19-15

TRAFFIC VOLUMES - VPH

Peak Hour Factor ( )

CAMERA #	ZONE SIZE	PHASE #	MOVEMENT DESCRIPTION
2	12' X 50'	5	EB US 190 B - LEFT
2	24' X 12'	2	EB US 190 B - THRU
3	24' X 50'	8	NB I-10 EB RAMP - LEFT & THRU/LEFT
1	24' X 50'	6	WB US 190 B - THRU

TRAFFIC SIGNAL INVENTORY

TSI NO. **00755**

LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT/ TRAFFIC SECTION — SHEET: 5 OF 5

CONTROL SECTION: 013-13 | **HIGHWAY:** US 190 BUSINESS | **PARISH:** ST TAMMANY

Modification & Inspection Record

DATE	DESCRIPTION
09/25/08	I-10 RAMPS OPEN AND SIGNAL ACTIVATED
07/06/09	COUNTED AND RETIMED
03/30/11	CHANGED PLAN 2 CYCLE LENGTH FROM 60 TO 80 SEC

TRAFFIC SIGNAL INVENTORY

LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT/ TRAFFIC SECTION

TSI NO. 00762

SHEET: 1 OF 5

INTERSECTION: US 190 BUSINESS (FREMAUX) @ SUMMIT BLVD & SERVICE ROAD — **STATION ID: 762**

CITY: SLIDELL — **PARISH:** ST TAMMANY — **INSTALLATION DATE:** 11/14/11

TYPE SIGNAL: FULLY ACTUATED, INTERCONNECTED — **LAST REVISION DATE:**

PHASES	Φ2 / Φ6			Φ2 / Φ5			Φ4			Φ8			Φ1 / Φ6						FL
INTERVALS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
SIGNAL FACES 1	G	G	G	G	Y	R			R			R			R				Y
2	G	G	G	G	Y	R			R			R			R				Y
3			R			R			R			R	~~G~~	~~Y~~	R				R
4			R			R			R			R	~~G~~	~~Y~~	R				R
5	G	Y	R			R			R			R	G	G	G				Y
6	G	Y	R			R			R			R	G	G	G				Y
7			R			R			R	~~G~~	~~Y~~	R			R				R
8			R			R			R	~~G~~/G	Y	R			R				R
9			R	~~G~~	~~Y~~	R			R			R			R				R
10			R			R	~~G~~	~~Y~~	R			R			R				R
11			R			R	~~G~~/G	Y	R			R			R				R
12																			
13																			
14																			
15																			
16																			

Emergenc

HOURS OF FLASHING

TIME (SEC)	10.0	5.0	1.0	8.0	5.0	1.0	8.0	5.0	1.0	16.0	5.0	1.0	8.0	5.0	1.0				Offset =
FO (SEC)	14		0	14		14	28			50			64		0				53
YP (SEC)	16		15	16		79	5			10			15		15				sec
SPLIT (SEC)	30		30	30		14	14			22			14		30				

PLAN = 1 CYCLE LENGTH = 80 TIMES OF OPERATION = 05:00 - 10:00 S-S (5:00 AM - 10:00 AM S-S)

TIME (SEC)	6.0	5.0	1.0	8.0	5.0	1.0	11.0	5.0	1.0	11.0	5.0	1.0	14.0	5.0	1.0				Offset =
FO (SEC)	14		0	14		14	31			48			68		0				62
YP (SEC)	16		15	16		79	5			10			15		15				sec
SPLIT (SEC)	26		32	26		14	17			17			20		32				

PLAN = 2 CYCLE LENGTH = 80 TIMES OF OPERATION = 10:00 - 19:00 S-S (10:00 AM - 7:00 PM S-S)

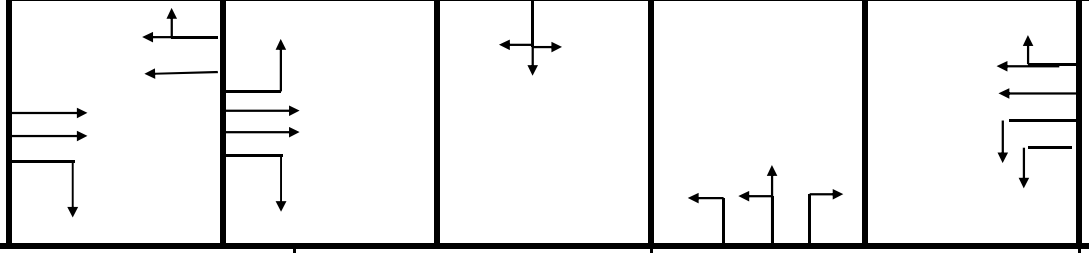
TIME (SEC) / (%) — FORCE OFF (FO / YP) — **FREE OPERATION** — Offset = sec

PLAN = 3 CYCLE LENGTH = TIMES OF OPERATION = 19:00 - 05:00 S-S (7:00 PM - 5:00 AM S-S)

TIME (SEC) / (%) — FORCE OFF (FO / YP) — Offset = sec

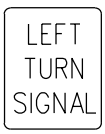
PLAN = CYCLE LENGTH = TIMES OF OPERATION =

PHASING



SIGNAL WARRANTS: # 1,2,3	MAINTAINED BY: LADOTD	CONTROLLER MANUF: NAZTEC TS2	SYSTEM #:
MASTER/ SLAVE: Slave	MASTER AT TSI #: 754	COORDINATED WITH TSI #' 754, 755, 762	

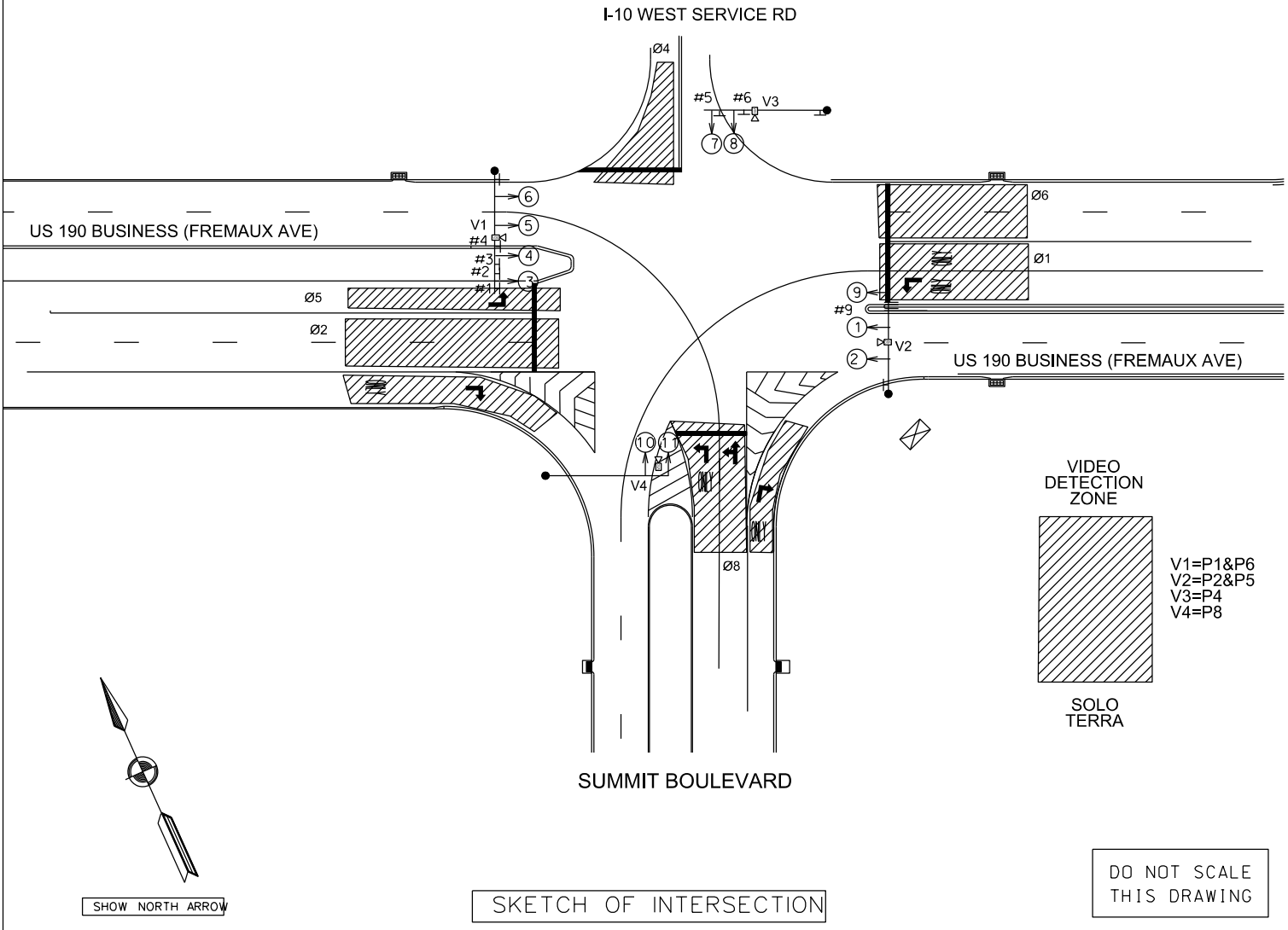
CONTROL SECTION 013-13	HIGHWAY 190B	PARISH St Tammany	TSI NO. 00762	SHEET 2 OF 5



SIGNS #1,3,9

SIGNS #2,4,5

SIGN #6



SHOW NORTH ARROW

SKETCH OF INTERSECTION

DO NOT SCALE THIS DRAWING

- WOOD POLE
- METAL POLE
- SPAN WIRE
- CONTROLLER
- STOP LINE
- PED CROSS WALK
- 2 SPAN WIRE SIGN & NO.
- 3 GROUND MOUNT SIGN & NO.
- 3 OVERHEAD SIGN & NO.
- #4 LOOP DETECTOR & NO.
- ② PEDESTAL MOUNT SIGNAL & NO.
- ② SIGNAL FACE & NO.
- 2 PEDESTRIAN SIGNAL & NO.
- PED BUTTON & SIGN
- PARALLEL PARKING

EXISTING SPEED LIMITS

US 190 BUS EAST 45 MPH

US 190 BUS WEST 40 MPH

SIGNAL FACES	1,2,5,6,10	3,4,7,9		8,11						
TOTALS	5	4		2						
R • RED Y • YELLOW G • GREEN G • GREEN ARROW Y • YELLOW ARROW DK • DARK 8" • 8" DIA. LENS 12" • 12" DIA. LENS WA • WALK DW • DON'T WALK FDW • FLASHING DON'T WALK	12" R 12" Y 12" G LED	12" R 12" Y 12" G LED		12" R 12" Y G LED						PED

TRAFFIC SIGNAL INVENTORY									TSI NO. 00762
LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT/ TRAFFIC SECTION								SHEET: 3 OF 5	
CONTROL SECTION: 013-13	**HIGHWAY:** US 190 B (FREMAUX)							**PARISH:** ST TAMMANY	

Phase Timing Parameters

Phase Designation		1	2		4	5	6		8
Movement Description		↙	→		↓	↗	←		↑
PARAMETER	RANGE								
MIN GREEN (MIN I)	0 - 99.0	5.0	15.0		5.0	5.0	15.0		5.0
EXTENSION GAP	0 - 9.9	3.0	3.0		5.0	3.0	3.0		3.0
MAX GREEN I (MAX I)	0 - 99.0	60.0	60.0		30.0	30.0	60.0		30.0
MAX GREEN II (MAX II)	0 - 99.0								
YELLOW CLEARANCE (YEL)	3 - 9.9	5.0	5.0		5.0	5.0	5.0		5.0
RED CLEARANCE (RED)	0 - 9.9	1.0	1.0		1.0	1.0	1.0		1.0
WALK (WALK)	0 - 99.0								
PED CLEARANCE (P CLR)	0 - 99.0								
ADDED INITIAL GREEN	0 - 9.9								
TIME TO REDUCE	0 - 99.0								
TIME BEFORE REDUCTION	0 - 99.0								
MIN GAP	0 - 9.9								
MAX INITIAL GREEN	0 - 99								
WALK 2	0 - 99.0								
PED CLEARANCE 2	0 - 99.0								
MAX 3	0 - 99.0								
MAX EXTENSION	0 - 99.0								
RECALL	CODES	NON	MIN		MIN	NON	MIN		NON
DELAY (loop #, delay)	0 - 99.0								
EXTEND (loop #, extens 0	0 - 9.9								

RECALL FUNCTIONS

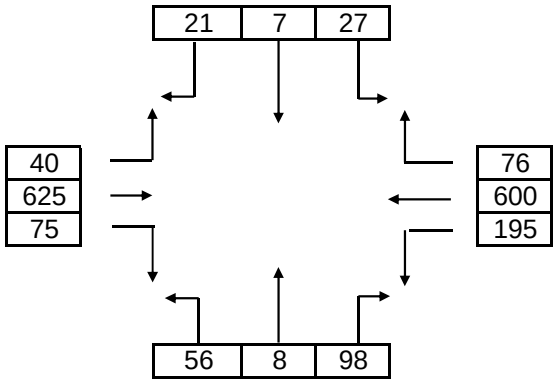
MON	MEMORY ON
MOF	MEMORY OFF
MIN	MINIMUM
MAX	MAXIMUM
PMN	PEDESTRIAN AND MINIMUM
PMX	PEDESTRIAN AND MAXIMUM

Note 1:

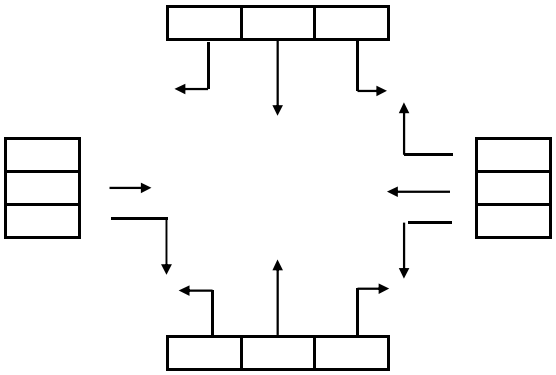
Note 2:

Note 3:

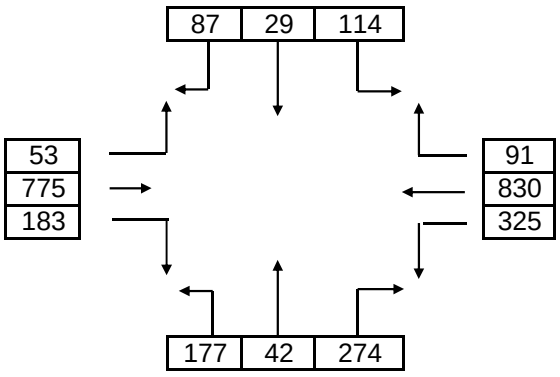
TRAFFIC SIGNAL INVENTORY	TSI NO. 00762
LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT/ TRAFFIC SECTION	SHEET: 4 OF 5
CONTROL SECTION: 013-13 **HIGHWAY:** US 190 B (FREMAUX)	**PARISH:** ST TAMMANY



AM PEAK HOUR: 7:00-8:00 AM 8-19-2015



MIDDAY PEAK HOUR:



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SHOW NORTH ARROW

PM PEAK HOUR: 4:30-5:30 PM 8-19-2015

TRAFFIC VOLUMES - VPH

Peak Hour Factor ( )

CAMERA #	ZONE SIZE	PHASE #	MOVEMENT DESCRIPTION
1	24' X 50'	1	WB US 190B - LEFT
2	36' X 50'	2	EB US 190 B - THRU & RIGHT
3	36' X 50'	8	NB SUMMIT - LEFT/THRU/RIGHT
4	12' X 50'	4	SB SUMMIT - LEFT/THRU/RIGHT
1	24' X 50'	6	WB US 190B - THRU
2	12' X 50'	5	EB US 190 B - LEFT

TRAFFIC SIGNAL INVENTORY

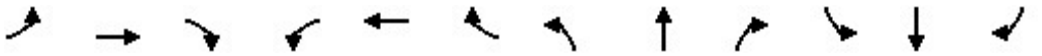
TSI NO. 00762

LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT/ TRAFFIC SECTION — SHEET 5 OF 5

CONTROL SECTION: 013-13 | **HIGHWAY:** US 190 B (FREMAUX) | **PARISH:** ST TAMMANY

Modification & Inspection Record

DATE	DESCRIPTION
02/10/12	Inspected Traffic Signal
03/14/14	Summit Grand Opening. Adjusted Signal timings, phases 4 and 8 backwards of paperwork. Had to adjust.
01/14/16	Updated split times observed when checking timings for study
11/09/18	Updated max green time on phase 2, gap time and recall status on phase 4 to match the field



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	9	553	61	16	659	19	30	6	39	25	9	11
Future Volume (Veh/h)	9	553	61	16	659	19	30	6	39	25	9	11
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	10	601	66	17	716	21	33	7	42	27	10	12
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		TWLTL			TWLTL							
Median storage veh)		2			2							
Upstream signal (ft)					1044							
pX, platoon unblocked	0.91						0.91	0.91		0.91	0.91	0.91
vC, conflicting volume	737			667			1063	1425	334	1126	1448	368
vC1, stage 1 conf vol							654	654		760	760	
vC2, stage 2 conf vol							409	771		366	687	
vCu, unblocked vol	507			667			866	1265	334	936	1290	101
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			98			91	98	94	93	97	99
cM capacity (veh/h)	957			919			386	343	662	375	335	849

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	10	401	266	17	477	260	82	49
Volume Left	10	0	0	17	0	0	33	27
Volume Right	0	0	66	0	0	21	42	12
cSH	957	1700	1700	919	1700	1700	484	423
Volume to Capacity	0.01	0.24	0.16	0.02	0.28	0.15	0.17	0.12
Queue Length 95th (ft)	1	0	0	1	0	0	15	10
Control Delay (s)	8.8	0.0	0.0	9.0	0.0	0.0	13.9	14.6
Lane LOS	A			A			B	B
Approach Delay (s)	0.1			0.2			13.9	14.6
Approach LOS							B	B

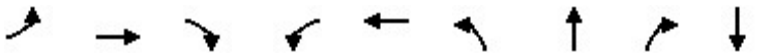
Intersection Summary				
Average Delay	1.3			
Intersection Capacity Utilization	33.0%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (veh/h)	4	595	15	8	131	672	5	13	2	147	5	3
Future Volume (Veh/h)	4	595	15	8	131	672	5	13	2	147	5	3
Sign Control		Free				Free			Stop			Stop
Grade		0%				0%			0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	4	647	16	0	142	730	5	14	2	160	5	3
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		TWLTL				None						
Median storage veh)		2										
Upstream signal (ft)						696						
pX, platoon unblocked	0.87			0.00				0.87	0.87		0.87	0.87
vC, conflicting volume	735			0	663			1324	1682	332	1509	1688
vC1, stage 1 conf vol								663	663		1016	1016
vC2, stage 2 conf vol								660	1019		492	671
vCu, unblocked vol	401			0	663			1076	1488	332	1289	1494
tC, single (s)	4.1			0.0	4.1			7.5	6.5	6.9	7.5	6.5
tC, 2 stage (s)								6.5	5.5		6.5	5.5
tF (s)	2.2			0.0	2.2			3.5	4.0	3.3	3.5	4.0
p0 queue free %	100			0	85			96	99	76	97	99
cM capacity (veh/h)	1006			0	922			331	264	664	197	233

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	4	431	232	142	487	248	176	18
Volume Left	4	0	0	142	0	0	14	5
Volume Right	0	0	16	0	0	5	160	10
cSH	1006	1700	1700	922	1700	1700	605	368
Volume to Capacity	0.00	0.25	0.14	0.15	0.29	0.15	0.29	0.05
Queue Length 95th (ft)	0	0	0	14	0	0	30	4
Control Delay (s)	8.6	0.0	0.0	9.6	0.0	0.0	13.4	15.3
Lane LOS	A			A			B	C
Approach Delay (s)	0.1			1.6			13.4	15.3
Approach LOS							B	C

Intersection Summary				
Average Delay	2.3			
Intersection Capacity Utilization	45.1%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	SBR
Lane Configurations	
Traffic Volume (veh/h)	9
Future Volume (Veh/h)	9
Sign Control	
Grade	
Peak Hour Factor	0.92
Hourly flow rate (vph)	10
Pedestrians	
Lane Width (ft)	
Walking Speed (ft/s)	
Percent Blockage	
Right turn flare (veh)	
Median type	
Median storage veh)	
Upstream signal (ft)	
pX, platoon unblocked	0.87
vC, conflicting volume	368
vC1, stage 1 conf vol	
vC2, stage 2 conf vol	
vCu, unblocked vol	0
tC, single (s)	6.9
tC, 2 stage (s)	
tF (s)	3.3
p0 queue free %	99
cM capacity (veh/h)	945
Direction, Lane #	

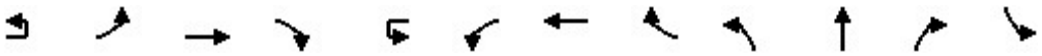


Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBT
Lane Group Flow (vph)	48	701	72	200	878	51	51	142	102
v/c Ratio	0.33	0.58	0.11	1.11	0.49	0.31	0.30	0.34	0.57
Control Delay	40.1	25.4	0.3	138.0	19.4	37.7	37.4	2.3	42.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.1	25.4	0.3	138.0	19.4	37.7	37.4	2.3	42.1
Queue Length 50th (ft)	23	160	0	~61	178	25	25	0	41
Queue Length 95th (ft)	55	218	0	#138	238	57	57	0	#90
Internal Link Dist (ft)		616			1076		1031		1301
Turn Bay Length (ft)	280			480					
Base Capacity (vph)	155	1200	672	180	1775	336	344	545	190
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	0.31	0.58	0.11	1.11	0.49	0.15	0.15	0.26	0.54

Intersection Summary

~ 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.



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	1	43	645	66	3	181	720	87	73	21	131	49
Future Volume (vph)	1	43	645	66	3	181	720	87	73	21	131	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	6.0	6.0		6.0	6.0		6.0	6.0	6.0	
Lane Util. Factor		1.00	0.95	1.00		0.97	0.95		0.95	0.95	1.00	
Frt		1.00	1.00	0.85		1.00	0.98		1.00	1.00	0.85	
Flt Protected		0.95	1.00	1.00		0.95	1.00		0.95	0.97	1.00	
Satd. Flow (prot)		1770	3539	1583		3433	3482		1681	1722	1583	
Flt Permitted		0.83	1.00	1.00		0.25	1.00		0.95	0.97	1.00	
Satd. Flow (perm)		1552	3539	1583		909	3482		1681	1722	1583	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1	47	701	72	3	197	783	95	79	23	142	53
RTOR Reduction (vph)	0	0	0	49	0	0	9	0	0	0	128	0
Lane Group Flow (vph)	0	48	701	23	0	200	869	0	51	51	14	0
Turn Type	custom	Prot	NA	Perm	custom	Prot	NA		Split	NA	Perm	Split
Protected Phases		5	2			1	6		8	8		4
Permitted Phases	5			2	1						8	
Actuated Green, G (s)		4.8	25.9	25.9		15.9	37.0		7.9	7.9	7.9	
Effective Green, g (s)		4.8	25.9	25.9		15.9	37.0		7.9	7.9	7.9	
Actuated g/C Ratio		0.06	0.32	0.32		0.20	0.46		0.10	0.10	0.10	
Clearance Time (s)		6.0	6.0	6.0		6.0	6.0		6.0	6.0	6.0	
Vehicle Extension (s)		3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0	
Lane Grp Cap (vph)		93	1145	512		180	1610		165	170	156	
v/s Ratio Prot			c0.20				0.25		c0.03	0.03		
v/s Ratio Perm		0.03		0.01		c0.22					0.01	
v/c Ratio		0.52	0.61	0.05		1.11	0.54		0.31	0.30	0.09	
Uniform Delay, d1		36.5	22.8	18.6		32.0	15.4		33.5	33.5	32.8	
Progression Factor		1.00	1.00	1.00		1.18	1.15		1.00	1.00	1.00	
Incremental Delay, d2		4.8	2.4	0.2		99.2	1.3		1.1	1.0	0.3	
Delay (s)		41.2	25.3	18.7		137.0	19.0		34.6	34.5	33.0	
Level of Service		D	C	B		F	B		C	C	C	
Approach Delay (s)			25.6				40.9			33.7		
Approach LOS			C				D			C		

Intersection Summary			
HCM 2000 Control Delay	34.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	56.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

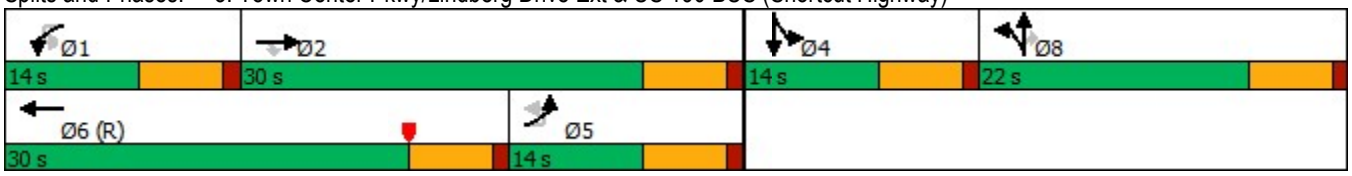
Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	21	24
Future Volume (vph)	21	24
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	6.0	
Lane Util. Factor	1.00	
Frt	0.97	
Flt Protected	0.97	
Satd. Flow (prot)	1753	
Flt Permitted	0.97	
Satd. Flow (perm)	1753	
Peak-hour factor, PHF	0.92	0.92
Adj. Flow (vph)	23	26
RTOR Reduction (vph)	16	0
Lane Group Flow (vph)	86	0
Turn Type	NA	
Protected Phases	4	
Permitted Phases		
Actuated Green, G (s)	6.3	
Effective Green, g (s)	6.3	
Actuated g/C Ratio	0.08	
Clearance Time (s)	6.0	
Vehicle Extension (s)	3.0	
Lane Grp Cap (vph)	138	
v/s Ratio Prot	c0.05	
v/s Ratio Perm		
v/c Ratio	0.63	
Uniform Delay, d1	35.7	
Progression Factor	1.00	
Incremental Delay, d2	8.5	
Delay (s)	44.3	
Level of Service	D	
Approach Delay (s)	44.3	
Approach LOS	D	

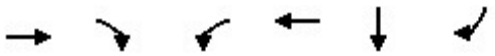
Intersection Summary

Phase Number	1	2	4	5	6	8
Movement	WBL	EBT	SBTL	EBL	WBT	NBTL
Lead/Lag	Lead	Lag		Lag	Lead	
Lead-Lag Optimize	Yes	Yes		Yes	Yes	
Recall Mode	None	Max	None	None	C-Max	None
Maximum Split (s)	14	30	14	14	30	22
Maximum Split (%)	17.5%	37.5%	17.5%	17.5%	37.5%	27.5%
Minimum Split (s)	11	16	14	14	16	14
Yellow Time (s)	5	5	5	5	5	5
All-Red Time (s)	1	1	1	1	1	1
Minimum Initial (s)	3	8	3	3	10	3
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)						
Flash Dont Walk (s)						
Dual Entry	No	Yes	Yes	No	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	29	43	73	59	29	7
End Time (s)	43	73	7	73	59	29
Yield/Force Off (s)	37	67	1	67	53	23
Yield/Force Off 170(s)	37	67	1	67	53	23
Local Start Time (s)	56	70	20	6	56	34
Local Yield (s)	64	14	28	14	0	50
Local Yield 170(s)	64	14	28	14	0	50

Intersection Summary	
Cycle Length	80
Control Type	Actuated-Coordinated
Natural Cycle	65
Offset: 53 (66%), Referenced to phase 6:WBT, Start of Yellow	

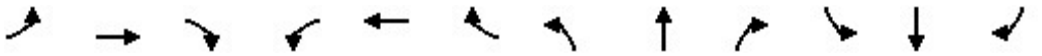
Splits and Phases: 3: Town Center Pkwy/Lindberg Drive Ext & US 190 BUS (Shortcut Highway)





Lane Group	EBT	EBR	WBL	WBT	SBT	SBR
Lane Group Flow (vph)	526	374	421	721	189	354
v/c Ratio	0.33	0.24	0.64	0.29	0.69	0.22
Control Delay	6.5	0.5	7.3	1.2	45.4	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	6.5	0.5	7.3	1.2	45.4	0.3
Queue Length 50th (ft)	27	0	21	4	89	0
Queue Length 95th (ft)	43	6	45	20	155	0
Internal Link Dist (ft)	1076			598	1202	
Turn Bay Length (ft)		750	450			400
Base Capacity (vph)	1597	1583	762	2461	310	1583
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	0.33	0.24	0.55	0.29	0.61	0.22

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	484	344	387	663	0	0	0	0	172	2	326
Future Volume (vph)	0	484	344	387	663	0	0	0	0	172	2	326
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	4.0	6.0	6.0						6.0	4.0
Lane Util. Factor		0.95	1.00	1.00	0.95						1.00	1.00
Frt		1.00	0.85	1.00	1.00						1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00						0.95	1.00
Satd. Flow (prot)		3539	1583	1770	3539						1775	1583
Flt Permitted		1.00	1.00	0.37	1.00						0.95	1.00
Satd. Flow (perm)		3539	1583	690	3539						1775	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	526	374	421	721	0	0	0	0	187	2	354
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	526	374	421	721	0	0	0	0	0	189	354
Turn Type		NA	Free	pm+pt	NA					Perm	NA	Free
Protected Phases		2		1	6						4	
Permitted Phases			Free	6						4		Free
Actuated Green, G (s)		36.1	80.0	55.6	55.6						12.4	80.0
Effective Green, g (s)		36.1	80.0	55.6	55.6						12.4	80.0
Actuated g/C Ratio		0.45	1.00	0.70	0.70						0.16	1.00
Clearance Time (s)		6.0		6.0	6.0						6.0	
Vehicle Extension (s)		3.0		3.0	3.0						3.0	
Lane Grp Cap (vph)		1596	1583	661	2459						275	1583
v/s Ratio Prot		0.15		c0.11	0.20							
v/s Ratio Perm			0.24	c0.33							0.11	0.22
v/c Ratio		0.33	0.24	0.64	0.29						0.69	0.22
Uniform Delay, d1		14.1	0.0	5.7	4.7						32.0	0.0
Progression Factor		0.39	1.00	0.67	0.19						1.00	1.00
Incremental Delay, d2		0.5	0.3	1.6	0.2						7.0	0.3
Delay (s)		6.0	0.3	5.5	1.1						38.9	0.3
Level of Service		A	A	A	A						D	A
Approach Delay (s)		3.6			2.7			0.0			13.8	
Approach LOS		A			A			A			B	

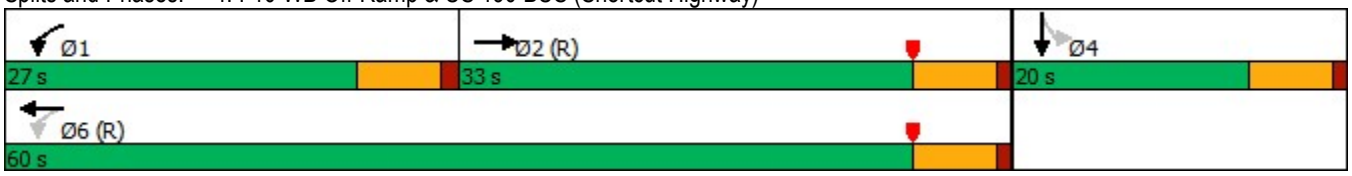
Intersection Summary			
HCM 2000 Control Delay	5.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	63.5%	ICU Level of Service	B
Analysis Period (min)	15		

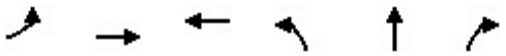
c Critical Lane Group

Phase Number	1	2	4	6
Movement	WBL	EBT	SBTL	WBTL
Lead/Lag	Lead	Lag		
Lead-Lag Optimize	Yes	Yes		
Recall Mode	None	C-Max	None	C-Max
Maximum Split (s)	27	33	20	60
Maximum Split (%)	33.8%	41.3%	25.0%	75.0%
Minimum Split (s)	15	27	15	27
Yellow Time (s)	5	5	5	5
All-Red Time (s)	1	1	1	1
Minimum Initial (s)	5	9	5	15
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)				
Flash Dont Walk (s)				
Dual Entry	No	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	26	53	6	26
End Time (s)	53	6	26	6
Yield/Force Off (s)	47	0	20	0
Yield/Force Off 170(s)	47	0	20	0
Local Start Time (s)	26	53	6	26
Local Yield (s)	47	0	20	0
Local Yield 170(s)	47	0	20	0

Intersection Summary	
Cycle Length	80
Control Type	Actuated-Coordinated
Natural Cycle	60
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBTL, Start of Yellow	

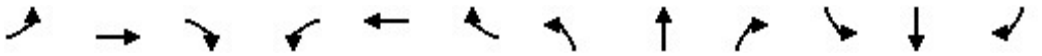
Splits and Phases: 4: I-10 WB Off-Ramp & US 190 BUS (Shortcut Highway)





Lane Group	EBL	EBT	WBT	NBL	NBT	NBR
Lane Group Flow (vph)	213	499	1148	143	144	215
v/c Ratio	0.61	0.20	0.62	0.61	0.62	0.14
Control Delay	12.6	3.9	14.3	43.8	44.0	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.6	3.9	14.3	43.8	44.0	0.2
Queue Length 50th (ft)	19	23	190	70	71	0
Queue Length 95th (ft)	40	41	264	129	129	0
Internal Link Dist (ft)		598	592		1105	
Turn Bay Length (ft)	480					200
Base Capacity (vph)	368	2518	1859	273	273	1583
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.58	0.20	0.62	0.52	0.53	0.14

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	196	459	0	0	793	263	263	1	198	0	0	0
Future Volume (vph)	196	459	0	0	793	263	263	1	198	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0			6.0		6.0	6.0	4.0			
Lane Util. Factor	1.00	0.95			0.95		0.95	0.95	1.00			
Frt	1.00	1.00			0.96		1.00	1.00	0.85			
Flt Protected	0.95	1.00			1.00		0.95	0.95	1.00			
Satd. Flow (prot)	1770	3539			3407		1681	1686	1583			
Flt Permitted	0.15	1.00			1.00		0.95	0.95	1.00			
Satd. Flow (perm)	282	3539			3407		1681	1686	1583			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	213	499	0	0	862	286	286	1	215	0	0	0
RTOR Reduction (vph)	0	0	0	0	38	0	0	0	0	0	0	0
Lane Group Flow (vph)	213	499	0	0	1110	0	143	144	215	0	0	0
Turn Type	pm+pt	NA			NA		Perm	NA	Free			
Protected Phases	5	2			6			8				
Permitted Phases	2						8		Free			
Actuated Green, G (s)	56.9	56.9			42.7		11.1	11.1	80.0			
Effective Green, g (s)	56.9	56.9			42.7		11.1	11.1	80.0			
Actuated g/C Ratio	0.71	0.71			0.53		0.14	0.14	1.00			
Clearance Time (s)	6.0	6.0			6.0		6.0	6.0				
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0				
Lane Grp Cap (vph)	353	2517			1818		233	233	1583			
v/s Ratio Prot	c0.06	0.14			0.33							
v/s Ratio Perm	c0.37						0.09	0.09	0.14			
v/c Ratio	0.60	0.20			0.61		0.61	0.62	0.14			
Uniform Delay, d1	7.9	3.9			12.9		32.4	32.5	0.0			
Progression Factor	0.95	0.90			1.00		1.00	1.00	1.00			
Incremental Delay, d2	2.7	0.2			1.5		4.7	4.8	0.2			
Delay (s)	10.2	3.7			14.4		37.2	37.3	0.2			
Level of Service	B	A			B		D	D	A			
Approach Delay (s)		5.6			14.4			21.4			0.0	
Approach LOS		A			B			C			A	

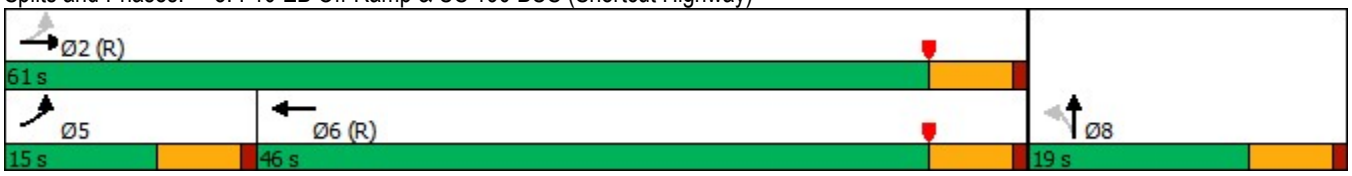
Intersection Summary			
HCM 2000 Control Delay	13.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	63.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	2	5	6	8
Movement	EBTL	EBL	WBT	NBTL
Lead/Lag		Lead	Lag	
Lead-Lag Optimize		Yes	Yes	
Recall Mode	C-Max	None	C-Max	None
Maximum Split (s)	61	15	46	19
Maximum Split (%)	76.3%	18.8%	57.5%	23.8%
Minimum Split (s)	24	15	24	15
Yellow Time (s)	5	5	5	5
All-Red Time (s)	1	1	1	1
Minimum Initial (s)	12	5	12	5
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)				
Flash Dont Walk (s)				
Dual Entry	Yes	No	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	0	15	61
End Time (s)	61	15	61	0
Yield/Force Off (s)	55	9	55	74
Yield/Force Off 170(s)	55	9	55	74
Local Start Time (s)	25	25	40	6
Local Yield (s)	0	34	0	19
Local Yield 170(s)	0	34	0	19

Intersection Summary	
Cycle Length	80
Control Type	Actuated-Coordinated
Natural Cycle	60
Offset: 55 (69%), Referenced to phase 2:EBTL and 6:WBT, Start of Yellow	

Splits and Phases: 5: I-10 EB Off-Ramp & US 190 BUS (Shortcut Highway)



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (veh/h)	1	142	505	7	4	915	32	16	3	4	12	2
Future Volume (Veh/h)	1	142	505	7	4	915	32	16	3	4	12	2
Sign Control			Free			Free			Stop			Stop
Grade			0%			0%			0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	154	549	8	4	995	35	17	3	4	13	2
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type			None			TWLTL						
Median storage veh)						2						
Upstream signal (ft)			672									
pX, platoon unblocked	0.00											
vC, conflicting volume	0	1030			557			1500	1899	278	1608	1886
vC1, stage 1 conf vol								861	861		1020	1020
vC2, stage 2 conf vol								638	1038		588	865
vCu, unblocked vol	0	1030			557			1500	1899	278	1608	1886
tC, single (s)	0.0	4.1			4.1			7.5	6.5	6.9	7.5	6.5
tC, 2 stage (s)								6.5	5.5		6.5	5.5
tF (s)	0.0	2.2			2.2			3.5	4.0	3.3	3.5	4.0
p0 queue free %	0	77			100			88	98	99	94	99
cM capacity (veh/h)	0	670			1010			139	137	719	205	209

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1	SB 2
Volume Total	154	366	191	4	663	367	24	15	132
Volume Left	154	0	0	4	0	0	17	13	0
Volume Right	0	0	8	0	0	35	4	0	132
cSH	670	1700	1700	1010	1700	1700	160	206	505
Volume to Capacity	0.23	0.22	0.11	0.00	0.39	0.22	0.15	0.07	0.26
Queue Length 95th (ft)	22	0	0	0	0	0	13	6	26
Control Delay (s)	12.0	0.0	0.0	8.6	0.0	0.0	31.4	23.9	14.6
Lane LOS	B			A			D	C	B
Approach Delay (s)	2.6			0.0			31.4	15.6	
Approach LOS							D	C	

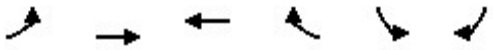
Intersection Summary				
Average Delay	2.6			
Intersection Capacity Utilization	58.4%	ICU Level of Service		B
Analysis Period (min)	15			

Movement	SBR
Lane Configurations	
Traffic Volume (veh/h)	121
Future Volume (Veh/h)	121
Sign Control	
Grade	
Peak Hour Factor	0.92
Hourly flow rate (vph)	132
Pedestrians	
Lane Width (ft)	
Walking Speed (ft/s)	
Percent Blockage	
Right turn flare (veh)	
Median type	
Median storage veh)	
Upstream signal (ft)	
pX, platoon unblocked	
vC, conflicting volume	515
vC1, stage 1 conf vol	
vC2, stage 2 conf vol	
vCu, unblocked vol	515
tC, single (s)	6.9
tC, 2 stage (s)	
tF (s)	3.3
p0 queue free %	74
cM capacity (veh/h)	505
Direction, Lane #	

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	517	4	5	930	21	4
Future Volume (Veh/h)	517	4	5	930	21	4
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	562	4	5	1011	23	4
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL			TWLTL		
Median storage veh)	2			2		
Upstream signal (ft)	1011					
pX, platoon unblocked						
vC, conflicting volume			566		1080	283
vC1, stage 1 conf vol					564	
vC2, stage 2 conf vol					516	
vCu, unblocked vol			566		1080	283
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)			2.2		3.5	3.3
p0 queue free %			100		95	99
cM capacity (veh/h)			1002		425	714

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	375	191	5	506	506	27
Volume Left	0	0	5	0	0	23
Volume Right	0	4	0	0	0	4
cSH	1700	1700	1002	1700	1700	452
Volume to Capacity	0.22	0.11	0.00	0.30	0.30	0.06
Queue Length 95th (ft)	0	0	0	0	0	5
Control Delay (s)	0.0	0.0	8.6	0.0	0.0	13.5
Lane LOS			A			B
Approach Delay (s)	0.0		0.0			13.5
Approach LOS						B

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	35.7%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	1	520	932	1	2	3
Future Volume (Veh/h)	1	520	932	1	2	3
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	565	1013	1	2	3
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		TWLTL	TWLTL			
Median storage veh)		2	2			
Upstream signal (ft)		1134				
pX, platoon unblocked						
vC, conflicting volume	1014				1298	507
vC1, stage 1 conf vol					1014	
vC2, stage 2 conf vol					284	
vCu, unblocked vol	1014				1298	507
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)	2.2				3.5	3.3
p0 queue free %	100				99	99
cM capacity (veh/h)	680				296	511

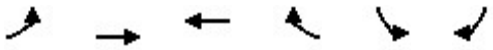
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	1	282	282	675	339	5
Volume Left	1	0	0	0	0	2
Volume Right	0	0	0	0	1	3
cSH	680	1700	1700	1700	1700	396
Volume to Capacity	0.00	0.17	0.17	0.40	0.20	0.01
Queue Length 95th (ft)	0	0	0	0	0	1
Control Delay (s)	10.3	0.0	0.0	0.0	0.0	14.2
Lane LOS	B					B
Approach Delay (s)	0.0			0.0		14.2
Approach LOS						B

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	35.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	469	53	33	793	141	45
Future Volume (Veh/h)	469	53	33	793	141	45
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	510	58	36	862	153	49
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL			TWLTL		
Median storage veh)	2			2		
Upstream signal (ft)	1265					
pX, platoon unblocked						
vC, conflicting volume			568		1042	284
vC1, stage 1 conf vol					539	
vC2, stage 2 conf vol					503	
vCu, unblocked vol			568		1042	284
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)			2.2		3.5	3.3
p0 queue free %			96		64	93
cM capacity (veh/h)			1000		429	713

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	340	228	36	431	431	202
Volume Left	0	0	36	0	0	153
Volume Right	0	58	0	0	0	49
cSH	1700	1700	1000	1700	1700	475
Volume to Capacity	0.20	0.13	0.04	0.25	0.25	0.43
Queue Length 95th (ft)	0	0	3	0	0	52
Control Delay (s)	0.0	0.0	8.7	0.0	0.0	18.1
Lane LOS			A			C
Approach Delay (s)	0.0		0.4			18.1
Approach LOS						C

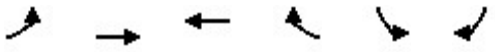
Intersection Summary			
Average Delay	2.4		
Intersection Capacity Utilization	39.1%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	6	507	811	3	4	14
Future Volume (Veh/h)	6	507	811	3	4	14
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	7	551	882	3	4	15
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		TWLTL	TWLTL			
Median storage veh)		2	2			
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	885				1448	442
vC1, stage 1 conf vol					884	
vC2, stage 2 conf vol					565	
vCu, unblocked vol	885				1448	442
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)	2.2				3.5	3.3
p0 queue free %	99				99	97
cM capacity (veh/h)	760				312	563

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total	7	551	588	297	19
Volume Left	7	0	0	0	4
Volume Right	0	0	0	3	15
cSH	760	1700	1700	1700	481
Volume to Capacity	0.01	0.32	0.35	0.17	0.04
Queue Length 95th (ft)	1	0	0	0	3
Control Delay (s)	9.8	0.0	0.0	0.0	12.8
Lane LOS	A				B
Approach Delay (s)	0.1		0.0		12.8
Approach LOS					B

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	36.7%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	83	422	616	46	14	106
Future Volume (Veh/h)	83	422	616	46	14	106
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	90	459	670	50	15	115
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		TWLTL	TWLTL			
Median storage veh)		2	2			
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	720				1334	695
vC1, stage 1 conf vol					695	
vC2, stage 2 conf vol					639	
vCu, unblocked vol	720				1334	695
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)	2.2				3.5	3.3
p0 queue free %	90				96	74
cM capacity (veh/h)	882				364	442

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	90	459	720	130
Volume Left	90	0	0	15
Volume Right	0	0	50	115
cSH	882	1700	1700	431
Volume to Capacity	0.10	0.27	0.42	0.30
Queue Length 95th (ft)	8	0	0	31
Control Delay (s)	9.5	0.0	0.0	16.9
Lane LOS	A			C
Approach Delay (s)	1.6		0.0	16.9
Approach LOS				C

Intersection Summary			
Average Delay	2.2		
Intersection Capacity Utilization	57.1%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (veh/h)	7	706	51	1	7	844	94	28	2	23	41	6
Future Volume (Veh/h)	7	706	51	1	7	844	94	28	2	23	41	6
Sign Control		Free				Free			Stop			Stop
Grade		0%				0%			0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	8	767	55	0	8	917	102	30	2	25	45	7
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		TWLTL				TWLTL						
Median storage veh)		2				2						
Upstream signal (ft)						1044						
pX, platoon unblocked	0.82			0.00				0.82	0.82		0.82	0.82
vC, conflicting volume	1019			0	822			1306	1846	411	1410	1822
vC1, stage 1 conf vol								810	810		984	984
vC2, stage 2 conf vol								496	1035		426	838
vCu, unblocked vol	577			0	822			928	1588	411	1054	1559
tC, single (s)	4.1			0.0	4.1			7.5	6.5	6.9	7.5	6.5
tC, 2 stage (s)								6.5	5.5		6.5	5.5
tF (s)	2.2			0.0	2.2			3.5	4.0	3.3	3.5	4.0
p0 queue free %	99			0	99			91	99	96	87	98
cM capacity (veh/h)	812			0	803			320	280	590	339	284

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	8	511	311	8	611	408	57	70
Volume Left	8	0	0	8	0	0	30	45
Volume Right	0	0	55	0	0	102	25	18
cSH	812	1700	1700	803	1700	1700	398	394
Volume to Capacity	0.01	0.30	0.18	0.01	0.36	0.24	0.14	0.18
Queue Length 95th (ft)	1	0	0	1	0	0	12	16
Control Delay (s)	9.5	0.0	0.0	9.5	0.0	0.0	15.6	16.1
Lane LOS	A			A			C	C
Approach Delay (s)	0.1			0.1			15.6	16.1
Approach LOS							C	C

Intersection Summary				
Average Delay	1.1			
Intersection Capacity Utilization	41.3%	ICU Level of Service		A
Analysis Period (min)	15			

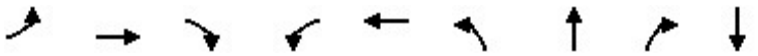
Movement	SBR
Lane Configurations	
Traffic Volume (veh/h)	17
Future Volume (Veh/h)	17
Sign Control	
Grade	
Peak Hour Factor	0.92
Hourly flow rate (vph)	18
Pedestrians	
Lane Width (ft)	
Walking Speed (ft/s)	
Percent Blockage	
Right turn flare (veh)	
Median type	
Median storage veh)	
Upstream signal (ft)	
pX, platoon unblocked	0.82
vC, conflicting volume	510
vC1, stage 1 conf vol	
vC2, stage 2 conf vol	
vCu, unblocked vol	0
tC, single (s)	6.9
tC, 2 stage (s)	
tF (s)	3.3
p0 queue free %	98
cM capacity (veh/h)	886
Direction, Lane #	

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (veh/h)	6	757	8	8	134	936	6	7	4	140	3	2
Future Volume (Veh/h)	6	757	8	8	134	936	6	7	4	140	3	2
Sign Control		Free				Free			Stop			Stop
Grade		0%				0%			0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	7	823	9	0	146	1017	7	8	4	152	3	2
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		TWLTL				None						
Median storage veh)		2										
Upstream signal (ft)						696						
pX, platoon unblocked	0.79			0.00				0.79	0.79		0.79	0.79
vC, conflicting volume	1024			0	832			1646	2158	416	1892	2158
vC1, stage 1 conf vol								842	842		1312	1312
vC2, stage 2 conf vol								804	1316		580	846
vCu, unblocked vol	510			0	832			1293	1938	416	1604	1939
tC, single (s)	4.1			0.0	4.1			7.5	6.5	6.9	7.5	6.5
tC, 2 stage (s)								6.5	5.5		6.5	5.5
tF (s)	2.2			0.0	2.2			3.5	4.0	3.3	3.5	4.0
p0 queue free %	99			0	82			97	98	74	98	99
cM capacity (veh/h)	834			0	796			270	193	585	140	165

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	7	549	283	146	678	346	164	8
Volume Left	7	0	0	146	0	0	8	3
Volume Right	0	0	9	0	0	7	152	3
cSH	834	1700	1700	796	1700	1700	529	216
Volume to Capacity	0.01	0.32	0.17	0.18	0.40	0.20	0.31	0.04
Queue Length 95th (ft)	1	0	0	17	0	0	33	3
Control Delay (s)	9.4	0.0	0.0	10.5	0.0	0.0	14.8	22.3
Lane LOS	A			B			B	C
Approach Delay (s)	0.1			1.3			14.8	22.3
Approach LOS							B	C

Intersection Summary				
Average Delay	1.9			
Intersection Capacity Utilization	48.8%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	SBR
Lane Configurations	
Traffic Volume (veh/h)	3
Future Volume (Veh/h)	3
Sign Control	
Grade	
Peak Hour Factor	0.92
Hourly flow rate (vph)	3
Pedestrians	
Lane Width (ft)	
Walking Speed (ft/s)	
Percent Blockage	
Right turn flare (veh)	
Median type	
Median storage veh)	
Upstream signal (ft)	
pX, platoon unblocked	0.79
vC, conflicting volume	512
vC1, stage 1 conf vol	
vC2, stage 2 conf vol	
vCu, unblocked vol	0
tC, single (s)	6.9
tC, 2 stage (s)	
tF (s)	3.3
p0 queue free %	100
cM capacity (veh/h)	860
Direction, Lane #	



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBT
Lane Group Flow (vph)	43	767	183	479	988	150	153	457	233
v/c Ratio	0.30	0.83	0.32	0.81	0.70	0.69	0.69	0.76	0.90
Control Delay	39.4	37.6	4.6	54.6	21.2	51.3	50.7	12.9	69.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.4	37.6	4.6	54.6	21.2	51.3	50.7	12.9	69.5
Queue Length 50th (ft)	20	193	0	123	140	75	76	0	106
Queue Length 95th (ft)	51	#291	37	#187	#239	#156	#157	#101	#237
Internal Link Dist (ft)		616			1076		1031		1301
Turn Bay Length (ft)	280			480					
Base Capacity (vph)	155	927	566	603	1417	231	236	611	258
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.28	0.83	0.32	0.79	0.70	0.65	0.65	0.75	0.90

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	1	39	706	168	441	810	99	216	63	420	95	58
Future Volume (vph)	1	39	706	168	441	810	99	216	63	420	95	58
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	6.0	6.0	6.0	6.0		6.0	6.0	6.0		6.0
Lane Util. Factor		1.00	0.95	1.00	0.97	0.95		0.95	0.95	1.00		1.00
Frt		1.00	1.00	0.85	1.00	0.98		1.00	1.00	0.85		0.96
Flt Protected		0.95	1.00	1.00	0.95	1.00		0.95	0.97	1.00		0.98
Satd. Flow (prot)		1770	3539	1583	3433	3481		1681	1722	1583		1752
Flt Permitted		0.83	1.00	1.00	0.95	1.00		0.95	0.97	1.00		0.98
Satd. Flow (perm)		1552	3539	1583	3433	3481		1681	1722	1583		1752
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1	42	767	183	479	880	108	235	68	457	103	63
RTOR Reduction (vph)	0	0	0	135	0	11	0	0	0	398	0	18
Lane Group Flow (vph)	0	43	767	48	479	977	0	150	153	59	0	215
Turn Type	custom	Prot	NA	Perm	Prot	NA		Split	NA	Perm	Split	NA
Protected Phases		5	2		1	6		8	8		4	4
Permitted Phases	5			2						8		
Actuated Green, G (s)		4.8	20.9	20.9	13.8	29.9		10.3	10.3	10.3		11.0
Effective Green, g (s)		4.8	20.9	20.9	13.8	29.9		10.3	10.3	10.3		11.0
Actuated g/C Ratio		0.06	0.26	0.26	0.17	0.37		0.13	0.13	0.13		0.14
Clearance Time (s)		6.0	6.0	6.0	6.0	6.0		6.0	6.0	6.0		6.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0		3.0
Lane Grp Cap (vph)		93	924	413	592	1301		216	221	203		240
v/s Ratio Prot			c0.22		0.14	c0.28		c0.09	0.09			c0.12
v/s Ratio Perm		0.03		0.03						0.04		
v/c Ratio		0.46	0.83	0.12	0.81	0.75		0.69	0.69	0.29		0.90
Uniform Delay, d1		36.4	27.9	22.5	31.8	21.8		33.3	33.3	31.5		33.9
Progression Factor		1.00	1.00	1.00	1.36	0.83		1.00	1.00	1.00		1.00
Incremental Delay, d2		3.6	8.6	0.6	7.5	3.8		9.3	9.0	0.8		31.6
Delay (s)		40.0	36.4	23.1	50.7	21.8		42.6	42.3	32.3		65.6
Level of Service		D	D	C	D	C		D	D	C		E
Approach Delay (s)			34.1			31.2			36.4			65.6
Approach LOS			C			C			D			E

Intersection Summary			
HCM 2000 Control Delay	35.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	72.6%	ICU Level of Service	C
Analysis Period (min)	15		

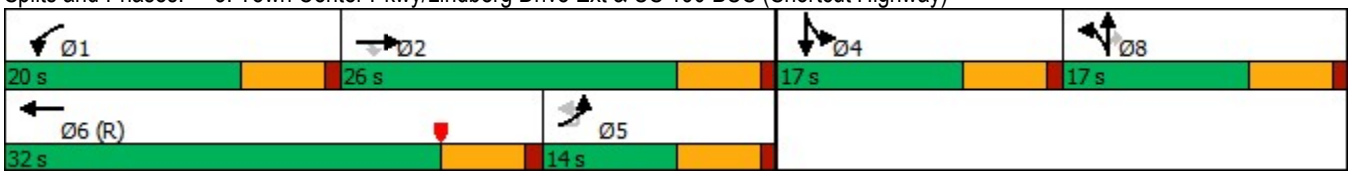
c Critical Lane Group

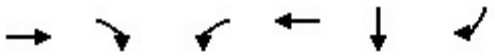
Movement	SBR
Lane Configurations	
Traffic Volume (vph)	62
Future Volume (vph)	62
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	67
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	

Phase Number	1	2	4	5	6	8
Movement	WBL	EBT	SBTL	EBL	WBT	NBTL
Lead/Lag	Lead	Lag		Lag	Lead	
Lead-Lag Optimize	Yes	Yes		Yes	Yes	
Recall Mode	None	Max	None	None	C-Max	None
Maximum Split (s)	20	26	17	14	32	17
Maximum Split (%)	25.0%	32.5%	21.3%	17.5%	40.0%	21.3%
Minimum Split (s)	11	16	14	14	16	14
Yellow Time (s)	5	5	5	5	5	5
All-Red Time (s)	1	1	1	1	1	1
Minimum Initial (s)	3	8	3	3	10	3
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)						
Flash Dont Walk (s)						
Dual Entry	No	Yes	Yes	No	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	36	56	2	68	36	19
End Time (s)	56	2	19	2	68	36
Yield/Force Off (s)	50	76	13	76	62	30
Yield/Force Off 170(s)	50	76	13	76	62	30
Local Start Time (s)	54	74	20	6	54	37
Local Yield (s)	68	14	31	14	0	48
Local Yield 170(s)	68	14	31	14	0	48

Intersection Summary	
Cycle Length	80
Control Type	Actuated-Coordinated
Natural Cycle	70
Offset: 62 (78%), Referenced to phase 6:WBT, Start of Yellow	

Splits and Phases: 3: Town Center Pkwy/Lindberg Drive Ext & US 190 BUS (Shortcut Highway)

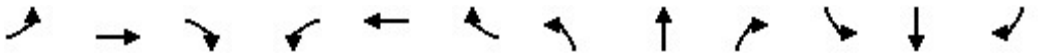




Lane Group	EBT	EBR	WBL	WBT	SBT	SBR
Lane Group Flow (vph)	964	366	403	1073	294	390
v/c Ratio	0.73	0.23	0.84	0.46	0.86	0.25
Control Delay	30.1	0.2	30.3	11.9	56.3	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.1	0.2	30.3	11.9	56.3	0.4
Queue Length 50th (ft)	198	0	202	222	142	0
Queue Length 95th (ft)	m262	m0	m243	m276	#272	0
Internal Link Dist (ft)	1076			598	1202	
Turn Bay Length (ft)		500	450			400
Base Capacity (vph)	1327	1583	525	2326	355	1583
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.73	0.23	0.77	0.46	0.83	0.25

Intersection Summary

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.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	887	337	371	987	0	0	0	0	270	1	359
Future Volume (vph)	0	887	337	371	987	0	0	0	0	270	1	359
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	4.0	6.0	6.0						6.0	4.0
Lane Util. Factor		0.95	1.00	1.00	0.95						1.00	1.00
Frt		1.00	0.85	1.00	1.00						1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00						0.95	1.00
Satd. Flow (prot)		3539	1583	1770	3539						1774	1583
Flt Permitted		1.00	1.00	0.14	1.00						0.95	1.00
Satd. Flow (perm)		3539	1583	252	3539						1774	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	964	366	403	1073	0	0	0	0	293	1	390
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	964	366	403	1073	0	0	0	0	0	294	390
Turn Type		NA	Free	pm+pt	NA					Perm	NA	Free
Protected Phases		2		1	6						4	
Permitted Phases			Free	6						4		Free
Actuated Green, G (s)		30.0	80.0	52.6	52.6						15.4	80.0
Effective Green, g (s)		30.0	80.0	52.6	52.6						15.4	80.0
Actuated g/C Ratio		0.38	1.00	0.66	0.66						0.19	1.00
Clearance Time (s)		6.0		6.0	6.0						6.0	
Vehicle Extension (s)		3.0		3.0	3.0						3.0	
Lane Grp Cap (vph)		1327	1583	480	2326						341	1583
v/s Ratio Prot		0.27		c0.17	0.30							
v/s Ratio Perm			0.23	c0.38							0.17	0.25
v/c Ratio		0.73	0.23	0.84	0.46						0.86	0.25
Uniform Delay, d1		21.5	0.0	18.2	6.7						31.3	0.0
Progression Factor		1.23	1.00	1.34	1.65						1.00	1.00
Incremental Delay, d2		2.0	0.2	6.6	0.3						19.5	0.4
Delay (s)		28.4	0.2	31.0	11.5						50.8	0.4
Level of Service		C	A	C	B						D	A
Approach Delay (s)		20.6			16.8			0.0			22.0	
Approach LOS		C			B			A			C	

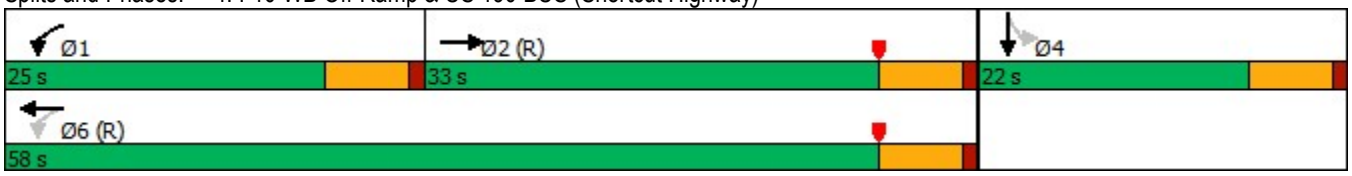
Intersection Summary			
HCM 2000 Control Delay	19.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	79.1%	ICU Level of Service	D
Analysis Period (min)	15		

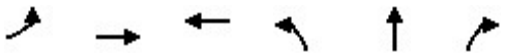
c Critical Lane Group

Phase Number	1	2	4	6
Movement	WBL	EBT	SBTL	WBTL
Lead/Lag	Lead	Lag		
Lead-Lag Optimize	Yes	Yes		
Recall Mode	None	C-Max	None	C-Max
Maximum Split (s)	25	33	22	58
Maximum Split (%)	31.3%	41.3%	27.5%	72.5%
Minimum Split (s)	15	27	15	27
Yellow Time (s)	5	5	5	5
All-Red Time (s)	1	1	1	1
Minimum Initial (s)	5	9	5	15
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)				
Flash Dont Walk (s)				
Dual Entry	No	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	28	53	6	28
End Time (s)	53	6	28	6
Yield/Force Off (s)	47	0	22	0
Yield/Force Off 170(s)	47	0	22	0
Local Start Time (s)	28	53	6	28
Local Yield (s)	47	0	22	0
Local Yield 170(s)	47	0	22	0

Intersection Summary	
Cycle Length	80
Control Type	Actuated-Coordinated
Natural Cycle	60
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBTL, Start of Yellow	

Splits and Phases: 4: I-10 WB Off-Ramp & US 190 BUS (Shortcut Highway)

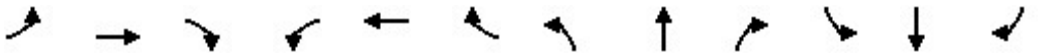




Lane Group	EBL	EBT	WBT	NBL	NBT	NBR
Lane Group Flow (vph)	410	845	1120	273	277	598
v/c Ratio	0.90	0.36	0.83	0.88	0.89	0.38
Control Delay	47.0	8.5	29.0	62.6	64.1	0.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.0	8.5	29.0	62.6	64.1	0.7
Queue Length 50th (ft)	202	104	263	141	143	0
Queue Length 95th (ft)	m#289	m143	#385	#281	#285	0
Internal Link Dist (ft)		598	592		1105	
Turn Bay Length (ft)	480					200
Base Capacity (vph)	488	2356	1350	315	316	1583
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	0.36	0.83	0.87	0.88	0.38

Intersection Summary

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.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	377	777	0	0	856	175	502	4	550	0	0	0
Future Volume (vph)	377	777	0	0	856	175	502	4	550	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0			6.0		6.0	6.0	4.0			
Lane Util. Factor	1.00	0.95			0.95		0.95	0.95	1.00			
Frt	1.00	1.00			0.97		1.00	1.00	0.85			
Flt Protected	0.95	1.00			1.00		0.95	0.95	1.00			
Satd. Flow (prot)	1770	3539			3449		1681	1687	1583			
Flt Permitted	0.11	1.00			1.00		0.95	0.95	1.00			
Satd. Flow (perm)	202	3539			3449		1681	1687	1583			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	410	845	0	0	930	190	546	4	598	0	0	0
RTOR Reduction (vph)	0	0	0	0	21	0	0	0	0	0	0	0
Lane Group Flow (vph)	410	845	0	0	1099	0	273	277	598	0	0	0
Turn Type	pm+pt	NA			NA		Perm	NA	Free			
Protected Phases	5	2			6			8				
Permitted Phases	2						8		Free			
Actuated Green, G (s)	53.3	53.3			30.8		14.7	14.7	80.0			
Effective Green, g (s)	53.3	53.3			30.8		14.7	14.7	80.0			
Actuated g/C Ratio	0.67	0.67			0.39		0.18	0.18	1.00			
Clearance Time (s)	6.0	6.0			6.0		6.0	6.0				
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0				
Lane Grp Cap (vph)	457	2357			1327		308	309	1583			
v/s Ratio Prot	c0.18	0.24			0.32							
v/s Ratio Perm	c0.41						0.16	0.16	0.38			
v/c Ratio	0.90	0.36			0.83		0.89	0.90	0.38			
Uniform Delay, d1	21.5	5.9			22.2		31.8	31.9	0.0			
Progression Factor	1.64	1.38			1.00		1.00	1.00	1.00			
Incremental Delay, d2	13.9	0.3			6.1		24.8	26.5	0.7			
Delay (s)	49.2	8.3			28.3		56.6	58.4	0.7			
Level of Service	D	A			C		E	E	A			
Approach Delay (s)		21.7			28.3			27.9			0.0	
Approach LOS		C			C			C			A	

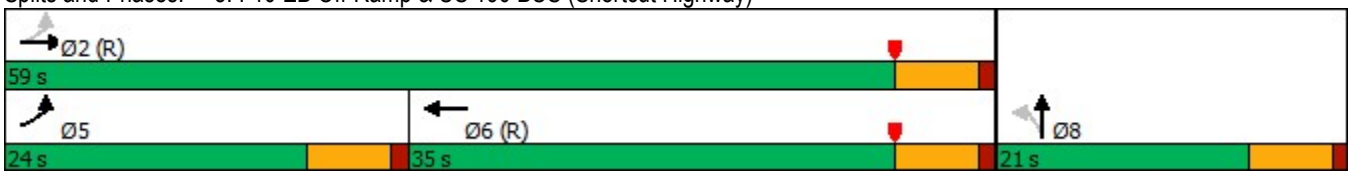
Intersection Summary			
HCM 2000 Control Delay	25.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	79.1%	ICU Level of Service	D
Analysis Period (min)	15		

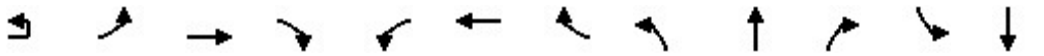
c Critical Lane Group

Phase Number	2	5	6	8
Movement	EBTL	EBL	WBT	NBTL
Lead/Lag		Lead	Lag	
Lead-Lag Optimize		Yes	Yes	
Recall Mode	C-Max	None	C-Max	None
Maximum Split (s)	59	24	35	21
Maximum Split (%)	73.8%	30.0%	43.8%	26.3%
Minimum Split (s)	24	15	24	15
Yellow Time (s)	5	5	5	5
All-Red Time (s)	1	1	1	1
Minimum Initial (s)	12	5	12	5
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)				
Flash Dont Walk (s)				
Dual Entry	Yes	No	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	34	34	58	13
End Time (s)	13	58	13	34
Yield/Force Off (s)	7	52	7	28
Yield/Force Off 170(s)	7	52	7	28
Local Start Time (s)	27	27	51	6
Local Yield (s)	0	45	0	21
Local Yield 170(s)	0	45	0	21

Intersection Summary	
Cycle Length	80
Control Type	Actuated-Coordinated
Natural Cycle	80
Offset: 7 (9%), Referenced to phase 2:EBTL and 6:WBT, Start of Yellow	

Splits and Phases: 5: I-10 EB Off-Ramp & US 190 BUS (Shortcut Highway)





Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (veh/h)	4	245	1049	28	4	756	48	10	1	8	39	2
Future Volume (Veh/h)	4	245	1049	28	4	756	48	10	1	8	39	2
Sign Control			Free			Free			Stop			Stop
Grade			0%			0%			0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	266	1140	30	4	822	52	11	1	9	42	2
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type			None			TWLTL						
Median storage veh)						2						
Upstream signal (ft)			672									
pX, platoon unblocked	0.00				0.93			0.93	0.93	0.93	0.93	0.93
vC, conflicting volume	0	874			1170			2408	2569	585	1968	2558
vC1, stage 1 conf vol								1687	1687		856	856
vC2, stage 2 conf vol								721	882		1112	1702
vCu, unblocked vol	0	874			1023			2360	2534	391	1885	2523
tC, single (s)	0.0	4.1			4.1			7.5	6.5	6.9	7.5	6.5
tC, 2 stage (s)								6.5	5.5		6.5	5.5
tF (s)	0.0	2.2			2.2			3.5	4.0	3.3	3.5	4.0
p0 queue free %	0	65			99			0	99	98	70	98
cM capacity (veh/h)	0	768			624			6	69	562	139	90

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1	SB 2
Volume Total	266	760	410	4	548	326	21	44	301
Volume Left	266	0	0	4	0	0	11	42	0
Volume Right	0	0	30	0	0	52	9	0	301
cSH	768	1700	1700	624	1700	1700	11	136	567
Volume to Capacity	0.35	0.45	0.24	0.01	0.32	0.19	1.92	0.32	0.53
Queue Length 95th (ft)	39	0	0	0	0	0	88	32	78
Control Delay (s)	12.2	0.0	0.0	10.8	0.0	0.0	1115.1	43.8	18.3
Lane LOS	B			B			F	E	C
Approach Delay (s)	2.3			0.0			1115.1	21.5	
Approach LOS							F	C	

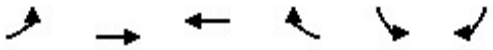
Intersection Summary				
Average Delay	12.7			
Intersection Capacity Utilization	70.0%	ICU Level of Service		C
Analysis Period (min)	15			

Movement	SBR
Lane Configurations	
Traffic Volume (veh/h)	277
Future Volume (Veh/h)	277
Sign Control	
Grade	
Peak Hour Factor	0.92
Hourly flow rate (vph)	301
Pedestrians	
Lane Width (ft)	
Walking Speed (ft/s)	
Percent Blockage	
Right turn flare (veh)	
Median type	
Median storage veh)	
Upstream signal (ft)	
pX, platoon unblocked	
vC, conflicting volume	437
vC1, stage 1 conf vol	
vC2, stage 2 conf vol	
vCu, unblocked vol	437
tC, single (s)	6.9
tC, 2 stage (s)	
tF (s)	3.3
p0 queue free %	47
cM capacity (veh/h)	567
Direction, Lane #	

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1083	10	4	789	16	2
Future Volume (Veh/h)	1083	10	4	789	16	2
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1177	11	4	858	17	2
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL			TWLTL		
Median storage veh)	2			2		
Upstream signal (ft)	1011					
pX, platoon unblocked			0.95		0.95	0.95
vC, conflicting volume			1188		1620	594
vC1, stage 1 conf vol					1182	
vC2, stage 2 conf vol					437	
vCu, unblocked vol			1097		1550	473
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)			2.2		3.5	3.3
p0 queue free %			99		93	100
cM capacity (veh/h)			602		251	512

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	785	403	4	429	429	19
Volume Left	0	0	4	0	0	17
Volume Right	0	11	0	0	0	2
cSH	1700	1700	602	1700	1700	265
Volume to Capacity	0.46	0.24	0.01	0.25	0.25	0.07
Queue Length 95th (ft)	0	0	1	0	0	6
Control Delay (s)	0.0	0.0	11.0	0.0	0.0	19.6
Lane LOS			B			C
Approach Delay (s)	0.0		0.1			19.6
Approach LOS						C

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	40.3%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	1	1077	775	1	2	3
Future Volume (Veh/h)	1	1077	775	1	2	3
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	1171	842	1	2	3
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		TWLTL	TWLTL			
Median storage veh)		2	2			
Upstream signal (ft)		1134				
pX, platoon unblocked					0.97	
vC, conflicting volume	843				1430	422
vC1, stage 1 conf vol					842	
vC2, stage 2 conf vol					588	
vCu, unblocked vol	843				1383	422
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)	2.2				3.5	3.3
p0 queue free %	100				99	99
cM capacity (veh/h)	789				328	581

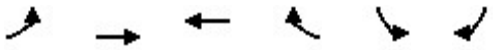
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	1	586	586	561	282	5
Volume Left	1	0	0	0	0	2
Volume Right	0	0	0	0	1	3
cSH	789	1700	1700	1700	1700	444
Volume to Capacity	0.00	0.34	0.34	0.33	0.17	0.01
Queue Length 95th (ft)	0	0	0	0	0	1
Control Delay (s)	9.6	0.0	0.0	0.0	0.0	13.2
Lane LOS	A					B
Approach Delay (s)	0.0			0.0		13.2
Approach LOS						B

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	39.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	915	165	86	673	105	39
Future Volume (Veh/h)	915	165	86	673	105	39
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	995	179	93	732	114	42
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL			TWLTL		
Median storage veh)	2			2		
Upstream signal (ft)	1265					
pX, platoon unblocked			0.98		0.98	0.98
vC, conflicting volume			1174		1636	587
vC1, stage 1 conf vol					1084	
vC2, stage 2 conf vol					552	
vCu, unblocked vol			1141		1612	544
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)			2.2		3.5	3.3
p0 queue free %			84		54	91
cM capacity (veh/h)			597		250	475

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	663	511	93	366	366	156
Volume Left	0	0	93	0	0	114
Volume Right	0	179	0	0	0	42
cSH	1700	1700	597	1700	1700	287
Volume to Capacity	0.39	0.30	0.16	0.22	0.22	0.54
Queue Length 95th (ft)	0	0	14	0	0	76
Control Delay (s)	0.0	0.0	12.1	0.0	0.0	31.6
Lane LOS			B			D
Approach Delay (s)	0.0		1.4			31.6
Approach LOS						D

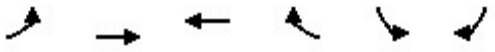
Intersection Summary			
Average Delay	2.8		
Intersection Capacity Utilization	53.5%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	8	945	750	6	3	8
Future Volume (Veh/h)	8	945	750	6	3	8
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	9	1027	815	7	3	9
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		TWLTL	TWLTL			
Median storage veh)		2	2			
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	822				1864	411
vC1, stage 1 conf vol					818	
vC2, stage 2 conf vol					1045	
vCu, unblocked vol	822				1864	411
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)	2.2				3.5	3.3
p0 queue free %	99				99	98
cM capacity (veh/h)	803				238	590

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total	9	1027	543	279	12
Volume Left	9	0	0	0	3
Volume Right	0	0	0	7	9
cSH	803	1700	1700	1700	431
Volume to Capacity	0.01	0.60	0.32	0.16	0.03
Queue Length 95th (ft)	1	0	0	0	2
Control Delay (s)	9.5	0.0	0.0	0.0	13.6
Lane LOS	A				B
Approach Delay (s)	0.1		0.0		13.6
Approach LOS					B

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	59.7%	ICU Level of Service	B
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	177	775	641	36	25	116
Future Volume (Veh/h)	177	775	641	36	25	116
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	192	842	697	39	27	126
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		TWLTL	TWLTL			
Median storage veh)		2	2			
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	736				1942	716
vC1, stage 1 conf vol					716	
vC2, stage 2 conf vol					1226	
vCu, unblocked vol	736				1942	716
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)	2.2				3.5	3.3
p0 queue free %	78				86	71
cM capacity (veh/h)	870				196	430

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	192	842	736	153
Volume Left	192	0	0	27
Volume Right	0	0	39	126
cSH	870	1700	1700	355
Volume to Capacity	0.22	0.50	0.43	0.43
Queue Length 95th (ft)	21	0	0	52
Control Delay (s)	10.3	0.0	0.0	22.6
Lane LOS	B			C
Approach Delay (s)	1.9		0.0	22.6
Approach LOS				C

Intersection Summary			
Average Delay	2.8		
Intersection Capacity Utilization	64.3%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (veh/h)	5	775	20	10	171	875	7	17	3	191	7	4
Future Volume (Veh/h)	5	775	20	10	171	875	7	17	3	191	7	4
Sign Control		Free				Free			Stop			Stop
Grade		0%				0%			0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	842	22	0	186	951	8	18	3	208	8	4
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		TWLTL				None						
Median storage veh)		2										
Upstream signal (ft)						696						
pX, platoon unblocked	0.87			0.00				0.87	0.87		0.87	0.87
vC, conflicting volume	959			0	864			1726	2194	432	1968	2201
vC1, stage 1 conf vol								863	863		1327	1327
vC2, stage 2 conf vol								862	1331		640	874
vCu, unblocked vol	656			0	864			1536	2074	432	1814	2082
tC, single (s)	4.1			0.0	4.1			7.5	6.5	6.9	7.5	6.5
tC, 2 stage (s)								6.5	5.5		6.5	5.5
tF (s)	2.2			0.0	2.2			3.5	4.0	3.3	3.5	4.0
p0 queue free %	99			0	76			92	98	64	89	97
cM capacity (veh/h)	807			0	774			220	165	572	74	132

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	5	561	303	186	634	325	229	25
Volume Left	5	0	0	186	0	0	18	8
Volume Right	0	0	22	0	0	8	208	13
cSH	807	1700	1700	774	1700	1700	493	161
Volume to Capacity	0.01	0.33	0.18	0.24	0.37	0.19	0.46	0.15
Queue Length 95th (ft)	0	0	0	23	0	0	61	13
Control Delay (s)	9.5	0.0	0.0	11.1	0.0	0.0	18.5	31.4
Lane LOS	A			B			C	D
Approach Delay (s)	0.1			1.8			18.5	31.4
Approach LOS							C	D

Intersection Summary				
Average Delay	3.1			
Intersection Capacity Utilization	55.7%	ICU Level of Service		B
Analysis Period (min)	15			

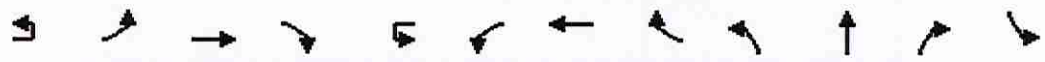
Movement	SBR
Lane Configurations	
Traffic Volume (veh/h)	12
Future Volume (Veh/h)	12
Sign Control	
Grade	
Peak Hour Factor	0.92
Hourly flow rate (vph)	13
Pedestrians	
Lane Width (ft)	
Walking Speed (ft/s)	
Percent Blockage	
Right turn flare (veh)	
Median type	
Median storage veh)	
Upstream signal (ft)	
pX, platoon unblocked	0.87
vC, conflicting volume	480
vC1, stage 1 conf vol	
vC2, stage 2 conf vol	
vCu, unblocked vol	105
tC, single (s)	6.9
tC, 2 stage (s)	
tF (s)	3.3
p0 queue free %	98
cM capacity (veh/h)	809
Direction, Lane #	

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBT
Lane Group Flow (vph)	62	913	93	261	1143	65	67	186	133
v/c Ratio	0.56	0.86	0.15	1.44	0.76	0.37	0.37	0.44	0.72
Control Delay	54.7	36.4	0.5	259.8	26.2	38.2	38.1	3.8	53.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.7	36.4	0.5	259.8	26.2	38.2	38.1	3.8	53.8
Queue Length 50th (ft)	30	224	0	~97	234	32	33	0	57
Queue Length 95th (ft)	#80	#327	0	#183	#384	69	70	7	#139
Internal Link Dist (ft)		616			1076		1031		1301
Turn Bay Length (ft)	280			480					
Base Capacity (vph)	116	1061	618	181	1513	336	344	545	190
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.53	0.86	0.15	1.44	0.76	0.19	0.19	0.34	0.70

Intersection Summary

~ 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.



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	1	56	840	86	4	236	938	113	95	27	171	64
Future Volume (vph)	1	56	840	86	4	236	938	113	95	27	171	64
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	6.0	6.0		6.0	6.0		6.0	6.0	6.0	
Lane Util. Factor		1.00	0.95	1.00		0.97	0.95		0.95	0.95	1.00	
Frt		1.00	1.00	0.85		1.00	0.98		1.00	1.00	0.85	
Flt Protected		0.95	1.00	1.00		0.95	1.00		0.95	0.97	1.00	
Satd. Flow (prot)		1770	3539	1583		3433	3482		1681	1721	1583	
Flt Permitted		0.62	1.00	1.00		0.25	1.00		0.95	0.97	1.00	
Satd. Flow (perm)		1164	3539	1583		921	3482		1681	1721	1583	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1	61	913	93	4	257	1020	123	103	29	186	70
RTOR Reduction (vph)	0	0	0	65	0	0	10	0	0	0	166	0
Lane Group Flow (vph)	0	62	913	28	0	261	1133	0	65	67	20	0
Turn Type	custom	Prot	NA	Perm	custom	Prot	NA		Split	NA	Perm	Split
Protected Phases		5	2			1	6		8	8		4
Permitted Phases	5			2	1						8	
Actuated Green, G (s)		6.4	24.1	24.1		15.7	33.4		8.5	8.5	8.5	
Effective Green, g (s)		6.4	24.1	24.1		15.7	33.4		8.5	8.5	8.5	
Actuated g/C Ratio		0.08	0.30	0.30		0.20	0.42		0.11	0.11	0.11	
Clearance Time (s)		6.0	6.0	6.0		6.0	6.0		6.0	6.0	6.0	
Vehicle Extension (s)		3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0	
Lane Grp Cap (vph)		93	1066	476		180	1453		178	182	168	
v/s Ratio Prot			c0.26				0.33		0.04	c0.04		
v/s Ratio Perm		0.05		0.02		c0.28					0.01	
v/c Ratio		0.67	0.86	0.06		1.45	0.78		0.37	0.37	0.12	
Uniform Delay, d1		35.8	26.3	19.9		32.1	20.1		33.2	33.3	32.4	
Progression Factor		1.00	1.00	1.00		1.22	1.06		1.00	1.00	1.00	
Incremental Delay, d2		16.6	8.9	0.2		229.5	4.0		1.3	1.3	0.3	
Delay (s)		52.4	35.2	20.1		268.6	25.3		34.5	34.5	32.7	
Level of Service		D	D	C		F	C		C	C	C	
Approach Delay (s)			34.9				70.6			33.4		
Approach LOS			C				E			C		

Intersection Summary			
HCM 2000 Control Delay	52.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	67.5%	ICU Level of Service	C
Analysis Period (min)	15		

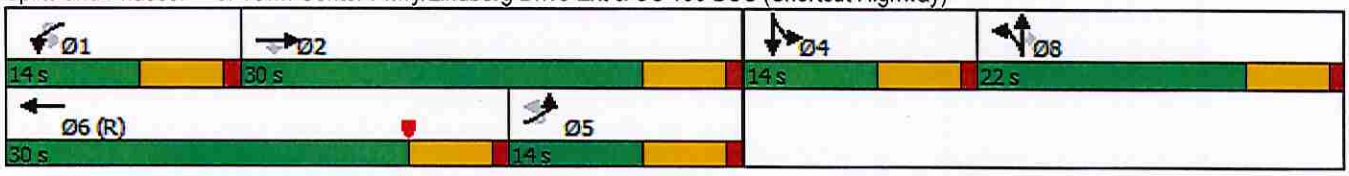
c Critical Lane Group

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	27	31
Future Volume (vph)	27	31
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	6.0	
Lane Util. Factor	1.00	
Frt	0.97	
Flt Protected	0.97	
Satd. Flow (prot)	1752	
Flt Permitted	0.97	
Satd. Flow (perm)	1752	
Peak-hour factor, PHF	0.92	0.92
Adj. Flow (vph)	29	34
RTOR Reduction (vph)	15	0
Lane Group Flow (vph)	118	0
Turn Type	NA	
Protected Phases	4	
Permitted Phases		
Actuated Green, G (s)	7.7	
Effective Green, g (s)	7.7	
Actuated g/C Ratio	0.10	
Clearance Time (s)	6.0	
Vehicle Extension (s)	3.0	
Lane Grp Cap (vph)	168	
v/s Ratio Prot	c0.07	
v/s Ratio Perm		
v/c Ratio	0.70	
Uniform Delay, d1	35.0	
Progression Factor	1.00	
Incremental Delay, d2	12.4	
Delay (s)	47.4	
Level of Service	D	
Approach Delay (s)	47.4	
Approach LOS	D	
Intersection Summary		

Phase Number	1	2	4	5	6	8
Movement	WBL	EBT	SBTL	EBL	WBT	NBTL
Lead/Lag	Lead	Lag		Lag	Lead	
Lead-Lag Optimize	Yes	Yes		Yes	Yes	
Recall Mode	None	Max	None	None	C-Max	None
Maximum Split (s)	14	30	14	14	30	22
Maximum Split (%)	17.5%	37.5%	17.5%	17.5%	37.5%	27.5%
Minimum Split (s)	11	16	14	14	16	14
Yellow Time (s)	5	5	5	5	5	5
All-Red Time (s)	1	1	1	1	1	1
Minimum Initial (s)	3	8	3	3	10	3
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)						
Flash Dont Walk (s)						
Dual Entry	No	Yes	Yes	No	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	29	43	73	59	29	7
End Time (s)	43	73	7	73	59	29
Yield/Force Off (s)	37	67	1	67	53	23
Yield/Force Off 170(s)	37	67	1	67	53	23
Local Start Time (s)	56	70	20	6	56	34
Local Yield (s)	64	14	28	14	0	50
Local Yield 170(s)	64	14	28	14	0	50

Intersection Summary	
Cycle Length	80
Control Type	Actuated-Coordinated
Natural Cycle	75
Offset: 53 (66%), Referenced to phase 6:WBT, Start of Yellow	

Splits and Phases: 3: Town Center Pkwy/Lindberg Drive Ext & US 190 BUS (Shortcut Highway)



Lane Group	EBT	EBR	WBL	WBT	SBT	SBR
Lane Group Flow (vph)	685	487	548	938	246	462
v/c Ratio	0.52	0.31	0.88	0.39	0.83	0.29
Control Delay	10.6	0.9	24.6	2.7	56.1	0.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.6	0.9	24.6	2.7	56.1	0.5
Queue Length 50th (ft)	40	0	86	22	119	0
Queue Length 95th (ft)	m74	m2	#301	42	#234	0
Internal Link Dist (ft)	1076			598	1202	
Turn Bay Length (ft)		750	450			400
Base Capacity (vph)	1322	1583	662	2413	310	1583
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	0.31	0.83	0.39	0.79	0.29

Intersection Summary

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.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	630	448	504	863	0	0	0	0	224	3	425
Future Volume (vph)	0	630	448	504	863	0	0	0	0	224	3	425
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	4.0	6.0	6.0						6.0	4.0
Lane Util. Factor		0.95	1.00	1.00	0.95						1.00	1.00
Frt		1.00	0.85	1.00	1.00						1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00						0.95	1.00
Satd. Flow (prot)		3539	1583	1770	3539						1775	1583
Flt Permitted		1.00	1.00	0.25	1.00						0.95	1.00
Satd. Flow (perm)		3539	1583	474	3539						1775	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	685	487	548	938	0	0	0	0	243	3	462
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	685	487	548	938	0	0	0	0	0	246	462
Turn Type		NA	Free	pm+pt	NA					Perm	NA	Free
Protected Phases		2		1	6						4	
Permitted Phases			Free	6						4		Free
Actuated Green, G (s)		29.9	80.0	54.6	54.6						13.4	80.0
Effective Green, g (s)		29.9	80.0	54.6	54.6						13.4	80.0
Actuated g/C Ratio		0.37	1.00	0.68	0.68						0.17	1.00
Clearance Time (s)		6.0		6.0	6.0						6.0	
Vehicle Extension (s)		3.0		3.0	3.0						3.0	
Lane Grp Cap (vph)		1322	1583	626	2415						297	1583
v/s Ratio Prot		0.19		c0.20	0.27							
v/s Ratio Perm			0.31	c0.39							0.14	0.29
v/c Ratio		0.52	0.31	0.88	0.39						0.83	0.29
Uniform Delay, d1		19.5	0.0	11.7	5.5						32.2	0.0
Progression Factor		0.47	1.00	0.83	0.39						1.00	1.00
Incremental Delay, d2		0.9	0.3	11.9	0.4						17.1	0.5
Delay (s)		10.0	0.3	21.6	2.6						49.2	0.5
Level of Service		B	A	C	A						D	A
Approach Delay (s)		6.0			9.6			0.0			17.4	
Approach LOS		A			A			A			B	

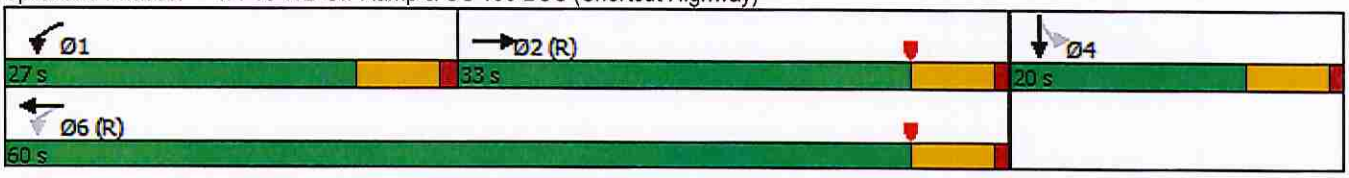
Intersection Summary				
HCM 2000 Control Delay	10.0	HCM 2000 Level of Service	A	
HCM 2000 Volume to Capacity ratio	0.91			
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	18.0	
Intersection Capacity Utilization	72.9%	ICU Level of Service	C	
Analysis Period (min)	15			

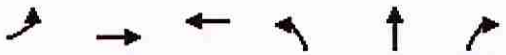
c Critical Lane Group

Phase Number	1	2	4	6
Movement	WBL	EBT	SBTL	WBTL
Lead/Lag	Lead	Lag		
Lead-Lag Optimize	Yes	Yes		
Recall Mode	None	C-Max	None	C-Max
Maximum Split (s)	27	33	20	60
Maximum Split (%)	33.8%	41.3%	25.0%	75.0%
Minimum Split (s)	15	27	15	27
Yellow Time (s)	5	5	5	5
All-Red Time (s)	1	1	1	1
Minimum Initial (s)	5	9	5	15
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)				
Flash Dont Walk (s)				
Dual Entry	No	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	26	53	6	26
End Time (s)	53	6	26	6
Yield/Force Off (s)	47	0	20	0
Yield/Force Off 170(s)	47	0	20	0
Local Start Time (s)	26	53	6	26
Local Yield (s)	47	0	20	0
Local Yield 170(s)	47	0	20	0

Intersection Summary	
Cycle Length	80
Control Type	Actuated-Coordinated
Natural Cycle	65
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBTL, Start of Yellow	

Splits and Phases: 4: I-10 WB Off-Ramp & US 190 BUS (Shortcut Highway)

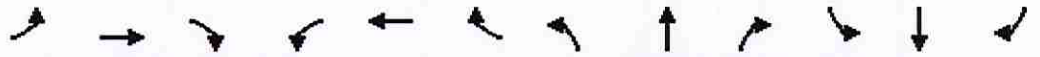




Lane Group	EBL	EBT	WBT	NBL	NBT	NBR
Lane Group Flow (vph)	277	650	1496	186	188	280
v/c Ratio	0.91	0.26	0.85	0.74	0.74	0.18
Control Delay	49.7	4.9	22.4	50.6	51.3	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.7	4.9	22.4	50.6	51.3	0.2
Queue Length 50th (ft)	48	45	311	93	94	0
Queue Length 95th (ft)	#226	68	413	#184	#187	0
Internal Link Dist (ft)		598	592		1105	
Turn Bay Length (ft)	480					200
Base Capacity (vph)	305	2475	1759	273	273	1583
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	0.91	0.26	0.85	0.68	0.69	0.18

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	255	598	0	0	1033	343	343	1	258	0	0	0
Future Volume (vph)	255	598	0	0	1033	343	343	1	258	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0			6.0		6.0	6.0	4.0			
Lane Util. Factor	1.00	0.95			0.95		0.95	0.95	1.00			
Frt	1.00	1.00			0.96		1.00	1.00	0.85			
Flt Protected	0.95	1.00			1.00		0.95	0.95	1.00			
Satd. Flow (prot)	1770	3539			3407		1681	1686	1583			
Flt Permitted	0.09	1.00			1.00		0.95	0.95	1.00			
Satd. Flow (perm)	161	3539			3407		1681	1686	1583			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	277	650	0	0	1123	373	373	1	280	0	0	0
RTOR Reduction (vph)	0	0	0	0	40	0	0	0	0	0	0	0
Lane Group Flow (vph)	277	650	0	0	1456	0	186	188	280	0	0	0
Turn Type	pm+pt	NA			NA		Perm	NA	Free			
Protected Phases	5	2			6			8				
Permitted Phases	2						8		Free			
Actuated Green, G (s)	56.0	56.0			40.4		12.0	12.0	80.0			
Effective Green, g (s)	56.0	56.0			40.4		12.0	12.0	80.0			
Actuated g/C Ratio	0.70	0.70			0.50		0.15	0.15	1.00			
Clearance Time (s)	6.0	6.0			6.0		6.0	6.0				
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0				
Lane Grp Cap (vph)	305	2477			1720		252	252	1583			
v/s Ratio Prot	c0.11	0.18			0.43							
v/s Ratio Perm	c0.53						0.11	0.11	0.18			
v/c Ratio	0.91	0.26			0.85		0.74	0.75	0.18			
Uniform Delay, d1	22.5	4.4			17.1		32.5	32.5	0.0			
Progression Factor	0.74	1.01			1.00		1.00	1.00	1.00			
Incremental Delay, d2	28.2	0.2			5.4		10.7	11.4	0.2			
Delay (s)	44.9	4.7			22.5		43.2	43.9	0.2			
Level of Service	D	A			C		D	D	A			
Approach Delay (s)		16.7			22.5			25.0			0.0	
Approach LOS		B			C			C			A	

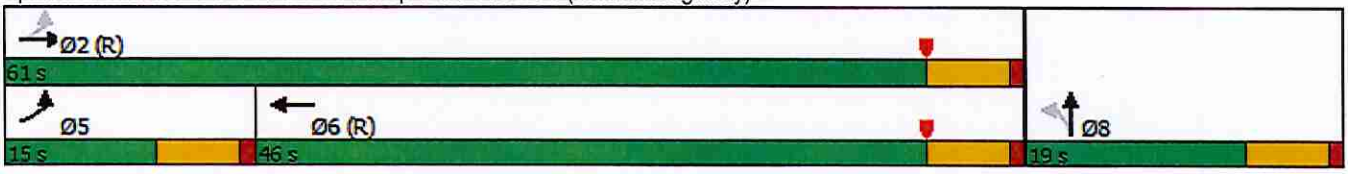
Intersection Summary			
HCM 2000 Control Delay	21.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	78.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	2	5	6	8
Movement	EBTL	EBL	WBT	NBTL
Lead/Lag		Lead	Lag	
Lead-Lag Optimize		Yes	Yes	
Recall Mode	C-Max	None	C-Max	None
Maximum Split (s)	61	15	46	19
Maximum Split (%)	76.3%	18.8%	57.5%	23.8%
Minimum Split (s)	24	15	24	15
Yellow Time (s)	5	5	5	5
All-Red Time (s)	1	1	1	1
Minimum Initial (s)	12	5	12	5
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)				
Flash Dont Walk (s)				
Dual Entry	Yes	No	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	0	15	61
End Time (s)	61	15	61	0
Yield/Force Off (s)	55	9	55	74
Yield/Force Off 170(s)	55	9	55	74
Local Start Time (s)	25	25	40	6
Local Yield (s)	0	34	0	19
Local Yield 170(s)	0	34	0	19

Intersection Summary	
Cycle Length	80
Control Type	Actuated-Coordinated
Natural Cycle	70
Offset: 55 (69%), Referenced to phase 2:EBTL and 6:WBT, Start of Yellow	

Splits and Phases: 5: I-10 EB Off-Ramp & US 190 BUS (Shortcut Highway)



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (veh/h)	1	185	658	9	5	1192	42	21	4	5	16	3
Future Volume (Veh/h)	1	185	658	9	5	1192	42	21	4	5	16	3
Sign Control			Free			Free			Stop			Stop
Grade			0%			0%			0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	201	715	10	5	1296	46	23	4	5	17	3
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type			None			TWLTL						
Median storage veh)						2						
Upstream signal (ft)			672									
pX, platoon unblocked	0.00				0.98			0.98	0.98	0.98	0.98	0.98
vC, conflicting volume	0	1342			725			1954	2474	362	2096	2456
vC1, stage 1 conf vol								1122	1122		1329	1329
vC2, stage 2 conf vol								832	1352		766	1127
vCu, unblocked vol	0	1342			670			1928	2461	299	2074	2443
tC, single (s)	0.0	4.1			4.1			7.5	6.5	6.9	7.5	6.5
tC, 2 stage (s)								6.5	5.5		6.5	5.5
tF (s)	0.0	2.2			2.2			3.5	4.0	3.3	3.5	4.0
p0 queue free %	0	61			99			0	77	99	86	98
cM capacity (veh/h)	0	509			895			15	18	681	126	129

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1	SB 2
Volume Total	201	477	248	5	864	478	32	20	172
Volume Left	201	0	0	5	0	0	23	17	0
Volume Right	0	0	10	0	0	46	5	0	172
cSH	509	1700	1700	895	1700	1700	18	126	399
Volume to Capacity	0.39	0.28	0.15	0.01	0.51	0.28	1.76	0.16	0.43
Queue Length 95th (ft)	47	0	0	0	0	0	111	14	53
Control Delay (s)	16.6	0.0	0.0	9.0	0.0	0.0	803.6	38.8	20.7
Lane LOS	C			A			F	E	C
Approach Delay (s)	3.6			0.0			803.6	22.6	
Approach LOS							F	C	

Intersection Summary				
Average Delay	13.4			
Intersection Capacity Utilization	71.0%	ICU Level of Service		C
Analysis Period (min)	15			

Movement	SBR
Lane Configurations	
Traffic Volume (veh/h)	158
Future Volume (Veh/h)	158
Sign Control	
Grade	
Peak Hour Factor	0.92
Hourly flow rate (vph)	172
Pedestrians	
Lane Width (ft)	
Walking Speed (ft/s)	
Percent Blockage	
Right turn flare (veh)	
Median type	
Median storage veh)	
Upstream signal (ft)	
pX, platoon unblocked	
vC, conflicting volume	671
vC1, stage 1 conf vol	
vC2, stage 2 conf vol	
vCu, unblocked vol	671
tC, single (s)	6.9
tC, 2 stage (s)	
tF (s)	3.3
p0 queue free %	57
cM capacity (veh/h)	399
Direction, Lane #	

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	673	5	7	1211	27	5
Future Volume (Veh/h)	673	5	7	1211	27	5
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	732	5	8	1316	29	5
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL			TWLTL		
Median storage veh)	2			2		
Upstream signal (ft)	1011					
pX, platoon unblocked						
vC, conflicting volume			737		1408	368
vC1, stage 1 conf vol					734	
vC2, stage 2 conf vol					674	
vCu, unblocked vol			737		1408	368
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)			2.2		3.5	3.3
p0 queue free %			99		91	99
cM capacity (veh/h)			865		334	629

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	488	249	8	658	658	34
Volume Left	0	0	8	0	0	29
Volume Right	0	5	0	0	0	5
cSH	1700	1700	865	1700	1700	359
Volume to Capacity	0.29	0.15	0.01	0.39	0.39	0.09
Queue Length 95th (ft)	0	0	1	0	0	8
Control Delay (s)	0.0	0.0	9.2	0.0	0.0	16.1
Lane LOS			A			C
Approach Delay (s)	0.0		0.1			16.1
Approach LOS						C

Intersection Summary				
Average Delay	0.3			
Intersection Capacity Utilization	43.5%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	1	677	1214	1	3	4
Future Volume (Veh/h)	1	677	1214	1	3	4
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	736	1320	1	3	4
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		TWLTL	TWLTL			
Median storage veh)		2	2			
Upstream signal (ft)		1134				
pX, platoon unblocked						
vC, conflicting volume	1321				1690	660
vC1, stage 1 conf vol					1320	
vC2, stage 2 conf vol					370	
vCu, unblocked vol	1321				1690	660
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)	2.2				3.5	3.3
p0 queue free %	100				99	99
cM capacity (veh/h)	519				204	405

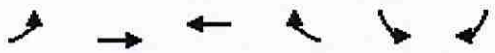
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	1	368	368	880	441	7
Volume Left	1	0	0	0	0	3
Volume Right	0	0	0	0	1	4
cSH	519	1700	1700	1700	1700	285
Volume to Capacity	0.00	0.22	0.22	0.52	0.26	0.02
Queue Length 95th (ft)	0	0	0	0	0	2
Control Delay (s)	12.0	0.0	0.0	0.0	0.0	18.0
Lane LOS	B					C
Approach Delay (s)	0.0			0.0		18.0
Approach LOS						C

Intersection Summary				
Average Delay	0.1			
Intersection Capacity Utilization	43.6%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	611	69	43	1033	184	59
Future Volume (Veh/h)	611	69	43	1033	184	59
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	664	75	47	1123	200	64
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL			TWLTL		
Median storage veh)	2			2		
Upstream signal (ft)	1265					
pX, platoon unblocked						
vC, conflicting volume			739		1357	370
vC1, stage 1 conf vol					702	
vC2, stage 2 conf vol					656	
vCu, unblocked vol			739		1357	370
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)			2.2		3.5	3.3
p0 queue free %			95		41	90
cM capacity (veh/h)			863		338	628

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	443	296	47	562	562	264
Volume Left	0	0	47	0	0	200
Volume Right	0	75	0	0	0	64
cSH	1700	1700	863	1700	1700	380
Volume to Capacity	0.26	0.17	0.05	0.33	0.33	0.69
Queue Length 95th (ft)	0	0	4	0	0	126
Control Delay (s)	0.0	0.0	9.4	0.0	0.0	33.4
Lane LOS			A			D
Approach Delay (s)	0.0		0.4			33.4
Approach LOS						D

Intersection Summary			
Average Delay	4.3		
Intersection Capacity Utilization	49.0%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	8	660	1056	4	5	18
Future Volume (Veh/h)	8	660	1056	4	5	18
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	9	717	1148	4	5	20
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		TWLTL	TWLTL			
Median storage veh)		2	2			
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1152				1885	576
vC1, stage 1 conf vol					1150	
vC2, stage 2 conf vol					735	
vCu, unblocked vol	1152				1885	576
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)	2.2				3.5	3.3
p0 queue free %	99				98	96
cM capacity (veh/h)	602				225	460

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total	9	717	765	387	25
Volume Left	9	0	0	0	5
Volume Right	0	0	0	4	20
cSH	602	1700	1700	1700	381
Volume to Capacity	0.01	0.42	0.45	0.23	0.07
Queue Length 95th (ft)	1	0	0	0	5
Control Delay (s)	11.1	0.0	0.0	0.0	15.1
Lane LOS	B				C
Approach Delay (s)	0.1		0.0		15.1
Approach LOS					C

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	44.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	108	550	802	60	18	138
Future Volume (Veh/h)	108	550	802	60	18	138
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	117	598	872	65	20	150
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		TWLTL	TWLTL			
Median storage veh)		2	2			
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	937				1736	904
vC1, stage 1 conf vol					904	
vC2, stage 2 conf vol					832	
vCu, unblocked vol	937				1736	904
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)	2.2				3.5	3.3
p0 queue free %	84				93	55
cM capacity (veh/h)	731				271	335

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	117	598	937	170
Volume Left	117	0	0	20
Volume Right	0	0	65	150
cSH	731	1700	1700	326
Volume to Capacity	0.16	0.35	0.55	0.52
Queue Length 95th (ft)	14	0	0	71
Control Delay (s)	10.9	0.0	0.0	27.5
Lane LOS	B			D
Approach Delay (s)	1.8		0.0	27.5
Approach LOS				D

Intersection Summary			
Average Delay	3.3		
Intersection Capacity Utilization	71.4%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	12	31	210	23	24	165
Future Volume (Veh/h)	12	31	210	23	24	165
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	13	34	228	25	26	179
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	472	240			253	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	472	240			253	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	98	96			98	
cM capacity (veh/h)	540	798			1312	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	47	253	205
Volume Left	13	0	26
Volume Right	34	25	0
cSH	705	1700	1312
Volume to Capacity	0.07	0.15	0.02
Queue Length 95th (ft)	5	0	2
Control Delay (s)	10.5	0.0	1.1
Lane LOS	B		A
Approach Delay (s)	10.5	0.0	1.1
Approach LOS	B		

Intersection Summary			
Average Delay		1.4	
Intersection Capacity Utilization		35.8%	ICU Level of Service A
Analysis Period (min)		15	

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (veh/h)	8	986	10	10	175	1219	8	9	5	182	4	3
Future Volume (Veh/h)	8	986	10	10	175	1219	8	9	5	182	4	3
Sign Control		Free				Free			Stop			Stop
Grade		0%				0%			0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	9	1072	11	0	190	1325	9	10	5	198	4	3
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		TWLTL				None						
Median storage veh)		2										
Upstream signal (ft)						696						
pX, platoon unblocked	0.86			0.00				0.86	0.86		0.86	0.86
vC, conflicting volume	1334			0	1083			2144	2810	542	2464	2810
vC1, stage 1 conf vol								1096	1096		1710	1710
vC2, stage 2 conf vol								1048	1714		754	1101
vCu, unblocked vol	1065			0	1083			2005	2779	542	2378	2780
tC, single (s)	4.1			0.0	4.1			7.5	6.5	6.9	7.5	6.5
tC, 2 stage (s)								6.5	5.5		6.5	5.5
tF (s)	2.2			0.0	2.2			3.5	4.0	3.3	3.5	4.0
p0 queue free %	98			0	70			93	95	59	79	96
cM capacity (veh/h)	560			0	640			149	92	485	19	68

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	9	715	368	190	883	451	213	11
Volume Left	9	0	0	190	0	0	10	4
Volume Right	0	0	11	0	0	9	198	4
cSH	560	1700	1700	640	1700	1700	402	42
Volume to Capacity	0.02	0.42	0.22	0.30	0.52	0.27	0.53	0.26
Queue Length 95th (ft)	1	0	0	31	0	0	75	22
Control Delay (s)	11.5	0.0	0.0	13.0	0.0	0.0	23.6	117.2
Lane LOS	B			B			C	F
Approach Delay (s)	0.1			1.6			23.6	117.2
Approach LOS							C	F

Intersection Summary				
Average Delay	3.1			
Intersection Capacity Utilization	60.0%	ICU Level of Service		B
Analysis Period (min)	15			

Movement	SBR
Lane Configurations	
Traffic Volume (veh/h)	4
Future Volume (Veh/h)	4
Sign Control	
Grade	
Peak Hour Factor	0.92
Hourly flow rate (vph)	4
Pedestrians	
Lane Width (ft)	
Walking Speed (ft/s)	
Percent Blockage	
Right turn flare (veh)	
Median type	
Median storage veh)	
Upstream signal (ft)	
pX, platoon unblocked	0.86
vC, conflicting volume	667
vC1, stage 1 conf vol	
vC2, stage 2 conf vol	
vCu, unblocked vol	291
tC, single (s)	6.9
tC, 2 stage (s)	
tF (s)	3.3
p0 queue free %	99
cM capacity (veh/h)	608
Direction, Lane #	

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBT
Lane Group Flow (vph)	56	999	238	624	1287	195	199	595	306
v/c Ratio	0.51	1.13	0.41	1.04	1.02	0.84	0.84	0.94	1.19
Control Delay	51.1	103.0	6.1	88.6	55.8	66.0	65.3	34.2	147.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.1	103.0	6.1	88.6	55.8	66.0	65.3	34.2	147.7
Queue Length 50th (ft)	27	~309	0	~173	~375	102	103	55	~178
Queue Length 95th (ft)	#71	#428	53	#278	#510	#221	#224	#263	#333
Internal Link Dist (ft)		616			1076		1031		1301
Turn Bay Length (ft)	280			480					
Base Capacity (vph)	116	884	574	600	1264	231	236	630	258
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	0.48	1.13	0.41	1.04	1.02	0.84	0.84	0.94	1.19

Intersection Summary

~ 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.

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	1	51	919	219	574	1055	129	281	82	547	124	76
Future Volume (vph)	1	51	919	219	574	1055	129	281	82	547	124	76
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	6.0	6.0	6.0	6.0		6.0	6.0	6.0		6.0
Lane Util. Factor		1.00	0.95	1.00	0.97	0.95		0.95	0.95	1.00		1.00
Frt		1.00	1.00	0.85	1.00	0.98		1.00	1.00	0.85		0.96
Flt Protected		0.95	1.00	1.00	0.95	1.00		0.95	0.97	1.00		0.98
Satd. Flow (prot)		1770	3539	1583	3433	3481		1681	1722	1583		1752
Flt Permitted		0.62	1.00	1.00	0.95	1.00		0.95	0.97	1.00		0.98
Satd. Flow (perm)		1164	3539	1583	3433	3481		1681	1722	1583		1752
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1	55	999	238	624	1147	140	305	89	595	135	83
RTOR Reduction (vph)	0	0	0	179	0	11	0	0	0	413	0	18
Lane Group Flow (vph)	0	56	999	60	624	1276	0	195	199	182	0	288
Turn Type	custom	Prot	NA	Perm	Prot	NA		Split	NA	Perm	Split	NA
Protected Phases		5	2		1	6		8	8		4	4
Permitted Phases	5			2						8		
Actuated Green, G (s)		6.4	20.0	20.0	14.0	27.6		11.0	11.0	11.0		11.0
Effective Green, g (s)		6.4	20.0	20.0	14.0	27.6		11.0	11.0	11.0		11.0
Actuated g/C Ratio		0.08	0.25	0.25	0.18	0.35		0.14	0.14	0.14		0.14
Clearance Time (s)		6.0	6.0	6.0	6.0	6.0		6.0	6.0	6.0		6.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0		3.0
Lane Grp Cap (vph)		93	884	395	600	1200		231	236	217		240
v/s Ratio Prot			c0.28		0.18	c0.37		c0.12	0.12			c0.16
v/s Ratio Perm		0.05		0.04						0.11		
v/c Ratio		0.60	1.13	0.15	1.04	1.06		0.84	0.84	0.84		1.20
Uniform Delay, d1		35.6	30.0	23.4	33.0	26.2		33.7	33.7	33.6		34.5
Progression Factor		1.00	1.00	1.00	1.34	0.96		1.00	1.00	1.00		1.00
Incremental Delay, d2		10.5	72.8	0.8	44.9	42.8		23.5	23.0	23.6		122.8
Delay (s)		46.1	102.8	24.2	89.0	67.9		57.2	56.7	57.2		157.3
Level of Service		D	F	C	F	E		E	E	E		F
Approach Delay (s)			85.9			74.8			57.1			157.3
Approach LOS			F			E			E			F

Intersection Summary			
HCM 2000 Control Delay	79.7	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.14		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	90.1%	ICU Level of Service	E
Analysis Period (min)	15		

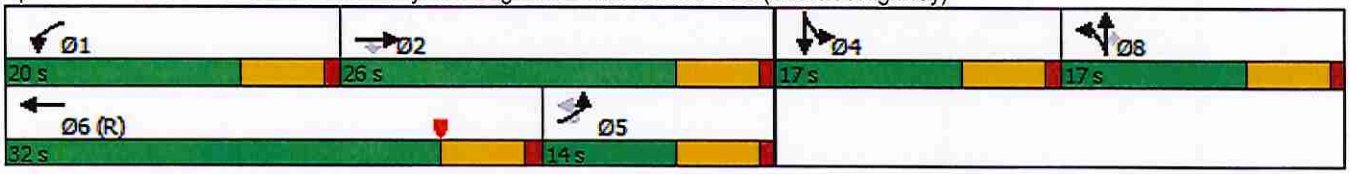
c Critical Lane Group

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	81
Future Volume (vph)	81
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	88
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	

Phase Number	1	2	4	5	6	8
Movement	WBL	EBT	SBTL	EBL	WBT	NBTL
Lead/Lag	Lead	Lag		Lag	Lead	
Lead-Lag Optimize	Yes	Yes		Yes	Yes	
Recall Mode	None	Max	None	None	C-Max	None
Maximum Split (s)	20	26	17	14	32	17
Maximum Split (%)	25.0%	32.5%	21.3%	17.5%	40.0%	21.3%
Minimum Split (s)	11	16	14	14	16	14
Yellow Time (s)	5	5	5	5	5	5
All-Red Time (s)	1	1	1	1	1	1
Minimum Initial (s)	3	8	3	3	10	3
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)						
Flash Dont Walk (s)						
Dual Entry	No	Yes	Yes	No	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	36	56	2	68	36	19
End Time (s)	56	2	19	2	68	36
Yield/Force Off (s)	50	76	13	76	62	30
Yield/Force Off 170(s)	50	76	13	76	62	30
Local Start Time (s)	54	74	20	6	54	37
Local Yield (s)	68	14	31	14	0	48
Local Yield 170(s)	68	14	31	14	0	48

Intersection Summary	
Cycle Length	80
Control Type	Actuated-Coordinated
Natural Cycle	110
Offset: 62 (78%), Referenced to phase 6:WBT, Start of Yellow	

Splits and Phases: 3: Town Center Pkwy/Lindberg Drive Ext & US 190 BUS (Shortcut Highway)



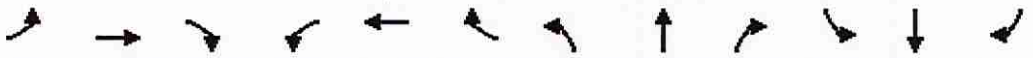
Lane Group	EBT	EBR	WBL	WBT	SBT	SBR
Lane Group Flow (vph)	1255	477	525	1397	384	509
v/c Ratio	1.05	0.30	1.02	0.61	1.08	0.32
Control Delay	59.3	0.2	64.9	13.2	105.9	0.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	59.3	0.2	64.9	13.2	105.9	0.5
Queue Length 50th (ft)	~304	0	~258	274	~218	0
Queue Length 95th (ft)	m267	m0	m#369	m337	#383	0
Internal Link Dist (ft)	1076			598	1202	
Turn Bay Length (ft)		500	450			400
Base Capacity (vph)	1194	1583	513	2300	354	1583
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	1.05	0.30	1.02	0.61	1.08	0.32

Intersection Summary

~ 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.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1155	439	483	1285	0	0	0	0	352	1	468
Future Volume (vph)	0	1155	439	483	1285	0	0	0	0	352	1	468
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	4.0	6.0	6.0						6.0	4.0
Lane Util. Factor		0.95	1.00	1.00	0.95						1.00	1.00
Frt		1.00	0.85	1.00	1.00						1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00						0.95	1.00
Satd. Flow (prot)		3539	1583	1770	3539						1774	1583
Flt Permitted		1.00	1.00	0.12	1.00						0.95	1.00
Satd. Flow (perm)		3539	1583	226	3539						1774	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1255	477	525	1397	0	0	0	0	383	1	509
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	1255	477	525	1397	0	0	0	0	0	384	509
Turn Type		NA	Free	pm+pt	NA					Perm	NA	Free
Protected Phases		2		1	6						4	
Permitted Phases			Free	6						4		Free
Actuated Green, G (s)		27.0	80.0	52.0	52.0						16.0	80.0
Effective Green, g (s)		27.0	80.0	52.0	52.0						16.0	80.0
Actuated g/C Ratio		0.34	1.00	0.65	0.65						0.20	1.00
Clearance Time (s)		6.0		6.0	6.0						6.0	
Vehicle Extension (s)		3.0		3.0	3.0						3.0	
Lane Grp Cap (vph)		1194	1583	513	2300						354	1583
v/s Ratio Prot		0.35		c0.24	0.39							
v/s Ratio Perm			0.30	c0.42							0.22	0.32
v/c Ratio		1.05	0.30	1.02	0.61						1.08	0.32
Uniform Delay, d1		26.5	0.0	23.3	8.1						32.0	0.0
Progression Factor		1.27	1.00	1.05	1.47						1.00	1.00
Incremental Delay, d2		25.5	0.0	40.6	0.9						72.4	0.5
Delay (s)		59.1	0.0	65.2	12.9						104.4	0.5
Level of Service		E	A	E	B						F	A
Approach Delay (s)		42.8			27.2			0.0			45.2	
Approach LOS		D			C			A			D	

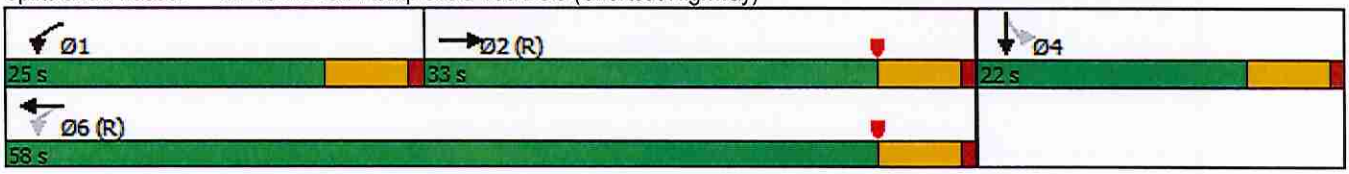
Intersection Summary			
HCM 2000 Control Delay	36.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.09		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	93.2%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	2	4	6
Movement	WBL	EBT	SBTL	WBTL
Lead/Lag	Lead	Lag		
Lead-Lag Optimize	Yes	Yes		
Recall Mode	None	C-Max	None	C-Max
Maximum Split (s)	25	33	22	58
Maximum Split (%)	31.3%	41.3%	27.5%	72.5%
Minimum Split (s)	15	27	15	27
Yellow Time (s)	5	5	5	5
All-Red Time (s)	1	1	1	1
Minimum Initial (s)	5	9	5	15
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)				
Flash Dont Walk (s)				
Dual Entry	No	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	28	53	6	28
End Time (s)	53	6	28	6
Yield/Force Off (s)	47	0	22	0
Yield/Force Off 170(s)	47	0	22	0
Local Start Time (s)	28	53	6	28
Local Yield (s)	47	0	22	0
Local Yield 170(s)	47	0	22	0

Intersection Summary	
Cycle Length	80
Control Type	Actuated-Coordinated
Natural Cycle	100
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBTL, Start of Yellow	

Splits and Phases: 4: I-10 WB Off-Ramp & US 190 BUS (Shortcut Highway)



Lane Group	EBL	EBT	WBT	NBL	NBT	NBR
Lane Group Flow (vph)	534	1100	1460	355	361	778
v/c Ratio	1.09	0.47	1.15	1.13	1.14	0.49
Control Delay	92.2	9.0	102.0	122.8	127.9	1.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	92.2	9.0	102.0	122.8	127.9	1.1
Queue Length 50th (ft)	~266	135	~454	~220	~225	0
Queue Length 95th (ft)	m#448	178	#587	#388	#395	0
Internal Link Dist (ft)		598	592		1105	
Turn Bay Length (ft)	480					200
Base Capacity (vph)	491	2344	1272	315	316	1583
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	1.09	0.47	1.15	1.13	1.14	0.49

Intersection Summary

~ 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.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	491	1012	0	0	1115	228	654	5	716	0	0	0
Future Volume (vph)	491	1012	0	0	1115	228	654	5	716	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0			6.0		6.0	6.0	4.0			
Lane Util. Factor	1.00	0.95			0.95		0.95	0.95	1.00			
Frt	1.00	1.00			0.97		1.00	1.00	0.85			
Flt Protected	0.95	1.00			1.00		0.95	0.95	1.00			
Satd. Flow (prot)	1770	3539			3449		1681	1686	1583			
Flt Permitted	0.11	1.00			1.00		0.95	0.95	1.00			
Satd. Flow (perm)	213	3539			3449		1681	1686	1583			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	534	1100	0	0	1212	248	711	5	778	0	0	0
RTOR Reduction (vph)	0	0	0	0	22	0	0	0	0	0	0	0
Lane Group Flow (vph)	534	1100	0	0	1438	0	355	361	778	0	0	0
Turn Type	pm+pt	NA			NA		Perm	NA	Free			
Protected Phases	5	2			6			8				
Permitted Phases	2						8		Free			
Actuated Green, G (s)	53.0	53.0			29.0		15.0	15.0	80.0			
Effective Green, g (s)	53.0	53.0			29.0		15.0	15.0	80.0			
Actuated g/C Ratio	0.66	0.66			0.36		0.19	0.19	1.00			
Clearance Time (s)	6.0	6.0			6.0		6.0	6.0				
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0				
Lane Grp Cap (vph)	491	2344			1250		315	316	1583			
v/s Ratio Prot	c0.24	0.31			0.42							
v/s Ratio Perm	c0.48						0.21	0.21	0.49			
v/c Ratio	1.09	0.47			1.15		1.13	1.14	0.49			
Uniform Delay, d1	23.8	6.6			25.5		32.5	32.5	0.0			
Progression Factor	1.37	1.26			1.00		1.00	1.00	1.00			
Incremental Delay, d2	62.9	0.6			77.4		89.5	94.9	1.1			
Delay (s)	95.5	8.9			102.9		122.0	127.4	1.1			
Level of Service	F	A			F		F	F	A			
Approach Delay (s)		37.2			102.9			60.4			0.0	
Approach LOS		D			F			E			A	

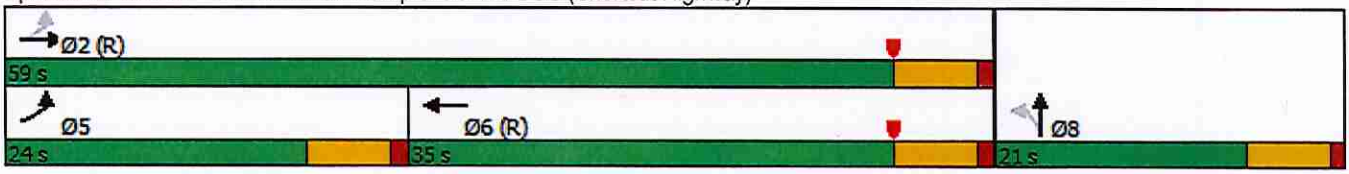
Intersection Summary			
HCM 2000 Control Delay	65.6	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.15		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	98.3%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	2	5	6	8
Movement	EBTL	EBL	WBT	NBTL
Lead/Lag		Lead	Lag	
Lead-Lag Optimize		Yes	Yes	
Recall Mode	C-Max	None	C-Max	None
Maximum Split (s)	59	24	35	21
Maximum Split (%)	73.8%	30.0%	43.8%	26.3%
Minimum Split (s)	24	15	24	15
Yellow Time (s)	5	5	5	5
All-Red Time (s)	1	1	1	1
Minimum Initial (s)	12	5	12	5
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)				
Flash Dont Walk (s)				
Dual Entry	Yes	No	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	34	34	58	13
End Time (s)	13	58	13	34
Yield/Force Off (s)	7	52	7	28
Yield/Force Off 170(s)	7	52	7	28
Local Start Time (s)	27	27	51	6
Local Yield (s)	0	45	0	21
Local Yield 170(s)	0	45	0	21

Intersection Summary	
Cycle Length	80
Control Type	Actuated-Coordinated
Natural Cycle	120
Offset: 7 (9%), Referenced to phase 2:EBTL and 6:WBT, Start of Yellow	

Splits and Phases: 5: I-10 EB Off-Ramp & US 190 BUS (Shortcut Highway)



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (veh/h)	5	319	1366	36	5	985	63	13	1	10	51	3
Future Volume (Veh/h)	5	319	1366	36	5	985	63	13	1	10	51	3
Sign Control			Free			Free			Stop			Stop
Grade			0%			0%			0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	347	1485	39	5	1071	68	14	1	11	55	3
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type			None			TWLTL						
Median storage veh)						2						
Upstream signal (ft)			672									
pX, platoon unblocked	0.00				0.97			0.97	0.97	0.97	0.97	0.97
vC, conflicting volume	0	1139			1524			3138	3348	762	2563	3333
vC1, stage 1 conf vol								2198	2198		1115	1115
vC2, stage 2 conf vol								939	1149		1448	2218
vCu, unblocked vol	0	1139			1479			3142	3358	693	2550	3343
tC, single (s)	0.0	4.1			4.1			7.5	6.5	6.9	7.5	6.5
tC, 2 stage (s)								6.5	5.5		6.5	5.5
tF (s)	0.0	2.2			2.2			3.5	4.0	3.3	3.5	4.0
p0 queue free %	0	43			99			0	69	97	0	89
cM capacity (veh/h)	0	609			438			0	3	374	50	28

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1	SB 2
Volume Total	347	990	534	5	714	425	26	58	392
Volume Left	347	0	0	5	0	0	14	55	0
Volume Right	0	0	39	0	0	68	11	0	392
cSH	609	1700	1700	438	1700	1700	1	48	465
Volume to Capacity	0.57	0.58	0.31	0.01	0.42	0.25	40.19	1.21	0.84
Queue Length 95th (ft)	90	0	0	1	0	0	Err	133	210
Control Delay (s)	18.4	0.0	0.0	13.3	0.0	0.0	Err	333.0	42.1
Lane LOS	C			B			F	F	E
Approach Delay (s)	3.4			0.1			Err	79.6	
Approach LOS							F	F	

Intersection Summary				
Average Delay	86.6			
Intersection Capacity Utilization	86.2%	ICU Level of Service		E
Analysis Period (min)	15			

Movement	SBR
Lane Configurations	
Traffic Volume (veh/h)	361
Future Volume (Veh/h)	361
Sign Control	
Grade	
Peak Hour Factor	0.92
Hourly flow rate (vph)	392
Pedestrians	
Lane Width (ft)	
Walking Speed (ft/s)	
Percent Blockage	
Right turn flare (veh)	
Median type	
Median storage veh)	
Upstream signal (ft)	
pX, platoon unblocked	
vC, conflicting volume	570
vC1, stage 1 conf vol	
vC2, stage 2 conf vol	
vCu, unblocked vol	570
tC, single (s)	6.9
tC, 2 stage (s)	
tF (s)	3.3
p0 queue free %	16
cM capacity (veh/h)	465
Direction, Lane #	

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1410	13	5	1028	21	3
Future Volume (Veh/h)	1410	13	5	1028	21	3
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1533	14	5	1117	23	3
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL			TWLTL		
Median storage veh)	2			2		
Upstream signal (ft)	1011					
pX, platoon unblocked						
vC, conflicting volume			1547		2108	774
vC1, stage 1 conf vol					1540	
vC2, stage 2 conf vol					568	
vCu, unblocked vol			1547		2108	774
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)			2.2		3.5	3.3
p0 queue free %			99		85	99
cM capacity (veh/h)			425		153	341

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	1022	525	5	558	558	26
Volume Left	0	0	5	0	0	23
Volume Right	0	14	0	0	0	3
cSH	1700	1700	425	1700	1700	164
Volume to Capacity	0.60	0.31	0.01	0.33	0.33	0.16
Queue Length 95th (ft)	0	0	1	0	0	14
Control Delay (s)	0.0	0.0	13.6	0.0	0.0	31.1
Lane LOS			B			D
Approach Delay (s)	0.0		0.1			31.1
Approach LOS						D

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	49.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	1	1403	1009	1	3	4
Future Volume (Veh/h)	1	1403	1009	1	3	4
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	1525	1097	1	3	4
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		TWLTL	TWLTL			
Median storage veh)		2	2			
Upstream signal (ft)		1134				
pX, platoon unblocked						
vC, conflicting volume	1098				1862	549
vC1, stage 1 conf vol					1098	
vC2, stage 2 conf vol					764	
vCu, unblocked vol	1098				1862	549
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)	2.2				3.5	3.3
p0 queue free %	100				99	99
cM capacity (veh/h)	631				235	480

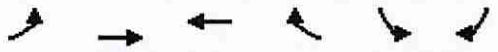
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	1	762	762	731	367	7
Volume Left	1	0	0	0	0	3
Volume Right	0	0	0	0	1	4
cSH	631	1700	1700	1700	1700	331
Volume to Capacity	0.00	0.45	0.45	0.43	0.22	0.02
Queue Length 95th (ft)	0	0	0	0	0	2
Control Delay (s)	10.7	0.0	0.0	0.0	0.0	16.1
Lane LOS	B					C
Approach Delay (s)	0.0			0.0		16.1
Approach LOS						C

Intersection Summary				
Average Delay	0.0			
Intersection Capacity Utilization	48.8%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1192	215	112	876	137	51
Future Volume (Veh/h)	1192	215	112	876	137	51
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1296	234	122	952	149	55
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL			TWLTL		
Median storage veh)	2			2		
Upstream signal (ft)	1265					
pX, platoon unblocked						
vC, conflicting volume			1530		2133	765
vC1, stage 1 conf vol					1413	
vC2, stage 2 conf vol					720	
vCu, unblocked vol			1530		2133	765
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)			2.2		3.5	3.3
p0 queue free %			72		7	84
cM capacity (veh/h)			431		160	346

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	864	666	122	476	476	204
Volume Left	0	0	122	0	0	149
Volume Right	0	234	0	0	0	55
cSH	1700	1700	431	1700	1700	187
Volume to Capacity	0.51	0.39	0.28	0.28	0.28	1.09
Queue Length 95th (ft)	0	0	29	0	0	247
Control Delay (s)	0.0	0.0	16.6	0.0	0.0	143.7
Lane LOS			C			F
Approach Delay (s)	0.0		1.9			143.7
Approach LOS						F

Intersection Summary			
Average Delay	11.2		
Intersection Capacity Utilization	66.7%	ICU Level of Service	C
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	10	1231	977	8	4	10
Future Volume (Veh/h)	10	1231	977	8	4	10
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	11	1338	1062	9	4	11
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		TWLTL	TWLTL			
Median storage veh)		2	2			
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1071				2426	536
vC1, stage 1 conf vol					1066	
vC2, stage 2 conf vol					1360	
vCu, unblocked vol	1071				2426	536
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)	2.2				3.5	3.3
p0 queue free %	98				98	98
cM capacity (veh/h)	647				160	489

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total	11	1338	708	363	15
Volume Left	11	0	0	0	4
Volume Right	0	0	0	9	11
cSH	647	1700	1700	1700	316
Volume to Capacity	0.02	0.79	0.42	0.21	0.05
Queue Length 95th (ft)	1	0	0	0	4
Control Delay (s)	10.7	0.0	0.0	0.0	16.9
Lane LOS	B				C
Approach Delay (s)	0.1		0.0		16.9
Approach LOS					C

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	74.8%	ICU Level of Service	D
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	231	1009	835	47	33	151
Future Volume (Veh/h)	231	1009	835	47	33	151
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	251	1097	908	51	36	164
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		TWLTL	TWLTL			
Median storage veh)		2	2			
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	959				2532	934
vC1, stage 1 conf vol					934	
vC2, stage 2 conf vol					1599	
vCu, unblocked vol	959				2532	934
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)	2.2				3.5	3.3
p0 queue free %	65				67	49
cM capacity (veh/h)	717				110	322

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	251	1097	959	200
Volume Left	251	0	0	36
Volume Right	0	0	51	164
cSH	717	1700	1700	240
Volume to Capacity	0.35	0.65	0.56	0.83
Queue Length 95th (ft)	39	0	0	163
Control Delay (s)	12.7	0.0	0.0	66.7
Lane LOS	B			F
Approach Delay (s)	2.4		0.0	66.7
Approach LOS				F

Intersection Summary			
Average Delay	6.6		
Intersection Capacity Utilization	80.7%	ICU Level of Service	D
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	21	52	351	32	64	340
Future Volume (Veh/h)	21	52	351	32	64	340
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	23	57	382	35	70	370
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	910	400			417	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	910	400			417	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	92	91			94	
cM capacity (veh/h)	286	650			1142	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	80	417	440
Volume Left	23	0	70
Volume Right	57	35	0
cSH	476	1700	1142
Volume to Capacity	0.17	0.25	0.06
Queue Length 95th (ft)	15	0	5
Control Delay (s)	14.1	0.0	1.9
Lane LOS	B		A
Approach Delay (s)	14.1	0.0	1.9
Approach LOS	B		

Intersection Summary			
Average Delay	2.1		
Intersection Capacity Utilization	56.2%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (veh/h)	5	775	20	10	171	875	7	0	0	211	0	0
Future Volume (Veh/h)	5	775	20	10	171	875	7	0	0	211	0	0
Sign Control		Free				Free			Stop			Stop
Grade		0%				0%			0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	842	22	0	186	951	8	0	0	229	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		TWLTL				None						
Median storage veh)		2										
Upstream signal (ft)						696						
pX, platoon unblocked	0.87			0.00				0.87	0.87		0.87	0.87
vC, conflicting volume	959			0	864			1736	2194	432	1987	2201
vC1, stage 1 conf vol								863	863		1327	1327
vC2, stage 2 conf vol								872	1331		660	874
vCu, unblocked vol	656			0	864			1548	2074	432	1837	2082
tC, single (s)	4.1			0.0	4.1			7.5	6.5	6.9	7.5	6.5
tC, 2 stage (s)								6.5	5.5		6.5	5.5
tF (s)	2.2			0.0	2.2			3.5	4.0	3.3	3.5	4.0
p0 queue free %	99			0	76			100	100	60	100	100
cM capacity (veh/h)	807			0	774			218	165	572	59	132

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	5	561	303	186	634	325	229	25
Volume Left	5	0	0	186	0	0	0	0
Volume Right	0	0	22	0	0	8	229	25
cSH	807	1700	1700	774	1700	1700	572	809
Volume to Capacity	0.01	0.33	0.18	0.24	0.37	0.19	0.40	0.03
Queue Length 95th (ft)	0	0	0	23	0	0	48	2
Control Delay (s)	9.5	0.0	0.0	11.1	0.0	0.0	15.4	9.6
Lane LOS	A			B			C	A
Approach Delay (s)	0.1			1.8			15.4	9.6
Approach LOS							C	A

Intersection Summary				
Average Delay	2.6			
Intersection Capacity Utilization	55.2%	ICU Level of Service	B	
Analysis Period (min)	15			

Movement	SBR
Lane Configurations	
Traffic Volume (veh/h)	23
Future Volume (Veh/h)	23
Sign Control	
Grade	
Peak Hour Factor	0.92
Hourly flow rate (vph)	25
Pedestrians	
Lane Width (ft)	
Walking Speed (ft/s)	
Percent Blockage	
Right turn flare (veh)	
Median type	
Median storage veh)	
Upstream signal (ft)	
pX, platoon unblocked	0.87
vC, conflicting volume	480
vC1, stage 1 conf vol	
vC2, stage 2 conf vol	
vCu, unblocked vol	105
tC, single (s)	6.9
tC, 2 stage (s)	
tF (s)	3.3
p0 queue free %	97
cM capacity (veh/h)	809
Direction, Lane #	

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (veh/h)	8	986	10	10	175	1219	8	0	0	196	0	0
Future Volume (Veh/h)	8	986	10	10	175	1219	8	0	0	196	0	0
Sign Control		Free				Free			Stop			Stop
Grade		0%				0%			0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	9	1072	11	0	190	1325	9	0	0	213	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		TWLTL				None						
Median storage veh)		2										
Upstream signal (ft)						696						
pX, platoon unblocked	0.86			0.00				0.86	0.86		0.86	0.86
vC, conflicting volume	1334			0	1083			2150	2810	542	2476	2810
vC1, stage 1 conf vol								1096	1096		1710	1710
vC2, stage 2 conf vol								1054	1714		767	1101
vCu, unblocked vol	1065			0	1083			2013	2779	542	2392	2780
tC, single (s)	4.1			0.0	4.1			7.5	6.5	6.9	7.5	6.5
tC, 2 stage (s)								6.5	5.5		6.5	5.5
tF (s)	2.2			0.0	2.2			3.5	4.0	3.3	3.5	4.0
p0 queue free %	98			0	70			100	100	56	100	100
cM capacity (veh/h)	560			0	640			149	92	485	9	68

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	9	715	368	190	883	451	213	12
Volume Left	9	0	0	190	0	0	0	0
Volume Right	0	0	11	0	0	9	213	12
cSH	560	1700	1700	640	1700	1700	485	608
Volume to Capacity	0.02	0.42	0.22	0.30	0.52	0.27	0.44	0.02
Queue Length 95th (ft)	1	0	0	31	0	0	55	2
Control Delay (s)	11.5	0.0	0.0	13.0	0.0	0.0	18.1	11.0
Lane LOS	B			B			C	B
Approach Delay (s)	0.1			1.6			18.1	11.0
Approach LOS							C	B

Intersection Summary				
Average Delay	2.3			
Intersection Capacity Utilization	60.0%	ICU Level of Service		B
Analysis Period (min)	15			

Movement	SBR
Lane Configurations	
Traffic Volume (veh/h)	11
Future Volume (Veh/h)	11
Sign Control	
Grade	
Peak Hour Factor	0.92
Hourly flow rate (vph)	12
Pedestrians	
Lane Width (ft)	
Walking Speed (ft/s)	
Percent Blockage	
Right turn flare (veh)	
Median type	
Median storage veh)	
Upstream signal (ft)	
pX, platoon unblocked	0.86
vC, conflicting volume	667
vC1, stage 1 conf vol	
vC2, stage 2 conf vol	
vCu, unblocked vol	291
tC, single (s)	6.9
tC, 2 stage (s)	
tF (s)	3.3
p0 queue free %	98
cM capacity (veh/h)	608
Direction, Lane #	

3: Town Center Pkwy/Lindberg Drive Ext & US 190 BUS (Shortcut Highway)

A.M. Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBT
Lane Group Flow (vph)	62	913	93	261	1020	123	65	67	186	133
v/c Ratio	0.56	0.86	0.15	1.44	0.67	0.15	0.37	0.37	0.44	0.72
Control Delay	54.7	36.4	0.5	259.3	23.0	1.8	38.2	38.1	3.8	53.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.7	36.4	0.5	259.3	23.0	1.8	38.2	38.1	3.8	53.8
Queue Length 50th (ft)	30	224	0	~96	212	0	32	33	0	57
Queue Length 95th (ft)	#80	#327	0	#182	282	11	69	70	7	#139
Internal Link Dist (ft)		616			1076			1031		1301
Turn Bay Length (ft)	280			480						
Base Capacity (vph)	116	1061	618	181	1527	799	336	344	545	190
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	0.86	0.15	1.44	0.67	0.15	0.19	0.19	0.34	0.70

Intersection Summary

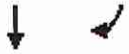
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	1	56	840	86	4	236	938	113	95	27	171	64
Future Volume (vph)	1	56	840	86	4	236	938	113	95	27	171	64
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0	
Lane Util. Factor		1.00	0.95	1.00		0.97	0.95	1.00	0.95	0.95	1.00	
Frt		1.00	1.00	0.85		1.00	1.00	0.85	1.00	1.00	0.85	
Flt Protected		0.95	1.00	1.00		0.95	1.00	1.00	0.95	0.97	1.00	
Satd. Flow (prot)		1770	3539	1583		3433	3539	1583	1681	1721	1583	
Flt Permitted		0.62	1.00	1.00		0.25	1.00	1.00	0.95	0.97	1.00	
Satd. Flow (perm)		1164	3539	1583		921	3539	1583	1681	1721	1583	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1	61	913	93	4	257	1020	123	103	29	186	70
RTOR Reduction (vph)	0	0	0	65	0	0	0	72	0	0	166	0
Lane Group Flow (vph)	0	62	913	28	0	261	1020	51	65	67	20	0
Turn Type	custom	Prot	NA	Perm	custom	Prot	NA	Perm	Split	NA	Perm	Split
Protected Phases		5	2			1	6		8	8		4
Permitted Phases	5			2	1			6			8	
Actuated Green, G (s)		6.4	24.1	24.1		15.7	33.4	33.4	8.5	8.5	8.5	
Effective Green, g (s)		6.4	24.1	24.1		15.7	33.4	33.4	8.5	8.5	8.5	
Actuated g/C Ratio		0.08	0.30	0.30		0.20	0.42	0.42	0.11	0.11	0.11	
Clearance Time (s)		6.0	6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0	
Vehicle Extension (s)		3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		93	1066	476		180	1477	660	178	182	168	
v/s Ratio Prot			c0.26				0.29		0.04	c0.04		
v/s Ratio Perm		0.05		0.02		c0.28		0.03			0.01	
v/c Ratio		0.67	0.86	0.06		1.45	0.69	0.08	0.37	0.37	0.12	
Uniform Delay, d1		35.8	26.3	19.9		32.1	19.1	14.0	33.2	33.3	32.4	
Progression Factor		1.00	1.00	1.00		1.17	1.02	4.05	1.00	1.00	1.00	
Incremental Delay, d2		16.6	8.9	0.2		229.7	2.6	0.2	1.3	1.3	0.3	
Delay (s)		52.4	35.2	20.1		267.3	22.0	57.0	34.5	34.5	32.7	
Level of Service		D	D	C		F	C	E	C	C	C	
Approach Delay (s)			34.9				70.7			33.4		
Approach LOS			C				E			C		

Intersection Summary			
HCM 2000 Control Delay	52.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	67.5%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

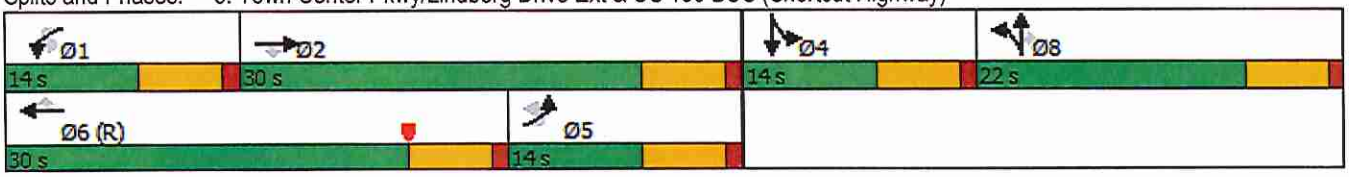


Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	27	31
Future Volume (vph)	27	31
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	6.0	
Lane Util. Factor	1.00	
Frt	0.97	
Flt Protected	0.97	
Satd. Flow (prot)	1752	
Flt Permitted	0.97	
Satd. Flow (perm)	1752	
Peak-hour factor, PHF	0.92	0.92
Adj. Flow (vph)	29	34
RTOR Reduction (vph)	15	0
Lane Group Flow (vph)	118	0
Turn Type	NA	
Protected Phases	4	
Permitted Phases		
Actuated Green, G (s)	7.7	
Effective Green, g (s)	7.7	
Actuated g/C Ratio	0.10	
Clearance Time (s)	6.0	
Vehicle Extension (s)	3.0	
Lane Grp Cap (vph)	168	
v/s Ratio Prot	c0.07	
v/s Ratio Perm		
v/c Ratio	0.70	
Uniform Delay, d1	35.0	
Progression Factor	1.00	
Incremental Delay, d2	12.4	
Delay (s)	47.4	
Level of Service	D	
Approach Delay (s)	47.4	
Approach LOS	D	
Intersection Summary		

Phase Number	1	2	4	5	6	8
Movement	WBL	EBT	SBTL	EBL	WBT	NBTL
Lead/Lag	Lead	Lag		Lag	Lead	
Lead-Lag Optimize	Yes	Yes		Yes	Yes	
Recall Mode	None	Max	None	None	C-Max	None
Maximum Split (s)	14	30	14	14	30	22
Maximum Split (%)	17.5%	37.5%	17.5%	17.5%	37.5%	27.5%
Minimum Split (s)	11	16	14	14	16	14
Yellow Time (s)	5	5	5	5	5	5
All-Red Time (s)	1	1	1	1	1	1
Minimum Initial (s)	3	8	3	3	10	3
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)						
Flash Dont Walk (s)						
Dual Entry	No	Yes	Yes	No	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	29	43	73	59	29	7
End Time (s)	43	73	7	73	59	29
Yield/Force Off (s)	37	67	1	67	53	23
Yield/Force Off 170(s)	37	67	1	67	53	23
Local Start Time (s)	56	70	20	6	56	34
Local Yield (s)	64	14	28	14	0	50
Local Yield 170(s)	64	14	28	14	0	50

Intersection Summary	
Cycle Length	80
Control Type	Actuated-Coordinated
Natural Cycle	75
Offset: 53 (66%), Referenced to phase 6:WBT, Start of Yellow	

Splits and Phases: 3: Town Center Pkwy/Lindberg Drive Ext & US 190 BUS (Shortcut Highway)



Lane Group	EBT	EBR	WBL	WBT	SBL	SBT	SBR
Lane Group Flow (vph)	685	487	548	938	177	339	189
v/c Ratio	0.50	0.31	0.87	0.38	0.71	0.56	0.13
Control Delay	10.3	0.9	22.8	2.4	47.7	18.2	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.3	0.9	22.8	2.4	47.7	18.2	0.2
Queue Length 50th (ft)	40	0	84	22	91	41	0
Queue Length 95th (ft)	m74	m2	#294	42	#175	86	0
Internal Link Dist (ft)	1076			598		1202	
Turn Bay Length (ft)		750	450				400
Base Capacity (vph)	1376	1583	674	2455	281	653	1441
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	0.50	0.31	0.81	0.38	0.63	0.52	0.13

Intersection Summary

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.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	630	448	504	863	0	0	0	0	224	77	348
Future Volume (vph)	0	630	448	504	863	0	0	0	0	224	77	348
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	4.0	6.0	6.0					6.0	6.0	4.0
Lane Util. Factor		0.95	1.00	1.00	0.95					0.91	0.86	0.91
Frt		1.00	0.85	1.00	1.00					1.00	0.92	0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95	0.99	1.00
Satd. Flow (prot)		3539	1583	1770	3539					1610	2908	1441
Flt Permitted		1.00	1.00	0.26	1.00					0.95	0.99	1.00
Satd. Flow (perm)		3539	1583	488	3539					1610	2908	1441
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	685	487	548	938	0	0	0	0	243	84	378
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	149	0
Lane Group Flow (vph)	0	685	487	548	938	0	0	0	0	177	191	189
Turn Type		NA	Free	pm+pt	NA					Perm	NA	Free
Protected Phases		2		1	6						4	
Permitted Phases			Free	6						4		Free
Actuated Green, G (s)		31.1	80.0	55.5	55.5					12.5	12.5	80.0
Effective Green, g (s)		31.1	80.0	55.5	55.5					12.5	12.5	80.0
Actuated g/C Ratio		0.39	1.00	0.69	0.69					0.16	0.16	1.00
Clearance Time (s)		6.0		6.0	6.0					6.0	6.0	
Vehicle Extension (s)		3.0		3.0	3.0					3.0	3.0	
Lane Grp Cap (vph)		1375	1583	633	2455					251	454	1441
v/s Ratio Prot		0.19		c0.20	0.27							
v/s Ratio Perm			0.31	c0.40						c0.11	0.07	0.13
v/c Ratio		0.50	0.31	0.87	0.38					0.71	0.42	0.13
Uniform Delay, d1		18.5	0.0	10.7	5.1					32.0	30.5	0.0
Progression Factor		0.47	1.00	0.82	0.36					1.00	1.00	1.00
Incremental Delay, d2		0.8	0.3	10.9	0.4					8.7	0.6	0.2
Delay (s)		9.6	0.3	19.7	2.3					40.7	31.1	0.2
Level of Service		A	A	B	A					D	C	A
Approach Delay (s)		5.7			8.7			0.0			25.2	
Approach LOS		A			A			A			C	

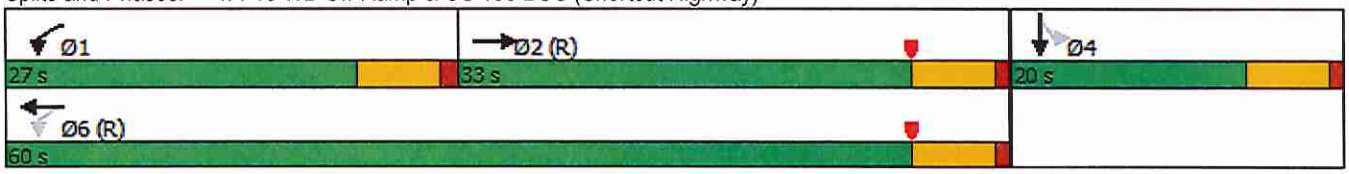
Intersection Summary				
HCM 2000 Control Delay	11.1	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.88			
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	18.0	
Intersection Capacity Utilization	68.6%	ICU Level of Service	C	
Analysis Period (min)	15			

c Critical Lane Group

Phase Number	1	2	4	6
Movement	WBL	EBT	SBTL	WBTL
Lead/Lag	Lead	Lag		
Lead-Lag Optimize	Yes	Yes		
Recall Mode	None	C-Max	None	C-Max
Maximum Split (s)	27	33	20	60
Maximum Split (%)	33.8%	41.3%	25.0%	75.0%
Minimum Split (s)	15	27	15	27
Yellow Time (s)	5	5	5	5
All-Red Time (s)	1	1	1	1
Minimum Initial (s)	5	9	5	15
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)				
Flash Dont Walk (s)				
Dual Entry	No	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	26	53	6	26
End Time (s)	53	6	26	6
Yield/Force Off (s)	47	0	20	0
Yield/Force Off 170(s)	47	0	20	0
Local Start Time (s)	26	53	6	26
Local Yield (s)	47	0	20	0
Local Yield 170(s)	47	0	20	0

Intersection Summary	
Cycle Length	80
Control Type	Actuated-Coordinated
Natural Cycle	60
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBTL, Start of Yellow	

Splits and Phases: 4: I-10 WB Off-Ramp & US 190 BUS (Shortcut Highway)



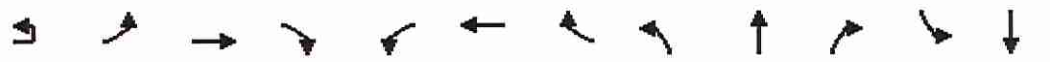
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBT
Lane Group Flow (vph)	56	999	238	624	1147	140	195	199	595	306
v/c Ratio	0.51	1.13	0.41	1.04	0.90	0.20	0.84	0.84	0.94	1.19
Control Delay	51.1	103.0	6.1	86.6	34.5	3.4	66.0	65.3	34.2	147.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.1	103.0	6.1	86.6	34.5	3.4	66.0	65.3	34.2	147.7
Queue Length 50th (ft)	27	~309	0	~165	194	1	102	103	55	~178
Queue Length 95th (ft)	#71	#428	53	#278	#429	m16	#221	#224	#263	#333
Internal Link Dist (ft)		616			1076			1031		1301
Turn Bay Length (ft)	280			480						
Base Capacity (vph)	116	884	574	600	1274	700	231	236	630	258
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	0.48	1.13	0.41	1.04	0.90	0.20	0.84	0.84	0.94	1.19

Intersection Summary

~ 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.



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	1	51	919	219	574	1055	129	281	82	547	124	76
Future Volume (vph)	1	51	919	219	574	1055	129	281	82	547	124	76
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0		6.0
Lane Util. Factor		1.00	0.95	1.00	0.97	0.95	1.00	0.95	0.95	1.00		1.00
Frt		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85		0.96
Flt Protected		0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.97	1.00		0.98
Satd. Flow (prot)		1770	3539	1583	3433	3539	1583	1681	1722	1583		1752
Flt Permitted		0.62	1.00	1.00	0.95	1.00	1.00	0.95	0.97	1.00		0.98
Satd. Flow (perm)		1164	3539	1583	3433	3539	1583	1681	1722	1583		1752
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1	55	999	238	624	1147	140	305	89	595	135	83
RTOR Reduction (vph)	0	0	0	179	0	0	92	0	0	413	0	18
Lane Group Flow (vph)	0	56	999	60	624	1147	48	195	199	182	0	288
Turn Type	custom	Prot	NA	Perm	Prot	NA	Perm	Split	NA	Perm	Split	NA
Protected Phases		5	2		1	6		8	8		4	4
Permitted Phases	5			2			6			8		
Actuated Green, G (s)		6.4	20.0	20.0	14.0	27.6	27.6	11.0	11.0	11.0		11.0
Effective Green, g (s)		6.4	20.0	20.0	14.0	27.6	27.6	11.0	11.0	11.0		11.0
Actuated g/C Ratio		0.08	0.25	0.25	0.18	0.35	0.35	0.14	0.14	0.14		0.14
Clearance Time (s)		6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0		6.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0
Lane Grp Cap (vph)		93	884	395	600	1220	546	231	236	217		240
v/s Ratio Prot			c0.28		0.18	c0.32		c0.12	0.12			c0.16
v/s Ratio Perm		0.05		0.04			0.03			0.11		
v/c Ratio		0.60	1.13	0.15	1.04	0.94	0.09	0.84	0.84	0.84		1.20
Uniform Delay, d1		35.6	30.0	23.4	33.0	25.4	17.7	33.7	33.7	33.6		34.5
Progression Factor		1.00	1.00	1.00	1.24	0.91	2.84	1.00	1.00	1.00		1.00
Incremental Delay, d2		10.5	72.8	0.8	45.7	13.8	0.3	23.5	23.0	23.6		122.8
Delay (s)		46.1	102.8	24.2	86.5	36.9	50.6	57.2	56.7	57.2		157.3
Level of Service		D	F	C	F	D	D	E	E	E		F
Approach Delay (s)			85.9			54.1			57.1			157.3
Approach LOS			F			D			E			F

Intersection Summary			
HCM 2000 Control Delay	70.9	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.10		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	90.1%	ICU Level of Service	E
Analysis Period (min)	15		

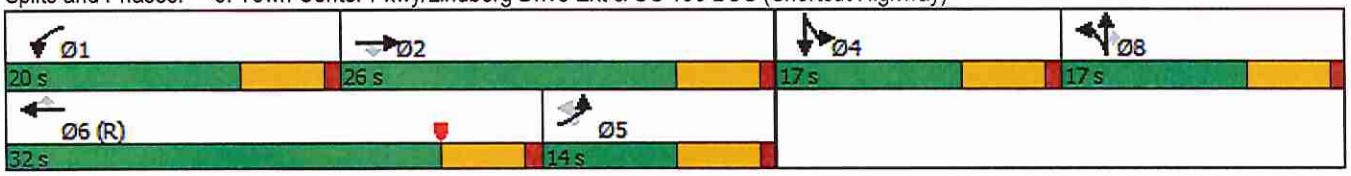
c Critical Lane Group

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	81
Future Volume (vph)	81
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	88
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	

Phase Number	1	2	4	5	6	8
Movement	WBL	EBT	SBTL	EBL	WBT	NBTL
Lead/Lag	Lead	Lag		Lag	Lead	
Lead-Lag Optimize	Yes	Yes		Yes	Yes	
Recall Mode	None	Max	None	None	C-Max	None
Maximum Split (s)	20	26	17	14	32	17
Maximum Split (%)	25.0%	32.5%	21.3%	17.5%	40.0%	21.3%
Minimum Split (s)	11	16	14	14	16	14
Yellow Time (s)	5	5	5	5	5	5
All-Red Time (s)	1	1	1	1	1	1
Minimum Initial (s)	3	8	3	3	10	3
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)						
Flash Dont Walk (s)						
Dual Entry	No	Yes	Yes	No	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	36	56	2	68	36	19
End Time (s)	56	2	19	2	68	36
Yield/Force Off (s)	50	76	13	76	62	30
Yield/Force Off 170(s)	50	76	13	76	62	30
Local Start Time (s)	54	74	20	6	54	37
Local Yield (s)	68	14	31	14	0	48
Local Yield 170(s)	68	14	31	14	0	48

Intersection Summary	
Cycle Length	80
Control Type	Actuated-Coordinated
Natural Cycle	100
Offset: 62 (78%), Referenced to phase 6:WBT, Start of Yellow	

Splits and Phases: 3: Town Center Pkwy/Lindberg Drive Ext & US 190 BUS (Shortcut Highway)



Lane Group	EBT	EBR	WBL	WBT	SBL	SBT	SBR
Lane Group Flow (vph)	1255	477	525	1397	191	359	341
v/c Ratio	1.05	0.30	0.93	0.58	0.69	0.63	0.22
Control Delay	59.3	0.2	43.8	12.0	44.1	35.7	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	59.3	0.2	43.8	12.0	44.1	35.7	0.3
Queue Length 50th (ft)	~304	0	249	272	98	91	0
Queue Length 95th (ft)	m267	m0	m#369	m337	170	134	0
Internal Link Dist (ft)	1076			598		1202	
Turn Bay Length (ft)		500	450				400
Base Capacity (vph)	1194	1583	562	2397	322	660	1583
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	1.05	0.30	0.93	0.58	0.59	0.54	0.22

Intersection Summary

~ 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.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1155	439	483	1285	0	0	0	0	352	154	314
Future Volume (vph)	0	1155	439	483	1285	0	0	0	0	352	154	314
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	4.0	6.0	6.0					6.0	6.0	4.0
Lane Util. Factor		0.95	1.00	1.00	0.95					0.91	0.91	1.00
Frt		1.00	0.85	1.00	1.00					1.00	1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95	0.97	1.00
Satd. Flow (prot)		3539	1583	1770	3539					1610	3302	1583
Flt Permitted		1.00	1.00	0.12	1.00					0.95	0.97	1.00
Satd. Flow (perm)		3539	1583	226	3539					1610	3302	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1255	477	525	1397	0	0	0	0	383	167	341
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	1255	477	525	1397	0	0	0	0	191	359	341
Turn Type		NA	Free	pm+pt	NA					Perm	NA	Free
Protected Phases		2		1	6						4	
Permitted Phases			Free	6						4		Free
Actuated Green, G (s)		27.0	80.0	54.2	54.2					13.8	13.8	80.0
Effective Green, g (s)		27.0	80.0	54.2	54.2					13.8	13.8	80.0
Actuated g/C Ratio		0.34	1.00	0.68	0.68					0.17	0.17	1.00
Clearance Time (s)		6.0		6.0	6.0					6.0	6.0	
Vehicle Extension (s)		3.0		3.0	3.0					3.0	3.0	
Lane Grp Cap (vph)		1194	1583	562	2397					277	569	1583
v/s Ratio Prot		c0.35		c0.25	0.39							
v/s Ratio Perm			0.30	0.39						c0.12	0.11	0.22
v/c Ratio		1.05	0.30	0.93	0.58					0.69	0.63	0.22
Uniform Delay, d1		26.5	0.0	21.9	6.9					31.1	30.7	0.0
Progression Factor		1.27	1.00	1.03	1.51					1.00	1.00	1.00
Incremental Delay, d2		25.5	0.0	18.7	0.8					7.0	2.3	0.3
Delay (s)		59.1	0.0	41.4	11.2					38.1	33.0	0.3
Level of Service		E	A	D	B					D	C	A
Approach Delay (s)		42.8			19.4			0.0			21.6	
Approach LOS		D			B			A			C	

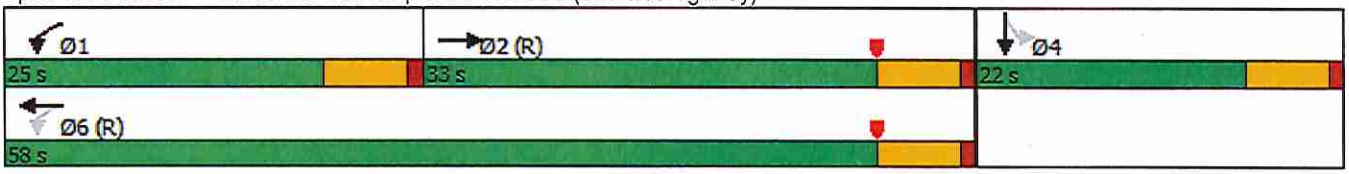
Intersection Summary					
HCM 2000 Control Delay	28.8	HCM 2000 Level of Service	C		
HCM 2000 Volume to Capacity ratio	0.94				
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	18.0		
Intersection Capacity Utilization	83.3%	ICU Level of Service	E		
Analysis Period (min)	15				

c Critical Lane Group

Phase Number	1	2	4	6
Movement	WBL	EBT	SBTL	WBTL
Lead/Lag	Lead	Lag		
Lead-Lag Optimize	Yes	Yes		
Recall Mode	None	C-Max	None	C-Max
Maximum Split (s)	25	33	22	58
Maximum Split (%)	31.3%	41.3%	27.5%	72.5%
Minimum Split (s)	15	27	15	27
Yellow Time (s)	5	5	5	5
All-Red Time (s)	1	1	1	1
Minimum Initial (s)	5	9	5	15
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)				
Flash Dont Walk (s)				
Dual Entry	No	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	28	53	6	28
End Time (s)	53	6	28	6
Yield/Force Off (s)	47	0	22	0
Yield/Force Off 170(s)	47	0	22	0
Local Start Time (s)	28	53	6	28
Local Yield (s)	47	0	22	0
Local Yield 170(s)	47	0	22	0

Intersection Summary	
Cycle Length	80
Control Type	Actuated-Coordinated
Natural Cycle	90
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBTL, Start of Yellow	

Splits and Phases: 4: I-10 WB Off-Ramp & US 190 BUS (Shortcut Highway)

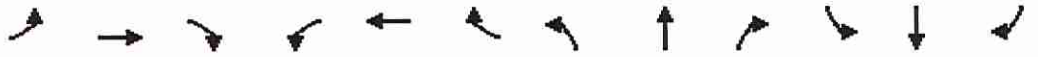


Lane Group	EBT	EBR	WBL	WBT	SBT	SBR
Lane Group Flow (vph)	685	487	548	938	246	462
v/c Ratio	0.35	0.31	0.85	0.39	0.83	0.29
Control Delay	9.6	0.9	20.0	2.7	56.1	0.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.6	0.9	20.0	2.7	56.1	0.5
Queue Length 50th (ft)	27	0	74	22	119	0
Queue Length 95th (ft)	m51	m2	#263	42	#234	0
Internal Link Dist (ft)	1076			598	1202	
Turn Bay Length (ft)		750	450			400
Base Capacity (vph)	1956	1583	697	2413	310	1583
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.35	0.31	0.79	0.39	0.79	0.29

Intersection Summary

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.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↱	↰	↑↑						↰↑	↱
Traffic Volume (vph)	0	630	448	504	863	0	0	0	0	224	3	425
Future Volume (vph)	0	630	448	504	863	0	0	0	0	224	3	425
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	4.0	6.0	6.0						6.0	4.0
Lane Util. Factor		0.91	1.00	1.00	0.95						1.00	1.00
Frt		1.00	0.85	1.00	1.00						1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00						0.95	1.00
Satd. Flow (prot)		5085	1583	1770	3539						1775	1583
Flt Permitted		1.00	1.00	0.30	1.00						0.95	1.00
Satd. Flow (perm)		5085	1583	554	3539						1775	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	685	487	548	938	0	0	0	0	243	3	462
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	685	487	548	938	0	0	0	0	0	246	462
Turn Type		NA	Free	pm+pt	NA					Perm	NA	Free
Protected Phases		2		1	6						4	
Permitted Phases			Free	6						4		Free
Actuated Green, G (s)		30.8	80.0	54.6	54.6						13.4	80.0
Effective Green, g (s)		30.8	80.0	54.6	54.6						13.4	80.0
Actuated g/C Ratio		0.39	1.00	0.68	0.68						0.17	1.00
Clearance Time (s)		6.0		6.0	6.0						6.0	
Vehicle Extension (s)		3.0		3.0	3.0						3.0	
Lane Grp Cap (vph)		1957	1583	648	2415						297	1583
v/s Ratio Prot		0.13		c0.19	0.27							
v/s Ratio Perm			0.31	c0.39							0.14	0.29
v/c Ratio		0.35	0.31	0.85	0.39						0.83	0.29
Uniform Delay, d1		17.5	0.0	7.6	5.5						32.2	0.0
Progression Factor		0.50	1.00	0.88	0.39						1.00	1.00
Incremental Delay, d2		0.3	0.3	9.1	0.4						17.1	0.5
Delay (s)		9.1	0.3	15.8	2.6						49.2	0.5
Level of Service		A	A	B	A						D	A
Approach Delay (s)		5.5			7.4			0.0			17.4	
Approach LOS		A			A			A			B	

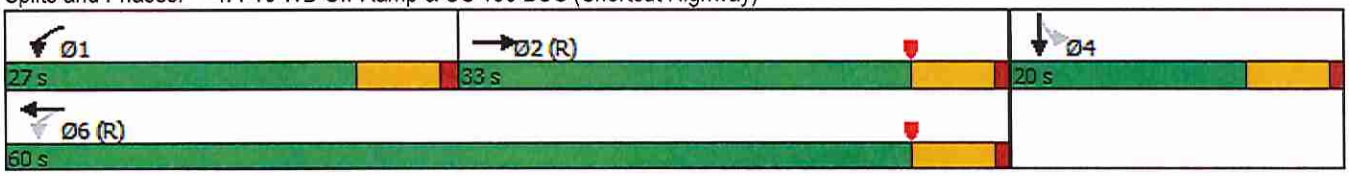
Intersection Summary					
HCM 2000 Control Delay	8.9	HCM 2000 Level of Service		A	
HCM 2000 Volume to Capacity ratio	0.89				
Actuated Cycle Length (s)	80.0	Sum of lost time (s)		18.0	
Intersection Capacity Utilization	67.7%	ICU Level of Service		C	
Analysis Period (min)	15				

c Critical Lane Group

Phase Number	1	2	4	6
Movement	WBL	EBT	SBTL	WBTL
Lead/Lag	Lead	Lag		
Lead-Lag Optimize	Yes	Yes		
Recall Mode	None	C-Max	None	C-Max
Maximum Split (s)	27	33	20	60
Maximum Split (%)	33.8%	41.3%	25.0%	75.0%
Minimum Split (s)	15	27	15	27
Yellow Time (s)	5	5	5	5
All-Red Time (s)	1	1	1	1
Minimum Initial (s)	5	9	5	15
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)				
Flash Dont Walk (s)				
Dual Entry	No	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	26	53	6	26
End Time (s)	53	6	26	6
Yield/Force Off (s)	47	0	20	0
Yield/Force Off 170(s)	47	0	20	0
Local Start Time (s)	26	53	6	26
Local Yield (s)	47	0	20	0
Local Yield 170(s)	47	0	20	0

Intersection Summary	
Cycle Length	80
Control Type	Actuated-Coordinated
Natural Cycle	65
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBTL, Start of Yellow	

Splits and Phases: 4: I-10 WB Off-Ramp & US 190 BUS (Shortcut Highway)



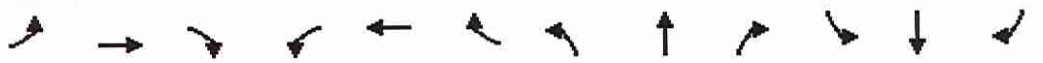
Lane Group	EBT	EBR	WBL	WBT	SBT	SBR
Lane Group Flow (vph)	1255	477	525	1397	384	509
v/c Ratio	0.73	0.30	1.02	0.61	1.08	0.32
Control Delay	31.5	0.2	64.9	13.2	105.9	0.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.5	0.2	64.9	13.2	105.9	0.5
Queue Length 50th (ft)	191	0	~258	274	~218	0
Queue Length 95th (ft)	m180	m0	m#369	m337	#383	0
Internal Link Dist (ft)	1076			598	1202	
Turn Bay Length (ft)		500	450			400
Base Capacity (vph)	1716	1583	513	2300	354	1583
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.73	0.30	1.02	0.61	1.08	0.32

Intersection Summary

~ 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.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↱	↰	↑↑						↱	↱
Traffic Volume (vph)	0	1155	439	483	1285	0	0	0	0	352	1	468
Future Volume (vph)	0	1155	439	483	1285	0	0	0	0	352	1	468
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	4.0	6.0	6.0						6.0	4.0
Lane Util. Factor		0.91	1.00	1.00	0.95						1.00	1.00
Frt		1.00	0.85	1.00	1.00						1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00						0.95	1.00
Satd. Flow (prot)		5085	1583	1770	3539						1774	1583
Flt Permitted		1.00	1.00	0.12	1.00						0.95	1.00
Satd. Flow (perm)		5085	1583	226	3539						1774	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1255	477	525	1397	0	0	0	0	383	1	509
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	1255	477	525	1397	0	0	0	0	0	384	509
Turn Type		NA	Free	pm+pt	NA					Perm	NA	Free
Protected Phases		2		1	6						4	
Permitted Phases			Free	6						4		Free
Actuated Green, G (s)		27.0	80.0	52.0	52.0						16.0	80.0
Effective Green, g (s)		27.0	80.0	52.0	52.0						16.0	80.0
Actuated g/C Ratio		0.34	1.00	0.65	0.65						0.20	1.00
Clearance Time (s)		6.0		6.0	6.0						6.0	
Vehicle Extension (s)		3.0		3.0	3.0						3.0	
Lane Grp Cap (vph)		1716	1583	513	2300						354	1583
v/s Ratio Prot		0.25		c0.24	0.39							
v/s Ratio Perm			0.30	c0.42							0.22	0.32
v/c Ratio		0.73	0.30	1.02	0.61						1.08	0.32
Uniform Delay, d1		23.3	0.0	22.3	8.1						32.0	0.0
Progression Factor		1.32	1.00	1.05	1.47						1.00	1.00
Incremental Delay, d2		0.3	0.0	40.6	0.9						72.4	0.5
Delay (s)		31.1	0.0	64.2	12.9						104.4	0.5
Level of Service		C	A	E	B						F	A
Approach Delay (s)		22.6			26.9			0.0			45.2	
Approach LOS		C			C			A			D	

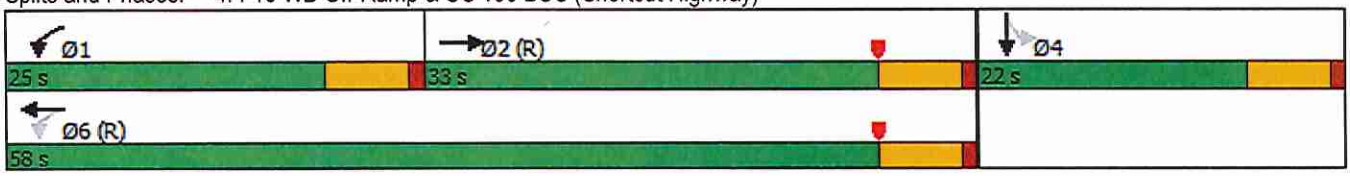
Intersection Summary				
HCM 2000 Control Delay	28.8	HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio	1.09			
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	18.0	
Intersection Capacity Utilization	83.6%	ICU Level of Service	E	
Analysis Period (min)	15			

c Critical Lane Group

Phase Number	1	2	4	6
Movement	WBL	EBT	SBTL	WBTL
Lead/Lag	Lead	Lag		
Lead-Lag Optimize	Yes	Yes		
Recall Mode	None	C-Max	None	C-Max
Maximum Split (s)	25	33	22	58
Maximum Split (%)	31.3%	41.3%	27.5%	72.5%
Minimum Split (s)	15	27	15	27
Yellow Time (s)	5	5	5	5
All-Red Time (s)	1	1	1	1
Minimum Initial (s)	5	9	5	15
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)				
Flash Dont Walk (s)				
Dual Entry	No	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	28	53	6	28
End Time (s)	53	6	28	6
Yield/Force Off (s)	47	0	22	0
Yield/Force Off 170(s)	47	0	22	0
Local Start Time (s)	28	53	6	28
Local Yield (s)	47	0	22	0
Local Yield 170(s)	47	0	22	0

Intersection Summary	
Cycle Length	80
Control Type	Actuated-Coordinated
Natural Cycle	90
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBTL, Start of Yellow	

Splits and Phases: 4: I-10 WB Off-Ramp & US 190 BUS (Shortcut Highway)



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	62	913	93	261	1143	65	67	186	49	50	34
v/c Ratio	0.56	0.85	0.15	1.44	0.70	0.37	0.37	0.44	0.33	0.32	0.08
Control Delay	54.7	35.6	0.5	259.2	24.3	38.2	38.1	3.8	39.9	39.6	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	54.7	35.6	0.5	259.2	24.3	38.2	38.1	3.8	39.9	39.6	0.4
Queue Length 50th (ft)	30	224	0	~103	234	32	33	0	24	25	0
Queue Length 95th (ft)	#80	#327	0	#189	#384	69	70	7	58	58	0
Internal Link Dist (ft)		616			1076		1031			1301	
Turn Bay Length (ft)	280			480							
Base Capacity (vph)	116	1073	623	181	1638	336	344	545	168	173	415
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	0.85	0.15	1.44	0.70	0.19	0.19	0.34	0.29	0.29	0.08

Intersection Summary

~ 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.

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	1	56	840	86	4	236	938	113	95	27	171	64
Future Volume (vph)	1	56	840	86	4	236	938	113	95	27	171	64
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	6.0	6.0		6.0	6.0		6.0	6.0	6.0	6.0
Lane Util. Factor		1.00	0.95	1.00		0.97	0.95		0.95	0.95	1.00	0.95
Frt		1.00	1.00	0.85		1.00	0.98		1.00	1.00	0.85	1.00
Flt Protected		0.95	1.00	1.00		0.95	1.00		0.95	0.97	1.00	0.95
Satd. Flow (prot)		1770	3539	1583		3433	3482		1681	1721	1583	1681
Flt Permitted		0.62	1.00	1.00		0.22	1.00		0.95	0.97	1.00	0.95
Satd. Flow (perm)		1164	3539	1583		790	3482		1681	1721	1583	1681
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1	61	913	93	4	257	1020	123	103	29	186	70
RTOR Reduction (vph)	0	0	0	66	0	0	10	0	0	0	166	0
Lane Group Flow (vph)	0	62	913	27	0	261	1133	0	65	67	20	49
Turn Type	custom	Prot	NA	Perm	custom	Prot	NA		Split	NA	Perm	Split
Protected Phases		5	2			1	6		8	8		4
Permitted Phases	5			2	1						8	
Actuated Green, G (s)		6.4	23.1	23.1		18.3	35.0		8.5	8.5	8.5	6.1
Effective Green, g (s)		6.4	23.1	23.1		18.3	35.0		8.5	8.5	8.5	6.1
Actuated g/C Ratio		0.08	0.29	0.29		0.23	0.44		0.11	0.11	0.11	0.08
Clearance Time (s)		6.0	6.0	6.0		6.0	6.0		6.0	6.0	6.0	6.0
Vehicle Extension (s)		3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		93	1021	457		180	1523		178	182	168	128
v/s Ratio Prot			c0.26				0.33		0.04	c0.04		c0.03
v/s Ratio Perm		0.05		0.02		c0.33					0.01	
v/c Ratio		0.67	0.89	0.06		1.45	0.74		0.37	0.37	0.12	0.38
Uniform Delay, d1		35.8	27.3	20.6		30.9	18.8		33.2	33.3	32.4	35.2
Progression Factor		1.00	1.00	1.00		1.22	1.07		1.00	1.00	1.00	1.00
Incremental Delay, d2		16.6	11.9	0.2		229.5	3.2		1.3	1.3	0.3	1.9
Delay (s)		52.4	39.2	20.8		267.1	23.2		34.5	34.5	32.7	37.1
Level of Service		D	D	C		F	C		C	C	C	D
Approach Delay (s)			38.4				68.5			33.4		
Approach LOS			D				E			C		

Intersection Summary			
HCM 2000 Control Delay	52.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	64.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

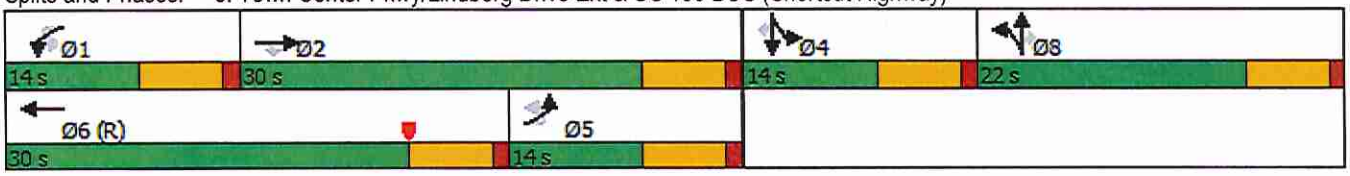
Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	27	31
Future Volume (vph)	27	31
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	6.0	6.0
Lane Util. Factor	0.95	1.00
Frt	1.00	0.85
Flt Protected	0.98	1.00
Satd. Flow (prot)	1733	1583
Flt Permitted	0.98	1.00
Satd. Flow (perm)	1733	1583
Peak-hour factor, PHF	0.92	0.92
Adj. Flow (vph)	29	34
RTOR Reduction (vph)	0	31
Lane Group Flow (vph)	50	3
Turn Type	NA	Perm
Protected Phases	4	
Permitted Phases		4
Actuated Green, G (s)	6.1	6.1
Effective Green, g (s)	6.1	6.1
Actuated g/C Ratio	0.08	0.08
Clearance Time (s)	6.0	6.0
Vehicle Extension (s)	3.0	3.0
Lane Grp Cap (vph)	132	120
v/s Ratio Prot	0.03	
v/s Ratio Perm		0.00
v/c Ratio	0.38	0.02
Uniform Delay, d1	35.1	34.2
Progression Factor	1.00	1.00
Incremental Delay, d2	1.8	0.1
Delay (s)	37.0	34.3
Level of Service	D	C
Approach Delay (s)	36.3	
Approach LOS	D	

Intersection Summary

Phase Number	1	2	4	5	6	8
Movement	WBL	EBT	SBTL	EBL	WBT	NBTL
Lead/Lag	Lead	Lag		Lag	Lead	
Lead-Lag Optimize	Yes	Yes		Yes	Yes	
Recall Mode	None	Max	None	None	C-Max	None
Maximum Split (s)	14	30	14	14	30	22
Maximum Split (%)	17.5%	37.5%	17.5%	17.5%	37.5%	27.5%
Minimum Split (s)	11	16	14	14	16	14
Yellow Time (s)	5	5	5	5	5	5
All-Red Time (s)	1	1	1	1	1	1
Minimum Initial (s)	3	8	3	3	10	3
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)						
Flash Dont Walk (s)						
Dual Entry	No	Yes	Yes	No	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	29	43	73	59	29	7
End Time (s)	43	73	7	73	59	29
Yield/Force Off (s)	37	67	1	67	53	23
Yield/Force Off 170(s)	37	67	1	67	53	23
Local Start Time (s)	56	70	20	6	56	34
Local Yield (s)	64	14	28	14	0	50
Local Yield 170(s)	64	14	28	14	0	50

Intersection Summary	
Cycle Length	80
Control Type	Actuated-Coordinated
Natural Cycle	75
Offset: 53 (66%), Referenced to phase 6:WBT, Start of Yellow	

Splits and Phases: 3: Town Center Pkwy/Lindberg Drive Ext & US 190 BUS (Shortcut Highway)



3: Town Center Pkwy/Lindberg Drive Ext & US 190 BUS (Shortcut Highway)

P.M. Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	56	999	238	624	1147	140	195	199	595	107	111	88
v/c Ratio	0.51	1.13	0.41	0.98	0.88	0.20	0.79	0.79	0.93	0.54	0.54	0.20
Control Delay	51.1	103.0	6.1	74.7	33.3	3.4	58.3	57.5	31.5	43.1	42.7	1.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.1	103.0	6.1	74.7	33.3	3.4	58.3	57.5	31.5	43.1	42.7	1.0
Queue Length 50th (ft)	27	~309	0	~173	206	1	101	103	54	53	54	0
Queue Length 95th (ft)	#71	#428	53	#278	#430	m14	#221	#224	#263	104	106	0
Internal Link Dist (ft)		616			1076			1031			1301	
Turn Bay Length (ft)	280			480								
Base Capacity (vph)	116	884	574	634	1308	714	246	252	640	231	240	464
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	0.48	1.13	0.41	0.98	0.88	0.20	0.79	0.79	0.93	0.46	0.46	0.19

Intersection Summary

~ 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.

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	1	51	919	219	574	1055	129	281	82	547	124	76
Future Volume (vph)	1	51	919	219	574	1055	129	281	82	547	124	76
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor		1.00	0.95	1.00	0.97	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Frt		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00
Flt Protected		0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.97	1.00	0.95	0.99
Satd. Flow (prot)		1770	3539	1583	3433	3539	1583	1681	1722	1583	1681	1748
Flt Permitted		0.62	1.00	1.00	0.95	1.00	1.00	0.95	0.97	1.00	0.95	0.99
Satd. Flow (perm)		1164	3539	1583	3433	3539	1583	1681	1722	1583	1681	1748
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1	55	999	238	624	1147	140	305	89	595	135	83
RTOR Reduction (vph)	0	0	0	179	0	0	90	0	0	409	0	0
Lane Group Flow (vph)	0	56	999	60	624	1147	50	195	199	186	107	111
Turn Type	custom	Prot	NA	Perm	Prot	NA	Perm	Split	NA	Perm	Split	NA
Protected Phases		5	2		1	6		8	8		4	4
Permitted Phases	5			2			6			8		
Actuated Green, G (s)		6.4	20.0	20.0	14.8	28.4	28.4	11.7	11.7	11.7	9.5	9.5
Effective Green, g (s)		6.4	20.0	20.0	14.8	28.4	28.4	11.7	11.7	11.7	9.5	9.5
Actuated g/C Ratio		0.08	0.25	0.25	0.19	0.35	0.35	0.15	0.15	0.15	0.12	0.12
Clearance Time (s)		6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		93	884	395	635	1256	561	245	251	231	199	207
v/s Ratio Prot			c0.28		0.18	c0.32		0.12	0.12		c0.06	0.06
v/s Ratio Perm		0.05		0.04			0.03			c0.12		
v/c Ratio		0.60	1.13	0.15	0.98	0.91	0.09	0.80	0.79	0.81	0.54	0.54
Uniform Delay, d1		35.6	30.0	23.4	32.5	24.6	17.2	33.0	33.0	33.0	33.2	33.2
Progression Factor		1.00	1.00	1.00	1.34	0.97	2.88	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		10.5	72.8	0.8	28.6	10.3	0.3	16.2	15.7	18.2	2.8	2.7
Delay (s)		46.1	102.8	24.2	72.3	34.1	49.7	49.2	48.6	51.2	36.0	35.8
Level of Service		D	F	C	E	C	D	D	D	D	D	D
Approach Delay (s)			85.9			47.7			50.3			34.6
Approach LOS			F			D			D			C

Intersection Summary			
HCM 2000 Control Delay	58.3	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	79.7%	ICU Level of Service	D
Analysis Period (min)	15		

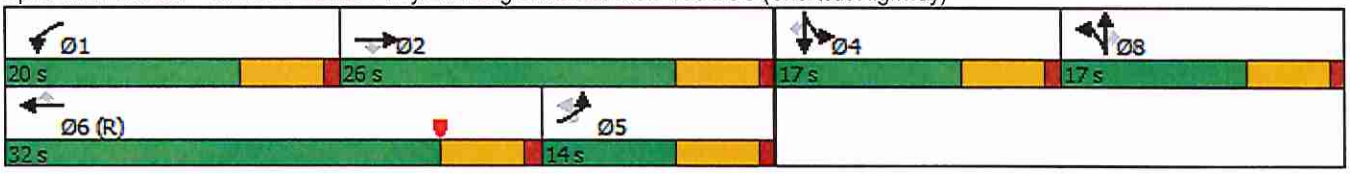
c Critical Lane Group

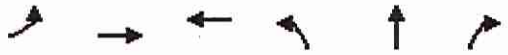
Movement	SBR
Lane Configurations	
Traffic Volume (vph)	81
Future Volume (vph)	81
Ideal Flow (vphpl)	1900
Total Lost time (s)	6.0
Lane Util. Factor	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1583
Flt Permitted	1.00
Satd. Flow (perm)	1583
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	88
RTOR Reduction (vph)	78
Lane Group Flow (vph)	10
Turn Type	Perm
Protected Phases	
Permitted Phases	4
Actuated Green, G (s)	9.5
Effective Green, g (s)	9.5
Actuated g/C Ratio	0.12
Clearance Time (s)	6.0
Vehicle Extension (s)	3.0
Lane Grp Cap (vph)	187
v/s Ratio Prot	
v/s Ratio Perm	0.01
v/c Ratio	0.06
Uniform Delay, d1	31.3
Progression Factor	1.00
Incremental Delay, d2	0.1
Delay (s)	31.4
Level of Service	C
Approach Delay (s)	
Approach LOS	
Intersection Summary	

Phase Number	1	2	4	5	6	8
Movement	WBL	EBT	SBTL	EBL	WBT	NBTL
Lead/Lag	Lead	Lag		Lag	Lead	
Lead-Lag Optimize	Yes	Yes		Yes	Yes	
Recall Mode	None	Max	None	None	C-Max	None
Maximum Split (s)	20	26	17	14	32	17
Maximum Split (%)	25.0%	32.5%	21.3%	17.5%	40.0%	21.3%
Minimum Split (s)	11	16	14	14	16	14
Yellow Time (s)	5	5	5	5	5	5
All-Red Time (s)	1	1	1	1	1	1
Minimum Initial (s)	3	8	3	3	10	3
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)						
Flash Dont Walk (s)						
Dual Entry	No	Yes	Yes	No	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	36	56	2	68	36	19
End Time (s)	56	2	19	2	68	36
Yield/Force Off (s)	50	76	13	76	62	30
Yield/Force Off 170(s)	50	76	13	76	62	30
Local Start Time (s)	54	74	20	6	54	37
Local Yield (s)	68	14	31	14	0	48
Local Yield 170(s)	68	14	31	14	0	48

Intersection Summary	
Cycle Length	80
Control Type	Actuated-Coordinated
Natural Cycle	90
Offset: 62 (78%), Referenced to phase 6:WBT, Start of Yellow	

Splits and Phases: 3: Town Center Pkwy/Lindberg Drive Ext & US 190 BUS (Shortcut Highway)

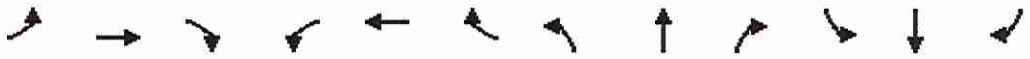




Lane Group	EBL	EBT	WBT	NBL	NBT	NBR
Lane Group Flow (vph)	277	650	1496	186	250	218
v/c Ratio	0.91	0.26	0.85	0.76	0.50	0.14
Control Delay	50.6	5.0	22.5	53.5	34.7	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.6	5.0	22.5	53.5	34.7	0.2
Queue Length 50th (ft)	48	45	311	97	63	0
Queue Length 95th (ft)	#226	68	413	#198	100	0
Internal Link Dist (ft)		598	592		1105	
Turn Bay Length (ft)	480					200
Base Capacity (vph)	303	2469	1756	261	531	1583
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	0.91	0.26	0.85	0.71	0.47	0.14

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	255	598	0	0	1033	343	343	58	201	0	0	0
Future Volume (vph)	255	598	0	0	1033	343	343	58	201	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0			6.0		6.0	6.0	4.0			
Lane Util. Factor	1.00	0.95			0.95		0.91	0.91	1.00			
Frt	1.00	1.00			0.96		1.00	1.00	0.85			
Flt Protected	0.95	1.00			1.00		0.95	0.96	1.00			
Satd. Flow (prot)	1770	3539			3407		1610	3268	1583			
Flt Permitted	0.09	1.00			1.00		0.95	0.96	1.00			
Satd. Flow (perm)	161	3539			3407		1610	3268	1583			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	277	650	0	0	1123	373	373	63	218	0	0	0
RTOR Reduction (vph)	0	0	0	0	40	0	0	0	0	0	0	0
Lane Group Flow (vph)	277	650	0	0	1456	0	186	250	218	0	0	0
Turn Type	pm+pt	NA			NA		Perm	NA	Free			
Protected Phases	5	2			6			8				
Permitted Phases	2						8		Free			
Actuated Green, G (s)	55.8	55.8			40.3		12.2	12.2	80.0			
Effective Green, g (s)	55.8	55.8			40.3		12.2	12.2	80.0			
Actuated g/C Ratio	0.70	0.70			0.50		0.15	0.15	1.00			
Clearance Time (s)	6.0	6.0			6.0		6.0	6.0				
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0				
Lane Grp Cap (vph)	303	2468			1716		245	498	1583			
v/s Ratio Prot	c0.11	0.18			0.43							
v/s Ratio Perm	c0.53						c0.12	0.08	0.14			
v/c Ratio	0.91	0.26			0.85		0.76	0.50	0.14			
Uniform Delay, d1	22.5	4.5			17.2		32.5	31.1	0.0			
Progression Factor	0.74	1.02			1.00		1.00	1.00	1.00			
Incremental Delay, d2	29.6	0.3			5.4		12.7	0.8	0.2			
Delay (s)	46.4	4.8			22.6		45.1	31.9	0.2			
Level of Service	D	A			C		D	C	A			
Approach Delay (s)		17.2			22.6			25.1			0.0	
Approach LOS		B			C			C			A	

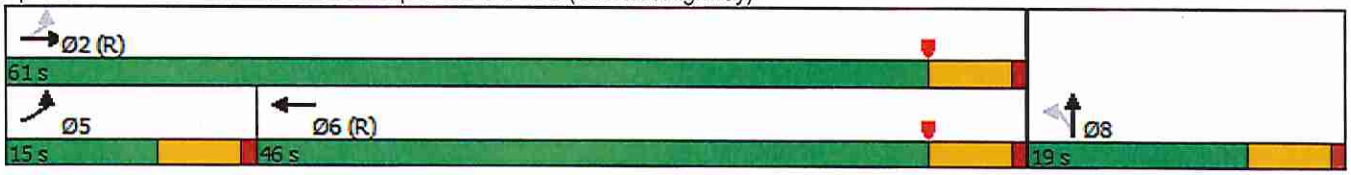
Intersection Summary			
HCM 2000 Control Delay	21.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	76.4%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	2	5	6	8
Movement	EBTL	EBL	WBT	NBTL
Lead/Lag		Lead	Lag	
Lead-Lag Optimize		Yes	Yes	
Recall Mode	C-Max	None	C-Max	None
Maximum Split (s)	61	15	46	19
Maximum Split (%)	76.3%	18.8%	57.5%	23.8%
Minimum Split (s)	24	15	24	15
Yellow Time (s)	5	5	5	5
All-Red Time (s)	1	1	1	1
Minimum Initial (s)	12	5	12	5
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)				
Flash Dont Walk (s)				
Dual Entry	Yes	No	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	0	15	61
End Time (s)	61	15	61	0
Yield/Force Off (s)	55	9	55	74
Yield/Force Off 170(s)	55	9	55	74
Local Start Time (s)	25	25	40	6
Local Yield (s)	0	34	0	19
Local Yield 170(s)	0	34	0	19

Intersection Summary	
Cycle Length	80
Control Type	Actuated-Coordinated
Natural Cycle	70
Offset: 55 (69%), Referenced to phase 2:EBTL and 6:WBT, Start of Yellow	

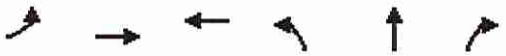
Splits and Phases: 5: I-10 EB Off-Ramp & US 190 BUS (Shortcut Highway)



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	611	69	43	1033	184	59
Future Volume (Veh/h)	611	69	43	1033	184	59
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	664	75	47	1123	200	64
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL			TWLTL		
Median storage veh)	2			2		
Upstream signal (ft)	1265					
pX, platoon unblocked						
vC, conflicting volume			739		1320	332
vC1, stage 1 conf vol					664	
vC2, stage 2 conf vol					656	
vCu, unblocked vol			739		1320	332
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)			2.2		3.5	3.3
p0 queue free %			95		42	90
cM capacity (veh/h)			863		347	664

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1
Volume Total	332	332	75	47	562	562	264
Volume Left	0	0	0	47	0	0	200
Volume Right	0	0	75	0	0	0	64
cSH	1700	1700	1700	863	1700	1700	392
Volume to Capacity	0.20	0.20	0.04	0.05	0.33	0.33	0.67
Queue Length 95th (ft)	0	0	0	4	0	0	119
Control Delay (s)	0.0	0.0	0.0	9.4	0.0	0.0	31.2
Lane LOS				A			D
Approach Delay (s)	0.0			0.4			31.2
Approach LOS							D

Intersection Summary			
Average Delay	4.0		
Intersection Capacity Utilization	49.0%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	WBT	NBL	NBT	NBR
Lane Group Flow (vph)	534	1100	1460	355	502	638
v/c Ratio	1.09	0.47	1.15	1.18	1.13dl	0.40
Control Delay	92.2	9.0	102.0	142.1	43.8	0.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	92.2	9.0	102.0	142.1	43.8	0.8
Queue Length 50th (ft)	~266	135	~454	~237	133	0
Queue Length 95th (ft)	m#448	178	#587	#413	#213	0
Internal Link Dist (ft)		598	592		1105	
Turn Bay Length (ft)	480					200
Base Capacity (vph)	491	2344	1272	301	614	1583
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	1.09	0.47	1.15	1.18	0.82	0.40

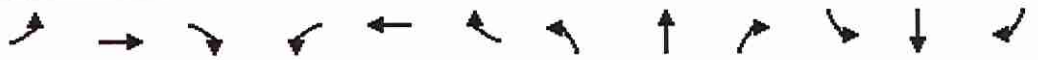
Intersection Summary

~ 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.

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	491	1012	0	0	1115	228	654	134	587	0	0	0
Future Volume (vph)	491	1012	0	0	1115	228	654	134	587	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0			6.0		6.0	6.0	4.0			
Lane Util. Factor	1.00	0.95			0.95		0.91	0.91	1.00			
Frt	1.00	1.00			0.97		1.00	1.00	0.85			
Flt Protected	0.95	1.00			1.00		0.95	0.97	1.00			
Satd. Flow (prot)	1770	3539			3449		1610	3274	1583			
Flt Permitted	0.11	1.00			1.00		0.95	0.97	1.00			
Satd. Flow (perm)	213	3539			3449		1610	3274	1583			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	534	1100	0	0	1212	248	711	146	638	0	0	0
RTOR Reduction (vph)	0	0	0	0	22	0	0	0	0	0	0	0
Lane Group Flow (vph)	534	1100	0	0	1438	0	355	502	638	0	0	0
Turn Type	pm+pt	NA			NA		Perm	NA	Free			
Protected Phases	5	2			6			8				
Permitted Phases	2						8		Free			
Actuated Green, G (s)	53.0	53.0			29.0		15.0	15.0	80.0			
Effective Green, g (s)	53.0	53.0			29.0		15.0	15.0	80.0			
Actuated g/C Ratio	0.66	0.66			0.36		0.19	0.19	1.00			
Clearance Time (s)	6.0	6.0			6.0		6.0	6.0				
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0				
Lane Grp Cap (vph)	491	2344			1250		301	613	1583			
v/s Ratio Prot	c0.24	0.31			0.42							
v/s Ratio Perm	c0.48						c0.22	0.15	0.40			
v/c Ratio	1.09	0.47			1.15		1.18	1.13dl	0.40			
Uniform Delay, d1	23.8	6.6			25.5		32.5	31.2	0.0			
Progression Factor	1.37	1.26			1.00		1.00	1.00	1.00			
Incremental Delay, d2	62.9	0.6			77.4		109.7	8.4	0.8			
Delay (s)	95.5	8.9			102.9		142.2	39.6	0.8			
Level of Service	F	A			F		F	D	A			
Approach Delay (s)		37.2			102.9			47.4			0.0	
Approach LOS		D			F			D			A	

Intersection Summary			
HCM 2000 Control Delay	61.4	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.16		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	95.4%	ICU Level of Service	F
Analysis Period (min)	15		

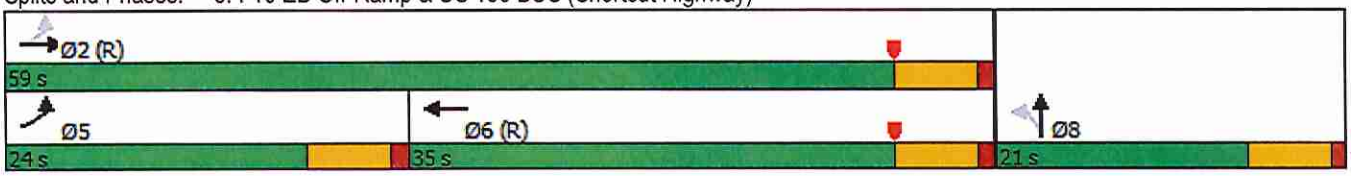
dl Defacto Left Lane. Recode with 1 though lane as a left lane.

c Critical Lane Group

Phase Number	2	5	6	8
Movement	EBTL	EBL	WBT	NBTL
Lead/Lag		Lead	Lag	
Lead-Lag Optimize		Yes	Yes	
Recall Mode	C-Max	None	C-Max	None
Maximum Split (s)	59	24	35	21
Maximum Split (%)	73.8%	30.0%	43.8%	26.3%
Minimum Split (s)	24	15	24	15
Yellow Time (s)	5	5	5	5
All-Red Time (s)	1	1	1	1
Minimum Initial (s)	12	5	12	5
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)				
Flash Dont Walk (s)				
Dual Entry	Yes	No	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	34	34	58	13
End Time (s)	13	58	13	34
Yield/Force Off (s)	7	52	7	28
Yield/Force Off 170(s)	7	52	7	28
Local Start Time (s)	27	27	51	6
Local Yield (s)	0	45	0	21
Local Yield 170(s)	0	45	0	21

Intersection Summary	
Cycle Length	80
Control Type	Actuated-Coordinated
Natural Cycle	110
Offset: 7 (9%), Referenced to phase 2:EBTL and 6:WBT, Start of Yellow	

Splits and Phases: 5: I-10 EB Off-Ramp & US 190 BUS (Shortcut Highway)



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1192	215	112	876	137	51
Future Volume (Veh/h)	1192	215	112	876	137	51
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1296	234	122	952	149	55
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL			TWLTL		
Median storage veh)	2			2		
Upstream signal (ft)	1265					
pX, platoon unblocked						
vC, conflicting volume			1530		2016	648
vC1, stage 1 conf vol					1296	
vC2, stage 2 conf vol					720	
vCu, unblocked vol			1530		2016	648
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)			2.2		3.5	3.3
p0 queue free %			72		16	87
cM capacity (veh/h)			431		178	413

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1
Volume Total	648	648	234	122	476	476	204
Volume Left	0	0	0	122	0	0	149
Volume Right	0	0	234	0	0	0	55
cSH	1700	1700	1700	431	1700	1700	211
Volume to Capacity	0.38	0.38	0.14	0.28	0.28	0.28	0.97
Queue Length 95th (ft)	0	0	0	29	0	0	209
Control Delay (s)	0.0	0.0	0.0	16.6	0.0	0.0	101.8
Lane LOS				C			F
Approach Delay (s)	0.0			1.9			101.8
Approach LOS							F

Intersection Summary			
Average Delay	8.1		
Intersection Capacity Utilization	59.9%	ICU Level of Service	B
Analysis Period (min)	15		

Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	NBR
Lane Group Flow (vph)	277	650	1123	373	186	188	280
v/c Ratio	0.70	0.26	0.43	0.37	0.74	0.74	0.18
Control Delay	16.8	4.9	13.0	2.5	50.6	51.3	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.8	4.9	13.0	2.5	50.6	51.3	0.2
Queue Length 50th (ft)	32	45	124	0	93	94	0
Queue Length 95th (ft)	#85	68	158	40	#184	#187	0
Internal Link Dist (ft)		598	592			1105	
Turn Bay Length (ft)	480			200			200
Base Capacity (vph)	400	2475	2620	996	273	273	1583
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	0.69	0.26	0.43	0.37	0.68	0.69	0.18

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	255	598	0	0	1033	343	343	1	258	0	0	0
Future Volume (vph)	255	598	0	0	1033	343	343	1	258	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0			6.0	6.0	6.0	6.0	4.0			
Lane Util. Factor	1.00	0.95			0.91	1.00	0.95	0.95	1.00			
Frt	1.00	1.00			1.00	0.85	1.00	1.00	0.85			
Flt Protected	0.95	1.00			1.00	1.00	0.95	0.95	1.00			
Satd. Flow (prot)	1770	3539			5085	1583	1681	1686	1583			
Flt Permitted	0.18	1.00			1.00	1.00	0.95	0.95	1.00			
Satd. Flow (perm)	341	3539			5085	1583	1681	1686	1583			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	277	650	0	0	1123	373	373	1	280	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	180	0	0	0	0	0	0
Lane Group Flow (vph)	277	650	0	0	1123	193	186	188	280	0	0	0
Turn Type	pm+pt	NA			NA	Perm	Perm	NA	Free			
Protected Phases	5	2			6			8				
Permitted Phases	2					6	8		Free			
Actuated Green, G (s)	56.0	56.0			41.3	41.3	12.0	12.0	80.0			
Effective Green, g (s)	56.0	56.0			41.3	41.3	12.0	12.0	80.0			
Actuated g/C Ratio	0.70	0.70			0.52	0.52	0.15	0.15	1.00			
Clearance Time (s)	6.0	6.0			6.0	6.0	6.0	6.0				
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0				
Lane Grp Cap (vph)	394	2477			2625	817	252	252	1583			
v/s Ratio Prot	c0.08	0.18			0.22							
v/s Ratio Perm	c0.42					0.12	0.11	0.11	0.18			
v/c Ratio	0.70	0.26			0.43	0.24	0.74	0.75	0.18			
Uniform Delay, d1	6.4	4.4			12.0	10.7	32.5	32.5	0.0			
Progression Factor	1.05	1.01			1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2	5.4	0.2			0.5	0.7	10.7	11.4	0.2			
Delay (s)	12.1	4.7			12.5	11.3	43.2	43.9	0.2			
Level of Service	B	A			B	B	D	D	A			
Approach Delay (s)		6.9			12.2			25.0			0.0	
Approach LOS		A			B			C			A	

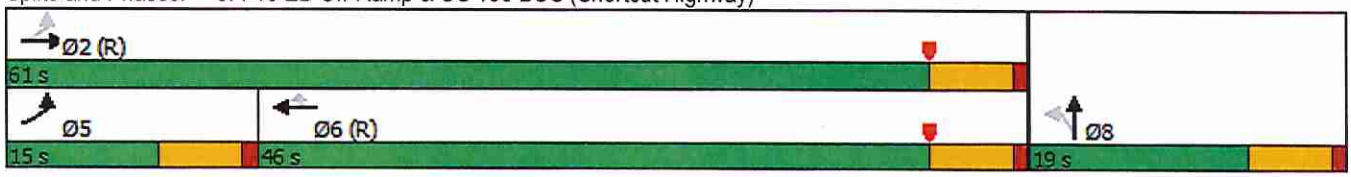
Intersection Summary			
HCM 2000 Control Delay	13.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	59.9%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	2	5	6	8
Movement	EBTL	EBL	WBT	NBTL
Lead/Lag		Lead	Lag	
Lead-Lag Optimize		Yes	Yes	
Recall Mode	C-Max	None	C-Max	None
Maximum Split (s)	61	15	46	19
Maximum Split (%)	76.3%	18.8%	57.5%	23.8%
Minimum Split (s)	24	15	24	15
Yellow Time (s)	5	5	5	5
All-Red Time (s)	1	1	1	1
Minimum Initial (s)	12	5	12	5
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)				
Flash Dont Walk (s)				
Dual Entry	Yes	No	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	0	15	61
End Time (s)	61	15	61	0
Yield/Force Off (s)	55	9	55	74
Yield/Force Off 170(s)	55	9	55	74
Local Start Time (s)	25	25	40	6
Local Yield (s)	0	34	0	19
Local Yield 170(s)	0	34	0	19

Intersection Summary	
Cycle Length	80
Control Type	Actuated-Coordinated
Natural Cycle	55
Offset: 55 (69%), Referenced to phase 2:EBTL and 6:WBT, Start of Yellow	

Splits and Phases: 5: I-10 EB Off-Ramp & US 190 BUS (Shortcut Highway)



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	NBR
Lane Group Flow (vph)	534	1100	1212	248	355	361	778
v/c Ratio	1.09	0.47	0.66	0.34	1.13	1.14	0.49
Control Delay	92.1	9.0	23.4	4.0	122.8	127.9	1.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	92.1	9.0	23.4	4.0	122.8	127.9	1.1
Queue Length 50th (ft)	~265	135	182	0	~220	~225	0
Queue Length 95th (ft)	m#447	178	229	45	#388	#395	0
Internal Link Dist (ft)		598	592			1105	
Turn Bay Length (ft)	480			200			200
Base Capacity (vph)	491	2344	1843	731	315	316	1583
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	1.09	0.47	0.66	0.34	1.13	1.14	0.49

Intersection Summary

~ 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.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	491	1012	0	0	1115	228	654	5	716	0	0	0
Future Volume (vph)	491	1012	0	0	1115	228	654	5	716	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0			6.0	6.0	6.0	6.0	4.0			
Lane Util. Factor	1.00	0.95			0.91	1.00	0.95	0.95	1.00			
Frt	1.00	1.00			1.00	0.85	1.00	1.00	0.85			
Flt Protected	0.95	1.00			1.00	1.00	0.95	0.95	1.00			
Satd. Flow (prot)	1770	3539			5085	1583	1681	1686	1583			
Flt Permitted	0.11	1.00			1.00	1.00	0.95	0.95	1.00			
Satd. Flow (perm)	214	3539			5085	1583	1681	1686	1583			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	534	1100	0	0	1212	248	711	5	778	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	158	0	0	0	0	0	0
Lane Group Flow (vph)	534	1100	0	0	1212	90	355	361	778	0	0	0
Turn Type	pm+pt	NA			NA	Perm	Perm	NA	Free			
Protected Phases	5	2			6			8				
Permitted Phases	2					6	8		Free			
Actuated Green, G (s)	53.0	53.0			29.0	29.0	15.0	15.0	80.0			
Effective Green, g (s)	53.0	53.0			29.0	29.0	15.0	15.0	80.0			
Actuated g/C Ratio	0.66	0.66			0.36	0.36	0.19	0.19	1.00			
Clearance Time (s)	6.0	6.0			6.0	6.0	6.0	6.0				
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0				
Lane Grp Cap (vph)	491	2344			1843	573	315	316	1583			
v/s Ratio Prot	c0.24	0.31			0.24							
v/s Ratio Perm	c0.47					0.06	0.21	0.21	0.49			
v/c Ratio	1.09	0.47			0.66	0.16	1.13	1.14	0.49			
Uniform Delay, d1	22.4	6.6			21.3	17.2	32.5	32.5	0.0			
Progression Factor	1.38	1.26			1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2	62.9	0.6			1.9	0.6	89.5	94.9	1.1			
Delay (s)	93.6	8.9			23.2	17.8	122.0	127.4	1.1			
Level of Service	F	A			C	B	F	F	A			
Approach Delay (s)		36.6			22.3			60.4			0.0	
Approach LOS		D			C			E			A	

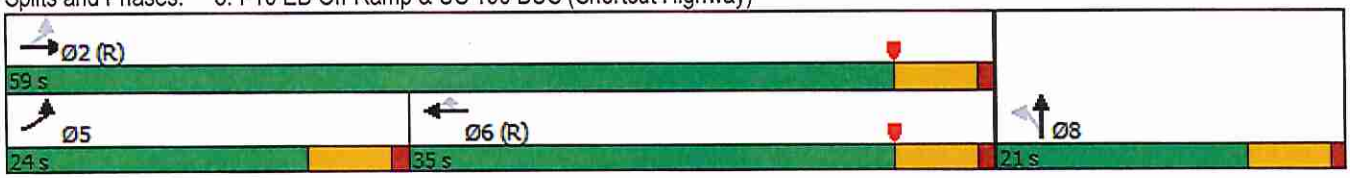
Intersection Summary			
HCM 2000 Control Delay	39.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.15		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	81.7%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	2	5	6	8
Movement	EBTL	EBL	WBT	NBTL
Lead/Lag		Lead	Lag	
Lead-Lag Optimize		Yes	Yes	
Recall Mode	C-Max	None	C-Max	None
Maximum Split (s)	59	24	35	21
Maximum Split (%)	73.8%	30.0%	43.8%	26.3%
Minimum Split (s)	24	15	24	15
Yellow Time (s)	5	5	5	5
All-Red Time (s)	1	1	1	1
Minimum Initial (s)	12	5	12	5
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)				
Flash Dont Walk (s)				
Dual Entry	Yes	No	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	34	34	58	13
End Time (s)	13	58	13	34
Yield/Force Off (s)	7	52	7	28
Yield/Force Off 170(s)	7	52	7	28
Local Start Time (s)	27	27	51	6
Local Yield (s)	0	45	0	21
Local Yield 170(s)	0	45	0	21

Intersection Summary	
Cycle Length	80
Control Type	Actuated-Coordinated
Natural Cycle	75
Offset: 7 (9%), Referenced to phase 2:EBTL and 6:WBT, Start of Yellow	

Splits and Phases: 5: I-10 EB Off-Ramp & US 190 BUS (Shortcut Highway)



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (veh/h)	1	185	658	9	8	1241	42	0	0	30	0	0
Future Volume (Veh/h)	1	185	658	9	8	1241	42	0	0	30	0	0
Sign Control			Free			Free			Stop			Stop
Grade			0%			0%			0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	201	715	10	9	1349	46	0	0	33	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type			None			None						
Median storage veh)												
Upstream signal (ft)			672									
pX, platoon unblocked	0.00											
vC, conflicting volume	0	1395			725			1986	2535	243	2063	2517
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	0	1395			725			1986	2535	243	2063	2517
tC, single (s)	0.0	4.1			4.1			7.5	6.5	6.9	7.5	6.5
tC, 2 stage (s)												
tF (s)	0.0	2.2			2.2			3.5	4.0	3.3	3.5	4.0
p0 queue free %	0	59			99			100	100	96	100	100
cM capacity (veh/h)	0	486			874			13	16	757	20	16

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	201	286	286	153	9	899	496	33	172
Volume Left	201	0	0	0	9	0	0	0	0
Volume Right	0	0	0	10	0	0	46	33	172
cSH	486	1700	1700	1700	874	1700	1700	757	383
Volume to Capacity	0.41	0.17	0.17	0.09	0.01	0.53	0.29	0.04	0.45
Queue Length 95th (ft)	50	0	0	0	1	0	0	3	56
Control Delay (s)	17.5	0.0	0.0	0.0	9.2	0.0	0.0	10.0	21.8
Lane LOS	C				A			A	C
Approach Delay (s)	3.8				0.1			10.0	21.8
Approach LOS								A	C

Intersection Summary				
Average Delay	3.0			
Intersection Capacity Utilization	65.7%	ICU Level of Service		C
Analysis Period (min)	15			

Movement	SBR
Lane Configurations	
Traffic Volume (veh/h)	158
Future Volume (Veh/h)	158
Sign Control	
Grade	
Peak Hour Factor	0.92
Hourly flow rate (vph)	172
Pedestrians	
Lane Width (ft)	
Walking Speed (ft/s)	
Percent Blockage	
Right turn flare (veh)	
Median type	
Median storage veh)	
Upstream signal (ft)	
pX, platoon unblocked	
vC, conflicting volume	698
vC1, stage 1 conf vol	
vC2, stage 2 conf vol	
vCu, unblocked vol	698
tC, single (s)	6.9
tC, 2 stage (s)	
tF (s)	3.3
p0 queue free %	55
cM capacity (veh/h)	383
Direction, Lane #	

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	698	5	0	1263	0	32
Future Volume (Veh/h)	698	5	0	1263	0	32
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	759	5	0	1373	0	35
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	1011					
pX, platoon unblocked						
vC, conflicting volume			764		1448	256
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			764		1448	256
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	95
cM capacity (veh/h)			845		122	744

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1
Volume Total	304	304	157	686	686	35
Volume Left	0	0	0	0	0	0
Volume Right	0	0	5	0	0	35
cSH	1700	1700	1700	1700	1700	744
Volume to Capacity	0.18	0.18	0.09	0.40	0.40	0.05
Queue Length 95th (ft)	0	0	0	0	0	4
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	10.1
Lane LOS						B
Approach Delay (s)	0.0			0.0		10.1
Approach LOS						B

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	38.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	729	1266	1	0	7
Future Volume (Veh/h)	0	729	1266	1	0	7
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	792	1376	1	0	8
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		1134				
pX, platoon unblocked						
vC, conflicting volume	1377				1640	688
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1377				1640	688
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	98
cM capacity (veh/h)	494				91	388

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	264	264	264	917	460	8
Volume Left	0	0	0	0	0	0
Volume Right	0	0	0	0	1	8
cSH	1700	1700	1700	1700	1700	388
Volume to Capacity	0.16	0.16	0.16	0.54	0.27	0.02
Queue Length 95th (ft)	0	0	0	0	0	2
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	14.5
Lane LOS						B
Approach Delay (s)	0.0			0.0		14.5
Approach LOS						B

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	45.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	663	69	48	1369	0	243
Future Volume (Veh/h)	663	69	48	1369	0	243
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	721	75	52	1488	0	264
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	1265					
pX, platoon unblocked						
vC, conflicting volume			796		1569	360
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			796		1569	360
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			94		100	58
cM capacity (veh/h)			822		95	636

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1
Volume Total	360	360	75	52	744	744	264
Volume Left	0	0	0	52	0	0	0
Volume Right	0	0	75	0	0	0	264
cSH	1700	1700	1700	822	1700	1700	636
Volume to Capacity	0.21	0.21	0.04	0.06	0.44	0.44	0.42
Queue Length 95th (ft)	0	0	0	5	0	0	51
Control Delay (s)	0.0	0.0	0.0	9.7	0.0	0.0	14.6
Lane LOS				A			B
Approach Delay (s)	0.0			0.3			14.6
Approach LOS							B

Intersection Summary			
Average Delay	1.7		
Intersection Capacity Utilization	41.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	896	1292	4	5	23
Future Volume (Veh/h)	0	896	1292	4	5	23
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	974	1404	4	5	25
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1408				1893	704
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1408				1893	704
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				92	93
cM capacity (veh/h)	481				62	379

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total	487	487	936	472	30
Volume Left	0	0	0	0	5
Volume Right	0	0	0	4	25
cSH	1700	1700	1700	1700	204
Volume to Capacity	0.29	0.29	0.55	0.28	0.15
Queue Length 95th (ft)	0	0	0	0	13
Control Delay (s)	0.0	0.0	0.0	0.0	25.7
Lane LOS					D
Approach Delay (s)	0.0		0.0		25.7
Approach LOS					D

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	Err%	ICU Level of Service	H
Analysis Period (min)	15		

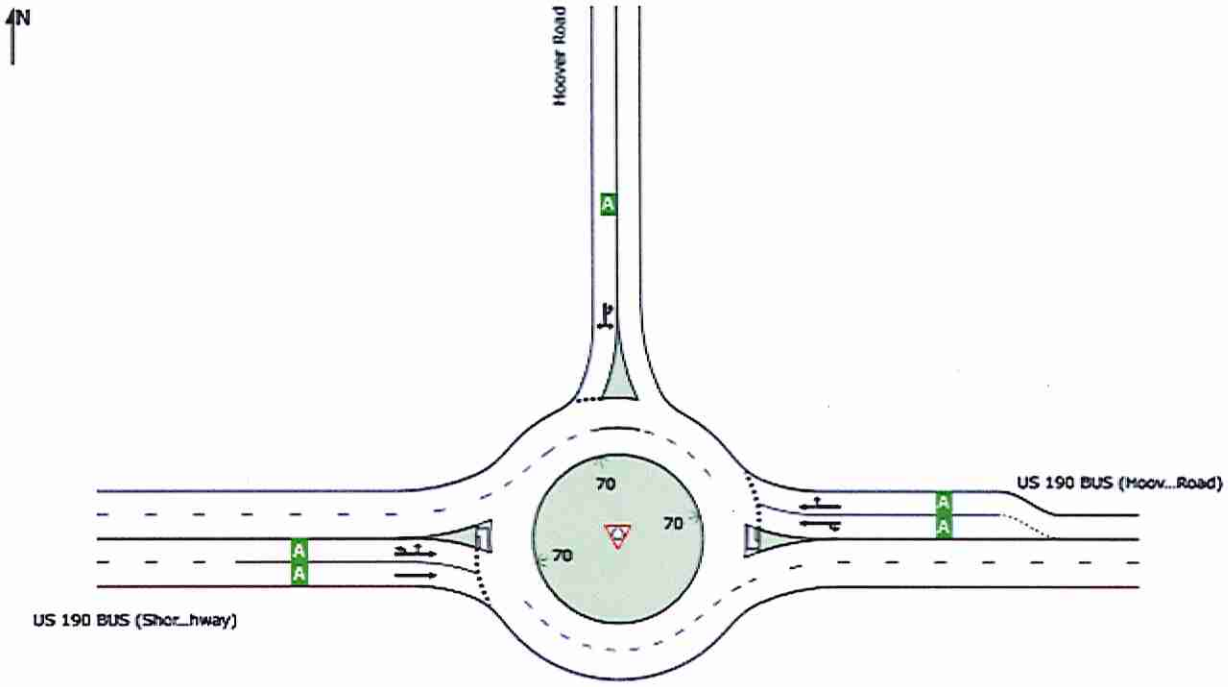
LANE LEVEL OF SERVICE

Lane Level of Service

Site: 101 [Option 7-A.M. Peak Hour_20 Year Design]

US 190 BUS (Shortcut Highway) @ Hoover Road & Brookter Road Realignment
Site Category: (None)
Roundabout
Design Life Analysis (Final Year): Results for 1 years

	Approaches			Intersection
	East	North	West	
LOS	A	A	A	A



Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 2010).
SIDRA Standard Delay Model is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option is selected.

LANE SUMMARY

Site: 101 [Option 7-A.M. Peak Hour_20 Year Design]

US 190 BUS (Shortcut Highway) @ Hoover Road & Brookter Road Realignment
Site Category: (None)
Roundabout
Design Life Analysis (Final Year): Results for 1 years

Lane Use and Performance

	Demand Flows Total veh/h	HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	Dist ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
East: US 190 BUS (Hoover Road)													
Lane 1	466	2.0	919	0.507	100	3.5	LOS A	3.8	95.8	Short	300	0.0	NA
Lane 2[d]	485	2.0	958	0.507	100	3.3	LOS A	3.8	95.8	Full	1600	0.0	0.0
Approach	951	2.0		0.507		3.4	LOS A	3.8	95.8				
North: Hoover Road													
Lane 1[d]	188	2.0	392	0.481	100	9.3	LOS A	2.5	62.8	Full	1600	0.0	0.0
Approach	188	2.0		0.481		9.3	LOS A	2.5	62.8				
West: US 190 BUS (Shortcut Highway)													
Lane 1	493	2.0	1280	0.385	100	0.3	LOS A	3.2	80.2	Full	1600	0.0	0.0
Lane 2[d]	493	2.0	1280	0.385	100	0.3	LOS A	3.2	80.2	Full	1600	0.0	0.0
Approach	985	2.0		0.385		0.3	LOS A	3.2	80.2				
Intersection	2125	2.0		0.507		2.5	LOS A	3.8	95.8				

Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option is selected.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

d Dominant lane on roundabout approach

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (veh/h)	1	185	658	9	8	1084	63	0	0	24	0	0
Future Volume (Veh/h)	1	185	658	9	8	1084	63	0	0	24	0	0
Sign Control			Free			Free			Stop			Stop
Grade			0%			0%			0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	201	715	10	9	1178	68	0	0	26	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type			None			None						
Median storage veh)												
Upstream signal (ft)			672									
pX, platoon unblocked	0.00											
vC, conflicting volume	0	1246			725			2121	2386	243	1896	2357
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	0	1246			725			2121	2386	243	1896	2357
tC, single (s)	0.0	4.1			4.1			7.5	6.5	6.9	7.5	6.5
tC, 2 stage (s)												
tF (s)	0.0	2.2			2.2			3.5	4.0	3.3	3.5	4.0
p0 queue free %	0	64			99			100	100	97	100	100
cM capacity (veh/h)	0	554			874			2	21	757	29	22

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	201	286	286	153	9	785	461	26	392
Volume Left	201	0	0	0	9	0	0	0	0
Volume Right	0	0	0	10	0	0	68	26	392
cSH	554	1700	1700	1700	874	1700	1700	757	429
Volume to Capacity	0.36	0.17	0.17	0.09	0.01	0.46	0.27	0.03	0.91
Queue Length 95th (ft)	41	0	0	0	1	0	0	3	251
Control Delay (s)	15.1	0.0	0.0	0.0	9.2	0.0	0.0	9.9	55.9
Lane LOS	C				A			A	F
Approach Delay (s)	3.3				0.1			9.9	55.9
Approach LOS								A	F

Intersection Summary			
Average Delay	9.7		
Intersection Capacity Utilization	74.6%	ICU Level of Service	D
Analysis Period (min)	15		

Movement	SBR
Lane Configurations	
Traffic Volume (veh/h)	361
Future Volume (Veh/h)	361
Sign Control	
Grade	
Peak Hour Factor	0.92
Hourly flow rate (vph)	392
Pedestrians	
Lane Width (ft)	
Walking Speed (ft/s)	
Percent Blockage	
Right turn flare (veh)	
Median type	
Median storage veh)	
Upstream signal (ft)	
pX, platoon unblocked	
vC, conflicting volume	623
vC1, stage 1 conf vol	
vC2, stage 2 conf vol	
vCu, unblocked vol	623
tC, single (s)	6.9
tC, 2 stage (s)	
tF (s)	3.3
p0 queue free %	9
cM capacity (veh/h)	429
Direction, Lane #	

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1424	13	0	1130	0	24
Future Volume (Veh/h)	1424	13	0	1130	0	24
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1548	14	0	1228	0	26
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	1011					
pX, platoon unblocked						
vC, conflicting volume			1562		2169	523
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1562		2169	523
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	95
cM capacity (veh/h)			419		40	499

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1
Volume Total	619	619	324	614	614	26
Volume Left	0	0	0	0	0	0
Volume Right	0	0	14	0	0	26
cSH	1700	1700	1700	1700	1700	499
Volume to Capacity	0.36	0.36	0.19	0.36	0.36	0.05
Queue Length 95th (ft)	0	0	0	0	0	4
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	12.6
Lane LOS						B
Approach Delay (s)	0.0			0.0		12.6
Approach LOS						B

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	37.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	1451	1108	1	0	7
Future Volume (Veh/h)	0	1451	1108	1	0	7
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	1577	1204	1	0	8
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		1134				
pX, platoon unblocked						
vC, conflicting volume	1205				1730	602
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1205				1730	602
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	98
cM capacity (veh/h)	575				79	442

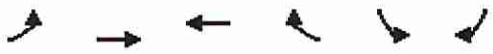
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	526	526	526	803	402	8
Volume Left	0	0	0	0	0	0
Volume Right	0	0	0	0	1	8
cSH	1700	1700	1700	1700	1700	442
Volume to Capacity	0.31	0.31	0.31	0.47	0.24	0.02
Queue Length 95th (ft)	0	0	0	0	0	1
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	13.3
Lane LOS						B
Approach Delay (s)	0.0			0.0		13.3
Approach LOS						B

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	40.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1240	215	16	1122	0	188
Future Volume (Veh/h)	1240	215	16	1122	0	188
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1348	234	17	1220	0	204
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	1265					
pX, platoon unblocked						
vC, conflicting volume			1582		1992	674
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1582		1992	674
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			96		100	49
cM capacity (veh/h)			412		51	397

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1
Volume Total	674	674	234	17	610	610	204
Volume Left	0	0	0	17	0	0	0
Volume Right	0	0	234	0	0	0	204
cSH	1700	1700	1700	412	1700	1700	397
Volume to Capacity	0.40	0.40	0.14	0.04	0.36	0.36	0.51
Queue Length 95th (ft)	0	0	0	3	0	0	71
Control Delay (s)	0.0	0.0	0.0	14.1	0.0	0.0	23.3
Lane LOS				B			C
Approach Delay (s)	0.0			0.2			23.3
Approach LOS							C

Intersection Summary			
Average Delay	1.6		
Intersection Capacity Utilization	52.6%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	1467	1213	8	0	14
Future Volume (Veh/h)	0	1467	1213	8	0	14
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	1595	1318	9	0	15
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1327				2120	664
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1327				2120	664
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	96
cM capacity (veh/h)	516				43	403

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total	798	798	879	448	15
Volume Left	0	0	0	0	0
Volume Right	0	0	0	9	15
cSH	1700	1700	1700	1700	403
Volume to Capacity	0.47	0.47	0.52	0.26	0.04
Queue Length 95th (ft)	0	0	0	0	3
Control Delay (s)	0.0	0.0	0.0	0.0	14.3
Lane LOS					B
Approach Delay (s)	0.0		0.0		14.3
Approach LOS					B

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	43.9%	ICU Level of Service	A
Analysis Period (min)	15		

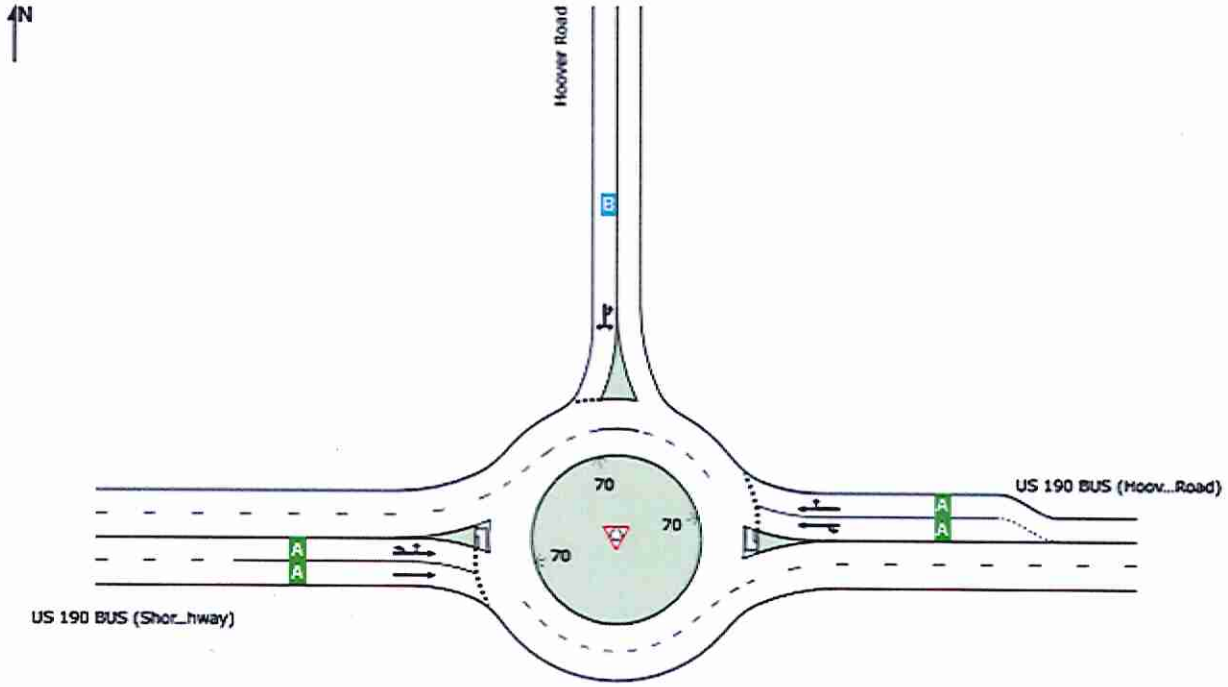
LANE LEVEL OF SERVICE

Lane Level of Service

Site: 101 [Option 7-P.M. Peak Hour_20 Year Design]

US 190 BUS (Shortcut Highway) @ Hoover Road & Brookter Road Realignment
Site Category: (None)
Roundabout
Design Life Analysis (Final Year): Results for 1 years

	Approaches			Intersection
	East	North	West	
LOS	A	B	A	A



Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 2010).
SIDRA Standard Delay Model is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option is selected.

LANE SUMMARY

Site: 101 [Option 7-P.M. Peak Hour_20 Year Design]

US 190 BUS (Shortcut Highway) @ Hoover Road & Brookter Road Realignment
Site Category: (None)
Roundabout
Design Life Analysis (Final Year): Results for 1 years

Lane Use and Performance

	Demand Flows Total veh/h	HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	Dist ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
East: US 190 BUS (Hoover Road)													
Lane 1	472	2.0	761	0.620	100	7.2	LOS A	6.1	155.6	Short	300	0.0	NA
Lane 2[d]	502	2.0	809	0.620	100	6.7	LOS A	6.2	158.4	Full	1600	0.0	0.0
Approach	973	2.0		0.620		6.9	LOS A	6.2	158.4				
North: Hoover Road													
Lane 1[d]	263	2.0	358	0.736	100	15.4	LOS B	4.9	124.3	Full	1600	0.0	0.0
Approach	263	2.0		0.736		15.4	LOS B	4.9	124.3				
West: US 190 BUS (Shortcut Highway)													
Lane 1	811	2.0	1184	0.685	100	1.3	LOS A	8.5	216.4	Full	1600	0.0	0.0
Lane 2[d]	816	2.0	1192	0.685	100	1.2	LOS A	8.5	216.7	Full	1600	0.0	0.0
Approach	1627	2.0		0.685		1.3	LOS A	8.5	216.7				
Intersection	2863	2.0		0.736		4.5	LOS A	8.5	216.7				

Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option is selected.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

d Dominant lane on roundabout approach

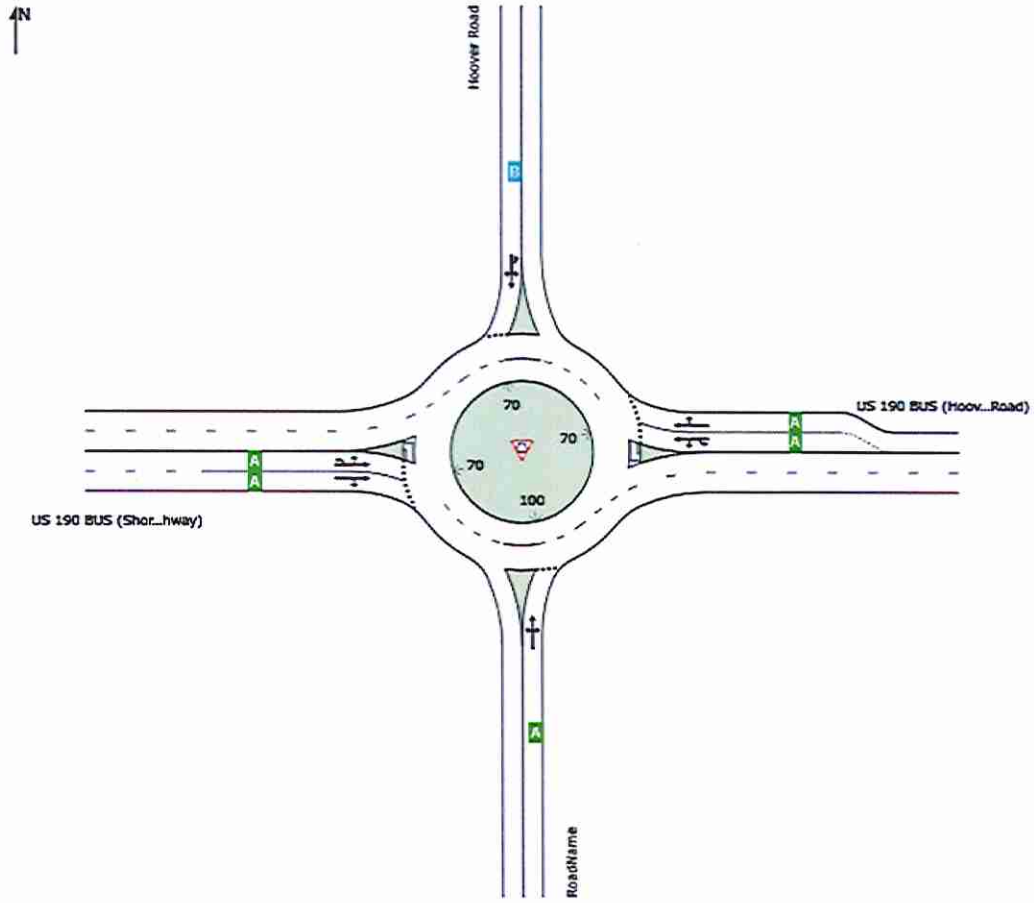
LANE LEVEL OF SERVICE

Lane Level of Service

Site: 101 [Option 8-A.M. Peak Hour_20 Year Design]

US 190 BUS (Shortcut Highway) @ Hoover Road & Brookter Road Realignment
Site Category: (None)
Roundabout
Design Life Analysis (Final Year): Results for 1 years

	Approaches				Intersection
	South	East	North	West	
LOS	A	A	B	A	A



Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 2010).
SIDRA Standard Delay Model is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option is selected.

LANE SUMMARY

Site: 101 [Option 8-A.M. Peak Hour_20 Year Design]

US 190 BUS (Shortcut Highway) @ Hoover Road & Brookter Road Realignment
Site Category: (None)
Roundabout
Design Life Analysis (Final Year): Results for 1 years

Lane Use and Performance

	Demand Flows Total veh/h	HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	Dist ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: RoadName													
Lane 1[d]	248	3.0	562	0.442	100	5.6	LOS A	2.2	55.6	Full	1600	0.0	0.0
Approach	248	3.0		0.442		5.6	LOS A	2.2	55.6				
East: US 190 BUS (Hoover Road)													
Lane 1	465	2.1	882	0.527	100	4.1	LOS A	4.2	107.2	Short	300	0.0	NA
Lane 2[d]	487	2.0	924	0.527	100	3.8	LOS A	4.2	107.6	Full	1600	0.0	0.0
Approach	951	2.1		0.527		4.0	LOS A	4.2	107.6				
North: Hoover Road													
Lane 1[d]	233	2.3	395	0.589	100	11.0	LOS B	3.4	86.5	Full	1600	0.0	0.0
Approach	233	2.3		0.589		11.0	LOS B	3.4	86.5				
West: US 190 BUS (Shortcut Highway)													
Lane 1	390	2.0	1157	0.337	100	0.9	LOS A	2.3	58.5	Full	1600	0.0	0.0
Lane 2[d]	393	2.1	1167	0.337	100	0.9	LOS A	2.3	58.6	Full	1600	0.0	0.0
Approach	783	2.0		0.337		0.9	LOS A	2.3	58.6				
Intersection	2215	2.2		0.589		3.8	LOS A	4.2	107.6				

Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option is selected.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

d Dominant lane on roundabout approach

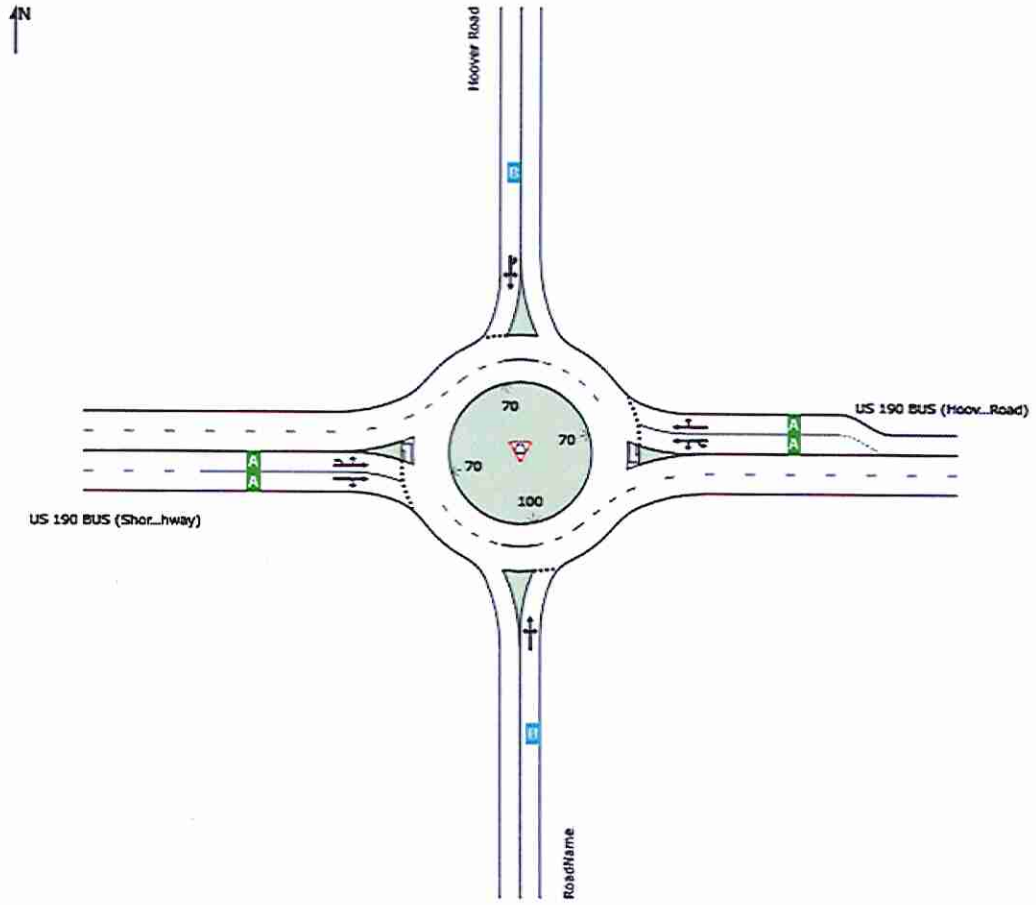
LANE LEVEL OF SERVICE

Lane Level of Service

Site: 101 [Option 8-P.M. Peak Hour_20 Year Design]

US 190 BUS (Shortcut Highway) @ Hoover Road & Brookter Road Realignment
Site Category: (None)
Roundabout
Design Life Analysis (Final Year): Results for 1 years

	Approaches				Intersection
	South	East	North	West	
LOS	B	A	B	A	A



Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 2010).
SIDRA Standard Delay Model is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option is selected.

LANE SUMMARY

Site: 101 [Option 8-P.M. Peak Hour_20 Year Design]

US 190 BUS (Shortcut Highway) @ Hoover Road & Brookter Road Realignment
Site Category: (None)
Roundabout
Design Life Analysis (Final Year): Results for 1 years

Lane Use and Performance

	Demand Flows Total veh/h	HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	Dist ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: RoadName													
Lane 1[d]	241	3.0	315	0.764	100	17.5	LOS B	4.8	123.7	Full	1600	0.0	0.0
Approach	241	3.0		0.764		17.5	LOS B	4.8	123.7				
East: US 190 BUS (Hoover Road)													
Lane 1	469	2.3	733	0.640	100	8.5	LOS A	6.5	165.2	Short	300	0.0	NA
Lane 2[d]	505	2.0	789	0.640	100	7.9	LOS A	6.6	168.8	Full	1600	0.0	0.0
Approach	974	2.1		0.640		8.2	LOS A	6.6	168.8				
North: Hoover Road													
Lane 1[d]	264	2.2	364	0.725	100	14.7	LOS B	4.8	121.7	Full	1600	0.0	0.0
Approach	264	2.2		0.725		14.7	LOS B	4.8	121.7				
West: US 190 BUS (Shortcut Highway)													
Lane 1	731	2.0	1049	0.697	100	3.5	LOS A	8.0	202.9	Full	1600	0.0	0.0
Lane 2[d]	745	2.1	1070	0.697	100	3.4	LOS A	8.0	202.7	Full	1600	0.0	0.0
Approach	1476	2.0		0.697		3.5	LOS A	8.0	202.9				
Intersection	2954	2.2		0.764		7.2	LOS A	8.0	202.9				

Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option is selected.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

d Dominant lane on roundabout approach

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	12	31	210	23	24	165
Future Volume (Veh/h)	12	31	210	23	24	165
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	13	34	228	25	26	179
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	472	240			253	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	472	240			253	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	98	96			98	
cM capacity (veh/h)	540	798			1312	

Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	47	253	26	179
Volume Left	13	0	26	0
Volume Right	34	25	0	0
cSH	705	1700	1312	1700
Volume to Capacity	0.07	0.15	0.02	0.11
Queue Length 95th (ft)	5	0	2	0
Control Delay (s)	10.5	0.0	7.8	0.0
Lane LOS	B		A	
Approach Delay (s)	10.5	0.0	1.0	
Approach LOS	B			

Intersection Summary			
Average Delay	1.4		
Intersection Capacity Utilization	29.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	21	52	351	32	64	340
Future Volume (Veh/h)	21	52	351	32	64	340
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	23	57	382	35	70	370
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	910	400			417	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	910	400			417	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	92	91			94	
cM capacity (veh/h)	286	650			1142	

Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	80	417	70	370
Volume Left	23	0	70	0
Volume Right	57	35	0	0
cSH	476	1700	1142	1700
Volume to Capacity	0.17	0.25	0.06	0.22
Queue Length 95th (ft)	15	0	5	0
Control Delay (s)	14.1	0.0	8.4	0.0
Lane LOS	B		A	
Approach Delay (s)	14.1	0.0	1.3	
Approach LOS	B			

Intersection Summary			
Average Delay	1.8		
Intersection Capacity Utilization	38.3%	ICU Level of Service	A
Analysis Period (min)	15		

SUMMARY OF ESTIMATED QUANTITIES (OPTION 1)

ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL
201-01-00100	Clearing and Grubbing	LUMP	1	5,000.00	5,000.00
203-01-00100	General Excavation	CUYD	400	12.00	4,800.00
203-03-00100	Embankment	CUYD	300	24.00	7,200.00
204-02-00100	Temporary Hay or Straw Bales	EACH	10	20.00	200.00
204-06-00100	Temporary Silt Fencing	LNFT	200	2.00	400.00
302-02-05080	Class II Base Course (10" Thick) (Asphaltic Concrete Base on Embankment Layer)	SQYD	660	55.00	36,300.00
305-01-04020	Subgrade Layer (12" Thick) (Treated)	SQYD	660	20.00	13,200.00
706-03-10000	Incidental Concrete Paving (Colored) (inch Thick) (6" Thick)	SQYD	370	90.00	33,300.00
707-03-00100	Combination Concrete Curb And Gutter	LNFT	2,400	45.00	108,000.00
713-01-00100	Temporary Signs and Barricades	LUMP	1	25,000.00	25,000.00
727-01-00100	Mobilization	LUMP	1	40,000.00	40,000.00
729-01-00100	Sign (Type A)	SQYD	80	25.00	2,000.00
729-22-00100	Square Tubing Post with 2-1/4" Anchor	EACH	6	90.00	540.00
731-02-00100	Reflectorized Raised Pavement Markers	EACH	120	10.00	1,200.00
732-01-02040	Plastic Pavement Striping (8" Width) (Thermoplastic 125 mil)	LNFT	450	3.00	1,350.00
732-01-02060	Plastic Pavement Striping (12" Width) (Thermoplastic 125 mil)	LNFT	86	6.00	516.00
732-02-02000	Plastic Pavement Striping (Solid Line) (4" Width) (Thermoplastic 90 mil)	MILE	0.20	9,000.00	1,800.00
732-03-02010	Plastic Pvmt Strip (Dotted Line) (4" W) (2' L) (Thermo 90 mil)	MILE	0.20	6,500.00	1,300.00
732-04-01080	Plastic Pavement Legends and Symbols (Arrow - Left Turn)	EACH	8	350.00	2,800.00
732-04-01100	Plastic Pavement Legends and Symbols (Arrow - Right Turn)	EACH	8	350.00	2,800.00
732-04-15020	Plastic Pavement Legends and Symbols (Only)	EACH	8	500.00	4,000.00
740-01-00100	Construction Layout	LUMP	1	30,000.00	30,000.00
805-13-02300	Reinforced Concrete Box Culvert	LNFT	20	200.00	4,000.00
805-17-00100	Reinforced Concrete Box Culvert Headwall	EACH	1	500.00	500.00
NS-600-00220	Saw Cutting Portland Cement Concrete Pavement	INLT	6,500	1.00	6,500.00
NS-729-00029	Breakaway Square Tubing Sign Support w/Mowing Pad - Soil	EACH	10	450.00	4,500.00
NS-500-00340	Breakaway Square Tubing Sign Support - Wet Concrete	EACH	10	350.00	3,500.00
				Construction Total =	340,706.00
				10% Contingency =	34,070.60
				Final Total =	374,776.60

SUMMARY OF ESTIMATED QUANTITIES (OPTION 2)

ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL
201-01-00100	Clearing and Grubbing	LUMP	1	10,000.00	10,000.00
203-01-00100	General Excavation	CUYD	100	12.00	1,200.00
203-03-00100	Embankment	CUYD	1,200	24.00	28,800.00
204-02-00100	Temporary Hay or Straw Bales	EACH	105	20.00	2,100.00
204-06-00100	Temporary Silt Fencing	LNFT	4,800	2.00	9,600.00
302-02-05080	Class II Base Course (10" Thick) (Asphaltic Concrete Base on Embankment Layer)	SQYD	1,750	55.00	96,250.00
305-01-04020	Subgrade Layer (12" Thick) (Treated)	SQYD	1,750	20.00	35,000.00
402-01-00100	Traffic Maintenance Aggregate (Vehicular Measurement)	CUYD	250	55.00	13,750.00
601-01-00700	Portland Cement Concrete Pavement (11" Thick)	SQYD	1,750	120.00	210,000.00
706-03-10000	Incidental Concrete Paving (Colored) (inch Thick) (6" Thick)	SQYD	350	15.00	5,250.00
707-03-00100	Combination Concrete Curb And Gutter	LNFT	225	35.00	7,875.00
713-01-00100	Temporary Signs and Barricades	LUMP	1	25,000.00	25,000.00
727-01-00100	Mobilization	LUMP	1	40,000.00	40,000.00
729-01-00100	Sign (Type A)	SQYD	230	25.00	5,750.00
729-22-00100	Square Tubing Post with 2-1/4" Anchor	EACH	8	90.00	720.00
731-02-00100	Reflectorized Raised Pavement Markers	EACH	280	10.00	2,800.00
732-01-02040	Plastic Pavement Striping (8" Width) (Thermoplastic 125 mil)	LNFT	1,200	3.00	3,600.00
732-01-02060	Plastic Pavement Striping (12" Width) (Thermoplastic 125 mil)	LNFT	140	6.00	840.00
732-02-02000	Plastic Pavement Striping (Solid Line) (4" Width) (Thermoplastic 90 mil)	MILE	0.75	9,000.00	6,750.00
732-03-02000	Plastic Pavement Striping (Broken Line) (4" Width) (Thermoplastic 90 mil)	MILE	0.25	5,000.00	1,250.00
732-03-02010	Plastic Pvmt Strip (Dotted Line) (4" W) (2' L) (Thermo 90 mil)	MILE	0.15	6,500.00	975.00
732-03-02050	Plastic Pvmt Strip (Dotted Line) (12" W) (2' L) (Thermo 90 mil)	MILE	0.10	20,000.00	2,000.00
732-04-01080	Plastic Pavement Legends and Symbols (Arrow - Left Turn)	EACH	4	350.00	1,400.00
732-04-01100	Plastic Pavement Legends and Symbols (Arrow - Right Turn)	EACH	4	350.00	1,400.00
732-04-15020	Plastic Pavement Legends and Symbols (Only)	EACH	4	500.00	2,000.00
739-01-00100	Hydo-Seeding	ACRE	4	1,400.00	5,600.00
740-01-00100	Construction Layout	LUMP	1	30,000.00	30,000.00
NS-600-00220	Saw Cutting Portland Cement Concrete Pavement	INLT	4,700	1.00	4,700.00
NS-729-00029	Breakaway Square Tubing Sign Support w/Mowing Pad - Soil	EACH	15	450.00	6,750.00
NS-500-00340	Breakaway Square Tubing Sign Support - Wet Concrete	EACH	10	350.00	3,500.00
				Construction Total =	564,860.00
				10% Contingency =	56,486.00
				Final Total =	621,346.00

SUMMARY OF ESTIMATED QUANTITIES (OPTION 3)

ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL
201-01-00100	Clearing and Grubbing	LUMP	1	5,000.00	5,000.00
202-12-06080	Removal of Concrete Combination Curb and Gutter	LNFT	555	3.00	1,665.00
203-01-00100	General Excavation	CUYD	775	12.00	9,300.00
203-03-00100	Embankment	CUYD	50	24.00	1,200.00
302-02-05080	Class II Base Course (10" Thick) (Asphaltic Concrete Base on Embankment Layer)	SQYD	750	55.00	41,250.00
305-01-04020	Subgrade Layer (12" Thick) (Treated)	SQYD	750	20.00	15,000.00
601-01-00700	Portland Cement Concrete Pavement (11" Thick)	SQYD	750	120.00	90,000.00
707-03-00100	Combination Concrete Curb And Gutter	LNFT	560	35.00	19,600.00
713-01-00100	Temporary Signs and Barricades	LUMP	1	10,000.00	10,000.00
727-01-00100	Mobilization	LUMP	1	25,000.00	25,000.00
729-01-00100	Sign (Type A)	SQYD	1	25.00	25.00
729-22-00100	Square Tubing Post with 2-1/4" Anchor	EACH	1	90.00	90.00
731-02-00100	Reflectorized Raised Pavement Markers	EACH	50	10.00	500.00
739-01-00100	Hydo-Seeding	ACRE	0.25	1,400.00	350.00
740-01-00100	Construction Layout	LUMP	1	20,000.00	20,000.00
NS-600-00220	Saw Cutting Portland Cement Concrete Pavement	INLT	6,660	1.00	6,660.00
NS-729-00029	Breakaway Square Tubing Sign Support w/Mowing Pad - Soil	EACH	1	450.00	450.00
NS-500-00340	Breakaway Square Tubing Sign Support - Wet Concrete	EACH	1	350.00	350.00
				Construction Total =	246,440.00
				10% Contingency =	24,644.00
				Final Total =	271,084.00

SUMMARY OF ESTIMATED QUANTITIES (OPTION 4)

ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL
201-01-00100	Clearing and Grubbing	LUMP	1	5,000.00	5,000.00
202-01-00100	Removal of Structures and Obstructions	LUMP	0	10,000.00	0.00
203-01-00100	General Excavation	CUYD	200	12.00	2,400.00
203-03-00100	Embankment	CUYD	1,200	24.00	28,800.00
204-02-00100	Temporary Hay or Straw Bales	EACH	55	20.00	1,100.00
204-06-00100	Temporary Silt Fencing	LNFT	2,000	2.00	4,000.00
302-02-05080	Class II Base Course (10" Thick) (Asphaltic Concrete Base on Embankment Layer)	SQYD	1,200	55.00	66,000.00
305-01-04020	Subgrade Layer (12" Thick) (Treated)	SQYD	1,200	20.00	24,000.00
402-01-00100	Traffic Maintenance Aggregate (Vehicular Measurement)	CUYD	100	55.00	5,500.00
502-01-00100	Superpave Asphaltic Concrete	TON	900	125.00	112,500.00
509-01-00100	Cold Planing Asphaltic Pavement	SQYD	2,000	9.00	18,000.00
701-03-01040	Storm Drain Pipe (24"RCP/PP)	LNFT	70	80.00	5,600.00
713-01-00100	Temporary Signs and Barricades	LUMP	1	20,000.00	20,000.00
727-01-00100	Mobilization	LUMP	1	40,000.00	40,000.00
729-01-00100	Sign (Type A)	SQYD	75	25.00	1,875.00
729-22-00100	Square Tubing Post with 2-1/4" Anchor	EACH	6	90.00	540.00
731-02-00100	Reflectorized Raised Pavement Markers	EACH	280	10.00	2,800.00
732-01-02040	Plastic Pavement Striping (8" Width) (Thermoplastic 125 mil)	LNFT	420	3.00	1,260.00
732-01-02060	Plastic Pavement Striping (12" Width) (Thermoplastic 125 mil)	LNFT	36	6.00	216.00
732-02-02000	Plastic Pavement Striping (Solid Line) (4" Width) (Thermoplastic 90 mil)	MILE	0.75	9,000.00	6,750.00
732-03-02000	Plastic Pavement Striping (Broken Line) (4" Width) (Thermoplastic 90 mil)	MILE	0.25	5,000.00	1,250.00
732-03-02050	Plastic Pvmt Strip (Dotted Line) (8" W) (2' L) (Thermo 90 mil)	MILE	0.08	20,000.00	1,600.00
732-04-01080	Plastic Pavement Legends and Symbols (Arrow - Left Turn)	EACH	10	350.00	3,500.00
732-04-01100	Plastic Pavement Legends and Symbols (Arrow - Right Turn)	EACH	2	350.00	700.00
732-04-15020	Plastic Pavement Legends and Symbols (Only)	EACH	2	500.00	1,000.00
739-01-00100	Hydo-Seeding	ACRE	0.50	1,400.00	700.00
740-01-00100	Construction Layout	LUMP	1	30,000.00	30,000.00
NS-500-00340	Saw Cutting Asphaltic Concrete Pavement	INLT	3,000	1.00	3,000.00
NS-729-00029	Breakaway Square Tubing Sign Support w/Mowing Pad - Soil	EACH	6	450.00	2,700.00
NS-500-00340	Breakaway Square Tubing Sign Support - Wet Concrete	EACH	6	350.00	2,100.00
				Construction Total =	392,891.00
				10% Contingency =	39,289.10
				Final Total =	432,180.10

SUMMARY OF ESTIMATED QUANTITIES (OPTION 5)

ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL
201-01-00100	Clearing and Grubbing	LUMP	1	10,000.00	10,000.00
203-01-00100	General Excavation	CUYD	100	12.00	1,200.00
203-03-00100	Embankment	CUYD	1,100	24.00	26,400.00
204-02-00100	Temporary Hay or Straw Bales	EACH	60	20.00	1,200.00
204-06-00100	Temporary Silt Fencing	LNFT	2,200	2.00	4,400.00
302-02-05080	Class II Base Course (10" Thick) (Asphaltic Concrete Base on Embankment Layer)	SQYD	625	55.00	34,375.00
305-01-04020	Subgrade Layer (12" Thick) (Treated)	SQYD	625	20.00	12,500.00
402-01-00100	Traffic Maintenance Aggregate (Vehicular Measurement)	CUYD	250	55.00	13,750.00
502-01-00100	Superpave Asphaltic Concrete	TON	550	125.00	68,750.00
509-01-00100	Cold Planing Asphaltic Pavement	SQYD	1,200	9.00	10,800.00
601-01-00700	Portland Cement Concrete Pavement (11" Thick)	SQYD	200	120.00	24,000.00
701-03-01040	Storm Drain Pipe (24"RCP/PP)	LNFT	64	80.00	5,120.00
707-03-00100	Combination Concrete Curb And Gutter	LNFT	100	35.00	3,500.00
713-01-00100	Temporary Signs and Barricades	LUMP	1	25,000.00	25,000.00
727-01-00100	Mobilization	LUMP	1	40,000.00	40,000.00
729-01-00100	Sign (Type A)	SQYD	210	25.00	5,250.00
729-22-00100	Square Tubing Post with 2-1/4" Anchor	EACH	8	90.00	720.00
731-02-00100	Reflectorized Raised Pavement Markers	EACH	260	10.00	2,600.00
732-01-02040	Plastic Pavement Striping (8" Width) (Thermoplastic 125 mil)	LNFT	1,000	3.00	3,000.00
732-01-02060	Plastic Pavement Striping (12" Width) (Thermoplastic 125 mil)	LNFT	110	6.00	660.00
732-02-02000	Plastic Pavement Striping (Solid Line) (4" Width) (Thermoplastic 90 mil)	MILE	0.65	9,000.00	5,850.00
732-03-02000	Plastic Pavement Striping (Broken Line) (4" Width) (Thermoplastic 90 mil)	MILE	0.20	5,000.00	1,000.00
732-03-02010	Plastic Pvmt Strip (Dotted Line) (4" W) (2' L) (Thermo 90 mil)	MILE	0.10	6,500.00	650.00
732-03-02050	Plastic Pvmt Strip (Dotted Line) (12" W) (2' L) (Thermo 90 mil)	MILE	0.08	20,000.00	1,600.00
732-04-01100	Plastic Pavement Legends and Symbols (Arrow - Right Turn)	EACH	4	350.00	1,400.00
732-04-15020	Plastic Pavement Legends and Symbols (Only)	EACH	4	500.00	2,000.00
739-01-00100	Hydo-Seeding	ACRE	1	1,400.00	1,400.00
740-01-00100	Construction Layout	LUMP	1	30,000.00	30,000.00
NS-500-00340	Saw Cutting Asphaltic Concrete Pavement	INLT	4,200	1.00	4,200.00
NS-600-00220	Saw Cutting Portland Cement Concrete Pavement	INLT	100	1.00	100.00
NS-729-00029	Breakaway Square Tubing Sign Support w/Mowing Pad - Soil	EACH	4	450.00	1,800.00
NS-500-00340	Breakaway Square Tubing Sign Support - Wet Concrete	EACH	4	350.00	1,400.00
				Construction Total =	344,625.00
				10% Contingency =	34,462.50
				Final Total =	379,087.50

SUMMARY OF ESTIMATED QUANTITIES (OPTION 6)

ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL
201-01-00100	Clearing and Grubbing	LUMP	1	5,000.00	5,000.00
202-12-06080	Removal of Concrete Combination Curb and Gutter	LNFT	555	3.00	1,665.00
203-01-00100	General Excavation	CUYD	775	12.00	9,300.00
203-03-00100	Embankment	CUYD	75	24.00	1,800.00
302-02-05080	Class II Base Course (10" Thick) (Asphaltic Concrete Base on Embankment Layer)	SQYD	1,100	55.00	60,500.00
305-01-04020	Subgrade Layer (12" Thick) (Treated)	SQYD	1,100	20.00	22,000.00
601-01-00700	Portland Cement Concrete Pavement (11" Thick)	SQYD	1,100	120.00	132,000.00
707-03-00100	Combination Concrete Curb And Gutter	LNFT	560	35.00	19,600.00
713-01-00100	Temporary Signs and Barricades	LUMP	1	10,000.00	10,000.00
727-01-00100	Mobilization	LUMP	1	25,000.00	25,000.00
729-01-00100	Sign (Type A)	SQYD	2	25.00	50.00
729-22-00100	Square Tubing Post with 2-1/4" Anchor	EACH	2	90.00	180.00
731-02-00100	Reflectorized Raised Pavement Markers	EACH	100	10.00	1,000.00
739-01-00100	Hydo-Seeding	ACRE	0.75	1,400.00	1,050.00
740-01-00100	Construction Layout	LUMP	1	30,000.00	30,000.00
NS-600-00220	Saw Cutting Portland Cement Concrete Pavement	INLT	6,660	1.00	6,660.00
NS-729-00029	Breakaway Square Tubing Sign Support w/Mowing Pad - Soil	EACH	2	450.00	900.00
NS-500-00340	Breakaway Square Tubing Sign Support - Wet Concrete	EACH	2	350.00	700.00
				Construction Total =	327,405.00
				10% Contingency =	32,740.50
				Final Total =	360,145.50

SUMMARY OF ESTIMATED QUANTITIES (OPTION 7)

ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL
201-01-00100	Clearing and Grubbing	LUMP	1	25,000.00	25,000.00
202-01-00100	Removal of Structures and Obstructions	LUMP	1	50,000.00	50,000.00
202-02-02020	Removal of Asphalt Pavement	SQYD	3,600	6.50	23,400.00
203-01-00100	General Excavation	CUYD	7,600	12.00	91,200.00
203-03-00100	Embankment	CUYD	6,800	24.00	163,200.00
204-02-00100	Temporary Hay or Straw Bales	EACH	200	20.00	4,000.00
204-06-00100	Temporary Silt Fencing	LNFT	10,200	2.00	20,400.00
302-02-05080	Class II Base Course (10" Thick) (Asphaltic Concrete Base on Embankment Layer)	SQYD	9,800	55.00	539,000.00
305-01-04020	Subgrade Layer (12" Thick) (Treated)	SQYD	9,800	20.00	196,000.00
402-01-00100	Traffic Maintenance Aggregate (Vehicular Measurement)	CUYD	600	55.00	33,000.00
502-01-00100	Superpave Asphaltic Concrete	TON	8,200	125.00	1,025,000.00
509-01-00100	Cold Planing Asphaltic Pavement	SQYD	5,800	9.00	52,200.00
701-03-01000	Storm Drain Pipe (15"RCP/PP)	LNFT	120	60.00	7,200.00
701-03-01040	Storm Drain Pipe (24"RCP/PP)	LNFT	330	80.00	26,400.00
707-01-00200	Concrete Curb (Barrier)	LNFT	350	15.00	5,250.00
706-03-10000	Incidental Concrete Paving (Colored) (inch Thick) (6" Thick)	SQYD	560	90.00	50,400.00
707-03-00100	Combination Concrete Curb And Gutter	LNFT	4,200	35.00	147,000.00
708-01-00100	Right-Of-Way Monument	EACH	8	300.00	2,400.00
713-01-00100	Temporary Signs and Barricades	LUMP	1	50,000.00	50,000.00
727-01-00100	Mobilization	LUMP	1	80,000.00	80,000.00
729-01-00100	Sign (Type A)	SQYD	350	25.00	8,750.00
729-22-00100	Square Tubing Post with 2-1/4" Anchor	EACH	24	90.00	2,160.00
731-02-00100	Reflectorized Raised Pavement Markers	EACH	780	10.00	7,800.00
732-01-02040	Plastic Pavement Striping (8" Width) (Thermoplastic 125 mil)	LNFT	720	3.00	2,160.00
732-01-02060	Plastic Pavement Striping (12" Width) (Thermoplastic 125 mil)	LNFT	240	6.00	1,440.00
732-02-02000	Plastic Pavement Striping (Solid Line) (4" Width) (Thermoplastic 90 mil)	MILE	3.60	9,000.00	32,400.00
732-03-02000	Plastic Pavement Striping (Broken Line) (4" Width) (Thermoplastic 90 mil)	MILE	1.10	5,000.00	5,500.00
732-03-02030	Plastic Pvmt Strip (Dotted Line) (8" W) (2' L) (Thermo 90 mil)	MILE	0.50	6,500.00	3,250.00
732-03-02050	Plastic Pvmt Strip (Dotted Line) (12" W) (2' L) (Thermo 90 mil)	MILE	0.06	20,000.00	1,200.00
732-04-01080	Plastic Pavement Legends and Symbols (Arrow - Left Turn)	EACH	8	350.00	2,800.00
732-04-01100	Plastic Pavement Legends and Symbols (Arrow - Right Turn)	EACH	4	350.00	1,400.00
732-04-01133	Plastic Pvmt Lgnds and Symb (Dir Arr Rndbt - Fshk) (Type LC)	EACH	5	1,200.00	6,000.00
732-04-15020	Plastic Pavement Legends and Symbols (Only)	EACH	4	500.00	2,000.00
739-01-00100	Hydo-Seeding	ACRE	6	1,400.00	8,400.00
740-01-00100	Construction Layout	LUMP	1	50,000.00	50,000.00
NS-500-00340	Saw Cutting Asphaltic Concrete Pavement	INLT	6800	1.00	6,800.00
NS-729-00029	Breakaway Square Tubing Sign Support w/Mowing Pad - Soil	EACH	12	450.00	5,400.00
NS-500-00340	Breakaway Square Tubing Sign Support - Wet Concrete	EACH	12	350.00	4,200.00
				Final Total =	2,742,710.00
				10% Contingency =	274,271.00
				Final Total =	3,016,981.00

SUMMARY OF ESTIMATED QUANTITIES (OPTION 8)

ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL
201-01-00100	Clearing and Grubbing	LUMP	1	25,000.00	25,000.00
203-01-00100	General Excavation	CUYD	1,500	12.00	18,000.00
203-03-00100	Embankment	CUYD	1,800	24.00	43,200.00
204-02-00100	Temporary Hay or Straw Bales	EACH	150	20.00	3,000.00
204-06-00100	Temporary Silt Fencing	LNFT	3,200	2.00	6,400.00
302-02-05080	Class II Base Course (10" Thick) (Asphaltic Concrete Base on Embankment Layer)	SQYD	3,600	55.00	198,000.00
305-01-04020	Subgrade Layer (12" Thick) (Treated)	SQYD	3,600	20.00	72,000.00
402-01-00100	Traffic Maintenance Aggregate (Vehicular Measurement)	CUYD	25	55.00	1,375.00
502-01-00100	Superpave Asphaltic Concrete	TON	2,000	125.00	250,000.00
713-01-00100	Temporary Signs and Barricades	LUMP	1	5,000.00	5,000.00
727-01-00100	Mobilization	LUMP	1	20,000.00	20,000.00
729-01-00100	Sign (Type A)	SQYD	75	25.00	1,875.00
729-22-00100	Square Tubing Post with 2-1/4" Anchor	EACH	6	90.00	540.00
731-02-00100	Reflectorized Raised Pavement Markers	EACH	442	10.00	4,420.00
732-01-02060	Plastic Pavement Striping (12" Width) (Thermoplastic 125 mil)	LNFT	36	6.00	216.00
732-02-02000	Plastic Pavement Striping (Solid Line) (4" Width) (Thermoplastic 90 mil)	MILE	1.80	9,000.00	16,200.00
732-04-01133	Plastic Pvmt Lgnds and Symb (Dir Arr Rndbt - Fshk) (Type LC)	EACH	5	1,200.00	6,000.00
739-01-00100	Hydo-Seeding	ACRE	5.00	1,400.00	7,000.00
740-01-00100	Construction Layout	LUMP	1	20,000.00	20,000.00
NS-729-00029	Breakaway Square Tubing Sign Support w/Mowing Pad - Soil	EACH	6	450.00	2,700.00
NS-500-00340	Breakaway Square Tubing Sign Support - Wet Concrete	EACH	6	350.00	2,100.00
				Construction Total =	703,026.00
				10% Contingency =	70,302.60
				Final Total =	773,328.60

SUMMARY OF ESTIMATED QUANTITIES (OPTION 9)

ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL
201-01-00100	Clearing and Grubbing	LUMP	1	5,000.00	5,000.00
202-01-00100	Removal of Structures and Obstructions	LUMP	1	5,000.00	5,000.00
203-03-00100	Embankment	CUYD	450	24.00	10,800.00
204-02-00100	Temporary Hay or Straw Bales	EACH	30	20.00	600.00
204-06-00100	Temporary Silt Fencing	LNFT	1,560	2.00	3,120.00
302-02-05080	Class II Base Course (10" Thick) (Asphaltic Concrete Base on Embankment Layer)	SQYD	400	55.00	22,000.00
305-01-04020	Subgrade Layer (12" Thick) (Treated)	SQYD	400	20.00	8,000.00
402-01-00100	Traffic Maintenance Aggregate (Vehicular Measurement)	CUYD	175	55.00	9,625.00
502-01-00100	Superpave Asphaltic Concrete	TON	1,400	125.00	175,000.00
509-01-00100	Cold Planing Asphaltic Pavement	SQYD	720	9.00	6,480.00
701-03-01040	Storm Drain Pipe (24"RCP/PP)	LNFT	30	80.00	2,400.00
713-01-00100	Temporary Signs and Barricades	LUMP	1	12,000.00	12,000.00
727-01-00100	Mobilization	LUMP	1	10,000.00	10,000.00
729-01-00100	Sign (Type A)	SQYD	52	25.00	1,300.00
729-22-00100	Square Tubing Post with 2-1/4" Anchor	EACH	8	90.00	720.00
731-02-00100	Reflectorized Raised Pavement Markers	EACH	62	10.00	620.00
732-01-02040	Plastic Pavement Striping (8" Width) (Thermoplastic 125 mil)	LNFT	150	3.00	450.00
732-01-02060	Plastic Pavement Striping (12" Width) (Thermoplastic 125 mil)	LNFT	24	6.00	144.00
732-02-02000	Plastic Pavement Striping (Solid Line) (4" Width) (Thermoplastic 90 mil)	MILE	0.16	9,000.00	1,440.00
732-03-02030	Plastic Pvmt Strip (Dotted Line) (8" W) (2' L) (Thermo 90 mil)	MILE	0.03	6,500.00	195.00
732-04-01080	Plastic Pavement Legends and Symbols (Arrow - Left Turn)	EACH	2	350.00	700.00
732-04-15020	Plastic Pavement Legends and Symbols (Only)	EACH	1	500.00	500.00
739-01-00100	Hydo-Seeding	ACRE	0.25	1,400.00	350.00
740-01-00100	Construction Layout	LUMP	1	5,000.00	5,000.00
NS-729-00029	Breakaway Square Tubing Sign Support w/Mowing Pad - Soil	EACH	4	450.00	1,800.00
NS-500-00340	Breakaway Square Tubing Sign Support - Wet Concrete	EACH	4	350.00	1,400.00
				Final Total =	284,644.00
				10% Contingency =	28,464.40
				Final Total =	313,108.40

SUMMARY OF ESTIMATED QUANTITIES (OPTION 10)

ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL
203-03-00100	Embankment	CUYD	80	24.00	1,920.00
204-02-00100	Temporary Hay or Straw Bales	EACH	10	20.00	200.00
204-06-00100	Temporary Silt Fencing	LNFT	200	2.00	400.00
302-02-05080	Class II Base Course (10" Thick) (Asphaltic Concrete Base on Embankment Layer)	SQYD	180	55.00	9,900.00
305-01-04020	Subgrade Layer (12" Thick) (Treated)	SQYD	180	20.00	3,600.00
402-01-00100	Traffic Maintenance Aggregate (Vehicular Measurement)	CUYD	45	55.00	2,475.00
502-01-00100	Superpave Asphaltic Concrete	TON	240	125.00	30,000.00
509-01-00100	Cold Planing Asphaltic Pavement	SQYD	160	9.00	1,440.00
701-03-01040	Storm Drain Pipe (24"RCP/PP)	LNFT	20	80.00	1,600.00
713-01-00100	Temporary Signs and Barricades	LUMP	1	6,000.00	6,000.00
727-01-00100	Mobilization	LUMP	1	10,000.00	10,000.00
729-01-00100	Sign (Type A)	SQYD	24	25.00	600.00
729-22-00100	Square Tubing Post with 2-1/4" Anchor	EACH	4	90.00	360.00
731-02-00100	Reflectorized Raised Pavement Markers	EACH	30	10.00	300.00
732-01-02060	Plastic Pavement Striping (12" Width) (Thermoplastic 125 mil)	LNFT	48	6.00	288.00
732-02-02000	Plastic Pavement Striping (Solid Line) (4" Width) (Thermoplastic 90 mil)	MILE	0.08	9,000.00	720.00
739-01-00100	Hydo-Seeding	ACRE	0.10	1,400.00	140.00
740-01-00100	Construction Layout	LUMP	1	2,500.00	2,500.00
NS-729-00029	Breakaway Square Tubing Sign Support w/Mowing Pad - Soil	EACH	2	450.00	900.00
NS-500-00340	Breakaway Square Tubing Sign Support - Wet Concrete	EACH	2	350.00	700.00
				Final Total =	74,043.00
				10% Contingency =	7,404.30
				Final Total =	81,447.30

STAGE 0
Preliminary Scope and Budget Checklist
Urban Systems Program

MPO Area: Slidell

A. Project Background

Project Name (40 characters max.) US 190 BUS (Shortcut Highway) Corridor Improvements (I-10 East Service Road to Hoover Drive)

District 62 Parish St. Tammany

City/Town Slidell Local Road Name Shortcut Highway

If project is on a state route: Route: US 190 BUS Control Section: 013-13

Begin Log Mile: 2.00 End Log Mile: 5.4

List study team members: Nelson Hollings (RPC), Johnny Bordelon (J. V. Burkes & Associates)

Who is the sponsor of the study? Regional Planning Commission

Has someone on the sponsor's staff attended the LPA Certification class? Yes

Sponsor DUNS#: 069305308

Date Study Completed: December 2019

Describe the existing facility:

Functional classification: Principal Arterial (Urban) Number and width of lanes: 2-4 Lanes, 12'

Shoulder width and type: 2'-10', Asphalt Mode:

Access control: No ADT: 20,000 Posted Speed: 45 mph

Describe any existing pedestrian facilities (ADA compliance should be considered for all improvements that include pedestrian facilities): None

Describe the adjacent land use: Mostly Residential

Will this project be adding miles to the state highway system (new alignment, new facility)? If yes, has a transfer of ownership been initiated with the appropriate entity? No

Are there recent, current or near future planning studies or projects in the vicinity? No

If yes, please describe the relationship of this project to those studies/projects.

Provide a brief chronology of these planning study activities:

B. Purpose and Need

State the Purpose (reason for proposing the project) and Need (problem or issue)/Corridor Vision and a brief scope of the project. Also, identify any additional goals and objectives for the project.

The purpose for the project is to reduce congestion and improve traffic flow along the US 190 BUS corridor and enhance traffic circulation to/from the adjacent roadway network. The project is needed to address safety concerns and traffic flow and circulation issues along the corridor.

C. Agency Coordination

Provide a brief synopsis of coordination with federal, tribal, state and local environmental, regulatory and resource agencies.

Local Governments (St. Tammany Parish, The City of Slidell)

What transportation agencies were included in the agency coordination effort?

LA DOTD, St. Tammany Parish Dept. of Engineering, Slidell Dept. of Engineering

C. Agency Coordination (Continued)

Describe the level of participation of other agencies and how the coordination effort was implemented.
Participating agencies included the RPC, St. Tammany Parish Dept. of Planning and Engineering, City of Slidell Dept. of Engineering, and DOTD HQ's and coordinated through several meetings

What steps will need to be taken with each agency during NEPA scoping?
FHWA coordination meetings if needed.

D. Public Coordination

Provide a synopsis of the coordination effort with the public and stakeholders; include specific timelines, meeting details, agendas, sign-in sheets, etc. (if applicable).
Numerous stakeholder meetings (>3) conducted with the RPC, DOTD HQ's, St. Tammany Parish, and the City of Slidell.

E. Project Scope, Range of Alternatives, Alternative Evaluation and Screening

Provide a project scope and give a description of the project concept for each alternative studied.

What are the major design features of the proposed facility? Attach a vicinity map showing project limits. If applicable also attach an aerial photo with concept layout.
Key objectives of the study was to develop Options for Improvements along the US 190 BUS (Shortcut Highway) corridor that would improve traffic operations along the corridor and accommodate existing and future traffic loads. See Stage 0 Feasibility Study for project limits of study and aerial photos with Options for Improvements.

Will design exceptions be required? No

Follow this link to view LADOTD Minimum Design Guidelines:
http://www.dotd.louisiana.gov/highways/project_devel/design/road_design/Memoranda/English_Design_Guidelines.pdf

What impact would this project have on freight movements? None

Does this project cross or is it near a railroad crossing? No

DOTD's "Complete Streets" policy should be taken into consideration. Per the policy, any exception for not accommodating bicyclists, pedestrians and transit users will require the approval of the DOTD chief engineer. For exceptions on Federal-aid highway projects, concurrence from FHWA must also be obtained. In addition any exception in an urbanized area, concurrence from the MPO must also be obtained. Follow this link to view the policy: http://www.dotd.la.gov/programs_grants/completestreets/documents/cs-la-dotpolicy.pdf

- Describe how the project will implement the policy or include a brief explanation of why implementing the policy would not be feasible. There are presently no sidewalks or accommodations for bikes along the US 190 BUS (Shortcut Highway) corridor within the project study limits. To implement sidewalks and/or bike facilities along the corridor would be a major undertaking and outside available funding for this proposed project.

How are Context Sensitive Solutions (CSS) being incorporated into the project? For more information on CSS follow this link: http://www.dotd.la.gov/administration/policies/DOTD_CSS_Policy_20060526.pdf.

Project attempts to bring improvements to the corridor in a way that limits the impact to adjacent residential properties and businesses and reduce the need for additional right-of-way to the greatest extent possible.

E. Project Scope, Range of Alternatives, Alternative Evaluation and Screening (Continued)

Was the DOTD's "Access Management" policy taken into consideration? If so, describe how. (See EDSM IV.2.1.4 for more information.) Yes. Project seeks to insure existing access connections are compatible with the "Access Management" policy while limiting any negative mobility impact to adjacent land uses.

Were any safety analyses performed? If so describe results and attach documentation. For safety analysis guidance follow this link: http://www.dotd.la.gov/planning/highway_safety/home.aspx?key=3

Yes. A crash history analysis was performed encompassing the last three years of authorized crash data

Are there any abnormal crash locations or overrepresented crashes within the project limits? Not determined

What future traffic analyses are anticipated? None

Will fiber optics be required? If so, are there existing lines to tie into? No

Are there any future ITS/traffic considerations? No

What is the required Transportation Management Plan (TMP) level as defined by EDSM No. VI.1.1.8?

- Is this project considered significant as defined in EDSM No. VI.1.1.4? No
- If yes, describe the mobility and safety analysis and assessment that was conducted as required in the development of a TMP.
- What further data will need to be collected to address the content and scope of the TMP in the design stage/phase of this project?

Was Construction Transportation Management/Property Access taken into consideration? Yes

Were alternative construction methods considered to mitigate work zone impacts? Yes

Describe screening criteria used to compare alternatives and from what agency the criteria were defined.
Project seeks to insure existing access connections are compatible with DOTD's "Access Management" policy.

Give an explanation for any alternative that was eliminated based on the screening criteria.
Any concept that did not adequately accommodate future traffic volumes and significantly adhered to DOTD's "Access Management" policy.

Which alternatives should be brought forward into NEPA and why? Option 7 described in the study addresses section along the US 190 BUS (Shortcut Highway) corridor most out of line with DOTD's Access Management policy.

Did the public, stakeholders and agencies have an opportunity to comment during the alternative screening process? Yes

Describe any unresolved issues with the public, stakeholders and/or agencies.
None

F. Planning Assumptions and Analytical Methods

What is the forecast year used in the study? Design Year 2040

What method was used for forecasting traffic volumes? RPC Traffic Demand Model

Are the planning assumptions and the corridor vision/purpose and need statement consistent with the long range transportation plan? Yes

What future year policy and/or data assumptions were used in the transportation planning process as they are related to land use, economic development, transportation costs and network expansion? NA

G. Potential Environmental Impacts

See the attached Stage 0 Environmental Checklist

H. Schedule Planner Worksheet

Please attach a completed schedule worksheet

I. Budget/Cost Estimate

Provide a cost estimate for each feasible alternative:

Phase	Total Estimated Cost	Funding Source (STP>200K, STP<200K, CMAQ, DEMO, DOTD Priority Program, Local)	Match Provided By (City, Parish, State, Other)	TIP Fiscal Year
Environmental (document, mitigation, etc.)	$40,000.00	STP<200K	Parish	2025
Engineering Design	$275,000.00	STP<200K	Parish	2025
R/W Acquisition (C of A if applicable)	$300,000.00	STP<200K	Parish	2025
Utility Relocations	$250,000.00	STP<200K	Parish	2025
Construction	$3,100,000.00	STP<200K	Parish	2025
Construction Engineering & Inspection Services	$310,000.00	STP<200K	Parish	2025
TOTAL COST	$4,275,000.00			

ATTACH ANY ADDITIONAL DOCUMENTATION

Disposition (circle one): (1) Advance to Stage 1 (2) Hold for Reconsideration (3) Shelve

STAGE 0
Environmental Checklist

Route US 190 BUS Parish: St. Tammany

C.S. 013-13 Begin Log mile 2.00 End Log mile 5.4

ADJACENT LAND USE: Mostly Residential

Any property owned by a Native American Tribe?
(Y or N or Unknown) If so, which Tribe? N

Any property enrolled into the Wetland Reserve Program?
(Y or N or Unknown) If so, give the location N

Are there any other known wetlands in the area?
(Y or N) If so, give the location N

Community Elements: Is the project impacting or adjacent to any (if the answer is yes, list names and locations):
(Y or N) Cemeteries N
(Y or N) Churches N
(Y or N) Schools N
(Y or N) Public Facilities (i.e., fire station, library, etc.) N
(Y or N) Community water well/supply N

Section 4(f) issue: Is the project impacting or adjacent to any (if the answer is yes, list names and locations):
(Y or N) Public recreation areas N
(Y or N) Public parks N
(Y or N) Wildlife Refuges N
(Y or N) Historic Sites N

Is the project impacting, or adjacent to, a property listed on the National Register of Historic Places? (Y or N) **Is the project within a historic district or a national landmark district?** (Y or N) If the answer is yes to either question, list names and locations below:
N

Do <u>you know</u> of any threatened or endangered species in the area? (Y or N)
If so, list species and location. N

Does the project impact or adjacent to a stream protected by the Louisiana Scenic Rivers Act? (Y or N) If yes, name the stream. N

Are there any Significant Trees as defined by EDSM I.1.1.21 within proposed ROW? (Y or N) If so, where? N

What year was the existing bridge built? NA

Are any waterways impacted by the project considered navigable? (Y or N) If unknown, state so, list the waterways: NA

Hazardous Material: Have you checked the following DEQ and EPA databases for potential problems? (If the answer is yes, list names and locations.)
(Y or N) Leaking Underground Storage Tanks N
(Y or N) CERCLIS N
(Y or N) ERNS N
(Y or N) Enforcement and Compliance History N

STAGE 0
Environmental Checklist

Underground Storage Tanks (UST): Are there any Gasoline Stations or other facilities that may have UST on or adjacent to the project? (Y or N) Y
If so, give the name and location: RaceTrac, 1717 Shortcut Hwy, Slidell, LA 70458

Any chemical plants, refineries or landfills adjacent to the project? (Y or N) **Any large manufacturing facilities adjacent to the project?** (Y or N) **Dry Cleaners?** (Y or N) If yes to any, give names and locations: N

Oil/Gas wells: Have you checked DNR database for registered oil and gas wells? (Y or N) List the type and location of wells being impacted by the project. N

Are there any possible residential or commercial relocations/displacements? (Y or N)
How many? N

Do you know of any sensitive community or cultural issues related to the project? (Y or N)
If so, explain N

Is the project area population minority or low income? (Y or N) N

What type of detour/closures could be used on the job? Short or Long term

Did you notice anything of environmental concern during your site/windshield survey of the area? If so, explain below.
No

Johnny Bordelon, J.V. Burkes & Associates, Inc. ; Nelson Hollings, RPC
Point of Contact

J.V. Burkes, 985-649-0075; RPC, 504-483-8500
Phone Number

01/27/20
Date

STAGE 0
Environmental Checklist

General Explanation:

To adequately consider projects in Stage 0, some consideration must be given to the human and natural environment which will be impacted by the project. The Environmental Checklist was designed knowing that some environmental issues may surface later in the process. This checklist was designed to obtain basic information, which is readily accessible by reviewing public databases and by visiting the site. It is recognized that some information may be more accessible than other information. Some items on the checklist may be more important than others depending on the type of project. It is recommended that the individual completing the checklist do their best to answer the questions accurately. Feel free to comment or write any explanatory comments at the end of the checklist.

The Databases:

To assist in gathering public information, the previous sheet includes web addresses for some of the databases that need to be consulted to complete the checklist. As of February 2011, these addresses were accurate.

Note that you will not have access to the location of any threatened or endangered (T&E) species. The web address lists only the threatened or endangered species in Louisiana by Parish. It will generally describe their habitat and other information. If you know of any species in the project area, please state so, but you will not be able to confirm it yourself. If you feel this may be an issue, please contact the Environmental Section. We have biologist on staff who can confirm the presence of a species.

Why is this information important?

Land Use? Indicator of biological issues such as T&E species or wetlands.

Tribal Land Ownership? Tells us whether coordination with tribal nations will be required.

WRP properties? Farmland that is converted back into wetlands. The Federal government has a permanent easement which cannot be expropriated by the State. Program is operated through the Natural Resources Conservation Service (formerly the Soil Conservation Service).

Community Elements? DOTD would like to limit adverse impacts to communities. Also, public facilities may be costly to relocate.

Section 4(f) issues? USDOT agencies are required by law to avoid certain properties, unless a prudent or feasible alternative is not available.

Historic Properties? Tells us if we have a Section 106 issue on the project. (Section 106 of the National Historic Preservation Act) See http://www.achp.gov/work106.html for more details.

Scenic Streams? Scenic streams require a permit and may require restricted construction activities.

Significant Trees? Need coordination and can be important to community.

Age of Bridge? Section 106 may apply. Bridges over 50 years old are evaluated to determine if they are eligible for the National Register of Historic Places.

Navigability? If navigable, will require an assessment of present and future navigation needs and US Coast Guard permit.

Hazardous Material? Don't want to purchase property if contaminated. Also, a safety issue for construction workers if right-of-way is contaminated.

Oil and Gas Wells? Expensive if project hits a well.

Relocations? Important to community. Real Estate costs can be substantial depending on location of project. Can result in organized opposition to a project.

Sensitive Issues? Identification of sensitive issues early greatly assists project team in designing public involvement plan.

Minority/Low Income Populations? Executive Order requires Federal Agencies to identify and address disproportionately high and adverse human health and environmental effects on minority or low income populations. (Often referred to as Environmental Justice)

Detours? The detour route may have as many or more impacts. Should be looked at with project. May be unacceptable to the public.

Louisiana Governor's Office of Indian Affairs:
http://gov.louisiana.gov/page/indian-affairs

Louisiana Wetlands Reserve Program:
http://www.nrcs.usda.gov/programs/wrp/states/la.html

Community Water Well/Supply
https://www.epa.gov/dwreginfo/information-about-public-water-systems

Louisiana Department of Wildlife and Fisheries – Wildlife Refuges
http://www.wlf.louisiana.gov/refuges
http://www.fws.gov/refuges/profiles/ByState.cfm?state=LA
http://www.fws.gov/refuges/refugelocatormaps/Louisiana.html

U.S. Fish & Wildlife Service – National Wetlands Inventory:
http://www.fws.gov/wetlands/

Louisiana State Historic Sites:
https://www.crt.state.la.us/louisiana-state-parks/historic-sites/

National Register of Historic Places (Louisiana):
https://www.crt.state.la.us/cultural-development/historic-preservation/national-register/database/index
http://www.nationalregisterofhistoricplaces.com/la/state.html

National Historic Landmarks Program:
https://www.nps.gov/orgs/1582/index.htm

Threatened and Endangered Species Databases:
http://www.wlf.louisiana.gov/wildlife/louisiana-natural-heritage-program

Louisiana Scenic Rivers:
http://www.wlf.louisiana.gov/scenic-rivers
http://www.legis.state.la.us/lss/lss.asp?doc=104995

Significant Tree Policy (EDSM I.1.1.21)
http://wwwsp.dotd.la.gov/Inside_LaDOTD/Divisions/Engineering/EDSM/EDSM/EDSM_I_1_1_21.pdf
(Live Oak, Red Oak, White Oak, Magnolia or Cypress that is considered aesthetically important, 18" or greater in diameter at breast height (4'-6" above the ground), and having a form that separates it from the surrounding vegetation or is considered historic.)

CERCLIS (Superfund Sites):
https://cumulis.epa.gov/supercpad/cursites/srchsites.cfm
http://www.epa.gov/enviro/html/cerclis/cerclis_query.html

ERNS - Emergency Response Notification System - Database of oil and hazardous substances spill reports: **https://www.athoc.com/emergency-notification-systems-b.html?gclid=EAIaIQobChMIt6-dr-um3QIVSJ7ACh3R2gmhEAAYASAAEgIDVvD_BwE**

Enforcement & Compliance History (ECHO)
https://echo.epa.gov/

STAGE 0
Environmental Checklist

DEQ – Underground Storage Tank Program Information:
http://deq.louisiana.gov/page/underground-storage-tank
Leaking Underground Storage Tanks:
http://www1.deq.louisiana.gov/portal/DIVISIONS/UndergroundStorageTankandRemediationDivision/UndergroundStorageTank.aspx

SONRIS – Oil and Gas Well Information & Water Well Information
http://sonris.com/default.htm

Environmental Justice (minority & low income)
https://www.fhwa.dot.gov/environment/environmental_justice/overview/index.cfm

Demographics
http://www.census.gov/

FHWA's Environmental Website
https://www.fhwa.dot.gov/environment/index.cfm

Additional Databases Checked

Other Comments: