

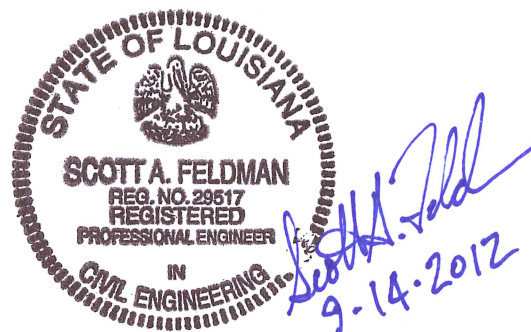
LA 3132 Stage 0

Traffic Study Report

August 2012

Prepared for:

Louisiana Department of Transportation and Development



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CHAPTER 1 - INTRODUCTION

1.1 OVERVIEW

Alliance Transportation Group (Alliance) performed a traffic operational study as part of LA 3132 Stage 0 Feasibility Study which examines the feasibility of extending LA 3132 (Inner Loop) from its current terminus at LA 523 (E. Flourney Lucas Road) south to the future I-69 near LA 1 in Caddo Parish, Louisiana. The four-lane controlled access extension of LA 3132 is proposed to run in a general north-south direction and provide an alternative route for industrial traffic around the rapidly growing residential areas along LA 523 (E. Flourney Lucas Road) to Shreveport and Bossier City. This project is anticipated to alleviate congestion and reduce travel delay along LA 1, LA 523, and Ellerbe Road as well as provide connection to the future I-69. This study is part of the contract for Louisiana Department of Transportation and Development (LADOTD) Project No. 700-99-0489.

As part of the Stage 0 Feasibility Study being conducted for the LADOTD, this report summarizes existing and future volumes, growth rates, and performance capacities for a no-build scenario and four build alternatives. Conceptual layouts of the various alternatives, developed by Buchart Horn, Inc., were used in this study.

1.2 STUDY AREA

The limits of the study area - located in Caddo Parish in northwest Louisiana, southeast of the City of Shreveport - extend from the intersection of LA 526 and LA 1 (Youree Drive) to the north, to LA 1 and Harts Island Road to the south, and to LA 523 and Ellerbe Road to the west as shown in **Figure 1**.

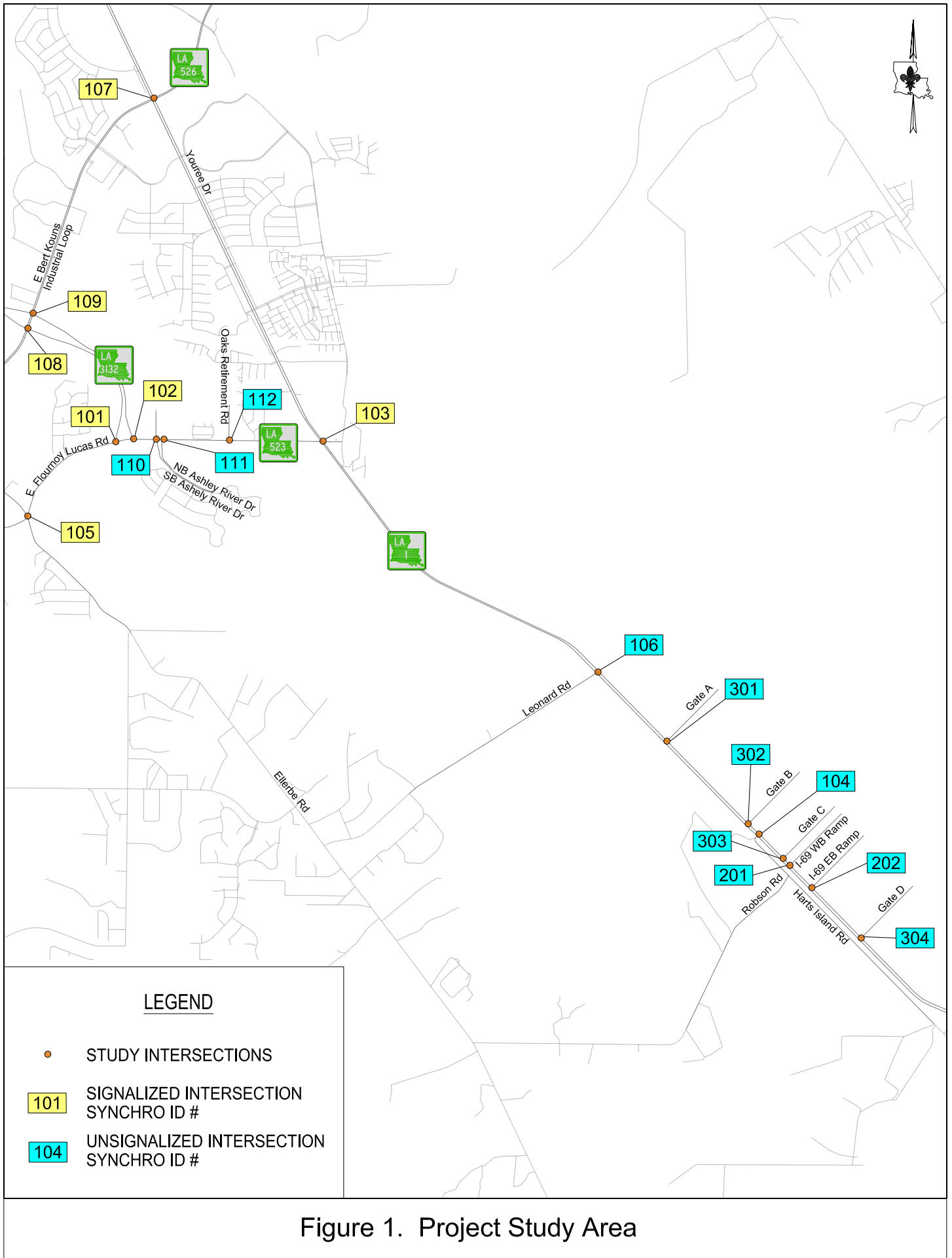


Figure 1. Project Study Area

The study evaluated the traffic operations at numerous intersections under existing conditions and proposed conditions, during the AM and PM peak hours. The intersections evaluated within the study area were:

101. LA 3132 NB at LA 523 (E Flournoy Lucas Rd) – Signalized
102. LA 3132 SB at LA 523 (E Flournoy Lucas Rd) - Signalized
103. LA 1 (Youree Dr) at LA 523 (E Flournoy Lucas Rd) – Signalized
104. LA 1 (Youree Dr) at Harts Island Road – Unsignalized
105. LA 523 (E Flournoy Lucas Rd) at Ellerbe Road – Signalized
106. LA 1 (Youree Dr) at Leonard Road – Unsignalized
107. LA 1 (Youree Dr) at LA 526 (E Bert Kouns Industrial Loop) – Signalized
108. LA 3132 EB (Ramp) at LA 526 (E Bert Kouns Industrial Loop) – Signalized
109. LA 3132 WB (Ramp) at LA 526 (E Bert Kouns Industrial Loop) – Signalized
110. LA 523 (E Flournoy Lucas Rd) at Ashley River Drive SB – Unsignalized
111. LA 523 (E Flournoy Lucas Rd) at Ashley River Drive NB – Unsignalized
112. LA 523 (E Flournoy Lucas Rd) at Oaks Retirement Road – Unsignalized

In addition to the intersections listed above, the following four driveways on LA 1 which provide access to the Port were evaluated for proposed conditions:

301. Gate A (Morris Dickson Drive)
302. Gate B (Ron Bean Boulevard)
303. Gate C (Doug Attaway Boulevard)
304. Gate D (Francis Bickman Boulevard)

The operations at the interchange of future I-69 and LA 1 were also included in the analysis. The numbers shown above correspond to intersection identification numbers shown in **Figure 1** as well as in the appendices.

1.3 ANALYSIS METHODOLOGY

1.3.1 INTERSECTIONS

For this study, Synchro™ version 8.0 models were created to simulate operations at signalized and unsignalized study intersections. The intersection analyses are based on the 2010 Highway Capacity Manual (HCM), chapters eighteen (18) and nineteen (19). The Measures of Effectiveness (MOEs) from the models include Level of Service (LOS), Delay and Volume/Capacity (v/c) Ratios. These measures were assessed and compared for Existing, No-Build, and Build Alternatives.

The methodology addresses the capacity, LOS, and other performance measures for lane groups and intersection approaches, as well as LOS for the intersection as a whole. Capacity is evaluated in terms of the ratio of demand flow rate to capacity (v/c ratio). LOS is evaluated on the basis of control delay per vehicle (in seconds per vehicle) for signalized intersections and total delay per vehicle for stop controlled intersections. Control delay is the portion of the total delay attributed to traffic signal operation for signalized intersections. Control delay includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. Total Delay for unsignalized intersections includes both stopped delay and time spent in the queue waiting to enter the intersection. The LOS criteria as defined by HCM are tabulated in **Table 1**.

Table 1: LOS Criteria for Signalized and Stop Controlled Intersections

LOS	Average Control Delay Signalized Intersection (sec/veh)	Average Total Delay Stop Control (sec/veh)
A	≤10	≤10
B	>10 and ≤20	>10 and ≤15
C	>20 and ≤35	>15 and ≤25
D	>35 and ≤55	>25 and ≤35
E	>55 and ≤80	>35 and ≤50
F	>80	>50

For this analysis, per LADOTD design guidelines, LOS 'D' was selected as the minimum desirable LOS for both the signalized and unsignalized intersections. Signal timing data for the signalized intersections were obtained from LADOTD.

1.3.2 HIGHWAYS

An evaluation of the corridor's level-of-service was conducted using 2010 Highway Capacity Software (HCS). HCS implements the procedures defined in the HCM – chapters eleven (11), fourteen (14), and fifteen (15) – for analyzing capacity and determining LOS for freeways, multilane highways, and two-lane highways.

The service measure for basic freeway segments is density (in passenger cars per hour per lane). LOS 'A' corresponds to the optimum condition, whereas LOS 'F' represents the worst operating condition. LOS of 'D' or better is acceptable for most urban applications. The boundary between LOS E and F represents capacity. For LOS 'A' through 'D', the density boundaries, and their corresponding LOS, for basic freeway segments are identical to those for surface multilane highways. Above LOS 'D' on surface highways, density (and LOS) is related to the base Free Flow Speed (FFS). **Table 2** shows the criteria for Freeway and Surface Highway LOS. LA 3132 was evaluated based on the basic freeway section criteria whereas LA 1 was evaluated as a multi-lane highway.

Table 2: LOS Criteria for Freeway, Multi-Lane and Two-Lane Highways

LOS	Density Basic Freeway Segment (pc/mi/ln)	Free Flow Speed & Density Multi-Lane Highway	
		FFS (mph)	Density (pc/mi/ln)
A	≤11	All	≤11
B	>11 – 18	All	>11 – 18
C	>18 – 26	All	>18 – 26
D	>26 – 35	All	>26 – 35
E	>35 – 45	60	>35 – 40
		55	>35 – 41
		50	>35 – 43
		45	>35 – 45
F	>45	60	>40
		55	>41
		50	>43
		45	>45

The HCS analysis was conducted for the existing conditions (Year 2011) as well as for the No-Build and Alternative scenarios (Years 2015 and 2032). Common characteristics of the corridor's geometric design and traffic volume distribution have been incorporated into the analysis.

1.3.3 Interchanges

An evaluation of the interchange operations was conducted by using HCS. HCS implements the procedures defined in the HCM – chapter thirteen (13) – for analyzing capacity and determining LOS for freeway merge and diverge segments.

Merge/diverge segment LOS is defined in terms of density for all cases of stable operation (LOS A-E). LOS F exists when the freeway demand exceeds the capacity of the upstream (diverges) or downstream (merges) freeway segment, or where the off-ramp demand exceeds the off-ramp capacity. **Table 3** summarizes the LOS criteria for freeway merge and diverge segments. The HCS analysis was conducted for the termination of LA 3132 Extension at I-69 and LA 1 for the years 2015 and 2032.

Table 3: LOS Criteria for Freeway Merge and Diverge Segments

LOS	Density (pc/mi/ln)
A	≤10
B	>10 – 20
C	>20 – 28
D	>28 – 35
E	>35
F	Demand exceeds capacity



CHAPTER 2 - EXISTING CONDITIONS

2.1 OVERVIEW

This section describes the existing roadway system and analyzes existing intersection and roadway segment operations within the study area. In order to perform this evaluation, data collection and traffic modeling with computer software (Synchro and HCS) were undertaken. The methods used for the analysis and results for these portions of the study are also depicted in this section.

2.2 ROADWAY CHARACTERISTICS

2.2.1 STUDY CORRIDOR

East of I-49 and west of LA 526, LA 3132 is a six-lane freeway with a 60-foot (approximate) median and inside and outside shoulders. The travel lanes are approximately 12 feet wide and the nominal widths of the inside and outside shoulders are 4 feet and 9 feet, respectively. Immediately west of LA 526, LA 3132 transitions to a four-lane divided freeway with a 60-foot (approximate) median and inside and outside shoulders. The travel lanes are approximately 12 feet wide and the nominal widths of the inside and outside shoulders are 5 feet and 10 feet, respectively. East of LA 526, LA 3132 turns south to terminate at LA 523 (E Flournoy Lucas Road). The posted speed limit on LA 3132 is 60 miles per hour from I-49 to LA 523.

2.2.2 INTERSECTING ROADWAYS

The following provides a description of the other major intersecting roadways within the study area:

- ▶ **LA 1:** Within the study area, LA 1 is a four-lane divided principal arterial running northbound and southbound, with a wide depressed median and paved inside and outside shoulders. Lane widths are approximately 12 feet. The posted speed limit is 55 mph.
- ▶ **LA 523:** Although primarily a north-south minor arterial, LA 523 merges with E Flournoy Lucas Road to extend east towards LA 1. LA 523 has a five-lane cross-section (typical) with a continuous two-way center left turn lane and four 12-foot travel lanes. The posted speed limit is 45 mph.
- ▶ **LA 526:** LA 526 is classified as a principal arterial and has a five-lane section with a continuous two-way center left turn lane and four 12-foot travel lanes. The posted speed limit is 50 mph.
- ▶ **Ellerbe Road:** Extending south from the intersection of E Flournoy Lucas Road and LA 523, Ellerbe Road is currently a two-lane undivided roadway with 11-foot travel lanes and no shoulders. It is classified as minor arterial with a posted speed limit of 45 mph.
- ▶ **Leonard Road:** Extending west of LA 1, Leonard Road is a two-lane undivided collector with 11-foot travel lanes. The posted speed limit is 50 mph.
- ▶ **Harts Island Road:** Harts Island Road runs parallel to LA 1 from north of Robson Road to Ellerbe Road in the south. It is a two-lane undivided roadway with 10-foot travel lanes and a posted speed limit of 30 mph. It intersects LA 1 north of Robson Road
- ▶ **Ashley River Drive:** With divided entrance and exit roadways for the Twelve Oaks residential community, Ashley River Drive extends south from LA 523 east of its intersection with LA 3132. The southbound and northbound sections of the drive have 25 feet of pavement.
- ▶ **Oaks Retirement Road:** With divided entrance and exit roadways for the Live Oak Retirement Community, Oaks Retirement Road extends north from LA 523 east of its intersection with Ashley River Drive. The southbound and northbound sections of the drive consist of 25 feet of nominal width and a wide median.

2.3 EXISTING TRAFFIC VOLUMES

In December 2011, Alliance Transportation Group performed seven day twenty-four (24) hour tube counts and one day AM and PM peak hour turning movement counts at various locations within the study area. **Appendix A** includes AM and PM one-hour peak period turning movement counts used for the traffic analysis of existing conditions.

2.4 INTERSECTION OPERATIONAL ANALYSIS (2011)

Using the 2011 traffic data and Synchro, traffic models were developed for the existing conditions. The purpose of these models was to characterize existing traffic operations and to provide a baseline for analysis of future traffic conditions. A summary of the analysis results showing the various MOEs – LOS, Delay, and v/c ratio – are tabulated in **Table 4**. A map indicating intersection LOS is shown in **Figure 2**. The complete Synchro and data sheets for each intersection and roadway for existing conditions are included in **Appendix B**.

Table 4: Existing Condition (2011) – Intersection MOEs

ID	Intersection	Type of Control	MOEs	AM Peak	PM Peak
101	LA 3132 SB & LA 523 (Flournoy Lucas Rd)	Signalized	LOS	C	B
			Delay (s)	20.4	17.9
			v/c Ratio	0.62	0.56
102	LA 3132 NB & LA 523 (Flournoy Lucas Rd)	Signalized	LOS	A	A
			Delay (s)	2.8	1.8
			v/c Ratio	0.62	0.56
103	LA 1 (Youree Dr) & LA 523 (Flournoy Lucas Rd)	Signalized	LOS	C	C
			Delay (s)	33.6	31.3
			v/c Ratio	0.92	0.84
104	LA 1 (Youree Dr) & Harts Island Rd	Unsignalized	LOS	A	A
			Delay (s)	1.2	0.8
			v/c Ratio	0.06	0.07
105	LA 523 (Flournoy Lucas Rd) & Ellerbe Rd	Signalized	LOS	D	C
			Delay (s)	53.2	31.5
			v/c Ratio	1.15	0.95
106	LA 1 (Youree Dr) & Leonard Rd	Unsignalized	LOS	A	A
			Delay (s)	4.9	1.6
			v/c Ratio	0.45	0.17
107	LA 1 (Youree Dr) & LA 526 (Bert Kouns Industrial Lp)	Signalized	LOS	D	D
			Delay (s)	41.6	46.1
			v/c Ratio	0.83	0.92
108	LA 3132 EB Ramp & LA 526 (Bert Kouns Industrial Lp)	Signalized	LOS	F	F
			Delay (s)	317.5	95.4
			v/c Ratio	1.66	1.33
109	LA 3132 WB Ramp & LA 526 (Bert Kouns Industrial Lp)	Signalized	LOS	E	E
			Delay (s)	55.8	75.7
			v/c Ratio	1.66	1.33

ID	Intersection	Type of Control	MOEs	AM Peak	PM Peak
110	LA 523 (Flournoy Lucas Rd) & Ashley River Dr SB	Unsignalized	LOS	A	A
			Delay (s)	0.2	0.8
			v/c Ratio	0.35	0.35
111	LA 523 (Flournoy Lucas Rd) & Ashley River Dr NB	Unsignalized	LOS	A	A
			Delay (s)	4.7	1.5
			v/c Ratio	0.67	0.29
112	LA 523 (Flournoy Lucas Rd) & Oaks Retirement Rd	Unsignalized	LOS	A	A
			Delay (s)	0.5	0.7
			v/c Ratio	0.32	0.36

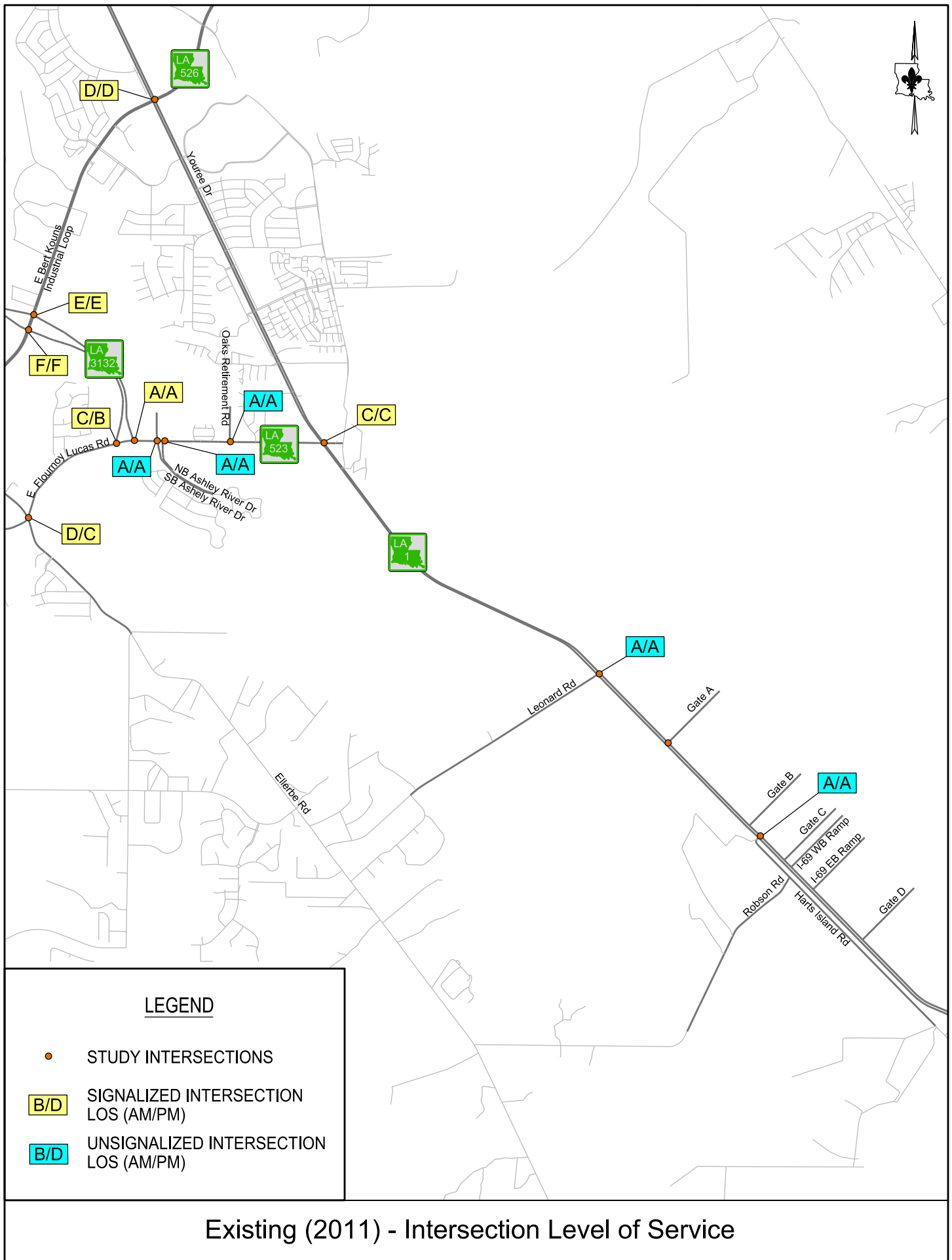
As indicated in **Table 4**, all the study intersections except the interchange of LA 3132 and LA 526 currently operate at an acceptable level-of-service.

2.5 ROADWAY OPERATIONAL ANALYSIS (2011)

Using HCS software and traffic counts, the density and LOS was determined for LA 3132 and LA 1 for the existing conditions. As shown in **Table 5**, both roadways currently operate at acceptable LOS.

Table 5: Existing Condition (2011) – Roadway MOEs

Roadway Segment	Limits	Direction	MOEs	AM Peak	PM Peak
LA 3132	Between LA 526 & LA 523	Northbound	LOS	A	A
			Density (pc/mi/ln)	8.6	4.4
		Southbound	LOS	A	A
			Density (pc/mi/ln)	5.4	5.4
LA 1	Between LA 523 & Leonard Rd	Northbound	LOS	A	A
			Density (pc/mi/ln)	3.1	3.4
		Southbound	LOS	A	A
			Density (pc/mi/ln)	2.9	3.0



LEGEND

- STUDY INTERSECTIONS
- B/D SIGNALIZED INTERSECTION
LOS (AM/PM)
- B/D UNSIGNALIZED INTERSECTION
LOS (AM/PM)

Existing (2011) - Intersection Level of Service



CHAPTER 3 – PROJECTED CONDITIONS

3.1 OVERVIEW

The Synchro models developed for the existing conditions were modified to incorporate the proposed roadway networks and assess the projected conditions within the study area for the years 2015 and 2032. The objective was to define and compare AM and PM peak hour traffic operations that will occur without LA 3132 extension (i.e., "No-Build" scenario) to anticipated operations under each of the four build alternatives developed by Buchart-Horn, Inc.

3.2 PROJECTED VOLUMES (2015 & 2032)

The Northwest Louisiana Council of Governments (NLCOG) is the designated Metropolitan Planning Organization (MPO) for transportation planning in the City of Shreveport, Louisiana. NLCOG is responsible for developing and maintaining the Travel Demand Model (TDM) for the Shreveport area. The NLCOG TDM was used as the basis for the development of future year traffic volumes for analysis of the LA 3132 Extension scenarios, as well as the No-Build alternative.

The LA 3132 TDM analysis process incorporated two parts. The first part used the NLCOG TDM interface as delivered. Each of the three LA 3132 alternatives were coded into the existing NLCOG TDM network files using the 2015 and 2030 NLCOG forecast networks. The 2030 existing TDM network was used as the 2032 network as NLCOG confirmed that no planned changes would occur between 2030 and 2032. Roadway attribute data for the new links, such as capacity, speed, & volume delay parameters, were taken from the NLCOG TDM documentation that was transmitted along with the model files. The TDM model interface was then applied to each of the network alternative for each

forecast year. The six resulting TDM runs, 2015 & 2030 Alternatives A, B, & C, were then used as a basis for the second part of the model analysis completed outside the current TDM interface.

The current TDM uses a feedback loop producing fifty iterations of data. The 50th iteration trip matrix containing the 24-hour Traffic Analysis Zone (TAZ) productions and attractions for each of the six TDM runs above were factored using national average diurnal data to produce peak hour AM (7-8) and PM (4-5) trip matrices. Growth rates by trip purpose were calculated using the 2015 and 2030 trip matrices. The resulting yearly growth rates were then applied to the 2030 trip matrices to produce the required 2032 trips matrices. This procedure was also applied to the existing 2015 and 2030 (32) NLCOG TDM forecasts to create the No-Build alternative.

Due to the importance of the Port of Caddo-Bossier, all four of the port gates on LA 1 were incorporated as separate TAZs. The current model contains one TAZ (gate) to represent the entire port. AM and PM peak hour gate counts were used as the productions and attractions for each of the four gate TAZs. The distribution of trips at each gate made use of the existing distribution of trips at the one gate in the current TDM. This distribution was then adjusted at each gate using a FRATAR technique to ensure that the resulting traffic flows matched the peak gate counts.

The peak AM and PM trip matrices were then assigned to the 2015 and 2032 scenario roadway networks plus the No-Build alternative using the assignment procedure within TransCAD. Every effort was given to remain consistent with the assignment model within the NLCOG TDM interface. The resulting traffic flows and turning movements were then incorporated into the Synchro simulation model for analysis.

3.3 NO-BUILD CONDITIONS (2015 & 2032)

The existing roadway geometry was retained for future year no-build analysis. However, the NLCOG 2015 and 2032 TDM defines Ellerbe Road as a five-lane minor arterial from FM 523 (E. Flournoy Lucas Road) to Norris Ferry Road (approximately 1 mile south of FM 523). Therefore, to incorporate this improvement, the northbound Ellerbe Road approach at its intersection with LA 523 includes an exclusive left turn lane, two through lanes, and an exclusive right turn lane in all the future year no-build and build alternatives. The southbound approach at this intersection was coded in the model to include an exclusive left turn lane, a through lane and a shared through right lane. The signal timings were consequently optimized to reflect the change in geometry.

The No-Build conditions were analyzed for improvements that would be required to accommodate traffic in the absence of the build alternatives. These improvements are included in **Table 6** MOEs and summarized in **Table 7**.

3.3.1 INTERSECTION OPERATIONAL ANALYSIS – NO-BUILD CONDITION

The projected traffic volumes obtained from the TDM were incorporated in the No-Build roadway networks for the AM and PM peak periods for the years 2015 and 2032. These volumes are included in **Appendix A**. A summary of the analysis results is shown in **Table 6** for 2015 and 2032 conditions. The complete Synchro data sheets for each intersection and roadway for the 2015 and 2032 No-Build conditions are included in **Appendix C**. Intersection LOS is illustrated on maps provided as **Figures 3 and 4**.

Table 6. Projected No-Build Condition (2015 & 2032) – Intersection MOEs

ID	Intersection	Type of Control	MOEs	2015 Projected No-Build		2032 Projected No-Build	
				AM Peak	PM Peak	AM Peak	PM Peak
101	LA 3132 SB & LA 523	Signalized	LOS	C	C	C	C
			Delay	25.5	20.9	31.9	31.4
			v/c Ratio	0.74	0.70	0.90	0.92
102	LA 3132 NB & LA 523	Signalized	LOS	A	A	B	A
			Delay	4.9	1.9	10.1	2.9
			v/c Ratio	0.74	0.70	0.90	0.92
103	LA 1 & LA 523	Signalized	LOS	D ⁽³⁾	C ⁽³⁾	D ⁽³⁾	D ⁽³⁾
			Delay	41.2	32.7	35.7	52.9
			v/c Ratio	1.06	0.93	0.94	0.99
105	LA 523 & Ellerbe Rd	Signalized	LOS	C	C	D	D
			Delay	24.9	24.9	39.2	44.0
			v/c Ratio	0.87	0.87	1.03	1.05
106	LA 1 & Leonard Rd	Unsignalized	LOS	A	A	A	A
			Delay	1.5	1.2	8.5	1.5
			v/c Ratio	0.27	0.27	0.91	0.36
107	LA 1 & LA 526	Signalized	LOS	E ⁽²⁾	D	E ⁽³⁾	D ⁽¹⁾
			Delay	62.2	41.6	75.1	52.2
			v/c Ratio	1.11	0.88	1.03	0.99

ID	Intersection	Type of Control	MOEs	2015 Projected No-Build		2032 Projected No-Build	
				AM Peak	PM Peak	AM Peak	PM Peak
108	LA 3132 EB Ramp & LA 526	Signalized	LOS	C	C	D	D
			Delay	26.8	26.6	42.5	41.0
			v/c Ratio	0.93	0.87	1.18	0.96
109	LA 3132 WB Ramp & LA 526	Signalized	LOS	C	B	D	C
			Delay	23.5	18.8	44.4	27.9
			v/c Ratio	0.93	0.87	1.18	0.96
110	LA 523 & Ashley River Dr SB	Unsignalized	LOS	A	A	A	A
			Delay	0.2	0.9	0.2	0.8
			v/c Ratio	0.38	0.39	0.48	0.48
111	LA 523 & Ashley River Dr NB	Unsignalized	LOS	C	A	D	A
			Delay	16.6	2.1	31.9	2.1
			v/c Ratio	1.04	0.38	1.39	0.48
112	LA 523 & Oaks Retirement Rd	Unsignalized	LOS	A	A	A	A
			Delay	0.4	0.6	0.4	0.6
			v/c Ratio	0.30	0.39	0.40	0.49
201	LA 1 & I-69 WB Ramp	Unsignalized	LOS	A	A	A	A
			Delay	9.5	1.7	2.6	3.2
			v/c Ratio	0.17	0.19	0.34	0.42
202	LA 1 & I-69 EB Ramp	Unsignalized	LOS	A	A	A	A
			Delay	3.5	4.4	4.3	4.9
			v/c Ratio	0.24	0.35	0.33	0.47
301	LA 1 & Gate A	Unsignalized	LOS	A	A	A	A
			Delay	0.4	0.6	0.4	0.4
			v/c Ratio	0.36	0.28	0.55	0.32

ID	Intersection	Type of Control	MOEs	2015 Projected No-Build		2032 Projected No-Build	
				AM Peak	PM Peak	AM Peak	PM Peak
302	LA 1 & Gate B	Unsignalized	LOS	A	A	A	A
			Delay	1.4	1.4	1.5	1.2
			v/c Ratio	0.34	0.24	0.53	0.29
303	LA 1 & Gate C	Unsignalized	LOS	A	A	A	A
			Delay	0.3	0.5	0.3	0.4
			v/c Ratio	0.26	0.22	0.41	0.29
304	LA 1 & Gate D	Unsignalized	LOS	A	A	A	A
			Delay	3.0	0.6	0.6	0.5
			v/c Ratio	0.19	0.08	0.12	0.11

- (1) Includes geometric improvements
- (2) Includes signal timing improvements
- (3) Includes geometric and signal timing improvements

As indicated in **Table 6**, some study intersections failed to maintain acceptable operations under no-build conditions under projected conditions. Geometric and/or signal timing improvements were incorporated at these intersections to improve operations. These improvements have been summarized in **Table 7**. It is noted that the intersection of LA 1 and LA 526 failed to operate at an acceptable level of service even with geometric and signal timing improvements under 2032 projected AM Peak hour conditions.

Table 7. Projected No-Build Condition (2015 & 2032) – Summary of Improvements

ID	MOEs (LOS/Delay)		List of Improvements		Notes
	Without Improvements	With Improvements	Existing	Improved	
2015 No-Build AM (Base Network: 2011 Existing AM)					
103	F 92.2	D 41.2	<ul style="list-style-type: none"> ▶ CL = 135 s ▶ 1-EBL ▶ EBL – pm+pt 	<ul style="list-style-type: none"> ▶ CL = 90 s ▶ Dual EBL (200' storage) ▶ EBL – pt 	<ul style="list-style-type: none"> ▶ Existing EBL = 343 veh/hr ▶ Projected EBL = 610 veh/hr
107	E 67.7	E 62.2	<ul style="list-style-type: none"> ▶ CL = 110 s 	<ul style="list-style-type: none"> ▶ CL = 90 s 	<ul style="list-style-type: none"> ▶ Existing EBL = 281 veh/hr ▶ Projected EBL = 442 veh/hr ▶ v/c = 1.36 (1.11 – w/ improvements) ▶ Failing movements (after improvements): EBL, WBL, WBT, NBT

ID	MOEs (LOS/Delay)		List of Improvements		Notes
	Without Improvements	With Improvements	Existing	Improved	
2015 No-Build PM (Base Network: 2011 Existing PM)					
103	D 37.6	C 32.7	<ul style="list-style-type: none"> ▶ CL = 150 s ▶ 1-EBL ▶ EBL – pm+pt 	<ul style="list-style-type: none"> ▶ CL = 90 s ▶ Dual EBL (200' storage) ▶ EBL – pt 	▶ To match AM Peak
2032 No-Build AM (Base Network: 2015 No-Build AM – Improved)					
103	E 76.0	D 35.8	<ul style="list-style-type: none"> ▶ CL = 90 s ▶ NBL ▶ EBT-R (Shared) ▶ NBL & SBL –pm +pt 	<ul style="list-style-type: none"> ▶ CL = 110 s ▶ Dual NBL (200' storage) ▶ EBR (200' storage) ▶ NBL & SBL – pt 	<ul style="list-style-type: none"> ▶ Existing EBL = 343 veh/hr ▶ Projected EBL = 765 veh/hr ▶ Existing NBL = 82 veh/hr ▶ Projected EBL = 536 veh/hr
107	F 141.5	E 75.1	<ul style="list-style-type: none"> ▶ CL = 90 s ▶ 1-WBL 	<ul style="list-style-type: none"> ▶ CL = 150 s ▶ Dual WBL 	<ul style="list-style-type: none"> ▶ Existing WBL = 191 veh/hr ▶ Projected WBL = 321 veh/hr ▶ v/c = 1.74 (1.06 – w/ improvements) ▶ Failing movements (after improvements): EBL, EBT, WBL, WBT, NBL, NBT, SBL
2032 No-Build PM (Base Network: 2015 No-Build PM – Improved)					
103	E 77.3	D 52.5	<ul style="list-style-type: none"> ▶ CL = 90 s ▶ NBL ▶ EBT-R (Shared) ▶ NBL & SBL – pm +pt 	<ul style="list-style-type: none"> ▶ CL = 130 s ▶ Dual NBL (200' storage) ▶ 1-EBR (200' storage) ▶ NBL & SBL – pt 	<ul style="list-style-type: none"> ▶ Existing EBL = 344 veh/hr ▶ Projected EBL = 616 veh/hr ▶ Existing NBL = 138 veh/hr ▶ Projected EBL = 307 veh/hr ▶ Existing SBL = 410 veh/hr ▶ Projected SBL = 754 veh/hr ▶ Existing EBR = 57 veh/hr ▶ Projected EBR = 390 veh/hr
107	D 54.2	D 52.2	▶ 1-WBL	▶ Dual WBL	▶ To match AM Peak

CL = Cycle Length (in seconds); pm + pt = Permissive & Protected Phases; pt = Protected Only Phase;
NBL = Northbound Left; NBT = Northbound Through; SBL = Southbound Left;
EBL = Eastbound Left; EBT-R = Shared Eastbound Through-Right; EBR = Eastbound Right;
WBL = Westbound Left; WBT = Westbound Through

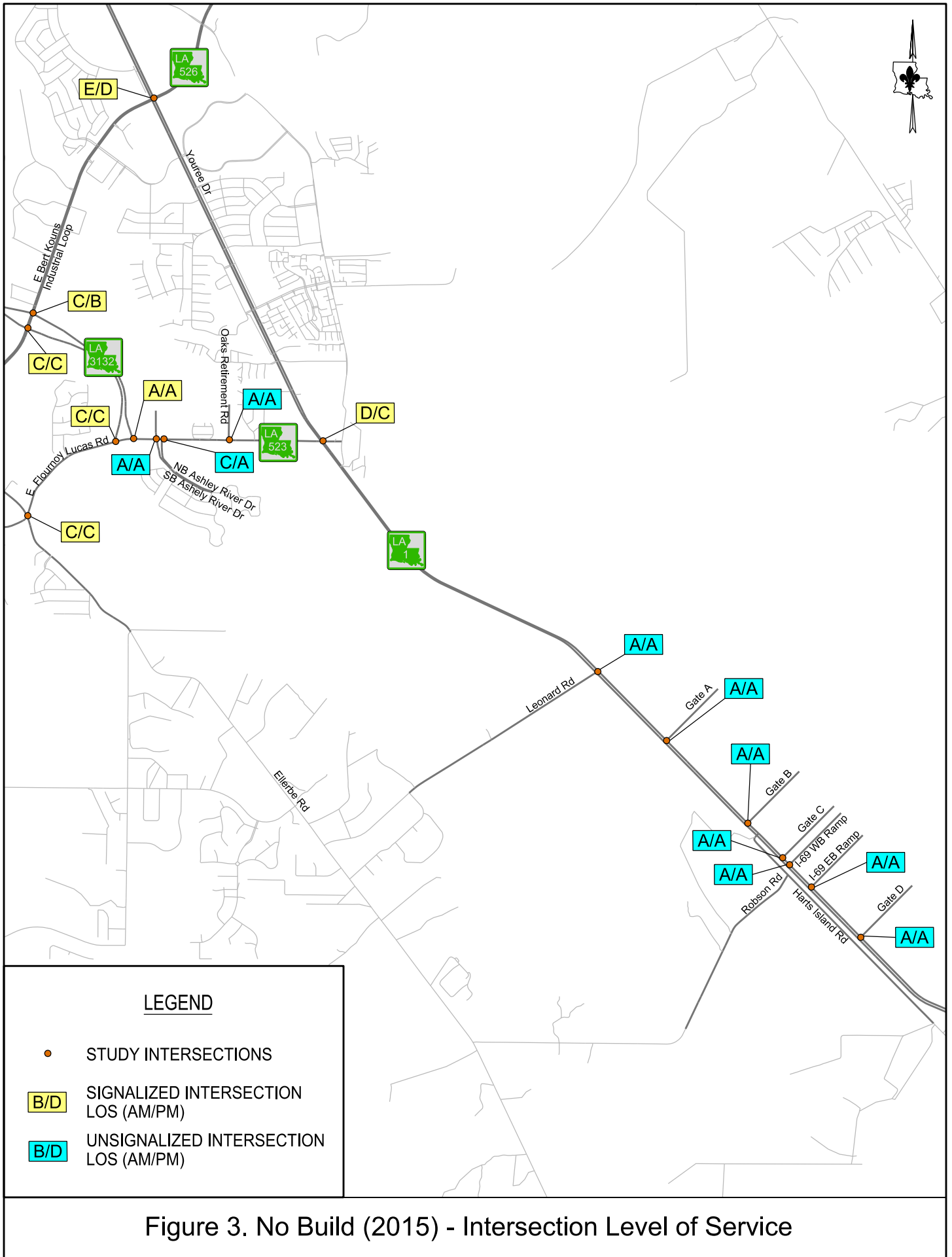


Figure 3. No Build (2015) - Intersection Level of Service

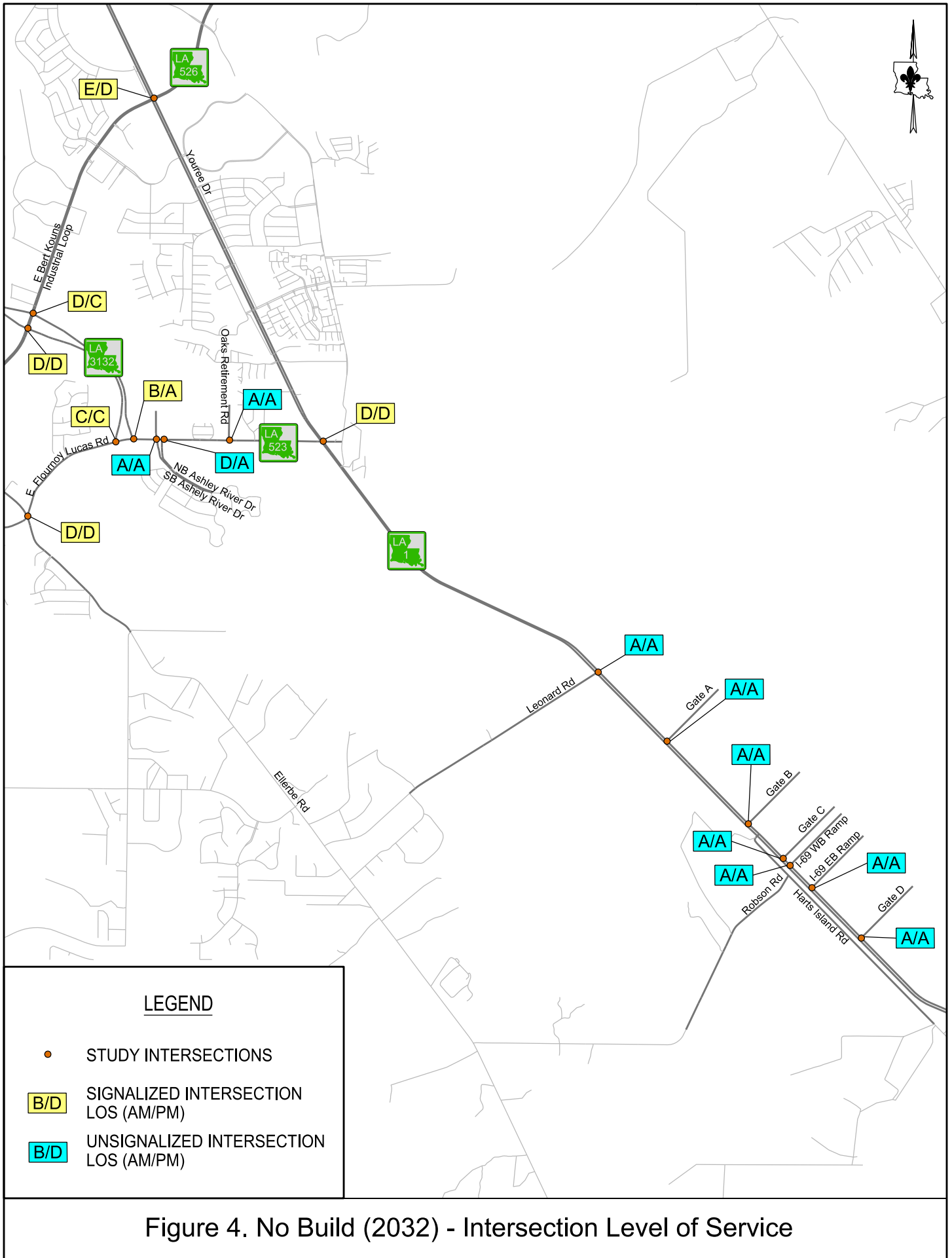


Figure 4. No Build (2032) - Intersection Level of Service

3.3.2 ROADWAY OPERATIONAL ANALYSIS – NO-BUILD CONDITION

Table 8 shows the HCS results for the No-Build conditions. LA 3132 was analyzed between LA 526 and LA 523, where it currently terminates. LA 1 was analyzed as a multilane highway between LA 523 and Leonard Road. The densities and LOS shown in the table represent what drivers can be expected to experience if LA 3132 is not extended.

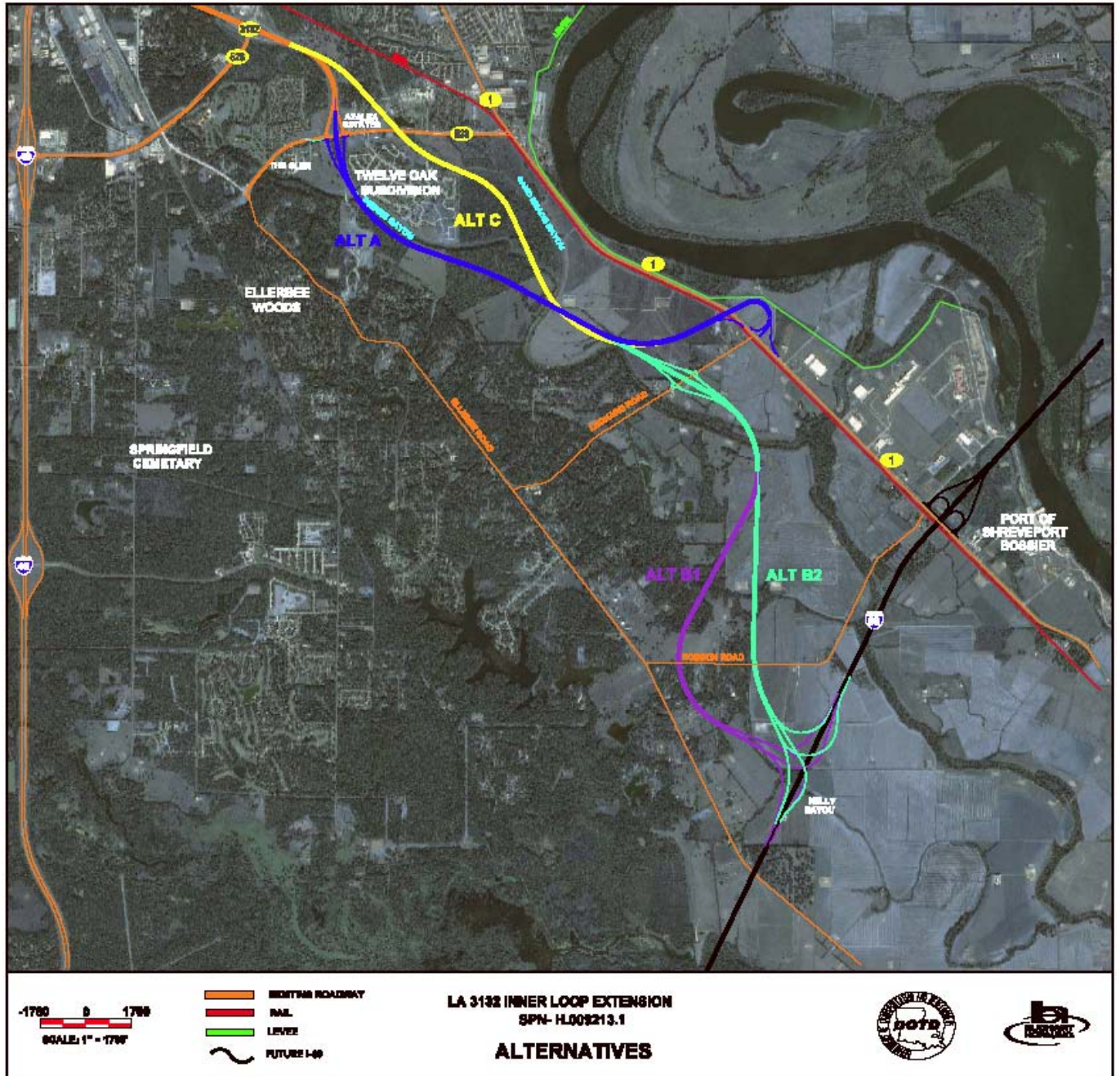
Table 8: Projected No-Build Condition (2015 & 2032) – Roadway MOEs

Roadway Segment	Limits	Direction	MOEs	Projected 2015		Projected 2032	
				AM Peak	PM Peak	AM Peak	PM Peak
LA 3132	Between LA 526 & LA 523	Northbound	LOS	A	A	B	A
			Density (pc/mi/ln)	9.9	6.4	12.8	8.2
		Southbound	LOS	A	A	A	A
			Density (pc/mi/ln)	6.5	7.2	7.7	9.3
LA 1	Between LA 523 & Leonard Rd	Northbound	LOS	A	A	B	A
			Density (pc/mi/ln)	3.2	5.9	12.0	6.6
		Southbound	LOS	A	A	A	A
			Density (pc/mi/ln)	2.9	6.9	6.9	10.1

3.4 BUILD ALTERNATIVES (2015 & 2032)

This section describes the various alternatives considered to address existing and future traffic operations within the study area. Four build alternatives (Alternative A, Alternative B1, Alternative B2, and Alternative C) were identified and analyzed. **Figure 5** shows the schematic outline of the proposed alternatives.

Figure 5 LA 3132 Build Alternatives A, B1, B2, and C



3.4.1 ALTERNATIVE A

Alternative A (shown in navy blue in **Figure 5**) proposes to extend LA 3132 from its current intersection with LA 523 to LA1 at Leonard Road. The length of mainlines for the extension is approximately 3.3 miles which culminates with a trumpet interchange at LA 1. The existing intersection at LA 3132 and LA 523 will become a full diamond interchange providing access from LA 3132 to LA 523 and vice versa. The proposed extension of LA 3132 will have 12-foot lanes in each direction with 6 to 10 foot shoulders and a depressed median ranging from 52 to 56 feet. The proposed design speed is 60 mph.

3.4.1.1 INTERSECTION OPERATIONAL ANALYSIS – ALTERNATIVE A

The projected traffic volumes obtained from the TDM were incorporated in the proposed Alternative A roadway network coded in Synchro for the AM and PM peak periods for the years 2015 and 2032. These volumes are included in **Appendix A**. A summary of the analysis results is shown in **Table 9** for 2015 and 2032 conditions. The complete Synchro data sheets for each intersection and roadway for the 2015 and 2032 Build Alternative A are included in **Appendix D**. A map showing the intersection LOS for Build Alternative A is provided in **Figure 6 and 7**.

Table 9. Projected Build Alternative A (2015 & 2032) – Intersection MOEs

ID	Intersection	Type of Control	MOEs	2015 Projected Alternative A		2032 Projected Alternative A	
				AM Peak	PM Peak	AM Peak	PM Peak
101	LA 3132 SB & LA 523	Signalized	LOS	B	B	B	B
			Delay	12.9	12.0	15.1	14.1
			v/c Ratio	0.62	0.55	0.80	0.70
102	LA 3132 NB & LA 523	Signalized	LOS	A	A	A	A
			Delay	7.4	6.0	9.9	6.5
			v/c Ratio	0.62	0.55	0.80	0.70
103	LA 1 & LA 523	Signalized	LOS	C ⁽²⁾	D	D	D ⁽²⁾
			Delay	25.5	36.7	48.9	41.3
			v/c Ratio	0.91	1.08	1.14	1.02
105	LA 523 & Ellerbe Rd	Signalized	LOS	D	C	D ⁽³⁾	D ⁽³⁾
			Delay	41.6	27.9	45.5	48.1
			v/c Ratio	1.03	0.87	1.01	1.05

ID	Intersection	Type of Control	MOEs	2015 Projected Alternative A		2032 Projected Alternative A	
				AM Peak	PM Peak	AM Peak	PM Peak
107	LA 1 & LA 526	Signalized	LOS	E ⁽²⁾	D	E ⁽²⁾	D
			Delay	63.8	45.6	67.1	45.2
			v/c Ratio	1.08	0.91	1.06	0.92
108	LA 3132 EB Ramp & LA 526	Signalized	LOS	D ⁽²⁾	C	D	D
			Delay	37.9	31.5	36.4	37.5
			v/c Ratio	1.03	0.91	1.11	0.95
109	LA 3132 WB Ramp & LA 526	Signalized	LOS	C	C	D	C
			Delay	27.3	21.0	35.8	23.6
			v/c Ratio	1.03	0.91	1.11	0.95
110	LA 523 & Ashley River Dr SB	Unsignalized	LOS	A	A	A	A
			Delay	0.3	1.0	0.2	0.9
			v/c Ratio	0.23	0.29	0.30	0.37
111	LA 523 & Ashley River Dr NB	Unsignalized	LOS	A	A	A	A
			Delay	6.4	2.2	6.8	2.0
			v/c Ratio	0.63	0.27	0.73	0.32
112	LA 523 & Oaks Retirement Rd	Unsignalized	LOS	A	A	A	A
			Delay	0.6	0.8	0.5	0.7
			v/c Ratio	0.20	0.28	0.27	0.37
201	LA 1 & I-69 WB Ramp	Unsignalized	LOS	A	A	A	A
			Delay	2.0	1.7	1.6	1.7
			v/c Ratio	0.18	0.20	0.17	0.24
202	LA 1 & I-69 EB Ramp	Unsignalized	LOS	A	A	A	A
			Delay	3.7	4.6	4.8	8.4
			v/c Ratio	0.26	0.36	0.33	0.56

ID	Intersection	Type of Control	MOEs	2015 Projected Alternative A		2032 Projected Alternative A	
				AM Peak	PM Peak	AM Peak	PM Peak
301	LA 1 & Gate A	Unsignalized	LOS	A	A	A	A
			Delay	0.3	0.6	0.4	0.6
			v/c Ratio	0.39	0.28	0.53	0.33
302	LA 1 & Gate B	Unsignalized	LOS	A	A	A	A
			Delay	1.7	4.7	1.7	1.4
			v/c Ratio	0.37	0.44	0.52	0.29
303	LA 1 & Gate C	Unsignalized	LOS	A	A	A	A
			Delay	0.3	0.5	0.3	0.4
			v/c Ratio	0.29	0.22	0.40	0.28
304	LA 1 & Gate D	Unsignalized	LOS	A	A	A	A
			Delay	0.8	0.6	0.9	0.6
			v/c Ratio	0.09	0.08	0.09	0.07
100	LA 3132 & LA 523	Signalized (SPUI)	LOS	B	B	C	B
			Delay	12.2	10.2	22.5	10.5
			v/c Ratio	0.56	0.52	1.03	0.59

- (1) Includes geometric improvements
- (2) Includes signal timing improvements
- (3) Includes geometric and signal timing improvements

As indicated in **Table 9**, some study intersections failed to maintain acceptable operations under projected conditions with the proposed Alternative A network. Therefore, geometric and/or signal timing improvements were incorporated at these intersections to improve operations. These improvements have been summarized in **Table 10**. The intersection of LA 1 and LA 526 failed to operate at an acceptable level of service even with geometric and signal timing improvements under 2015 and 2032 projected AM Peak hour conditions.

It is noted that the proposed interchange of LA 3132 and LA 523 was also analyzed as a Single Point Urban Interchange (SPUI) –Synchro Intersection ID 100. The operations with this proposed configuration are projected to be acceptable for AM as well as PM peak periods in the years 2015 and 2032.

Table 10. Projected Build Alternative A (2015 & 2032) – Summary of Improvements

ID	MOEs (LOS/Delay)		List of Improvements		Notes
	Without Improvements	With Improvements	Existing	Improved	
2015 Alternative A AM (Base Network: 2011 Existing AM)					
103	E 71.6	C 25.5	▶ CL = 135 s	▶ CL = 90 s	▶ Existing EBL = 343 veh/hr Projected EBL = 586 veh/hr
107	F 84.5	E 63.8	▶ CL = 110 s	▶ CL = 110 s (optimized)	▶ v/c = 1.48 (1.08 – w/ improvements) ▶ Failing movements (after improvements): EBL, EBT, WBL, WBT, NBL, NBT
108	E 65.2	D 37.9	▶ CL = 110 s	▶ CL = 90 s	▶ Existing EBL = 1273 veh/hr Projected EBL = 535 veh/hr ▶ Existing NBT = 775 veh/hr Projected EBL = 1440 veh/hr ▶ Existing SBT = 496 veh/hr Projected SBT = 1003 veh/hr ▶ Failing movements (after improvements): EB
2032 Alternative A AM (Base Network: 2015 Alternative A AM – Improved)					
105	F 132.0	D 45.5	▶ CL = 90 s ▶ EBT-R Shared	▶ CL = 150 s ▶ EBR (150' storage)	▶ Existing NBT = 583 veh/hr Projected NBT = 1741 veh/hr ▶ Existing SBT = 225 veh/hr Projected SBT = 411 veh/hr ▶ Existing EBR = 49 veh/hr Projected EBR = 100 veh/hr ▶ v/c = 1.37 (1.01 – w/ improvements)
107	F 86.2	E 67.1	▶ CL = 110 s	▶ CL = 150 s	▶ v/c = 1.22 (1.06 – w/ improvements) ▶ Failing movements (after improvements): EBL, EBT, WBL, WBT, NBL, NBT, SBL
2032 Alternative A PM (Base Network: 2015 Alternative A PM – Improved)					
103	E 58.1	D 41.3	▶ CL = 135 s	▶ CL = 100 s	▶ Existing EBL = 344 veh/hr Projected EBL = 617 veh/hr
105	E 57.1	D 48.1	▶ CL = 90 s ▶ EBT-R Shared	▶ CL = 90 s (optimized) ▶ EBR – 150' storage	▶ Existing NBT = 229 veh/hr Projected NBT = 628 veh/hr ▶ Existing SBT = 435 veh/hr Projected SBT = 1303 veh/hr

CL = Cycle Length (in seconds);

NBL = Northbound Left; NBT = Northbound Through; SBL = Southbound Left;
EBL = Eastbound Left; EBT-R = Shared Eastbound Through-Right; EBR = Eastbound Right;
WBL = Westbound Left; WBT = Westbound Through

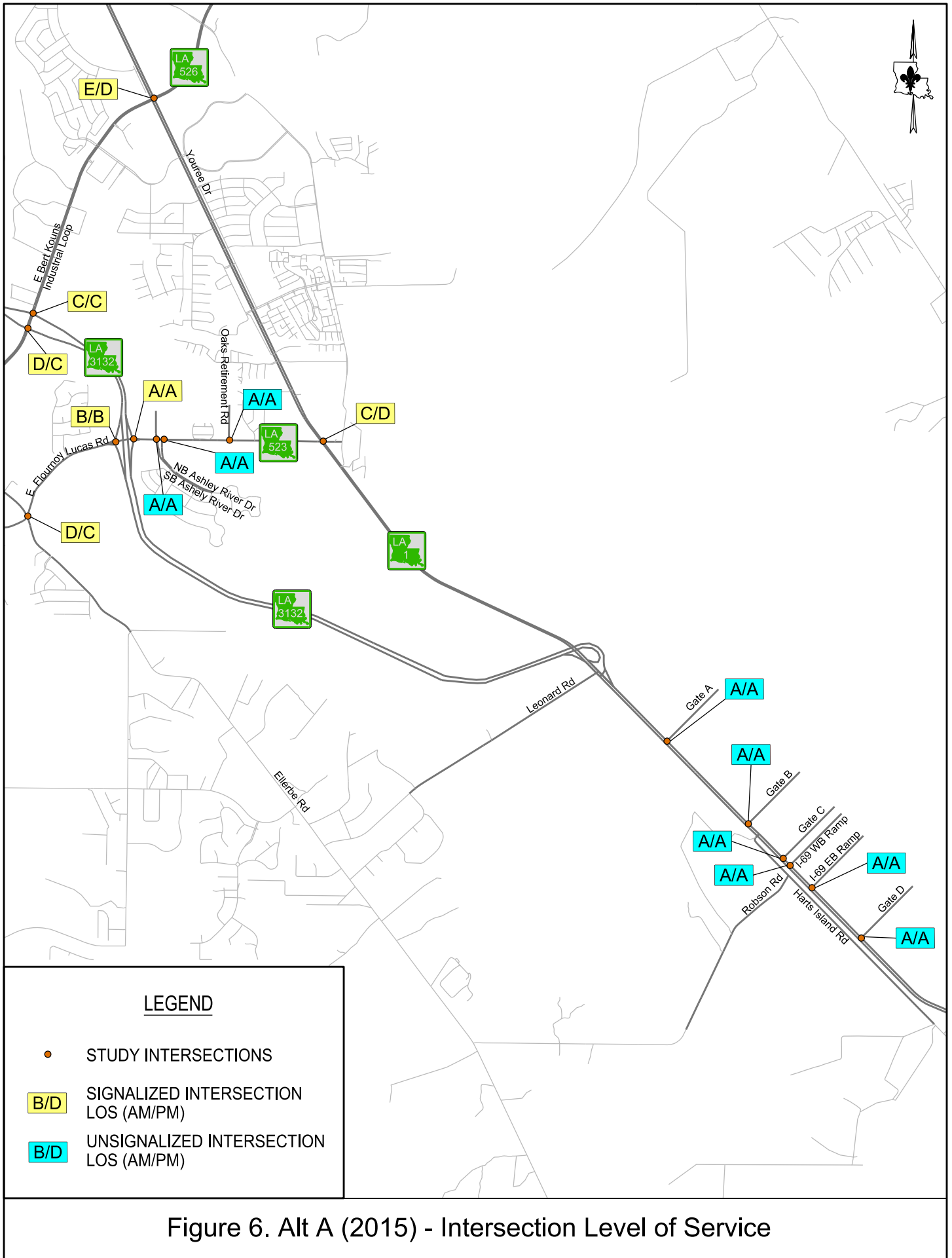


Figure 6. Alt A (2015) - Intersection Level of Service

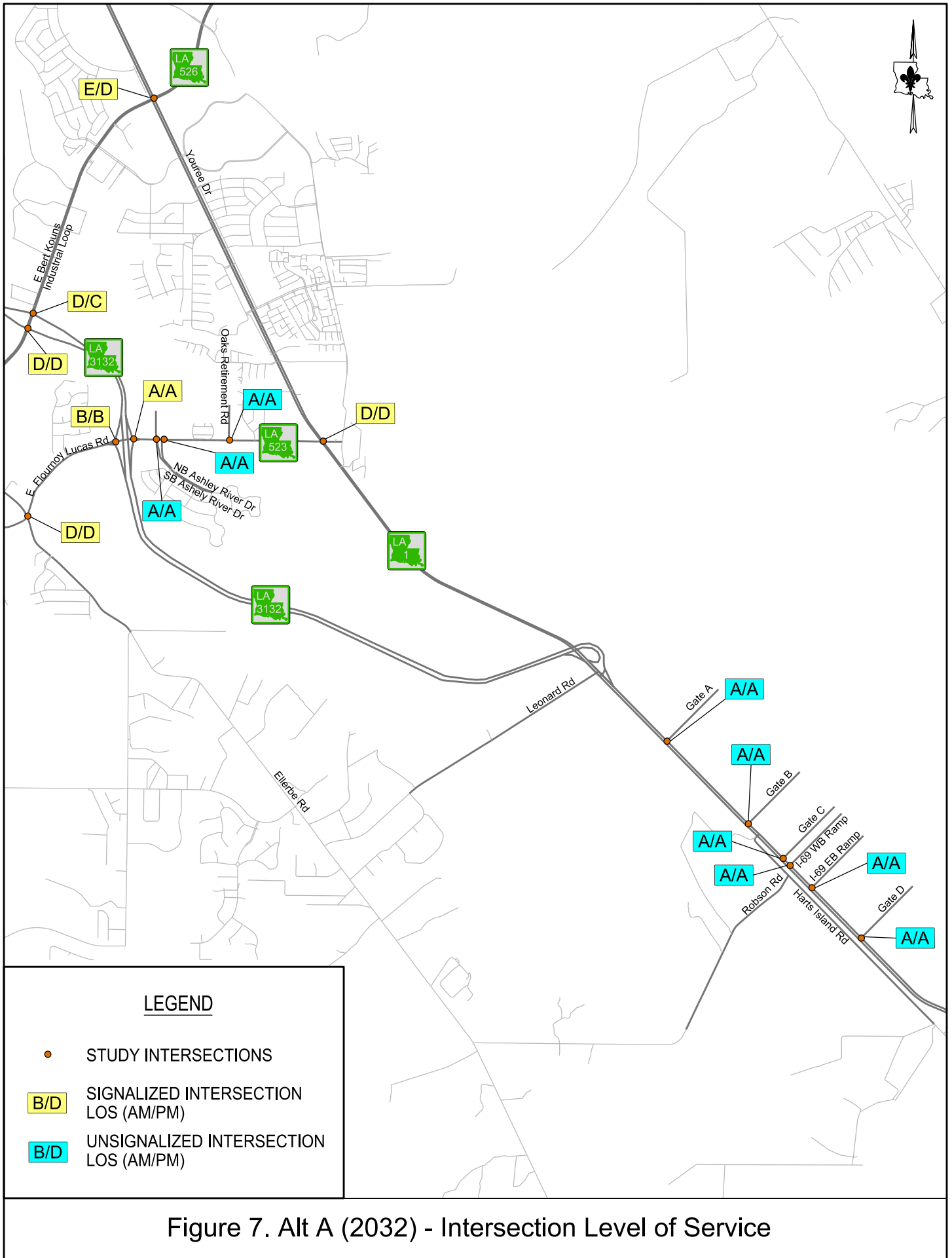


Figure 7. Alt A (2032) - Intersection Level of Service

3.4.1.2 ROADWAY OPERATIONAL ANALYSIS – BUILD ALTERNATIVE A

For analysis, LA 3132 is broken into two sections: 1) LA 526 to 523, and 2) LA 523 to LA 1. The volumes on LA 3132 and LA 1 have been illustrated in **Figure 8**.

Figure 8. Projected Build Alternative A (2015 & 2032) – Roadway Directional Volumes

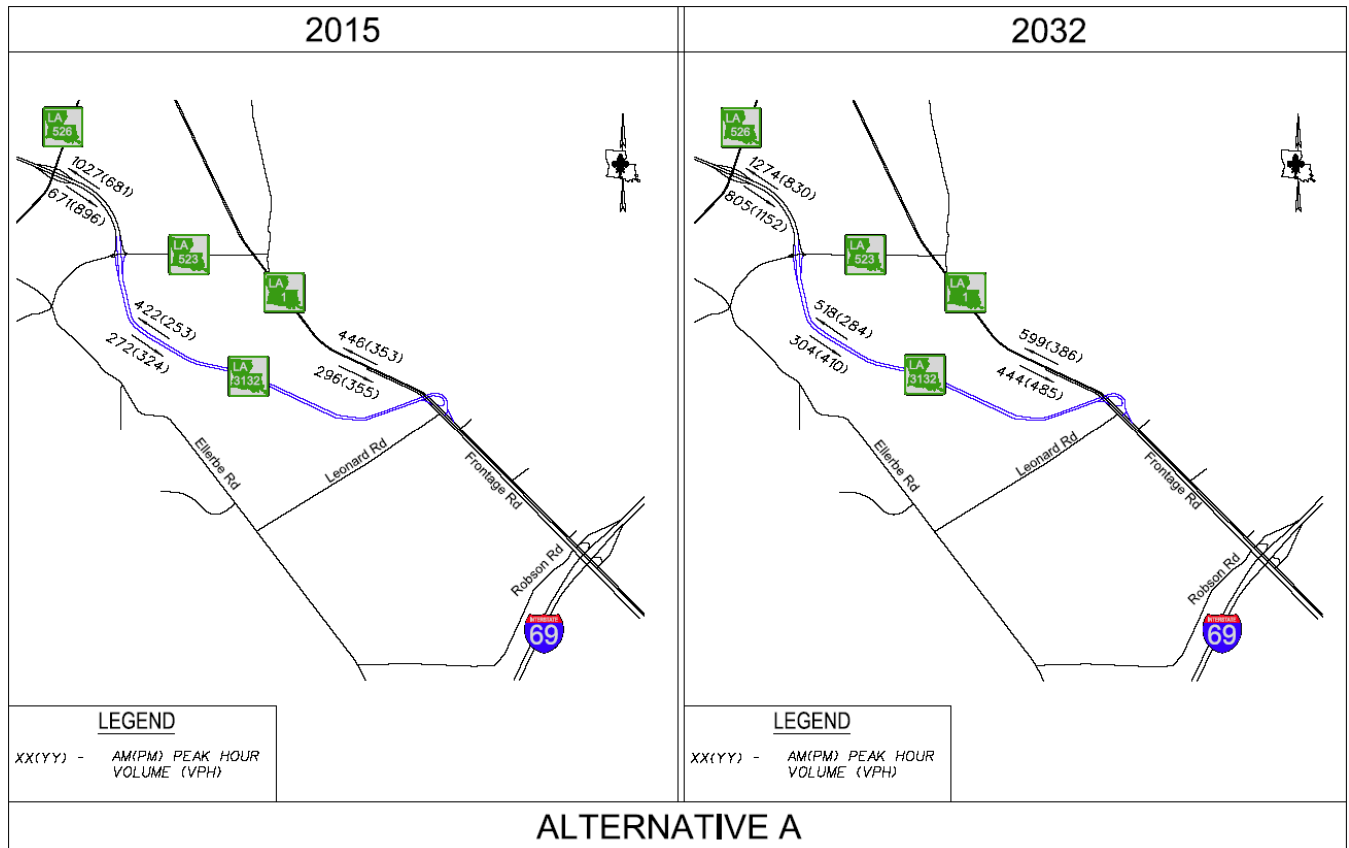


Table 11 shows the density and LOS for the studied corridors for Alternative A. All roadway segments evaluated were projected to have acceptable levels of operation.

Table 11: Projected Build Alternative A (2015 & 2032) – Roadway MOEs

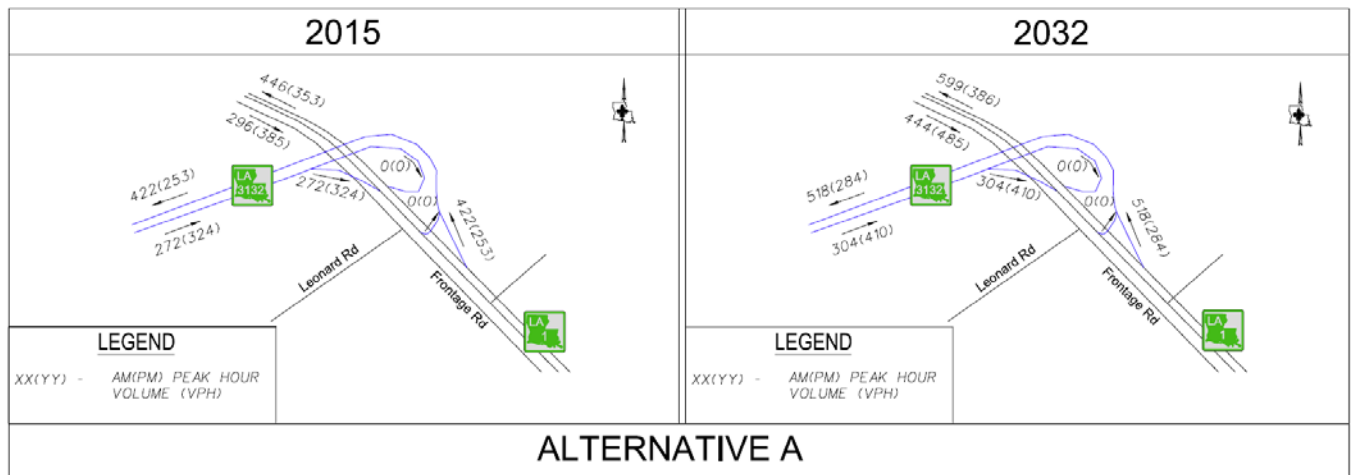
Roadway Segment	Limits	Direction	MOEs	Projected 2015		Projected 2032	
				AM Peak	PM Peak	AM Peak	PM Peak
LA 3132	Between LA 526 & LA 523	Northbound	LOS	A	A	A	A
			Density (pc/mi/ln)	8.5	5.6	10.5	6.9
		Southbound	LOS	A	A	A	A
			Density (pc/mi/ln)	6.4	7.3	7.6	9.3
	Between LA 523 & LA 1	Northbound	LOS	A	A	A	A
			Density (pc/mi/ln)	3.6	2.2	4.4	2.4
		Southbound	LOS	A	A	A	A
			Density (pc/mi/ln)	2.3	2.8	2.6	3.5

Roadway Segment	Limits	Direction	MOEs	Projected 2015		Projected 2032	
				AM Peak	PM Peak	AM Peak	PM Peak
LA 1	Between LA 523 & LA 3132 Extn.	Northbound	LOS	A	A	A	A
			Density (pc/mi/ln)	4.4	3.6	6.0	4.0
		Southbound	LOS	A	A	A	A
			Density (pc/mi/ln)	3.2	3.7	4.8	5.1

3.4.1.3 INTERCHANGE OPERATIONAL ANALYSIS – BUILD ALTERNATIVE A

An evaluation of interchange operations and level-of-service focused on the ramp merging and diverging operations at the proposed interchange of LA 3132 and LA 1. **Figure 9** illustrates the projected volumes at the study interchange.

Figure 9. Projected Build Alternative A (2015 & 2032) – Interchange Volumes



It is noted that the tract of land west of LA 1 between this interchange and the intersection of LA 1 and LA 523 is not expected to generate significant traffic volumes, due primarily to access and/or geographic constraints. In addition, a northbound trip from any future development located north of Leonard on LA 1 is more likely to continue on LA 1 rather than choose LA 3132 based on travel time. This is supported by travel demand analysis which showed minimal volumes on LA 1 SB to LA 3132 WB (or NB) ramp and LA 3132 EB (or SB) to LA 1 NB ramp. Consequently, it is recommended that these movements be accommodated via J-turns to the south of the interchange in lieu of the ramps. A partial Y-configuration accommodating ramps for LA 3132 EB (or SB) to LA 1 SB and LA 1 NB to LA 3132 WB (or NB) is recommended as a consideration for this interchange. However, should development occur west of the railroad and north of Leonard Road, there would be additional traffic generated which could use the proposed LA 3132 extension. If this development does occur, consideration should be given to maintaining the proposed ramp configuration for south-to-west and east-to-north movements.

Table 12 shows the density and LOS for the ramp-freeway junction for Alternative A. The operations at both the merge and diverge segments were projected to be acceptable.

Table 12: Projected Build Alternative A (2015 & 2032) – Ramp Junction MOEs

Description	MOEs	Projected 2015		Projected 2032	
		AM Peak	PM Peak	AM Peak	PM Peak
LA 3132 EB to LA 1 SB Ramp (Merge Junction on LA 1 SB)	LOS	B	B	B	B
	Density (pc/mi/ln)	10.8	11.8	12.6	13.9
LA 1 NB to LA 3132 WB Ramp (Diverge Junction on LA 1 SB)	LOS	A	A	A	A
	Density (pc/mi/ln)	6.6	5.8	8.2	6.1

3.4.2 ALTERNATIVES B1 & B2

Alternatives B1 and B2 propose to extend LA 3132 from its current intersection with LA 523 to the future extension of I-69. These two alternatives are proposed to have different geometric alignments south of Leonard Road as shown in **Figure 5**. The length of mainline for Alternative B1 (shown in magenta in **Figure 5**) is approximately 6.6 miles. The mainline for Alternative B2 (shown in green in **Figure 5**) is approximately 5.9 miles in length. Direct connectors from I-69 to LA 3132 are proposed to be constructed for both Alternatives B1 and B2. Upon analysis, the operational differences between these two alternatives were found to be almost negligible with the shorter route (B2) found to be approximately 30 seconds faster. The travel times on LA 3132 between LA 523 and I-69 (as obtained from TDM) for the two alternatives are as shown in **Table 13**.

Table 13: Projected Build Alternatives B1 & B2 (2015 & 2032) – Travel Time

Alternative	MOEs	Direction	Projected 2015		Projected 2032	
			AM Peak	PM Peak	AM Peak	PM Peak
B1	Travel Time (minutes)	NB	6.16	6.16	6.16	6.16
		SB	6.15	6.15	6.15	6.15
B2	Travel Time (minutes)	NB	5.59	5.59	5.59	5.59
		SB	5.57	5.57	5.57	5.57

With minimal differences in travel time, the traffic volumes attracted by these two alignments of the proposed facility were found to be the same. Therefore, both these alternatives were grouped together for reporting results.

A diamond interchange is proposed at the intersection of LA 3132 at Leonard Road. Similar to Alternative A, a diamond interchange will also be constructed at the intersection of LA 3132 and LA 523. The LA 3132 extension is proposed to have two 12-foot lanes in each direction with 6 to 10 foot shoulders and a depressed median ranging from 52 to 56 feet. The proposed design speed is 60 mph.

Further, a phased implementation of Alternative B was also considered as part of this study. The two phases are north of Leonard Road and south of Leonard Road. The TDM output indicated minimal demand to access LA 3132 from Leonard Road. Thus, from a traffic perspective, there appears to be little benefit to be gained by phasing Alternative B. Additionally, commuters on Ellerbe Road and LA 1 would not gain enough in travel time savings to opt for LA 3132 over their current route.

3.4.2.1 INTERSECTION OPERATIONAL ANALYSIS – ALTERNATIVE B

The projected traffic volumes obtained from the TDM were incorporated in the proposed Alternative B roadway network coded in Synchro for the AM and PM peak periods for the years 2015 and 2032. These volumes are included in **Appendix A**. A summary of the analysis results is shown in **Table 14** for 2015 and 2032 conditions. The complete Synchro data sheets for each intersection and roadway for the 2015 and 2032 Build Alternative B are included in **Appendix E**. A map illustrating the Build Alternative B intersection LOS is provided in **Figure 10 and 11**.

Table 14. Projected Build Alternative B (2015 & 2032) – Intersection MOEs

ID	Intersection	Type of Control	MOEs	2015 Projected Alternative B		2032 Projected Alternative B	
				AM Peak	PM Peak	AM Peak	PM Peak
101	LA 3132 SB & LA 523	Signalized	LOS	C	C	C ⁽²⁾	D ⁽²⁾
			Delay	26.4	24.0	26.7	48.4
			v/c Ratio	0.96	0.93	0.95	1.14
102	LA 3132 NB & LA 523	Signalized	LOS	A	A	A	A
			Delay	7.1	5.4	7.6	6.1
			v/c Ratio	0.96	0.93	0.95	1.14
103	LA 1 & LA 523	Signalized	LOS	D ⁽³⁾	C ⁽³⁾	D ⁽²⁾	D ⁽³⁾
			Delay	40.6	30.8	51.2	48.9
			v/c Ratio	1.03	0.90	1.08	1.02
105	LA 523 & Ellerbe Rd	Signalized	LOS	D	C	D ⁽²⁾	D ⁽²⁾
			Delay	38.0	31.6	39.0	49.4
			v/c Ratio	1.00	0.89	0.97	1.01
106	LA 1 & Leonard Rd	Unsignalized	LOS	A	A	A	A
			Delay	1.8	1.3	4.2	1.5
			v/c Ratio	0.32	0.27	0.64	0.34
107	LA 1 & LA 526	Signalized	LOS	D ⁽²⁾	D ⁽²⁾	E ⁽²⁾	D
			Delay	54.3	41.6	65.9	45.3
			v/c Ratio	1.04	0.87	1.07	0.93

ID	Intersection	Type of Control	MOEs	2015 Projected Alternative B		2032 Projected Alternative B	
				AM Peak	PM Peak	AM Peak	PM Peak
108	LA 3132 EB Ramp & LA 526	Signalized	LOS	C	C	C ⁽²⁾	D
			Delay	34.6	27.4	34.7	37.1
			v/c Ratio	0.97	0.87	1.07	0.95
109	LA 3132 WB Ramp & LA 526	Signalized	LOS	C	B	C	C
			Delay	20.0	18.1	29.7	22.9
			v/c Ratio	0.97	0.87	1.07	0.95
110	LA 523 & Ashley River Dr SB	Unsignalized	LOS	A	A	A	A
			Delay	0.2	0.8	0.2	0.8
			v/c Ratio	0.36	0.38	0.45	0.49
111	LA 523 & Ashley River Dr NB	Unsignalized	LOS	A	A	C	A
			Delay	7.4	1.8	16.0	1.7
			v/c Ratio	0.82	0.34	1.09	0.38
112	LA 523 & Oaks Retirement Rd	Unsignalized	LOS	A	A	A	A
			Delay	0.4	0.6	0.3	0.5
			v/c Ratio	0.30	0.38	0.38	0.50
201	LA 1 & I-69 WB Ramp	Unsignalized	LOS	A	A	A	A
			Delay	2.0	1.7	2.4	2.5
			v/c Ratio	0.17	0.19	0.29	0.31
202	LA 1 & I-69 EB Ramp	Unsignalized	LOS	A	A	A	A
			Delay	3.5	4.4	4.0	5.3
			v/c Ratio	0.24	0.34	0.33	0.45
301	LA 1 & Gate A	Unsignalized	LOS	A	A	A	A
			Delay	0.4	0.6	0.4	0.6
			v/c Ratio	0.35	0.27	0.52	0.32

ID	Intersection	Type of Control	MOEs	2015 Projected Alternative B		2032 Projected Alternative B	
				AM Peak	PM Peak	AM Peak	PM Peak
302	LA 1 & Gate B	Unsignalized	LOS	A	A	A	A
			Delay	1.5	1.6	1.6	1.4
			v/c Ratio	0.34	0.24	0.50	0.29
303	LA 1 & Gate C	Unsignalized	LOS	A	A	A	A
			Delay	0.3	0.5	0.3	0.9
			v/c Ratio	0.26	0.22	0.39	0.27
304	LA 1 & Gate D	Unsignalized	LOS	A	A	A	A
			Delay	0.8	0.6	0.7	0.5
			v/c Ratio	0.08	0.08	0.11	0.10
401	LA 3132 SB Ramp & Leonard Rd	Unsignalized	LOS	A	A	A	A
			Delay	0.0	0.0	0.0	0.0
			v/c Ratio	0.12	0.07	0.15	0.10
402	LA 3132 NB Ramp & Leonard Rd	Unsignalized	LOS	A	A	A	A
			Delay	1.2	1.3	1.1	1.3
			v/c Ratio	0.05	0.12	0.16	0.15
100	LA 3132 NB/SB & Flournoy Lucas Rd	Signalized (SPUI)	LOS	B	B	B	B
			Delay	13.6	11.7	17.2	18.4
			v/c Ratio	0.74	0.67	0.93	0.94

- (1) Includes geometric improvements
- (2) Includes signal timing improvements
- (3) Includes geometric and signal timing improvements

As indicated in **Table 14**, some study intersections failed to maintain acceptable operations under projected conditions for Alternative B. Hence, geometric and/or signal timing improvements were incorporated at these intersections to improve operations. These improvements have been summarized in **Table 15**. As with Alternative A, the proposed interchange of LA 3132 and LA 523 was also analyzed as a Single Point Urban Interchange (SPUI). The operations with this proposed configuration are projected to be acceptable for AM as well as PM peak periods in the years 2015 and 2032.

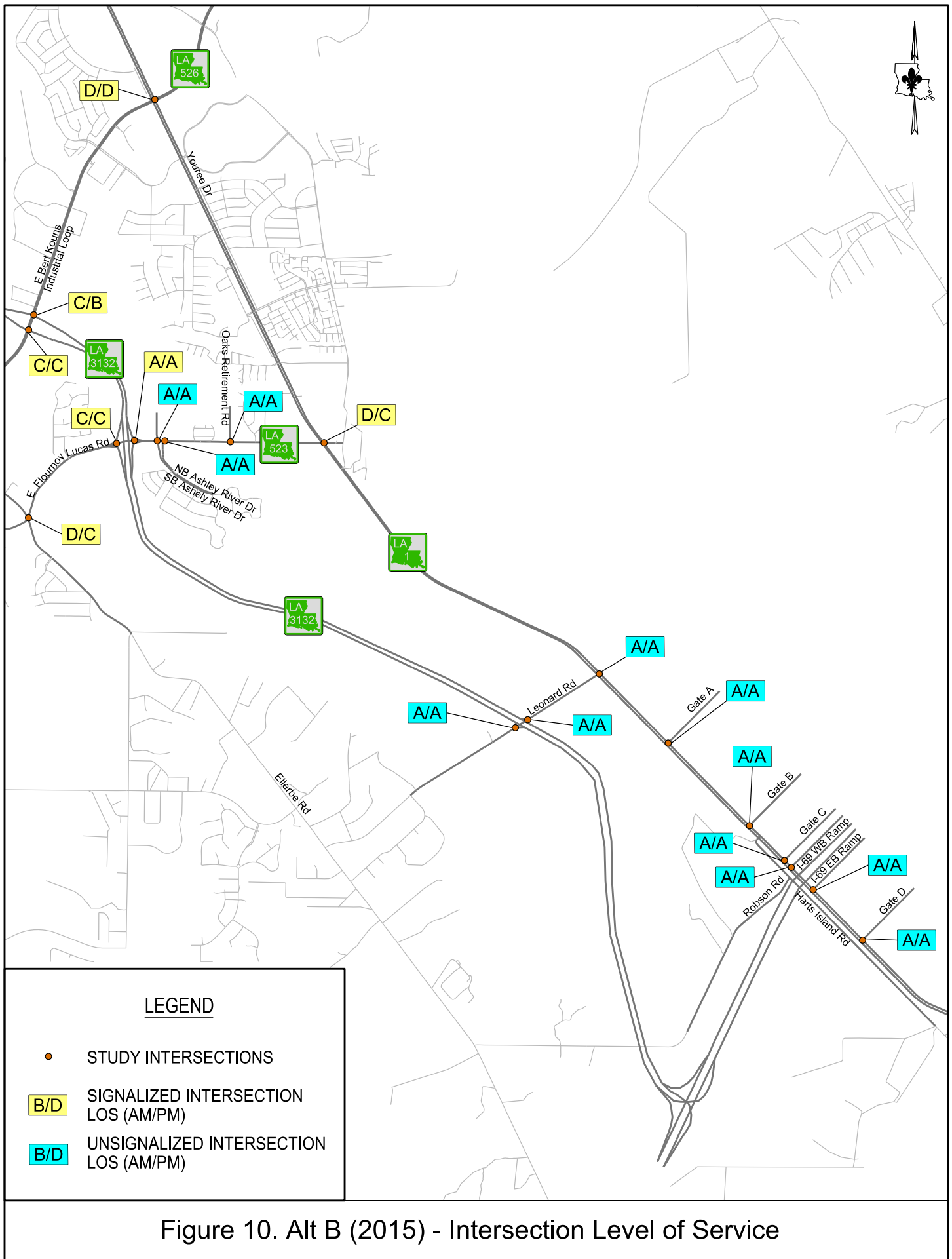


Figure 10. Alt B (2015) - Intersection Level of Service

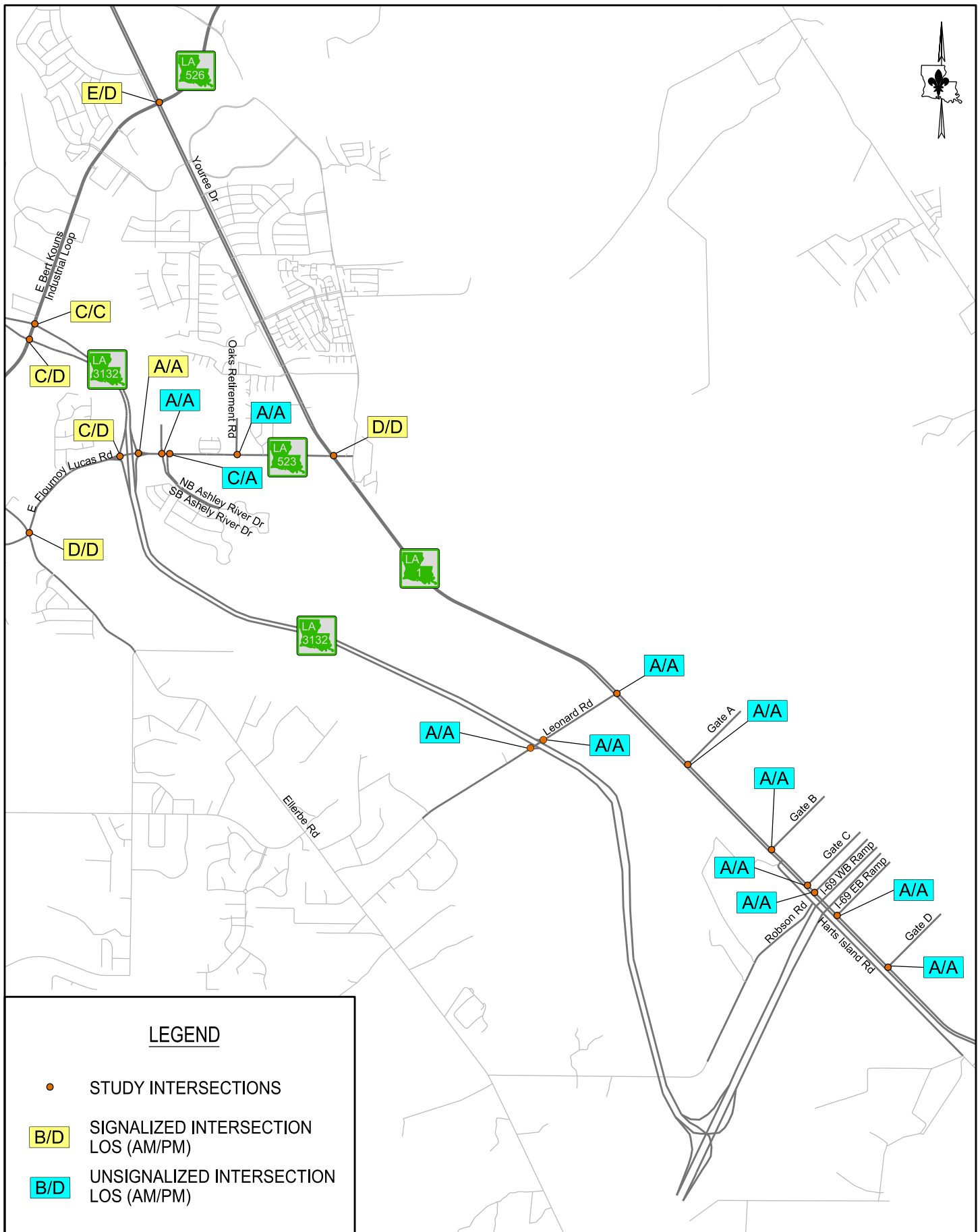


Figure 11. Alt B (2032) - Intersection Level of Service

The intersection of LA 1 and LA 526 failed to operate at an acceptable level of service even with geometric and signal timing improvements under 2015 and 2032 projected AM Peak hour.

Table 15. Projected Build Alternative B (2015 & 2032) – Summary of Improvements

ID	MOEs (LOS/Delay)		List of Improvements		Notes
	Without Improvements	With Improvements	Existing	Improved	
2015 Alternative B AM (Base Network: 2011 Existing AM)					
103	F 92.5	D 40.6	<ul style="list-style-type: none"> ▶ CL = 135 s ▶ 1-EBL ▶ EBL – pm +pt 	<ul style="list-style-type: none"> ▶ CL = 90 s ▶ Dual EBL (200' storage) ▶ EBL – pt 	<ul style="list-style-type: none"> ▶ Existing EBL = 343 veh/hr ▶ Projected EBL = 609 veh/hr
107	E 67.4	D 54.3	<ul style="list-style-type: none"> ▶ CL = 110 s 	<ul style="list-style-type: none"> ▶ CL = 100 s 	<ul style="list-style-type: none"> ▶ v/c = 1.36 (1.04 – w/ improvements)
2015 Alternative B PM (Base Network: 2011 Existing PM)					
103	D 36.5	C 30.8	<ul style="list-style-type: none"> ▶ CL = 135 s ▶ 1-EBL ▶ EBL – pm +pt 	<ul style="list-style-type: none"> ▶ CL = 90 s (optimized) ▶ Dual EBL (200' storage) ▶ EBL – pt 	<ul style="list-style-type: none"> ▶ To match AM Peak
2032 Alternative B AM (Base Network: 2015 Alternative B AM – Improved)					
101	E 61.3	C 26.7	<ul style="list-style-type: none"> ▶ CL = 90 s 	<ul style="list-style-type: none"> ▶ CL = 90 s (optimized) 	<ul style="list-style-type: none"> ▶ v/c = 1.24 (0.95 – w/ improvements)
103	F 80.1	D 51.2	<ul style="list-style-type: none"> ▶ CL = 90 s ▶ 1-NBL 	<ul style="list-style-type: none"> ▶ CL = 110 s ▶ Dual NBL 	<ul style="list-style-type: none"> ▶ Existing EBL = 343 veh/hr ▶ Projected EBL = 759 veh/hr ▶ Existing NBL = 343 veh/hr ▶ Projected NBL = 443 veh/hr
105	F 111.2	D 39.0	<ul style="list-style-type: none"> ▶ CL = 90 s 	<ul style="list-style-type: none"> ▶ CL = 140 s 	<ul style="list-style-type: none"> ▶ Existing NBT = 583 veh/hr ▶ Projected NBT = 1719 veh/hr ▶ Existing SBT = 82 veh/hr ▶ Projected SBT = 381 veh/hr
107	F 90.5	E 65.9	<ul style="list-style-type: none"> ▶ CL = 100 s 	<ul style="list-style-type: none"> ▶ CL = 140 s 	<ul style="list-style-type: none"> ▶ v/c = 1.22 (1.06 – w/ improvements) ▶ Failing movements (after improvements): EBL, EBT, WBL, WBT, NBL, NBT, SBL
108	E 56.2	C 34.7	<ul style="list-style-type: none"> ▶ CL = 110 s 	<ul style="list-style-type: none"> ▶ CL = 110 s (optimized) 	<ul style="list-style-type: none"> ▶ v/c = 1.09 (1.07 – w/ improvements)

2032 Alternative B PM (Base Network: 2015 Alternative B PM – Improved)

101	E 59.9	D 48.4	▶ CL = 75 s	▶ CL = 75 s (optimized)	▶ v/c = 1.21 (1.14 – w/ improvements)
103	E 69.4	D 48.9	▶ CL = 90 s ▶ 1-NBL	▶ CL = 100 s ▶ Dual NBL	▶ Existing EBL = 344 veh/hr Projected EBL = 613 veh/hr ▶ Existing NBL = 138 veh/hr Projected NBL = 318 veh/hr
105	E 55.3	D 49.4	▶ CL = 90 s	▶ CL = 100 s	▶ Existing NBT = 229 veh/hr Projected NBT = 606 veh/hr ▶ Existing SBT = 435 veh/hr Projected SBT = 1316 veh/hr

CL = Cycle Length (in seconds); pm + pt = Permissive & Protected Phases; pt = Protected Only Phase;
 NBL = Northbound Left; NBT = Northbound Through; SBL = Southbound Left;
 EBL = Eastbound Left; EBT-R = Shared Eastbound Through-Right; EBR = Eastbound Right;
 WBL = Westbound Left; WBT = Westbound Through

3.4.2.2 ROADWAY OPERATIONAL ANALYSIS – BUILD ALTERNATIVE B

For analysis, LA 3132 is broken into three sections: 1) LA 526 to LA 523, 2) LA 523 to Leonard Road, and 3) Leonard Road to I-69. The volumes on LA 3132 and LA 1 have been illustrated in **Figure 12. Table 16** shows the density and LOS for the studied corridors for Alternative B.

Figure 12. Projected Build Alternative B (2015 & 2032) – Roadway Directional Volumes

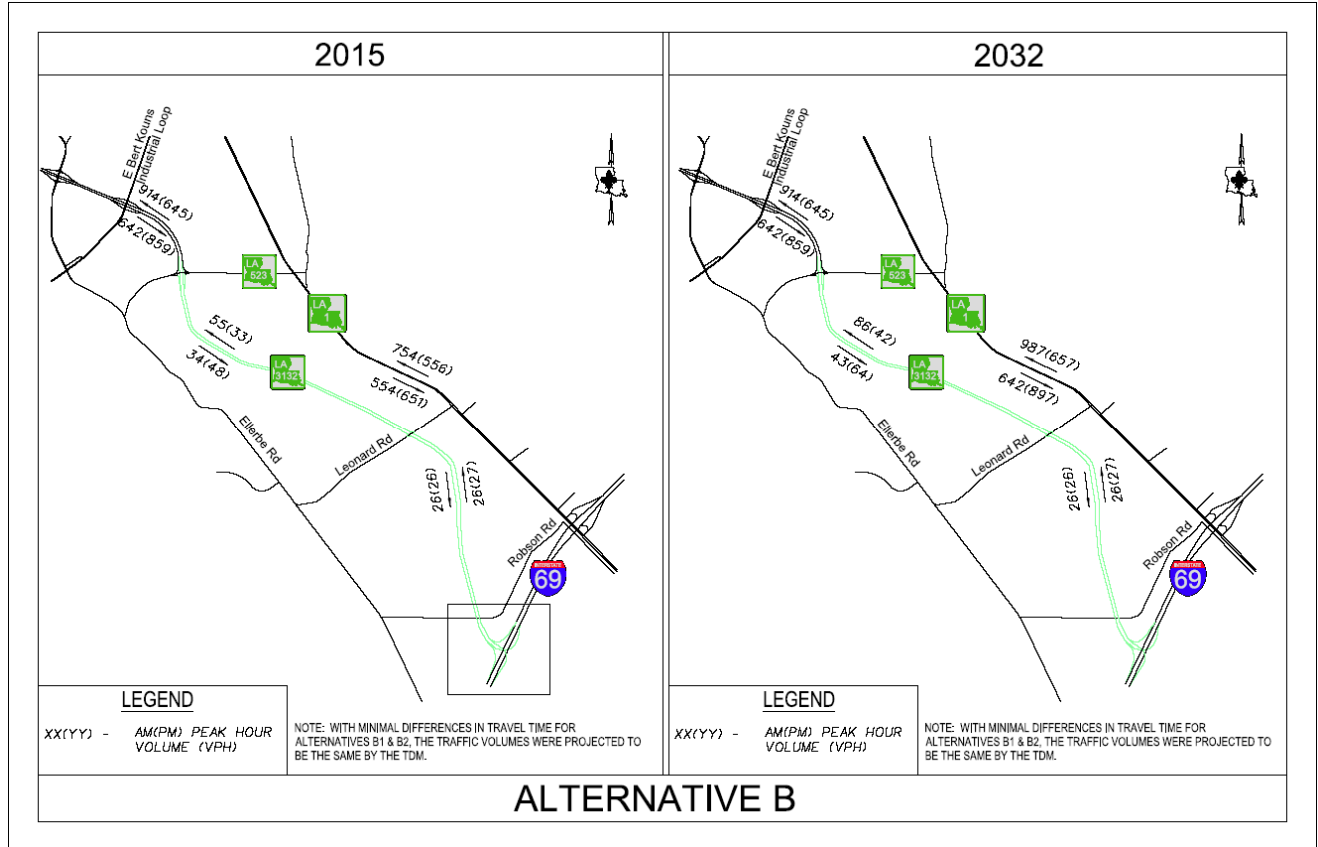


Table 16: Projected Build Alternative B (2015 & 2032) – Roadway MOEs

Roadway Segment	Limits	Direction	MOEs	Projected 2015		Projected 2032	
				AM Peak	PM Peak	AM Peak	PM Peak
LA 3132	Between LA 526 & LA 523	Northbound	LOS	A	A	A	A
			Density (pc/mi/ln)	7.6	5.3	10.5	6.8
		Southbound	LOS	A	A	A	A
			Density (pc/mi/ln)	6.3	7.0	7.4	9.0
	Between LA 523 & Leonard Rd	Northbound	LOS	A	A	A	A
			Density (pc/mi/ln)	0.4	0.3	0.7	0.3
		Southbound	LOS	A	A	A	A
			Density (pc/mi/ln)	0.3	0.4	0.3	0.5
	Between Leonard Rd & I-69 (proposed)	Northbound	LOS	A	A	A	A
			Density (pc/mi/ln)	0.2	0.2	0.3	0.3
		Southbound	LOS	A	A	A	A
			Density (pc/mi/ln)	0.2	0.2	0.3	0.3
LA 1	Between LA 523 & Leonard Rd	Northbound	LOS	A	A	A	A
			Density (pc/mi/ln)	7.5	5.7	9.9	6.8
		Southbound	LOS	A	A	A	A
			Density (pc/mi/ln)	5.9	6.8	6.9	9.4

All roadway segments evaluated were projected to have acceptable levels of operation. For Alternative B, insignificant volumes were projected on LA 3132 extension by the TDM as the travel time on this roadway is significantly more than the existing alternative route options. Barring additional development along Leonard Road, the extension of LA 3132 based on this alternative is not projected to attract a significant amount of traffic.

3.4.2.3 INTERCHANGE OPERATIONAL ANALYSIS – BUILD ALTERNATIVE B

An evaluation of interchange operations and level-of-service focused on the ramp merging and diverging operations at the proposed interchange of LA 3132 and I-69. It is noted that the travel demand analysis projected minimal volumes on I-69 WB to LA 3132 NB ramp and LA 3132 SB to I-69 EB ramp, as the travel time on LA 1 is projected to be significantly shorter to connect to I-69 than LA 3132 for these movements. Therefore, for the purpose of interchange analysis 10 percent of the traffic from the interchange of LA 1 and I-69 was added to the interchange of LA 3132 and I-69. **Figure 13** illustrates the projected volumes at the study interchange.

Figure 13. Projected Build Alternative B (2015 & 2032) – Interchange Volumes

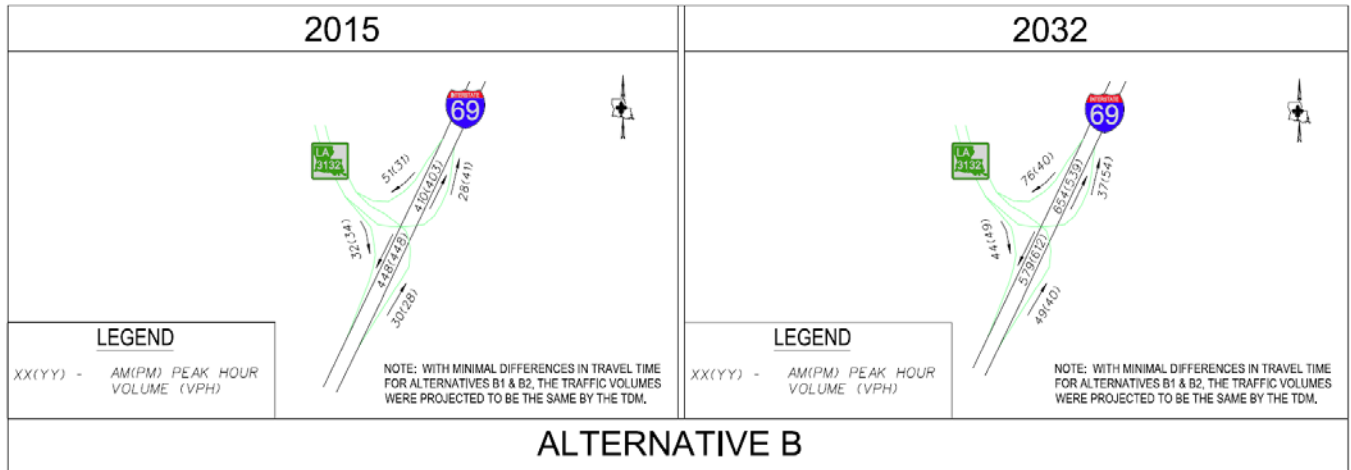


Table 17 shows the density and LOS for the ramp-freeway junction for Alternative A. The operations at both the merge and diverge segments were projected to be acceptable.

Table 17: Projected Build Alternative B (2015 & 2032) – Ramp Junction MOEs

Description	MOEs	Projected 2015		Projected 2032	
		AM Peak	PM Peak	AM Peak	PM Peak
LA 3132 SB to I-69 EB Ramp (Merge Junction on I-69 EB)	LOS	A	A	A	B
	Density (pc/mi/ln)	8.0	8.0	9.4	10.3
LA 3132 SB to I-69 WB Ramp (Merge Junction on I-69 WB)	LOS	A	A	A	B
	Density (pc/mi/ln)	8.4	8.4	9.7	10.0
I-69 EB to LA 3132 NB Ramp (Diverge Junction on I-69 EB)	LOS	A	A	A	A
	Density (pc/mi/ln)	5.3	5.2	7.8	6.6
I-69 WB to LA 3132 NB Ramp (Diverge Junction on I-69 WB)	LOS	A	A	A	A
	Density (pc/mi/ln)	5.7	5.7	7.0	7.4

3.4.3 ALTERNATIVE C

Alternative C proposed to extend LA 3132 from its current intersection at LA 526 to LA 1 at Leonard Road. The length of the extension is approximately 3.8 miles with a partial cloverleaf interchange at LA 1 (similar to Alternative A). This alternative is proposed to overpass LA 523 without providing access to LA 523. The existing connection to LA 523 is proposed to be removed. The extension of LA 3132 is proposed to have two 12-foot lanes in each direction with 6 to 10 foot shoulders and a depressed median ranging from 52 to 56 feet. The proposed design speed is 60 mph.

3.4.3.1 INTERSECTION OPERATIONAL ANALYSIS – ALTERNATIVE C

The projected traffic volumes obtained from the TDM were incorporated in the proposed Alternative C roadway network coded in Synchro for the AM and PM peak periods for the years 2015 and 2032. These volumes are included in **Appendix A**. A summary of the analysis results is shown in **Table 18** for 2015 and 2032 conditions. The complete Synchro data sheets for each intersection and roadway for the 2015 and 2032 Build Alternative B are included in **Appendix F**. A map illustrating Alternative C intersection LOS is provided in **Figures 14 and 15**.

Table 18. Projected Build Alternative C (2015 & 2032) – Intersection MOEs

ID	Intersection	Type of Control	MOEs	2015 Projected Alternative C		2032 Projected Alternative C	
				AM Peak	PM Peak	AM Peak	PM Peak
103	LA 1 & LA 523	Signalized	LOS	C	C	D	C
			Delay	24.8	23.6	38.7	29.0
			v/c Ratio	0.90	0.71	1.06	0.74
105	LA 523 & Ellerbe Rd	Signalized	LOS	D	C	F ⁽³⁾	D ⁽³⁾
			Delay	44.4	29.9	86.9	53.4
			v/c Ratio	1.10	0.88	1.15	1.06
107	LA 1 & LA 526	Signalized	LOS	D ⁽³⁾	D ⁽³⁾	D ⁽²⁾	D
			Delay	48.5	42.8	53.6	44.0
			v/c Ratio	1.00	0.90	0.99	0.93
108	LA 3132 EB Ramp & LA 526	Signalized	LOS	D	C	D	D ⁽²⁾
			Delay	46.6	34.7	50.9	53.7
			v/c Ratio	1.01	0.97	1.18	1.12

ID	Intersection	Type of Control	MOEs	2015 Projected Alternative C		2032 Projected Alternative C	
				AM Peak	PM Peak	AM Peak	PM Peak
109	LA 3132 WB Ramp & LA 526	Signalized	LOS	C	B	D	D
			Delay	33.0	19.7	49.3	47.2
			v/c Ratio	1.01	0.97	1.18	1.12
110	LA 523 & Ashley River Dr SB	Unsignalized	LOS	A	A	A	A
			Delay	0.3	1.3	0.3	1.1
			v/c Ratio	0.19	0.21	0.25	0.29
111	LA 523 & Ashley River Dr NB	Unsignalized	LOS	A	A	B	A
			Delay	9.0	2.7	11.2	2.3
			v/c Ratio	0.66	0.22	0.81	0.26
112	LA 523 & Oaks Retirement Rd	Unsignalized	LOS	A	A	A	A
			Delay	0.8	1.0	0.6	0.8
			v/c Ratio	0.18	0.20	0.23	0.29
201	LA 1 & I-69 WB Ramp	Unsignalized	LOS	A	A	A	A
			Delay	2.0	1.6	5.6	5.6
			v/c Ratio	0.19	0.20	0.31	0.31
202	LA 1 & I-69 EB Ramp	Unsignalized	LOS	A	A	A	A
			Delay	3.7	4.6	5.3	5.3
			v/c Ratio	0.26	0.37	0.49	0.49
301	LA 1 & Gate A	Unsignalized	LOS	A	A	A	A
			Delay	0.4	0.6	0.4	0.6
			v/c Ratio	0.40	0.29	0.54	0.33
302	LA 1 & Gate B	Unsignalized	LOS	A	A	A	A
			Delay	1.5	1.5	1.6	1.4
			v/c Ratio	0.38	0.26	0.52	0.29

ID	Intersection	Type of Control	MOEs	2015 Projected Alternative C		2032 Projected Alternative C	
				AM Peak	PM Peak	AM Peak	PM Peak
303	LA 1 & Gate C	Unsignalized	LOS	A	A	A	A
			Delay	0.3	0.5	0.2	0.4
			v/c Ratio	0.29	0.23	0.40	0.29
304	LA 1 & Gate D	Unsignalized	LOS	A	A	A	A
			Delay	0.8	0.6	0.9	0.5
			v/c Ratio	0.08	0.07	0.11	0.09

- (1) Includes geometric improvements
- (2) Includes signal timing improvements
- (3) Includes geometric and signal timing improvements

As indicated in **Table 18**, some study intersections failed to maintain acceptable operations for Alternative C under projected conditions. Geometric and/or signal timing improvements which were incorporated at these intersections to improve operations have been summarized in **Table 19**.

Table 19. Projected Build Alternative C (2015 & 2032) – Summary of Improvements

ID	MOEs (LOS/Delay)		List of Improvements		Notes
	Without Improvements	With Improvements	Existing	Improved	
2015 Alternative C AM (Base Network: 2011 Existing AM)					
107	E 67.8	D 48.5	▶ CL = 110 s ▶ 1-WBL	▶ CL = 110 s (optimized) ▶ Dual WBL	▶ v/c = 1.16 (1.0 – w/ improvements)
2015 Alternative C PM (Base Network: 2011 Existing PM)					
107	D 43.9	D 42.8	▶ CL = 110 s ▶ 1-WBL	▶ CL = 110 s (optimized) ▶ Dual WBL	▶ To match AM Peak
2032 Alternative C AM (Base Network: 2015 Alternative C AM – Improved)					
105	F 153.4	F 86.9	▶ CL = 110 s ▶ EBT-R shared	▶ CL = 150 s ▶ EBR – 150' storage	▶ Existing NBT = 583 veh/hr ▶ Proposed NBT = 1752 veh/hr ▶ Existing SBT = 225 veh/hr ▶ Proposed SBT = 403 veh/hr ▶ Existing EBR = 49 veh/hr ▶ Proposed EBR = 102 veh/hr
107	E 56.4	D 53.6	▶ CL = 110 s	▶ CL = 120 s (optimized)	▶ v/c = 1.06 (0.99 – w/ improvements)

ID	MOEs (LOS/Delay)		List of Improvements		Notes
	Without Improvements	With Improvements	Existing	Improved	
2032 Alternative C PM (Base Network: 2015 Alternative C PM – Improved)					
105	E 58.2	D 54.7	<ul style="list-style-type: none"> ▶ CL = 90 s ▶ EBT-R shared 	<ul style="list-style-type: none"> ▶ CL = 90 s (optimized) changed splits ▶ EBR (150' storage) 	<ul style="list-style-type: none"> ▶ Existing NBT = 229 veh/hr Proposed NBT = 619 veh/hr ▶ Existing SBT = 435 veh/hr Proposed SBT = 1351 veh/hr ▶ Existing EBR = 64 veh/hr Proposed EBR = 155 veh/hr
108	E 63.1	D 53.0	<ul style="list-style-type: none"> ▶ CL = 110 s 	<ul style="list-style-type: none"> ▶ CL = 110 s (optimized) changed splits 	

CL = Cycle Length (in seconds);
NBL = Northbound Left; NBT = Northbound Through; SBL = Southbound Left;
EBL = Eastbound Left; EBT-R = Shared Eastbound Through-Right; EBR = Eastbound Right;
WBL = Westbound Left; WBT = Westbound Through

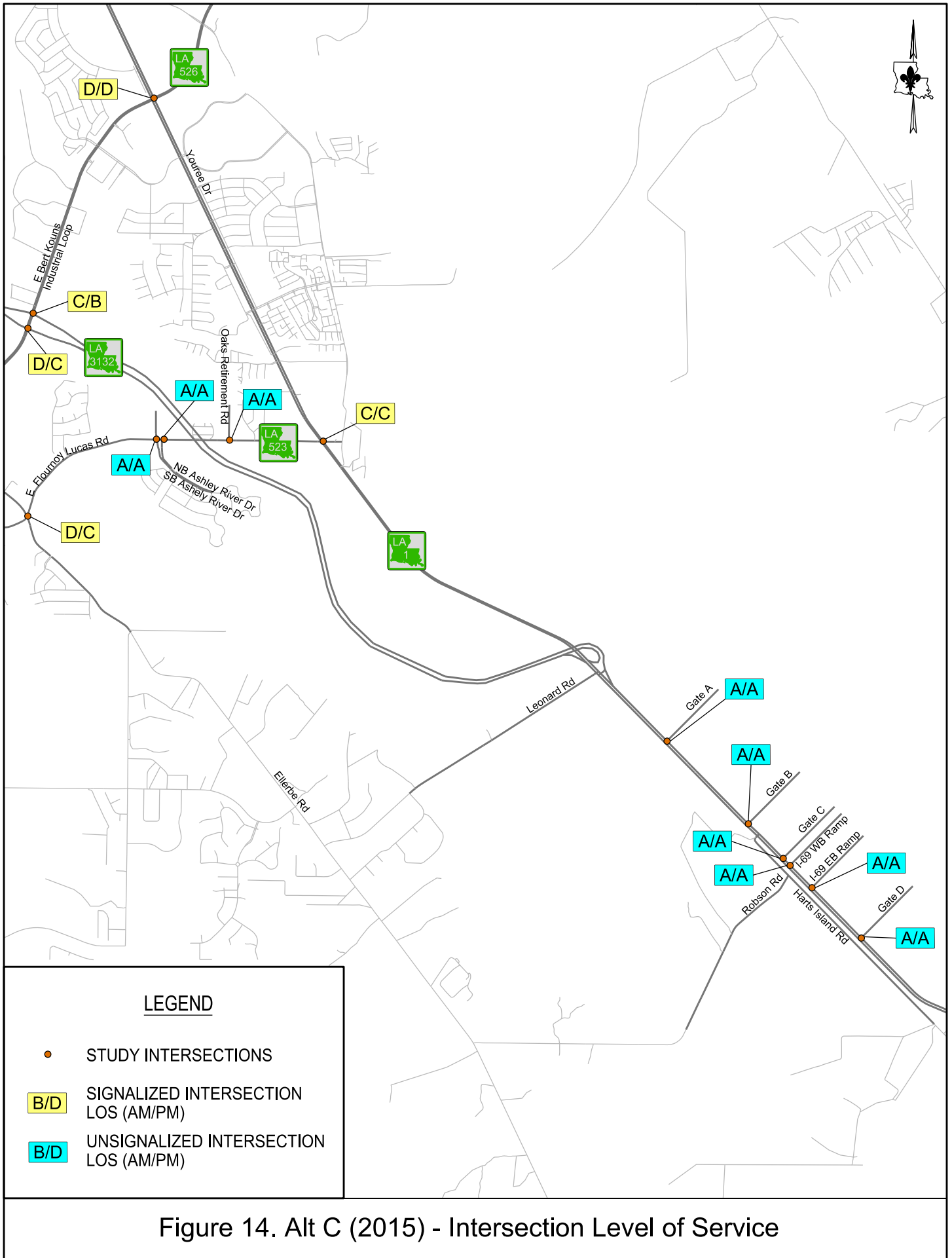


Figure 14. Alt C (2015) - Intersection Level of Service

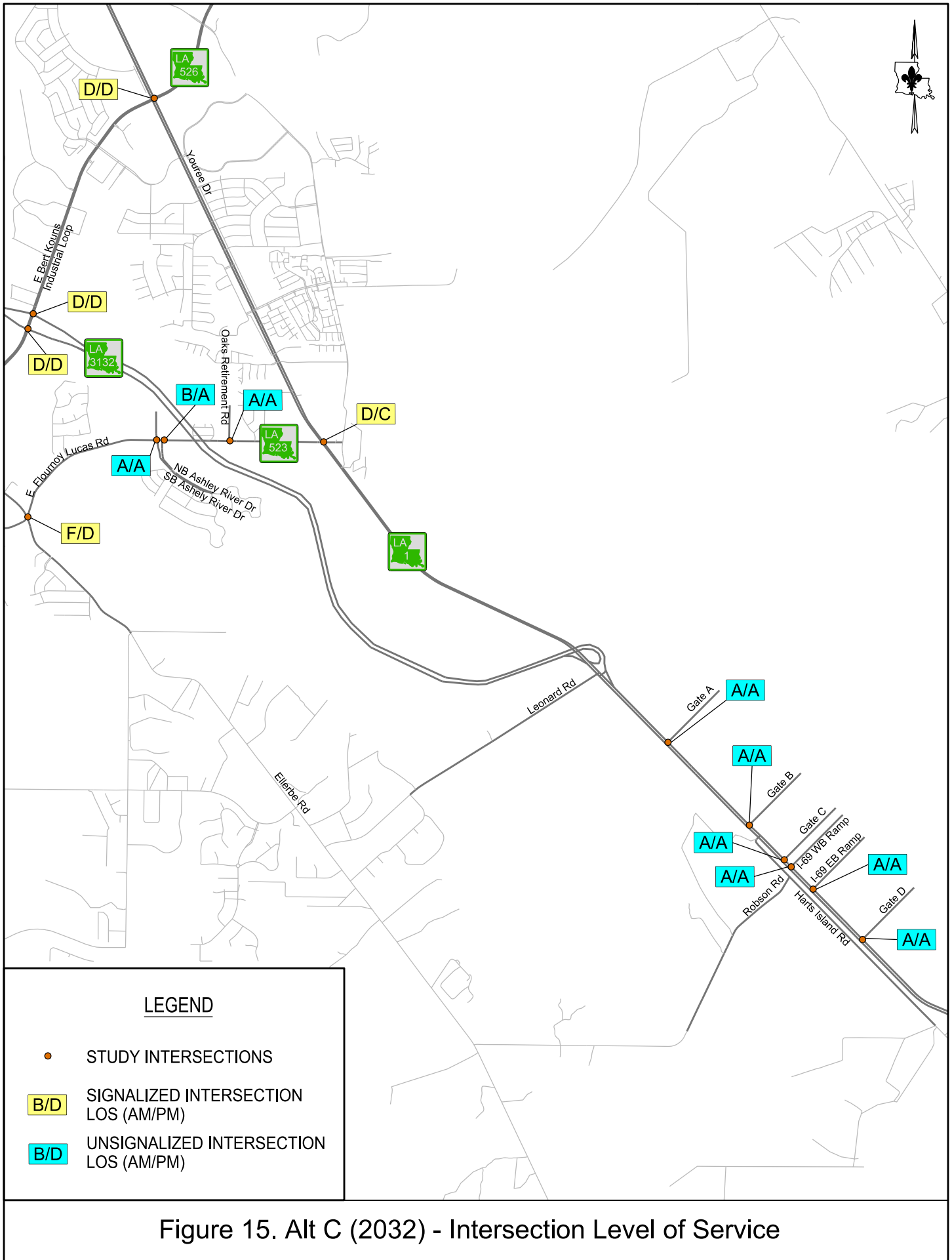


Figure 15. Alt C (2032) - Intersection Level of Service

3.4.3.2 ROADWAY OPERATIONAL ANALYSIS – BUILD ALTERNATIVE C

For this alternative, LA 3132 is analyzed as one section because the interchange at LA 523 is bypassed. The volumes on LA 3132 and LA 1 have been illustrated in **Figure 16**.

Figure 16. Projected Build Alternative C (2015 & 2032) – Roadway Directional Volumes

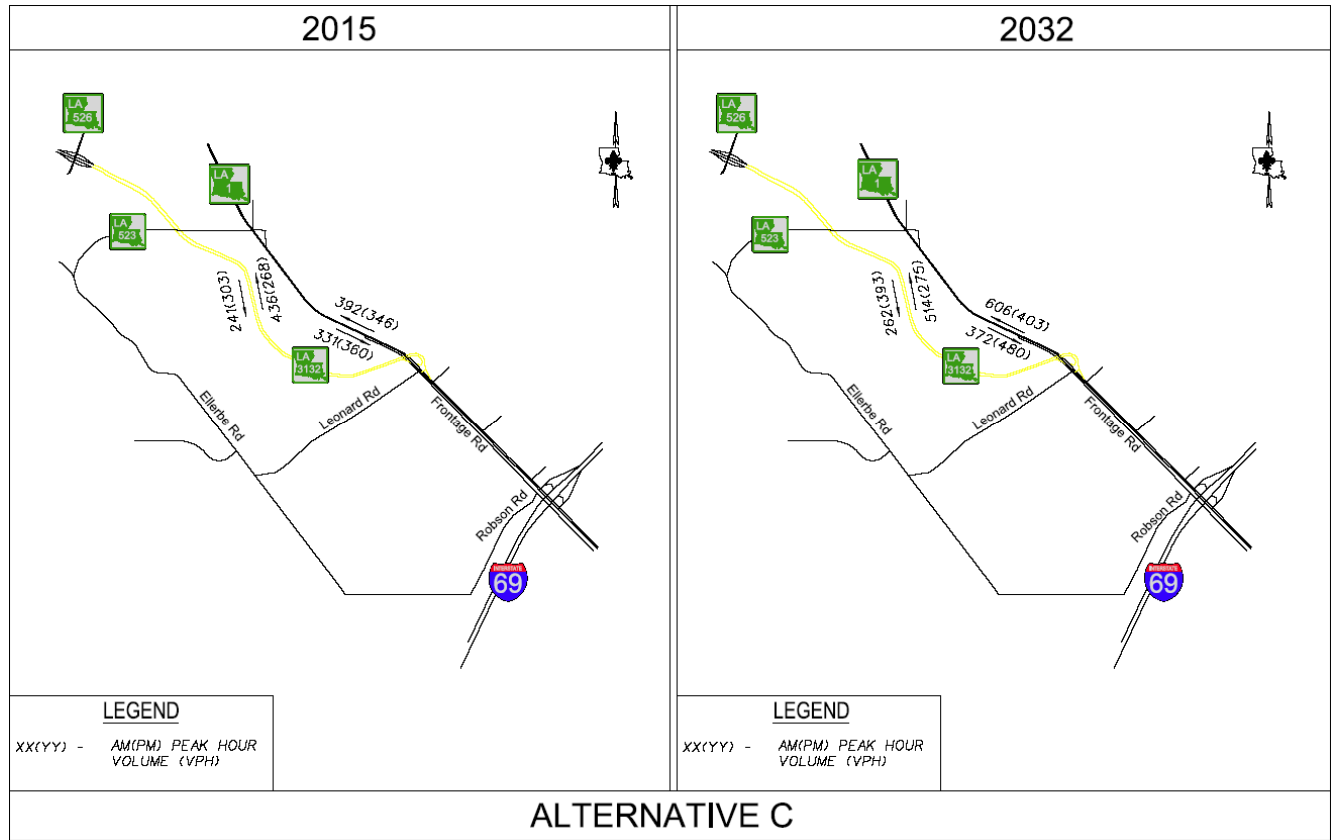


Table 20 shows the density and LOS for the studied corridors for Alternative C. All roadway segments evaluated were projected to have acceptable levels of operation.

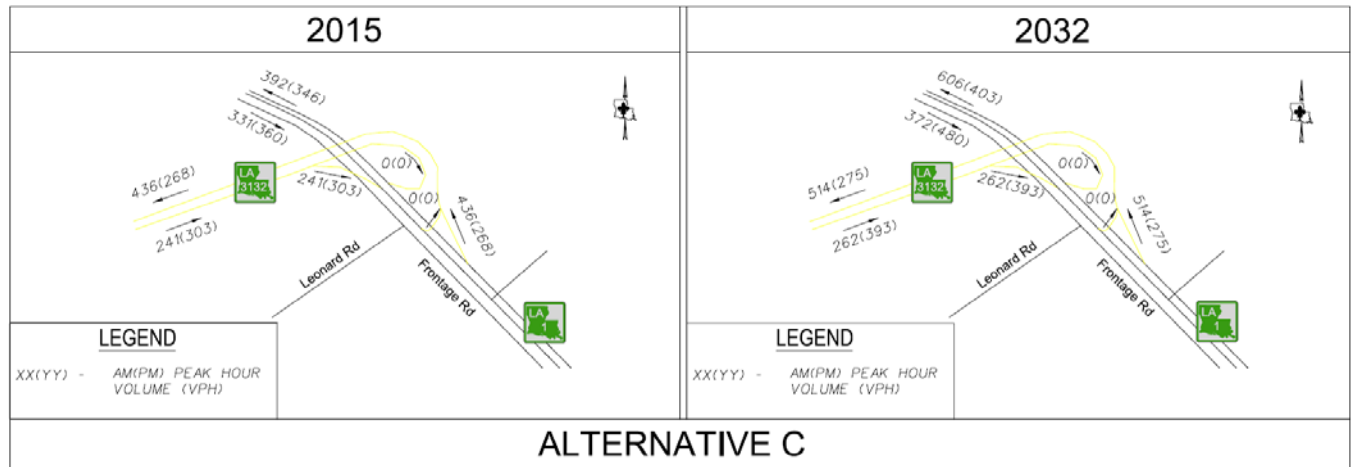
Table 20. Projected Build Alternative C (2015 & 2032) – Roadway MOEs

Roadway Segment	Limits	Direction	MOEs	Projected 2015		Projected 2032	
				AM Peak	PM Peak	AM Peak	PM Peak
LA 3132	Between LA 526 & LA 1	Northbound	LOS	A	A	A	A
			Density (pc/mi/ln)	3.7	2.3	4.4	2.3
		Southbound	LOS	A	A	A	A
			Density (pc/mi/ln)	2.1	2.6	2.2	3.3
LA 1	Between LA 523 & Leonard Rd	Northbound	LOS	A	A	A	A
			Density (pc/mi/ln)	3.9	3.5	6.0	4.1
		Southbound	LOS	A	A	A	A
			Density (pc/mi/ln)	3.7	3.8	4.0	5.1

3.4.3.3 INTERCHANGE OPERATIONAL ANALYSIS – BUILD ALTERNATIVE C

An evaluation of interchange operations and level-of-service focused on the ramp merging and diverging operations at the proposed interchange of LA 3132 and LA 1. **Figure 17** illustrates the projected volumes at the study interchange.

Figure 17. Projected Build Alternative C (2015 & 2032) – Interchange Volumes



As for Alternative A, travel demand analysis showed minimal volumes on LA 1 SB to LA 3132 WB (or NB) ramp and LA 3132 EB (or SB) to LA 1 NB ramp. Therefore, it is recommended that these movements be accommodated via J-turns to the south of the interchange in lieu of the ramps. A partial Y-configuration accommodating ramps for LA 3132 EB (or SB) to LA 1 SB and LA 1 NB to LA 3132 WB (or NB) is recommended as a consideration for this interchange. However, as was noted in the discussion regarding Alternative A, should development occur west of the railroad and north of Leonard Road, consideration should be given to maintaining the currently proposed ramp connections for south-to-west and east-to-north movements.

Table 21 shows the density and LOS for the ramp-freeway junction for Alternative C. The operations at both the merge and diverge segments were projected to be acceptable.

Table 21: Projected Build Alternative C (2015 & 2032) – Ramp Junction MOEs

Description	MOEs	Projected 2015		Projected 2032	
		AM Peak	PM Peak	AM Peak	PM Peak
LA 3132 EB to LA 1 SB Ramp (Merge Junction on LA 1 SB)	LOS	B	B	B	B
	Density (pc/mi/ln)	10.9	11.7	11.5	13.7
LA 1 NB to LA 3132 WB Ramp (Diverge Junction on LA 1 SB)	LOS	A	A	A	A
	Density (pc/mi/ln)	6.0	5.7	8.2	6.3



CHAPTER 4 - FINDINGS

4.1 FINDINGS

Roadway segments on LA 3132 (existing and proposed) and LA 1 (between LA 523 and Leonard Road) were analyzed to identify the impacts due to the extension of LA 3132. All roadway segments were found to consistently operate at acceptable levels of service in all the alternatives as described in **Chapter 3**. Due to insignificant differences in the travel times between Alternatives B1 and B2, the amount of traffic attracted by these two alignments were found to be the same. As the operational differences for Alternatives B1 and B2 were found to be negligible, these were grouped together as Alternative B for reporting analysis results.

The no-build conditions and the three build alternatives were compared based on traffic operations at key intersections. With LA 1 and Ellerbe Road being the two main alternative routes to the proposed new facility, the following were identified as key intersections for evaluation of alternatives:

- ▶ LA 3132 SB & LA 523 (Intersection # 101)
- ▶ LA 3132 SB & LA 523 (Intersection # 102)
- ▶ LA 523 & LA 1 (Intersection # 103)
- ▶ LA 523 & Ellerbe Road (Intersection # 105)

A summary of the impacts of the various alternatives on the major intersections around the study area is shown in **Table 22**. It is noted that though the intersection of LA 1 and LA 526 failed to operate at an acceptable level of service in most scenarios, it has not been used in the comparative analysis of the alternatives due to its location and the proposition of a grade separated interchange at this location in the future. For this study, this intersection was treated as an at-grade four-legged intersection with minimum scope for geometric improvements.

Table 22. Synopsis of No-Build & Build Alternatives

ID	No-Build				Alternative A				Alternative B				Alternative C							
	2015		2032		2015		2032		2015		2032		2015		2032					
	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM				
101	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	N/A	N/A	N/A	N/A
102	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	N/A	N/A	N/A	N/A
103	■	■	■	■	●	✓	✓	●	✓	✓	●	●	✓	✓	✓	✓	✓	✓	✓	✓
105	✓	✓	✓	✓	✓	✓	■	■	✓	✓	■	■	✓	✓	■	■	✓	✓	▲	■


- ✓ Acceptable levels of operation without improvements
- Acceptable levels of operation after signal timing improvements
- Acceptable levels of operation after geometric and signal timing improvements
- ▲ Unacceptable levels of operation even after geometric and signal timing improvements

As illustrated in **Table 22**, the intersection of LA 523 and LA 1 (#103) requires geometric and signal timing improvements if none of the alternatives are considered. The geometric improvements include an additional eastbound left turn lane by year 2015 and an additional northbound left turn lane and an exclusive southbound right turn lane by the year 2032. Alternatives A, B, and C are projected to alleviate the traffic issues for this intersection with only signal timing improvements required for Alternatives A and B.

At the intersection of LA 523 and Ellerbe Road, geometric as well as signal timing improvements are recommended for Alternatives A, B, and C. However, Alternative C fails to operate at acceptable LOS even with these improvements incorporated. In the absence of direct connections to LA 523 via LA 3132 in this alternative, higher traffic volumes are projected at this intersection, causing the failure in operations.

In addition, the interchange of LA 3132 and LA 523 was analyzed as a SPUI for Alternatives A and B. The operations with this configuration were found to be acceptable for both AM and PM peak periods for the projected years (2015 & 2032).

The ramp operations at the interchange of LA 1 and proposed LA 3132 extension were assessed for Alternatives A and C. The operations at all the merge and diverge segments were projected to be acceptable. Travel demand analysis show minimal volumes on LA 1 SB to LA 3132 WB (or NB) ramp and LA 3132 EB (or SB) to LA 1 NB ramp. This is primarily due to the absence of any major trip generators between this interchange and the intersection of LA 1 and LA 523. It is recommended that in lieu of these ramps these movements be accommodated via J-turns to the south of the interchange and a partial Y-configuration be considered for this interchange.



For Alternative B, interchange analysis at the termination of LA 3132 extension and I-69 was found to be acceptable. However, the volumes from the TDM exhibited a lack of demand through the entire proposed facility from LA 523 to proposed I-69. The following were identified as the key issues contributing to the low volumes:

- ▶ Greater travel times compared to parallel facilities and alternative routes
- ▶ Lack of major traffic generators along proposed facility
- ▶ Limited access along facility within the study area
- ▶ Connectivity issues at Leonard Road which is a two-lane minor arterial with a speed limit of 40 mph

Based on the above factors, from a traffic standpoint, phasing of this alternative is not necessary, however, from a funding or constructability perspective, it could be advantageous to implement this alternative in phases.

Based on the traffic analyses and the findings therein, Alternative A was found to be the most viable amongst all the alternatives. This route achieves the project's goals while requiring minimum improvements to existing facilities.



APPENDIX A | Traffic Volumes

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Table A-1. 2011 Existing AM Peak Volumes

ID	NBR	NBT	NBL	SBR	SBT	SBL	EBR	EBT	EBL	WBR	WBT	WBL
101	0	0	0	93	0	362	0	667	0	0	165	0
102	0	0	0	0	0	0	0	662	343	658	170	0
103	0	217	82	363	125	0	129	191	343	9	220	1
104	0	141	2	11	147	0	3	0	22	0	0	0
105	388	583	47	3	225	26	49	161	12	31	73	100
106	0	199	8	41	284	0	36	0	205	0	0	0
107	136	638	270	234	402	131	130	642	281	50	782	191
108	24	775	0	0	496	51	7	4	1273	0	0	0
109	0	2033	14	1039	535	0	0	0	0	181	0	13
110	0	0	0	2	0	4	68	620	0	8	794	18
111	73	0	206	0	0	0	0	644	0	0	627	0
112	0	0	0	16	0	6	0	682	38	27	662	0

Table A-2. 2011 Existing PM Peak Volumes

ID	NBR	NBT	NBL	SBR	SBT	SBL	EBR	EBT	EBL	WBR	WBT	WBL
101	0	0	0	210	0	462	0	444	0	0	361	0
102	0	0	0	0	0	0	0	751	152	399	364	0
103	3	183	138	410	217	2	57	240	344	9	187	0
104	0	191	0	21	137	0	1	0	27	0	0	0
105	193	229	49	21	435	29	64	112	11	26	163	345
106	0	367	31	176	200	0	13	0	86	0	0	0
107	232	687	161	571	776	111	76	757	435	89	703	271
108	44	693	0	0	800	213	13	1	1140	0	0	0
109	0	1805	31	1527	1036	0	0	0	0	102	0	6
110	0	0	0	11	0	7	159	574	0	1	748	70
111	40	0	77	0	0	0	0	607	0	0	752	0
112	0	0	0	28	0	21	0	599	14	24	702	0

Table A-3. 2015 Projected No-Build AM Peak Volumes

ID	NBR	NBT	NBL	SBR	SBT	SBL	EBR	EBT	EBL	WBR	WBT	WBL
101	0	0	0	108	0	556	0	801	0	0	171	0
102	0	0	0	0	0	0	0	851	506	685	171	0
103	0	346	397	459	298	0	242	23	610	9	10	18
104	0	0	0	0	0	0	0	0	0	0	0	0
105	364	1112	75	3	323	26	61	118	12	32	118	57
106	0	695	44	31	526	0	71	0	48	0	0	0
107	166	784	120	275	578	131	103	871	442	50	823	175
108	116	1052	0	0	796	28	7	4	487	0	0	0
109	0	1539	14	890	734	0	0	0	0	305	0	89
110	0	0	0	2	0	4	98	753	0	8	854	26
111	103	0	289	0	0	0	0	757	0	0	599	0
112	0	0	0	16	0	6	0	822	38	27	583	0
201	0	307	0	0	528	57	0	0	0	761	0	122
202	122	211	0	0	282	368	0	0	0	100	0	3
301	8	1062	0	0	659	22	0	0	0	14	0	5
302	47	1028	0	0	566	98	0	0	0	41	0	19
303	34	1058	0	0	585	0	0	0	0	24	0	0
304	0	312	0	0	265	21	0	0	0	20	0	1
401	0	0	0	0	0	0	38	170	0	0	147	0
402	0	0	39	0	0	0	0	170	0	114	108	0

Table A-4. 2015 Projected No-Build PM Peak Volumes

ID	NBR	NBT	NBL	SBR	SBT	SBL	EBR	EBT	EBL	WBR	WBT	WBL
101	0	0	0	267	0	623	0	393	0	0	299	0
102	0	0	0	0	0	0	0	798	218	554	299	0
103	3	292	279	574	331	2	298	167	501	9	10	27
104	0	0	0	0	0	0	0	0	0	0	0	0
105	177	366	42	21	1108	29	70	89	11	13	143	122
106	0	612	71	46	611	0	43	0	29	0	0	0
107	251	751	109	256	896	111	124	693	223	89	641	224
108	128	818	0	0	964	67	13	1	679	0	0	0
109	0	1497	31	758	962	0	0	0	0	144	0	68
110	0	0	0	11	0	7	246	552	0	1	841	108
111	65	0	125	0	0	0	0	559	0	0	825	0
112	0	0	0	28	0	21	0	610	14	24	797	0
201	3	156	0	0	595	68	0	0	0	327	0	67
202	55	143	0	0	243	419	0	0	0	15	2	0
301	4	575	0	0	642	11	0	0	0	37	0	14
302	13	499	12	0	621	35	0	0	0	79	0	30
303	12	479	0	0	663	0	0	0	0	47	0	0
304	0	180	0	0	234	11	0	0	0	18	0	0
401	0	0	0	267	0	623	0	393	0	0	299	0
402	0	0	0	0	0	0	0	798	218	554	299	0

Table A-5. 2032 Projected No-Build AM Peak Volumes

ID	NBR	NBT	NBL	SBR	SBT	SBL	EBR	EBT	EBL	WBR	WBT	WBL
101	0	0	0	137	0	672	0	1050	0	0	208	0
102	0	0	0	0	0	0	0	1057	665	884	208	0
103	0	667	536	555	382	0	292	23	765	9	0	0
104	0	0	0	0	0	0	0	0	0	0	0	0
105	483	1373	107	3	442	26	45	168	12	48	152	71
106	0	1042	95	47	626	0	88	0	161	0	0	0
107	324	1124	123	137	910	131	105	1057	376	50	933	321
108	190	1192	0	0	1157	42	7	4	586	0	0	0
109	0	1778	14	812	1021	0	0	0	0	427	0	177
110	0	0	0	2	0	4	98	959	0	8	1090	26
111	103	0	289	0	0	0	0	963	0	0	835	0
112	0	0	0	16	0	6	0	1028	38	27	819	0
201	0	371	0	0	534	85	0	0	0	760	0	124
202	141	218	0	0	288	370	0	0	0	156	0	3
301	8	1123	0	0	693	21	0	0	0	14	0	5
302	48	1090	6	0	600	97	0	0	0	41	0	13
303	34	1120	0	0	619	0	0	0	0	24	0	0
304	0	339	0	0	270	21	0	0	0	20	0	1

Table A-6. 2032 Projected No-Build PM Peak Volumes

ID	NBR	NBT	NBL	SBR	SBT	SBL	EBR	EBT	EBL	WBR	WBT	WBL
101	0	0	0	346	0	808	0	507	0	0	378	0
102	0	0	0	0	0	0	0	1006	308	684	378	0
103	0	338	307	754	476	0	390	167	616	9	0	91
104	0	0	0	0	0	0	0	0	0	0	0	0
105	243	461	54	21	1379	29	108	106	11	20	168	166
106	0	614	85	131	826	0	62	0	32	0	0	0
107	239	903	108	259	766	111	124	942	360	89	867	275
108	252	1018	0	0	1307	82	13	1	822	0	0	0
109	0	1841	31	681	1238	0	0	0	0	204	0	150
110	0	0	0	11	0	7	246	760	0	1	1051	108
111	65	0	125	0	0	0	0	767	0	0	1035	0
112	0	0	0	28	0	21	0	818	14	24	1007	0
201	3	172	0	0	769	123	0	0	0	391	0	127
202	95	157	0	0	336	560	0	0	0	17	0	0
301	4	660	0	0	877	11	0	0	0	39	0	12
302	12	582	11	0	853	36	0	0	0	82	0	28
303	12	559	0	0	892	0	0	0	0	47	0	0
304	0	234	0	0	327	11	0	0	0	18	0	0

Table A-7. 2015 Projected Alternative A AM Peak Volumes

ID	NBR	NBT	NBL	SBR	SBT	SBL	EBR	EBT	EBL	WBR	WBT	WBL
101	0	0	0	107	0	325	46	529	0	0	179	0
102	0	0	0	0	0	0	0	586	268	340	179	0
103	0	395	51	467	296	0	0	23	586	9	10	0
104	0	0	0	0	0	0	0	0	0	0	0	0
105	133	1368	75	3	370	26	35	122	12	35	124	58
106	0	0	0	0	0	0	0	0	0	0	0	0
107	211	953	114	254	738	131	98	907	457	50	758	228
108	152	1440	0	0	1003	32	7	4	535	0	0	0
109	0	1976	14	759	885	0	0	0	0	82	0	149
110	0	0	0	2	0	4	98	488	0	8	516	26
111	103	0	289	0	0	0	0	492	0	0	261	0
112	0	0	0	16	0	6	0	557	38	27	245	0
201	3	215	0	0	455	62	0	0	22	591	0	83
202	60	176	0	0	237	301	0	0	0	42	0	4
301	8	789	0	0	571	21	0	0	0	0	0	5
302	43	757	6	0	473	103	0	0	0	40	0	20
303	33	782	0	0	516	0	0	0	0	24	0	0
304	0	254	0	0	217	21	0	0	0	21	0	0

Table A-8. 2015 Projected Alternative A PM Peak Volumes

ID	NBR	NBT	NBL	SBR	SBT	SBL	EBR	EBT	EBL	WBR	WBT	WBL
101	0	0	0	261	0	352	46	264	0	0	321	0
102	0	0	0	0	0	0	0	501	115	309	321	0
103	3	305	45	585	355	0	0	167	501	9	10	0
104	0	0	0	0	0	0	0	0	0	0	0	0
105	72	483	41	21	1150	29	66	102	11	0	146	134
106	0	0	0	0	0	0	0	0	0	0	0	0
107	178	712	120	322	749	111	107	824	412	89	832	224
108	179	1058	0	0	1195	62	13	1	712	0	0	0
109	0	1770	31	629	1150	0	0	0	0	38	0	107
110	0	0	0	11	0	7	246	255	0	1	619	108
111	65	0	125	0	0	0	0	262	0	0	603	0
112	0	0	0	28	0	21	0	313	14	24	575	0
201	3	155	0	0	614	70	0	0	8	340	0	66
202	53	141	0	0	239	441	0	0	0	16	2	0
301	0	571	0	0	637	11	0	0	0	38	0	13
302	13	494	12	0	614	357	0	0	0	81	0	41
303	12	472	0	0	683	0	0	0	0	47	0	0
304	0	176	0	0	241	11	0	0	0	18	0	0

Table A-9. 2032 Projected Alternative A AM Peak Volumes

ID	NBR	NBT	NBL	SBR	SBT	SBL	EBR	EBT	EBL	WBR	WBT	WBL
101	0	0	0	139	0	417	54	713	0	0	221	0
102	0	0	0	0	0	0	0	773	357	400	221	0
103	53	483	63	599	279	0	129	12	760	9	4	36
104	0	0	0	0	0	0	0	0	0	0	0	0
105	147	1741	96	3	411	26	100	217	12	44	165	75
106	0	0	0	0	0	0	0	0	0	0	0	0
107	224	1026	134	157	524	131	106	975	313	50	920	257
108	93	1432	0	0	895	36	7	4	558	0	0	0
109	0	1990	14	961	853	0	0	0	0	96	0	77
110	0	0	0	2	0	4	98	675	0	8	618	26
111	103	0	289	0	0	0	0	679	0	0	363	0
112	0	0	0	16	0	6	0	744	38	27	347	0
201	4	317	0	0	519	98	0	0	22	781	0	51
202	71	200	0	0	197	373	0	0	0	120	0	4
301	8	1086	0	0	635	21	0	0	0	14	0	5
302	51	1054	0	0	545	94	0	0	0	40	0	20
303	34	1088	0	0	617	0	0	0	0	24	0	0
304	0	255	0	0	180	22	0	0	0	21	0	0

Table A-10. 2032 Projected Alternative A PM Peak Volumes

ID	NBR	NBT	NBL	SBR	SBT	SBL	EBR	EBT	EBL	WBR	WBT	WBL
101	0	0	0	345	0	443	46	327	0	0	423	0
102	0	0	0	0	0	0	0	617	153	393	423	0
103	23	309	54	769	366	0	57	0	617	9	24	62
104	0	0	0	0	0	0	0	0	0	0	0	0
105	87	628	56	21	1303	29	219	131	11	0	214	168
106	0	0	0	0	0	0	0	0	0	0	0	0
107	220	858	124	266	458	111	116	880	316	89	801	234
108	158	1066	0	0	1027	67	13	1	807	0	0	0
109	0	1873	31	805	1026	0	0	0	0	46	0	68
110	0	0	0	11	0	7	246	371	0	1	805	108
111	65	0	125	0	0	0	0	378	0	0	789	0
112	0	0	0	28	0	21	0	429	14	24	761	0
201	48	146	0	0	748	123	0	0	0	22	0	55
202	3	164	0	0	237	566	0	0	8	409	55	0
301	0	665	0	0	786	11	0	0	0	38	0	14
302	13	590	13	0	764	35	0	0	0	79	0	43
303	12	569	0	0	871	0	0	0	0	47	0	0
304	0	177	0	0	228	11	0	0	0	18	0	0

Table A-11. 2015 Projected Alternative B AM Peak Volumes

ID	NBR	NBT	NBL	SBR	SBT	SBL	EBR	EBT	EBL	WBR	WBT	WBL
101	0	0	0	105	0	537	0	578	0	0	178	0
102	0	0	0	0	0	0	0	845	270	644	178	0
103	8	354	392	431	308	0	236	23	609	9	10	10
104	0	0	0	0	0	0	0	0	0	0	0	0
105	130	1331	75	3	323	26	61	132	12	33	123	57
106	0	735	44	31	525	0	71	0	64	0	0	0
107	170	793	148	273	570	131	103	863	443	50	812	185
108	101	1262	0	0	790	25	7	4	520	0	0	0
109	0	1783	14	878	755	0	0	0	0	71	0	60
110	0	0	0	2	0	4	98	747	0	8	821	26
111	103	0	289	0	0	0	0	751	0	0	566	0
112	0	0	0	16	0	6	0	816	38	27	550	0
201	3	214	0	0	437	61	0	0	0	513	0	80
202	59	177	0	0	236	282	0	0	0	40	0	4
301	8	721	0	0	575	21	0	0	0	14	0	5
302	43	690	6	0	478	102	0	0	0	40	0	20
303	33	716	0	0	498	0	0	0	0	23	0	0
304	1	215	0	0	218	21	0	0	0	21	0	1
401	0	0	0	0	0	0	26	135	0	0	100	0
402	0	0	26	0	0	0	0	135	0	0	74	0

Table A-12. 2015 Projected Alternative B1 & B2 PM Peak Volumes

ID	NBR	NBT	NBL	SBR	SBT	SBL	EBR	EBT	EBL	WBR	WBT	WBL
101	0	0	0	266	0	593	0	312	0	0	299	0
102	0	0	0	0	0	0	0	790	115	530	299	0
103	0	292	264	565	334	0	289	167	501	9	10	28
104	0	0	0	0	0	0	0	0	0	0	0	0
105	74	469	42	21	1108	29	70	112	11	13	143	122
106	0	527	71	46	605	0	43	0	29	0	0	0
107	251	760	109	256	891	111	124	692	223	89	641	224
108	107	920	0	0	964	67	13	1	679	0	0	0
109	0	1599	31	758	962	0	0	0	0	41	0	68
110	0	0	0	11	0	7	246	544	0	1	817	108
111	65	0	125	0	0	0	0	551	0	0	801	0
112	0	0	0	28	0	21	0	602	14	24	773	0
201	3	156	0	0	590	68	0	0	0	312	0	67
202	55	143	0	0	243	414	0	0	0	15	0	0
301	4	560	0	0	637	11	0	0	0	37	0	14
302	13	485	12	0	616	35	0	0	0	79	0	42
303	12	464	0	0	658	0	0	0	0	47	0	0
304	0	181	0	0	234	11	0	0	0	19	0	1
401	0	0	0	0	0	0	27	72	0	0	143	0
402	0	0	26	0	0	0	0	72	0	0	166	0

Table A-13. 2032 Projected Alternative B1 & B2 AM Peak Volumes

ID	NBR	NBT	NBL	SBR	SBT	SBL	EBR	EBT	EBL	WBR	WBT	WBL
101	0	0	0	136	0	651	0	753	0	0	226	0
102	0	0	0	0	0	0	0	1055	348	800	226	0
103	50	491	443	575	313	0	284	12	759	0	7	45
104	0	0	0	0	0	0	0	0	0	0	0	0
105	137	1719	94	3	381	26	96	209	12	45	162	75
106	0	905	171	52	591	0	90	0	80	0	0	0
107	224	1026	135	162	751	131	106	977	307	50	901	253
108	89	1435	0	0	881	33	7	4	561	0	0	0
109	0	1996	14	963	837	0	0	0	0	86	0	77
110	0	0	0	2	0	4	98	957	0	8	1024	26
111	103	0	289	0	0	0	0	961	0	0	769	0
112	0	0	0	16	0	6	0	1026	38	27	753	0
201	0	307	0	0	528	57	0	0	0	761	0	122
202	122	211	0	0	282	368	0	0	0	100	0	3
301	8	1062	0	0	659	22	0	0	0	14	0	5
302	47	1028	0	0	566	98	0	0	0	41	0	19
303	34	1058	0	0	585	0	0	0	0	24	0	0
304	0	312	0	0	265	21	0	0	0	20	0	1
401	0	0	0	0	0	0	38	170	0	0	147	0
402	0	0	39	0	0	0	0	170	0	114	108	0

Table A-14. 2032 Projected Alternative B1 & B2 PM Peak Volumes

ID	NBR	NBT	NBL	SBR	SBT	SBL	EBR	EBT	EBL	WBR	WBT	WBL
101	0	0	0	344	0	770	0	379	0	0	401	0
102	0	0	0	0	0	0	0	995	155	666	401	0
103	24	315	318	725	433	0	381	167	613	9	10	83
104	0	0	0	0	0	0	0	0	0	0	0	0
105	87	606	55	21	1316	29	153	134	11	17	189	167
106	0	615	84	120	778	0	52	0	42	0	0	0
107	221	863	124	264	675	111	117	880	311	89	778	230
108	144	1065	0	0	995	67	13	1	810	0	0	0
109	0	1874	31	799	997	0	0	0	0	47	0	64
110	0	0	0	11	0	7	246	749	0	1	1055	108
111	65	0	125	0	0	0	0	756	0	0	1039	0
112	0	0	0	28	0	21	0	807	14	24	1011	0
201	3	165	0	0	737	97	0	0	0	398	0	107
202	93	150	0	0	303	541	0	0	0	19	0	0
301	4	660	0	0	819	11	0	0	0	39	0	13
302	12	582	0	0	795	36	0	0	0	82	0	39
303	12	559	0	0	834	0	0	0	0	47	0	0
304	0	225	0	0	294	11	0	0	0	18	0	1
401	0	0	0	0	0	0	39	94	0	0	242	0
402	0	0	38	0	0	0	0	94	0	0	204	0

Table A-15. 2015 Projected Alternative C AM Peak Volumes

ID	NBR	NBT	NBL	SBR	SBT	SBL	EBR	EBT	EBL	WBR	WBT	WBL
101	0	0	0	0	0	0	0	527	0	0	326	0
102	0	0	0	0	0	0	0	527	0	0	326	0
103	23	321	48	316	291	0	40	52	434	9	10	0
104	0	0	0	0	0	0	0	0	0	0	0	0
105	134	1361	80	3	367	194	38	144	12	343	155	60
106	0	0	0	0	0	0	0	0	0	0	0	0
107	215	1000	123	164	771	131	113	839	248	50	701	263
108	30	1289	0	0	779	0	7	4	670	0	0	0
109	0	1959	14	926	736	0	0	0	0	0	0	43
110	0	0	0	2	0	4	98	429	0	8	324	26
111	103	0	289	0	0	0	0	433	0	0	69	0
112	0	0	0	16	0	6	0	498	38	27	53	0
201	0	216	0	0	464	62	0	0	22	597	0	84
202	59	176	0	0	238	309	0	0	0	40	0	4
301	8	809	0	0	583	21	0	0	0	14	0	5
302	42	776	0	0	485	104	0	0	0	40	0	19
303	34	800	0	0	525	0	0	0	0	24	0	0
304	0	216	0	0	222	21	0	0	0	21	0	0

Table A-16. 2015 Projected Alternative C PM Peak Volumes

ID	NBR	NBT	NBL	SBR	SBT	SBL	EBR	EBT	EBL	WBR	WBT	WBL
101	0	0	0	0	0	0	0	360	0	0	471	0
102	0	0	0	0	0	0	0	360	0	0	471	0
103	0	305	41	408	305	0	29	0	331	9	46	27
104	0	0	0	0	0	0	0	0	0	0	0	0
105	74	480	43	21	1128	319	72	110	11	180	175	122
106	0	0	0	0	0	0	0	0	0	0	0	0
107	272	832	108	97	897	111	120	690	210	89	697	246
108	39	934	0	0	912	0	13	1	833	0	0	0
109	0	1767	31	834	874	0	0	0	0	0	0	38
110	0	0	0	11	0	7	246	114	0	1	460	108
111	65	0	125	0	0	0	0	121	0	0	444	0
112	0	0	0	28	0	21	0	172	14	24	416	0
201	3	157	0	0	621	68	0	0	8	344	0	65
202	52	145	0	0	238	447	0	0	0	15	2	0
301	0	598	0	0	649	11	0	0	0	39	0	13
302	13	521	12	0	626	36	0	0	0	81	0	40
303	12	499	0	0	689	0	0	0	0	47	0	0
304	0	180	0	0	229	11	0	0	0	18	0	0

Table A-17. 2032 Projected Alternative C AM Peak Volumes

ID	NBR	NBT	NBL	SBR	SBT	SBL	EBR	EBT	EBL	WBR	WBT	WBL
101	0	0	0	0	0	0	0	654	0	0	426	0
102	0	0	0	0	0	0	0	654	0	0	426	0
103	50	486	70	361	288	0	49	70	534	9	34	35
104	0	0	0	0	0	0	0	0	0	0	0	0
105	139	1752	98	3	403	112	102	345	12	442	209	83
106	0	0	0	0	0	0	0	0	0	0	0	0
107	232	1076	182	174	494	131	155	808	269	50	827	251
108	31	1363	0	0	839	0	7	4	733	0	0	0
109	0	2090	14	1145	798	0	0	0	0	0	0	47
110	0	0	0	2	0	4	98	556	0	8	424	26
111	103	0	289	0	0	0	0	560	0	0	169	0
112	0	0	0	16	0	6	0	625	38	27	153	0
201	3	174	0	0	782	111	0	0	8	400	0	99
202	83	158	0	0	299	582	0	0	0	18	0	0
301	8	1092	0	0	648	21	0	0	0	14	0	5
302	52	1060	0	0	559	94	0	0	0	40	0	20
303	34	1094	0	0	893	0	0	0	0	24	0	0
304	0	295	0	0	262	21	0	0	0	30	0	0

Table A-18. 2032 Projected Alternative C PM Peak Volumes

ID	NBR	NBT	NBL	SBR	SBT	SBL	EBR	EBT	EBL	WBR	WBT	WBL
101	0	0	0	0	0	0	0	424	0	0	638	0
102	0	0	0	0	0	0	0	424	0	0	638	0
103	30	312	61	540	375	0	41	26	357	9	78	64
104	0	0	0	0	0	0	0	0	0	0	0	0
105	94	619	56	21	1351	330	155	209	11	252	245	178
106	0	0	0	0	0	0	0	0	0	0	0	0
107	220	884	214	290	663	111	226	813	277	89	669	228
108	45	1032	0	0	945	0	13	1	1006	0	0	0
109	0	2037	31	1000	916	0	0	0	0	0	0	29
110	0	0	0	11	0	7	246	178	0	1	627	108
111	65	0	125	0	0	0	0	185	0	0	611	0
112	0	0	0	28	0	21	0	236	14	24	583	0
201	3	174	0	0	782	111	0	0	8	400	0	99
202	83	158	0	0	299	582	0	0	0	20	0	0
301	0	667	0	0	816	11	0	0	0	38	0	13
302	13	592	13	0	794	35	0	0	0	80	0	42
303	12	571	0	0	893	0	0	0	0	47	0	0
304	0	224	0	0	290	11	0	0	0	18	0	0

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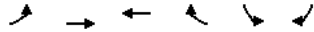


APPENDIX B | Intersection Analysis of Existing Conditions (2011)

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Lanes, Volumes, Timings
101: Flournoy Lucas Rd & LA 3132 SB

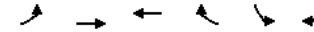
LA 3132 (Inner Loop) Extension - Stage 0 Study
2011 Existing AM Peak



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	ø1	ø2	ø6	ø11	ø12
Lane Configurations		↑↑	↑↑		↓↓	↓↓					
Volume (vph)	0	667	165	0	362	93					
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900					
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	0.95					
Frt					0.969						
Fit Protected					0.962						
Satd. Flow (prot)	0	3505	3406	0	3069	0					
Fit Permitted					0.962						
Satd. Flow (perm)	0	3505	3406	0	3069	0					
Right Turn on Red				Yes		Yes					
Satd. Flow (RTOR)					30						
Link Speed (mph)		45	45		45						
Link Distance (ft)		986	649		631						
Travel Time (s)		14.9	9.8		9.6						
Peak Hour Factor	0.86	0.86	0.81	0.81	0.77	0.77					
Heavy Vehicles (%)	0%	3%	6%	0%	14%	4%					
Adj. Flow (vph)	0	776	204	0	470	121					
Shared Lane Traffic (%)											
Lane Group Flow (vph)	0	776	204	0	591	0					
Enter Blocked Intersection	No	No	No	No	No	No					
Lane Alignment	Left	Left	Left	Right	Left	Right					
Median Width(ft)		34	34		24						
Link Offset(ft)		0	0		0						
Crosswalk Width(ft)		16	16		16						
Two way Left Turn Lane											
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00					
Turning Speed (mph)		15		9	15	9					
Turn Type		NA	NA		NA						
Protected Phases		2 11	6 11		4		1	2	6	11	12
Permitted Phases											
Detector Phase		2 11	6 11		4						
Switch Phase											
Minimum Initial (s)					7.0		4.0	15.0	15.0	5.0	15.0
Minimum Split (s)					13.0		10.0	21.0	21.0	11.0	21.0
Total Split (s)					50.0		15.0	60.0	60.0	15.0	50.0
Total Split (%)					40.0%		12%	48%	48%	12%	40%
Yellow Time (s)					3.5		5.0	5.0	5.0	5.0	5.0
All-Red Time (s)					1.5		1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)					0.0						
Total Lost Time (s)					5.0						
Lead/Lag											
Lead-Lag Optimize?											
Recall Mode					None		None	Min	Min	None	None
Act Effct Green (s)		57.8	57.8		37.5						
Actuated g/C Ratio		0.54	0.54		0.35						
v/c Ratio		0.41	0.11		0.54						
Control Delay		15.7	13.3		29.1						
Queue Delay		0.0	0.0		0.0						
Total Delay		15.7	13.3		29.1						

Lanes, Volumes, Timings
101: Flournoy Lucas Rd & LA 3132 SB

LA 3132 (Inner Loop) Extension - Stage 0 Study
2011 Existing AM Peak

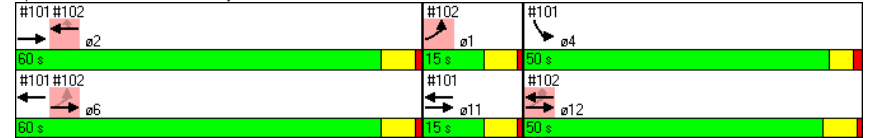


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	ø1	ø2	ø6	ø11	ø12
LOS		B	B		C						
Approach Delay		15.7	13.3		29.1						
Approach LOS		B	B		C						
Queue Length 50th (ft)		177	42		167						
Queue Length 95th (ft)		214	58		195						
Internal Link Dist (ft)		906	569		551						
Turn Bay Length (ft)											
Base Capacity (vph)		2071	2012		1367						
Starvation Cap Reductn		0	0		0						
Spillback Cap Reductn		0	0		0						
Storage Cap Reductn		0	0		0						
Reduced v/c Ratio		0.37	0.10		0.43						

Intersection Summary

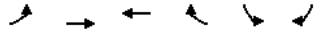
Area Type:	Other
Cycle Length:	125
Actuated Cycle Length:	106.8
Natural Cycle:	60
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.62
Intersection Signal Delay:	20.4
Intersection Capacity Utilization:	69.7%
Analysis Period (min):	15
Intersection LOS:	C
ICU Level of Service:	C

Splits and Phases: 101: Flournoy Lucas Rd & LA 3132 SB



Lanes, Volumes, Timings
102: Flournoy Lucas Rd & LA3132 NB

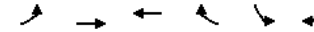
LA 3132 (Inner Loop) Extension - Stage 0 Study
2011 Existing AM Peak



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	ø2	ø4	ø6	ø11	ø12
Lane Configurations	↔	↕↕	↕↕	↕							
Volume (vph)	343	662	170	658	0	0					
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900					
Storage Length (ft)	200			85	0	0					
Storage Lanes	1			1	0	0					
Taper Length (ft)	50				50						
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00					
Frt				0.850							
Flt Protected	0.950										
Satd. Flow (prot)	1787	3312	3343	1538	0	0					
Flt Permitted	0.620										
Satd. Flow (perm)	1166	3312	3343	1538	0	0					
Right Turn on Red				Yes		Yes					
Satd. Flow (RTOR)				473							
Link Speed (mph)		45	45		45						
Link Distance (ft)		649	750		607						
Travel Time (s)		9.8	11.4		9.2						
Peak Hour Factor	0.86	0.86	0.81	0.81	0.92	0.92					
Heavy Vehicles (%)	1%	9%	8%	5%	0%	0%					
Adj. Flow (vph)	399	770	210	812	0	0					
Shared Lane Traffic (%)											
Lane Group Flow (vph)	399	770	210	812	0	0					
Enter Blocked Intersection	No	No	No	No	No	No					
Lane Alignment	Left	Left	Left	Right	Left	Right					
Median Width(ft)		24	34		0						
Link Offset(ft)		0	0		0						
Crosswalk Width(ft)		16	16		16						
Two way Left Turn Lane											
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00					
Turning Speed (mph)	15				9	15					
Turn Type	pm+pt	NA	NA	Perm							
Protected Phases	1	6 12	2 12				2	4	6	11	12
Permitted Phases	6 12			2 12							
Detector Phase	1	6 12	2 12	2 12							
Switch Phase											
Minimum Initial (s)	4.0						15.0	7.0	15.0	5.0	15.0
Minimum Split (s)	10.0						21.0	13.0	21.0	11.0	21.0
Total Split (s)	15.0						60.0	50.0	60.0	15.0	50.0
Total Split (%)	12.0%						48%	40%	48%	12%	40%
Yellow Time (s)	5.0						5.0	3.5	5.0	5.0	5.0
All-Red Time (s)	1.0						1.0	1.5	1.0	1.0	1.0
Lost Time Adjust (s)	0.0										
Total Lost Time (s)	6.0										
Lead/Lag											
Lead-Lag Optimize?											
Recall Mode	None						Min	None	Min	None	None
Act Effct Green (s)	94.3	84.9	84.9	84.9							
Actuated g/C Ratio	0.88	0.79	0.79	0.79							
v/c Ratio	0.37	0.29	0.08	0.62							

Lanes, Volumes, Timings
102: Flournoy Lucas Rd & LA3132 NB

LA 3132 (Inner Loop) Extension - Stage 0 Study
2011 Existing AM Peak



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	ø2	ø4	ø6	ø11	ø12
Control Delay	4.9	1.4	2.2	3.4							
Queue Delay	0.0	0.0	0.0	0.0							
Total Delay	4.9	1.4	2.2	3.4							
LOS	A	A	A	A							
Approach Delay		2.6	3.2								
Approach LOS		A	A								
Queue Length 50th (ft)	64	22	12	45							
Queue Length 95th (ft)	96	25	16	54							
Internal Link Dist (ft)		569	670		527						
Turn Bay Length (ft)	200				85						
Base Capacity (vph)	1084	2964	2992	1426							
Starvation Cap Reductn	0	0	0	0							
Spillback Cap Reductn	0	0	0	0							
Storage Cap Reductn	0	0	0	0							
Reduced v/c Ratio	0.37	0.26	0.07	0.57							

Intersection Summary

Area Type:	Other
Cycle Length:	125
Actuated Cycle Length:	106.8
Natural Cycle:	60
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.62
Intersection Signal Delay:	2.8
Intersection Capacity Utilization:	69.7%
Intersection LOS:	A
ICU Level of Service:	C
Analysis Period (min):	15

Splits and Phases: 102: Flournoy Lucas Rd & LA3132 NB

#101 #102	#102	#101
← ø2	↖ ø1	↖ ø4
60 s	15 s	50 s
#101 #102	#101	#102
← ø6	↖ ø11	↖ ø12
60 s	15 s	50 s

Lanes, Volumes, Timings
103: LA 1 & Flournoy Lucas Rd

LA 3132 (Inner Loop) Extension - Stage 0 Study
2011 Existing AM Peak

	←		→		↙		↘		↖		↗	
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖		↖	↖	↖	↖	↖	↖	↖	↖	↖
Volume (vph)	343	191	129	1	220	9	82	217	0	0	125	363
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	0	0	0	0	125	0	165	0	165	0
Storage Lanes	1	0	0	0	0	0	1	0	1	0	1	0
Taper Length (ft)	50			50			50		50		50	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00	0.850
Frt	0.939		0.995		0.950		0.950		0.850		0.850	
Flt Protected	0.950						0.950					
Satd. Flow (prot)	1752	1580	0	0	1865	0	1347	3282	0	1900	3406	1553
Flt Permitted	0.250				0.998		0.520					
Satd. Flow (perm)	461	1580	0	0	1861	0	737	3282	0	1900	3406	1553
Right Turn on Red			Yes		Yes		Yes		Yes			No
Satd. Flow (RTOR)	30		1		1		55		55		55	
Link Speed (mph)	50		50		55		55		55		55	
Link Distance (ft)	784		651		1092		934		934		934	
Travel Time (s)	10.7		8.9		13.5		11.6		11.6		11.6	
Peak Hour Factor	0.77	0.77	0.77	0.86	0.86	0.86	0.86	0.86	0.86	0.80	0.80	0.80
Heavy Vehicles (%)	3%	2%	29%	0%	1%	11%	34%	10%	0%	0%	6%	4%
Adj. Flow (vph)	445	248	168	1	256	10	95	252	0	0	156	454
Shared Lane Traffic (%)												
Lane Group Flow (vph)	445	416	0	0	267	0	95	252	0	0	156	454
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)	24		0		12		12		12		12	
Link Offset(ft)	0		0		0		0		0		0	
Crosswalk Width(ft)	16		16		16		16		16		16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15	9	15	9	15	9	15	9	15	9
Turn Type	pm+pt	NA	Perm	NA	pm+pt	NA	pm+pt	NA	pm+pt	NA	pt+ov	
Protected Phases	3	8		4	1	6		5	2	2	2	3
Permitted Phases	8			4	6		2					
Detector Phase	3	8		4	1	6		5	2	2	3	
Switch Phase												
Minimum Initial (s)	5.0	10.0		7.0	7.0		7.0	15.0		5.0	15.0	
Minimum Split (s)	11.5	16.5		13.5	13.5		15.0	23.0		13.0	23.0	
Total Split (s)	30.0	60.0		30.0	30.0		15.0	60.0		15.0	60.0	
Total Split (%)	22.2%	44.4%		22.2%	22.2%		11.1%	44.4%		11.1%	44.4%	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.5	5.5		5.5	5.5	
All-Red Time (s)	1.5	1.5		1.5	1.5		2.5	2.5		2.5	2.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.5	6.5		6.5	6.5		8.0	8.0		8.0	8.0	
Lead/Lag	Lead			Lag	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes			Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None		None	Min		None	Min	
Act Effect Green (s)	52.1	52.1		21.8	21.8		46.4	46.4		31.2	61.5	
Actuated g/C Ratio	0.46	0.46		0.19	0.41		0.41	0.41		0.28	0.54	
v/c Ratio	0.92	0.56		0.74	0.28		0.19	0.19		0.17	0.54	

Lanes, Volumes, Timings
103: LA 1 & Flournoy Lucas Rd

LA 3132 (Inner Loop) Extension - Stage 0 Study
2011 Existing AM Peak

	←		→		↙		↘		↖		↗	
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	51.3	25.4		57.7	23.2	21.4				30.9	19.3	
Queue Delay	0.0	0.0		0.0	0.0	0.0				0.0	0.0	
Total Delay	51.3	25.4		57.7	23.2	21.4				30.9	19.3	
LOS	D	C		E	C	C				C	B	
Approach Delay	38.8		57.7		21.9		22.3		22.3		22.3	
Approach LOS	D		E		C		C		C		C	
Queue Length 50th (ft)	227	198		183	44	62				45	210	
Queue Length 95th (ft)	#365	282		#310	75	84				63	249	
Internal Link Dist (ft)	704		571		1012		854		854		854	
Turn Bay Length (ft)					125		165		165		165	
Base Capacity (vph)	483	770		391	340	1561				1581	851	
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	0.92	0.54		0.68	0.28	0.16				0.10	0.53	

Intersection Summary

Area Type:	Other
Cycle Length:	135
Actuated Cycle Length:	113.1
Natural Cycle:	80
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.92
Intersection Signal Delay:	33.6
Intersection Capacity Utilization:	73.7%
ICU Level of Service:	D
Analysis Period (min):	15
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 103: LA 1 & Flournoy Lucas Rd



Lanes, Volumes, Timings
104: LA 1 & Harts Island Rd

LA 3132 (Inner Loop) Extension - Stage 0 Study
2011 Existing AM Peak

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	22	3	2	141	147	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	240			0
Storage Lanes	1	0	1			0
Taper Length (ft)	50		50			
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95
Frt	0.985			0.990		
Flt Protected	0.958		0.950			
Satd. Flow (prot)	1205	0	1203	3195	3020	0
Flt Permitted	0.958		0.950			
Satd. Flow (perm)	1205	0	1203	3195	3020	0
Link Speed (mph)	30			65	65	
Link Distance (ft)	1541			1427	7545	
Travel Time (s)	35.0			15.0	79.1	
Peak Hour Factor	0.57	0.57	0.78	0.78	0.96	0.96
Heavy Vehicles (%)	55%	0%	50%	13%	19%	9%
Adj. Flow (vph)	39	5	3	181	153	11
Shared Lane Traffic (%)						
Lane Group Flow (vph)	44	0	3	181	164	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			76	62	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	14.4%		ICU Level of Service A			
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis LA 3132 (Inner Loop) Extension - Stage 0 Study
104: LA 1 & Harts Island Rd

2011 Existing AM Peak

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	22	3	2	141	147	11
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.57	0.57	0.78	0.78	0.96	0.96
Hourly flow rate (vph)	39	5	3	181	153	11
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				Raised	Raised	
Median storage (veh)				3	2	
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	254	82	165			
vC1, stage 1 conf vol	159					
vC2, stage 2 conf vol	96					
vCu, unblocked vol	254	82	165			
tC, single (s)	7.9	6.9	5.1			
tC, 2 stage (s)	6.9					
tF (s)	4.0	3.3	2.7			
p0 queue free %	94	99	100			
cM capacity (veh/h)	695	967	1123			
Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	44	3	90	90	102	62
Volume Left	39	3	0	0	0	0
Volume Right	5	0	0	0	0	11
cSH	719	1123	1700	1700	1700	1700
Volume to Capacity	0.06	0.00	0.05	0.05	0.06	0.04
Queue Length 95th (ft)	5	0	0	0	0	0
Control Delay (s)	10.3	8.2	0.0	0.0	0.0	0.0
Lane LOS	B	A				
Approach Delay (s)	10.3	0.1			0.0	
Approach LOS	B					
Intersection Summary						
Average Delay	1.2					
Intersection Capacity Utilization	14.4%		ICU Level of Service		A	
Analysis Period (min)	15					

Lanes, Volumes, Timings
105: Ellerbe Rd & Flounoy Lucas Rd

LA 3132 (Inner Loop) Extension - Stage 0 Study
2011 Existing AM Peak

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Volume (vph)	12	161	49	100	73	31	47	583	388	26	225	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	140		0	150		0	115		120	150		0
Storage Lanes	1		0	1		1	1		1	1		1
Taper Length (ft)	50			50			50			50		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.965				0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1671	1740	0	1656	1727	1468	1736	1792	1615	1770	1881	1568
Flt Permitted	0.495			0.595			0.324			0.207		
Satd. Flow (perm)	871	1740	0	1037	1727	1468	592	1792	1615	386	1881	1568
Right Turn on Red			Yes			Yes			Yes		Yes	
Satd. Flow (RTOR)		18				38			185			4
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		848			838			697			896	
Travel Time (s)		12.8			12.7			10.6			13.6	
Peak Hour Factor	0.79	0.79	0.79	0.82	0.82	0.82	0.81	0.81	0.81	0.77	0.77	0.77
Heavy Vehicles (%)	8%	4%	10%	9%	10%	10%	4%	6%	0%	2%	1%	3%
Adj. Flow (vph)	15	204	62	122	89	38	58	720	479	34	292	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	15	266	0	122	89	38	58	720	479	34	292	4
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)	12			12			12			12		
Link Offset(ft)	0			0			0			0		
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane				Yes							Yes	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8			4		4	6		6	2		2
Detector Phase	3	8		7	4	4	1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	7.0	15.0		7.0	15.0	15.0	7.0	10.0	10.0	7.0	10.0	10.0
Minimum Split (s)	12.0	20.0		14.0	22.0	22.0	12.0	15.0	15.0	14.0	17.0	17.0
Total Split (s)	15.0	40.0		15.0	40.0	40.0	15.0	26.0	26.0	15.0	26.0	26.0
Total Split (%)	15.6%	41.7%		15.6%	41.7%	41.7%	15.6%	27.1%	27.1%	15.6%	27.1%	27.1%
Yellow Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	0.0	0.0		2.0	2.0	2.0	0.0	0.0	0.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0		7.0	7.0	7.0	5.0	5.0	5.0	7.0	7.0	7.0
Lead/Lag	Lead	Lead		Lag	Lag	Lag	Lead	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Min		None	Min	Min	None	None	None	None	None	None
Act Effect Green (s)	18.2	18.2		26.8	24.8	24.8	23.8	23.8	23.8	23.8	19.5	19.5
Actuated g/C Ratio	0.27	0.27		0.39	0.37	0.37	0.35	0.35	0.35	0.35	0.29	0.29
v/c Ratio	0.05	0.55		0.26	0.14	0.07	0.17	1.15	0.70	0.12	0.54	0.01

Lanes, Volumes, Timings
105: Ellerbe Rd & Flounoy Lucas Rd

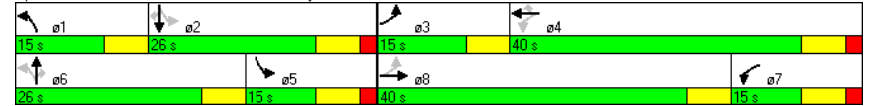
LA 3132 (Inner Loop) Extension - Stage 0 Study
2011 Existing AM Peak

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	22.7	27.6		20.8	18.2	7.6	21.2	110.6	21.4	26.4	28.8	16.0
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.7	27.6		20.8	18.2	7.6	21.2	110.6	21.4	26.4	28.8	16.0
LOS	C	C		C	B	A	C	F	C	C	C	B
Approach Delay		27.3			17.9			72.5			28.4	
Approach LOS		C			B			E			C	
Queue Length 50th (ft)	5	99		34	24	0	14	283	88	11	116	0
Queue Length 95th (ft)	17	155		85	65	19	47	#649	#257	32	183	7
Internal Link Dist (ft)		768			758			617			816	
Turn Bay Length (ft)	140			150			115		120	150		
Base Capacity (vph)	356	941		500	872	760	382	627	686	310	551	461
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	0.04	0.28		0.24	0.10	0.05	0.15	1.15	0.70	0.11	0.53	0.01

Intersection Summary

Area Type:	Other
Cycle Length:	96
Actuated Cycle Length:	67.9
Natural Cycle:	90
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	1.15
Intersection Signal Delay:	53.2
Intersection Capacity Utilization:	71.6%
ICU Level of Service:	C
Analysis Period (min):	15
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 105: Ellerbe Rd & Flounoy Lucas Rd



Lanes, Volumes, Timings
106: LA 1 & Leonard Rd

LA 3132 (Inner Loop) Extension - Stage 0 Study
2011 Existing AM Peak

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	205	36	8	199	284	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	145			0
Storage Lanes	1	0	1			0
Taper Length (ft)	50		50			
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95
Frt	0.980			0.981		
Flt Protected	0.959		0.950			
Satd. Flow (prot)	1741	0	1444	3034	3008	0
Flt Permitted	0.959		0.950			
Satd. Flow (perm)	1741	0	1444	3034	3008	0
Link Speed (mph)	50			65	65	
Link Distance (ft)	1319			7545	2639	
Travel Time (s)	18.0			79.1	27.7	
Peak Hour Factor	0.77	0.77	0.75	0.75	0.89	0.89
Heavy Vehicles (%)	3%	0%	25%	19%	20%	2%
Adj. Flow (vph)	266	47	11	265	319	46
Shared Lane Traffic (%)						
Lane Group Flow (vph)	313	0	11	265	365	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			66	78	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	29.4%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis LA 3132 (Inner Loop) Extension - Stage 0 Study
106: LA 1 & Leonard Rd

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	205	36	8	199	284	41
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.77	0.77	0.75	0.75	0.89	0.89
Hourly flow rate (vph)	266	47	11	265	319	46
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				Raised	Raised	
Median storage (veh)				2	3	
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	496	183	365			
vC1, stage 1 conf vol	342					
vC2, stage 2 conf vol	154					
vCu, unblocked vol	496	183	365			
tC, single (s)	6.9	6.9	4.6			
tC, 2 stage (s)	5.9					
tF (s)	3.5	3.3	2.4			
p0 queue free %	60	94	99			
cM capacity (veh/h)	668	835	1041			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	313	11	133	133	213	152
Volume Left	266	11	0	0	0	0
Volume Right	47	0	0	0	0	46
cSH	688	1041	1700	1700	1700	1700
Volume to Capacity	0.45	0.01	0.08	0.08	0.13	0.09
Queue Length 95th (ft)	60	1	0	0	0	0
Control Delay (s)	14.5	8.5	0.0	0.0	0.0	0.0
Lane LOS	B	A				
Approach Delay (s)	14.5	0.3			0.0	
Approach LOS	B					

Intersection Summary

Average Delay	4.9
Intersection Capacity Utilization	29.4%
Analysis Period (min)	15
	ICU Level of Service A

Lanes, Volumes, Timings
107: LA 1 & Bert Kouns Industrial Loop

LA 3132 (Inner Loop) Extension - Stage 0 Study
2011 Existing AM Peak

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	281	642	130	191	782	50	270	638	136	131	402	234
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	230		230	150		115	220		220	230		230
Storage Lanes	2		1	1		1	2		1	2		1
Taper Length (ft)	50			50			50			50		
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3303	3471	1482	1770	3539	1615	3433	3471	1568	3303	3505	1495
Flt Permitted	0.950			0.378			0.950			0.950		
Satd. Flow (perm)	3303	3471	1482	704	3539	1615	3433	3471	1568	3303	3505	1495
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			146			28			111			29
Link Speed (mph)		50			50			45				45
Link Distance (ft)		1652			1693			1702				1927
Travel Time (s)		22.5			23.1			25.8				29.2
Peak Hour Factor	0.89	0.89	0.89	0.92	0.92	0.92	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	6%	4%	9%	2%	2%	0%	2%	4%	3%	6%	3%	8%
Adj. Flow (vph)	316	721	146	208	850	54	297	701	149	144	442	257
Shared Lane Traffic (%)												
Lane Group Flow (vph)	316	721	146	208	850	54	297	701	149	144	442	257
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24		24			24			24		24
Link Offset(ft)		0		0			0			0		0
Crosswalk Width(ft)		16		16			16			16		16
Two way Left Turn Lane					Yes							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Prot	NA	Prot	pm+pt	NA	pt+ov	Prot	NA	pt+ov	Prot	NA	pt+ov
Protected Phases	1	6	6	5	2	2.7	3	8	5.8	7	4	1.4
Permitted Phases				2								
Detector Phase	1	6	6	5	2	2.7	3	8	5.8	7	4	1.4
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0		5.0	10.0		12.0	10.0	
Minimum Split (s)	11.0	16.0	16.0	11.0	16.0		11.0	16.0		18.0	16.0	
Total Split (s)	17.0	34.0	34.0	20.0	37.0		20.0	36.0		19.0	36.0	
Total Split (%)	15.5%	30.9%	30.9%	18.2%	33.6%		18.2%	32.7%		17.3%	32.7%	
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5		1.5	1.5		1.5	1.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0		6.0	6.0		6.0	6.0	
Lead/Lag	Lead	Lead	Lead	Lag	Lag		Lead	Lead		Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	C-Min	C-Min	None	C-Min		None	None		None	None	
Act Effect Green (s)	12.9	30.5	30.5	31.9	31.9	44.3	13.2	28.9	49.1	12.4	28.1	46.9
Actuated g/C Ratio	0.12	0.28	0.28	0.29	0.29	0.40	0.12	0.26	0.45	0.11	0.26	0.43
v/c Ratio	0.82	0.75	0.28	0.61	0.83	0.08	0.72	0.77	0.20	0.39	0.49	0.39

Lanes, Volumes, Timings
107: LA 1 & Bert Kouns Industrial Loop

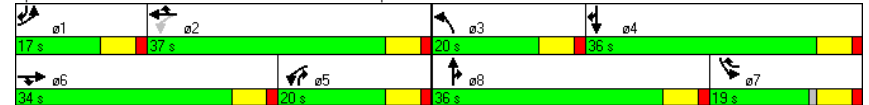
LA 3132 (Inner Loop) Extension - Stage 0 Study
2011 Existing AM Peak

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	65.7	42.5	6.8	46.6	45.0	6.7	57.2	43.8	6.3	48.4	36.9	21.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	65.7	42.5	6.8	46.6	45.0	6.7	57.2	43.8	6.3	48.4	36.9	21.2
LOS	E	D	A	D	D	A	E	D	A	D	D	C
Approach Delay			44.3			43.4			42.4			34.1
Approach LOS			D			D			D			C
Queue Length 50th (ft)	113	245	0	120	298	7	104	237	15	49	140	108
Queue Length 95th (ft)	#201	321	48	191	#386	22	151	306	52	79	186	176
Internal Link Dist (ft)		1572			1613			1622				1847
Turn Bay Length (ft)	230		230	150		115	220		220	230		230
Base Capacity (vph)	386	962	516	342	1025	690	437	947	776	420	956	616
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	0.82	0.75	0.28	0.61	0.83	0.08	0.68	0.74	0.19	0.34	0.46	0.42

Intersection Summary

Area Type:	Other
Cycle Length:	110
Actuated Cycle Length:	110
Offset:	5 (5%), Referenced to phase 2:WBTL and 6:EBT, Start of Green
Natural Cycle:	80
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.83
Intersection Signal Delay:	41.6
Intersection LOS:	D
Intersection Capacity Utilization:	77.3%
ICU Level of Service:	D
Analysis Period (min):	15
#	95th percentile volume exceeds capacity, queue may be longer.
	Queue shown is maximum after two cycles.

Splits and Phases: 107: LA 1 & Bert Kouns Industrial Loop



Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
 108: Bert Kouns Industrial Loop & LA 3132 EB Off Ramp/LA 3132 EB On Ramp⁰¹¹ Existing AM Peak



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔					↕	↕	↔	↔	
Volume (vph)	1273	4	7	0	0	0	0	775	24	51	496	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		110	0		0	0	0	0	295	0	0
Storage Lanes	1		1	0		0	0	0	0	1	0	0
Taper Length (ft)	50			50			50			50		
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frnt			0.850					0.995				
Flt Protected	0.950	0.953								0.950		
Satd. Flow (prot)	1681	1687	1615	0	0	0	0	3510	0	1736	3574	0
Flt Permitted	0.950	0.953								0.214		
Satd. Flow (perm)	1681	1687	1615	0	0	0	0	3510	0	391	3574	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			3					4				
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1564			1165			530			537	
Travel Time (s)		23.7			17.7			8.0			8.1	
Peak Hour Factor	0.83	0.83	0.83	0.92	0.92	0.92	0.87	0.87	0.87	0.82	0.82	0.82
Heavy Vehicles (%)	2%	0%	0%	0%	0%	0%	0%	2%	13%	4%	1%	0%
Adj. Flow (vph)	1534	5	8	0	0	0	0	891	28	62	605	0
Shared Lane Traffic (%)	50%											
Lane Group Flow (vph)	767	772	8	0	0	0	0	919	0	62	605	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)	12			12			27			27		
Link Offset(ft)	0			0			0			0		
Crosswalk Width(ft)	16			16			16			16		
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Split	NA	Perm					NA	custom	NA		
Protected Phases	4	4						6		5	2.5	
Permitted Phases			4							2		
Detector Phase	4	4	4					6		5	2.5	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0					15.0		5.0		
Minimum Split (s)	11.0	11.0	11.0					21.0		10.0		
Total Split (s)	36.0	36.0	36.0					54.0		20.0		
Total Split (%)	32.7%	32.7%	32.7%					49.1%		18.2%		
Yellow Time (s)	5.0	5.0	5.0					5.0		5.0		
All-Red Time (s)	1.0	1.0	1.0					1.0		0.0		
Lost Time Adjust (s)	0.0	0.0	0.0					0.0		0.0		
Total Lost Time (s)	6.0	6.0	6.0					6.0		5.0		
Lead/Lag								Lag		Lead		
Lead-Lag Optimize?								Yes		Yes		
Recall Mode	None	None	None					None		None		
Act Effct Green (s)	30.0	30.0	30.0					48.4		61.0	61.4	
Actuated g/C Ratio	0.28	0.28	0.28					0.45		0.56	0.56	
v/c Ratio	1.65	1.66	0.02					0.59		0.16	0.30	

Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
 108: Bert Kouns Industrial Loop & LA 3132 EB Off Ramp/LA 3132 EB On Ramp⁰¹¹ Existing AM Peak

Lane Group	ø1	ø2	ø8
Lane Configurations			
Volume (vph)			
Ideal Flow (vphpl)			
Storage Length (ft)			
Storage Lanes			
Taper Length (ft)			
Lane Util. Factor			
Frnt			
Flt Protected			
Satd. Flow (prot)			
Flt Permitted			
Satd. Flow (perm)			
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (mph)			
Link Distance (ft)			
Travel Time (s)			
Peak Hour Factor			
Heavy Vehicles (%)			
Adj. Flow (vph)			
Shared Lane Traffic (%)			
Lane Group Flow (vph)			
Enter Blocked Intersection			
Lane Alignment			
Median Width(ft)			
Link Offset(ft)			
Crosswalk Width(ft)			
Two way Left Turn Lane			
Headway Factor			
Turning Speed (mph)			
Turn Type			
Protected Phases	1	2	8
Permitted Phases			
Detector Phase			
Switch Phase			
Minimum Initial (s)	5.0	15.0	12.0
Minimum Split (s)	10.0	21.0	18.0
Total Split (s)	20.0	54.0	36.0
Total Split (%)	18%	49%	33%
Yellow Time (s)	5.0	5.0	5.0
All-Red Time (s)	0.0	1.0	1.0
Lost Time Adjust (s)			
Total Lost Time (s)			
Lead/Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	
Recall Mode	None	None	None
Act Effct Green (s)			
Actuated g/C Ratio			
v/c Ratio			

Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
 108: Bert Kouns Industrial Loop & LA 3132 EB Off Ramp/LA 3132 EB On Ramp⁰¹¹ Existing AM Peak



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	332.7	334.5	24.6					24.6		5.0	4.2	
Queue Delay	295.7	296.1	0.0					0.1		0.0	0.0	
Total Delay	628.4	630.6	24.6					24.7		5.0	4.2	
LOS	F	F	C					C		A	A	
Approach Delay	626.4							24.7			4.2	
Approach LOS	F							C			A	
Queue Length 50th (ft)	~833	~840	3					244		5	27	
Queue Length 95th (ft)	#967	#971	14					304		9	31	
Internal Link Dist (ft)	1484				1085			450			457	
Turn Bay Length (ft)			110							295		
Base Capacity (vph)	464	465	448					1565		411	2235	
Starvation Cap Reductn	0	0	0					0		0	0	
Spillback Cap Reductn	132	132	0					91		0	0	
Storage Cap Reductn	0	0	0					0		0	0	
Reduced v/c Ratio	2.31	2.32	0.02					0.62		0.15	0.27	

Intersection Summary

Area Type: Other
 Cycle Length: 110
 Actuated Cycle Length: 108.7
 Natural Cycle: 90
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.66
 Intersection Signal Delay: 317.5 Intersection LOS: F
 Intersection Capacity Utilization 139.6% ICU Level of Service H
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 108: Bert Kouns Industrial Loop & LA 3132 EB Off Ramp/LA 3132 EB On Ramp

#109 σ1 20 s	#108 #109 σ2 54 s	#108 σ4 36 s
#108 σ5 20 s	#108 #109 σ6 54 s	#109 σ8 36 s

Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
 108: Bert Kouns Industrial Loop & LA 3132 EB Off Ramp/LA 3132 EB On Ramp⁰¹¹ Existing AM Peak

Lane Group	ø1	ø2	ø8
Control Delay			
Queue Delay			
Total Delay			
LOS			
Approach Delay			
Approach LOS			
Queue Length 50th (ft)			
Queue Length 95th (ft)			
Internal Link Dist (ft)			
Turn Bay Length (ft)			
Base Capacity (vph)			
Starvation Cap Reductn			
Spillback Cap Reductn			
Storage Cap Reductn			
Reduced v/c Ratio			

Intersection Summary

Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
 109: Bert Kouns Industrial Loop & LA 3132 WB On Ramp/LA 3132 WB Off Ramp #11 Existing AM Peak



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	13	0	181	14	2033	0	0	535	1039
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	0	0	0	200	295	0	0	0	0	100
Storage Lanes	0	0	0	0	0	1	1	0	0	0	0	1
Taper Length (ft)	50			50			50			50		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Fr't						0.850					0.850	
Fit Protected					0.950		0.950					
Satd. Flow (prot)	0	0	0	0	1805	1599	1805	3539	0	0	3539	1568
Fit Permitted					0.950		0.346					
Satd. Flow (perm)	0	0	0	0	1805	1599	657	3539	0	0	3539	1568
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						6						1067
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		276			1075			537			687	
Travel Time (s)		4.2			16.3			8.1			10.4	
Peak Hour Factor	0.92	0.92	0.92	0.81	0.81	0.81	0.86	0.86	0.86	0.89	0.89	0.89
Heavy Vehicles (%)	0%	0%	0%	0%	0%	1%	0%	2%	0%	0%	2%	3%
Adj. Flow (vph)	0	0	0	16	0	223	16	2364	0	0	601	1167
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	16	223	16	2364	0	0	601	1167
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)	0			0			27			27		
Link Offset(ft)	0			0			0			0		
Crosswalk Width(ft)	16			16			16			16		
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type				Split	NA	Perm	custom	NA			NA	Perm
Protected Phases				8	8		1	1 6			2	
Permitted Phases						8	6					2
Detector Phase				8	8	8	1	1 6			2	2
Switch Phase												
Minimum Initial (s)				12.0	12.0	12.0	5.0				15.0	15.0
Minimum Split (s)				18.0	18.0	18.0	10.0				21.0	21.0
Total Split (s)				36.0	36.0	36.0	20.0				54.0	54.0
Total Split (%)				32.7%	32.7%	32.7%	18.2%				49.1%	49.1%
Yellow Time (s)				5.0	5.0	5.0	5.0				5.0	5.0
All-Red Time (s)				1.0	1.0	1.0	0.0				1.0	1.0
Lost Time Adjust (s)				0.0	0.0	0.0	0.0				0.0	0.0
Total Lost Time (s)				6.0	6.0	6.0	5.0				6.0	6.0
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Recall Mode				None	None	None	None				None	None
Act Effct Green (s)				30.0	30.0	30.0	64.4	66.4			46.7	46.7
Actuated g/C Ratio				0.28	0.28	0.28	0.59	0.61			0.43	0.43
v/c Ratio				0.03	0.50	0.03	1.09				0.40	0.91

Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
 109: Bert Kouns Industrial Loop & LA 3132 WB On Ramp/LA 3132 WB Off Ramp #11 Existing AM Peak

Lane Group	ø4	ø5	ø6
Lane Configurations			
Volume (vph)			
Ideal Flow (vphpl)			
Storage Length (ft)			
Storage Lanes			
Taper Length (ft)			
Lane Util. Factor			
Fr't			
Fit Protected			
Satd. Flow (prot)			
Fit Permitted			
Satd. Flow (perm)			
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (mph)			
Link Distance (ft)			
Travel Time (s)			
Peak Hour Factor			
Heavy Vehicles (%)			
Adj. Flow (vph)			
Shared Lane Traffic (%)			
Lane Group Flow (vph)			
Enter Blocked Intersection			
Lane Alignment			
Median Width(ft)			
Link Offset(ft)			
Crosswalk Width(ft)			
Two way Left Turn Lane			
Headway Factor			
Turning Speed (mph)			
Turn Type			
Protected Phases	4	5	6
Permitted Phases			
Detector Phase			
Switch Phase			
Minimum Initial (s)	5.0	5.0	15.0
Minimum Split (s)	11.0	10.0	21.0
Total Split (s)	36.0	20.0	54.0
Total Split (%)	33%	18%	49%
Yellow Time (s)	5.0	5.0	5.0
All-Red Time (s)	1.0	0.0	1.0
Lost Time Adjust (s)			
Total Lost Time (s)			
Lead/Lag		Lead	Lag
Lead-Lag Optimize?		Yes	Yes
Recall Mode	None	None	None
Act Effct Green (s)			
Actuated g/C Ratio			
v/c Ratio			

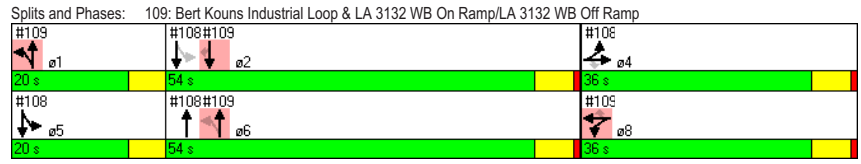
Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
 109: Bert Kouns Industrial Loop & LA 3132 WB On Ramp/LA 3132 WB Off Ramp #1 Existing AM Peak



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay					29.7	37.1	9.6	72.3			22.2	15.1
Queue Delay					0.0	0.0	0.0	14.5			0.0	0.0
Total Delay					29.7	37.1	9.6	86.8			22.2	15.1
LOS					C	D	A	F			C	B
Approach Delay					36.6			86.2			17.5	
Approach LOS					D			F			B	
Queue Length 50th (ft)					8	129	6	~1034			148	42
Queue Length 95th (ft)					23	182	m6	m520			191	#545
Internal Link Dist (ft)		196			995			457			607	
Turn Bay Length (ft)						200	295					100
Base Capacity (vph)					498	445	548	2161			1562	1288
Starvation Cap Reductn					0	0	0	64			0	0
Spillback Cap Reductn					0	0	0	0			0	0
Storage Cap Reductn					0	0	0	0			0	0
Reduced v/c Ratio					0.03	0.50	0.03	1.13			0.38	0.91

Intersection Summary

Area Type: Other
 Cycle Length: 110
 Actuated Cycle Length: 108.7
 Natural Cycle: 90
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.66
 Intersection Signal Delay: 55.8 Intersection LOS: E
 Intersection Capacity Utilization 139.6% ICU Level of Service H
 Analysis Period (min) 15
 ~ 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.




Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
 109: Bert Kouns Industrial Loop & LA 3132 WB On Ramp/LA 3132 WB Off Ramp #1 Existing AM Peak

Lane Group	ø4	ø5	ø6
Control Delay			
Queue Delay			
Total Delay			
LOS			
Approach Delay			
Approach LOS			
Queue Length 50th (ft)			
Queue Length 95th (ft)			
Internal Link Dist (ft)			
Turn Bay Length (ft)			
Base Capacity (vph)			
Starvation Cap Reductn			
Spillback Cap Reductn			
Storage Cap Reductn			
Reduced v/c Ratio			

Intersection Summary

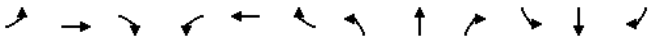
Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
 110: Ashley River Dr SB & Flournoy Lucas Rd 2011 Existing AM Peak



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↕↔	↔	↔	↕↔	↔	↔	↔	↔	↔	↕↔	↔
Volume (vph)	0	620	68	18	794	8	0	0	0	4	0	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	180	0	120	0	0	0	0	0	0	0	0	0
Storage Lanes	1	0	1	0	0	0	0	0	0	0	0	0
Taper Length (ft)	50	0	50	0	0	50	0	0	0	50	0	0
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.985			0.999						0.955	
Fit Protected				0.950							0.968	
Satd. Flow (prot)	1900	3218	0	1703	3404	0	0	0	0	0	1756	0
Fit Permitted				0.950							0.968	
Satd. Flow (perm)	1900	3218	0	1703	3404	0	0	0	0	0	1756	0
Link Speed (mph)		45		45				30			30	
Link Distance (ft)		750		127				320			340	
Travel Time (s)		11.4		1.9				7.3			7.7	
Peak Hour Factor	0.87	0.87	0.87	0.89	0.89	0.89	0.92	0.92	0.92	0.50	0.50	0.50
Heavy Vehicles (%)	0%	11%	6%	6%	6%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	713	78	20	892	9	0	0	0	8	0	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	791	0	20	901	0	0	0	0	0	12	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			14			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane					Yes							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	32.2%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis LA 3132 (Inner Loop) Extension - Stage 0 Study
 110: Ashley River Dr SB & Flournoy Lucas Rd 2011 Existing AM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↕↔	↔	↔	↕↔	↔	↔	↔	↔	↔	↕↔	↔
Volume (veh/h)	0	620	68	18	794	8	0	0	0	4	0	2
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.87	0.87	0.87	0.89	0.89	0.89	0.92	0.92	0.92	0.50	0.50	0.50
Hourly flow rate (vph)	0	713	78	20	892	9	0	0	0	8	0	4
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)		750										
pX, platoon unblocked				0.95			0.95	0.95	0.95	0.95	0.95	0.95
vC, conflicting volume	901			791			1242	1693	395	1293	1728	451
vC1, stage 1 conf vol							752	752		937	937	
vC2, stage 2 conf vol							491	942		356	791	
vCu, unblocked vol	901			680			1154	1628	265	1208	1664	451
tC, single (s)	4.1			4.2			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			2.3			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			98			100	100	100	97	100	99
cM capacity (veh/h)	763			840			343	278	704	268	269	561

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1
Volume Total	0	475	316	20	595	306	12
Volume Left	0	0	0	20	0	0	8
Volume Right	0	0	78	0	0	9	4
cSH	1700	1700	1700	840	1700	1700	324
Volume to Capacity	0.00	0.28	0.19	0.02	0.35	0.18	0.04
Queue Length 95th (ft)	0	0	0	2	0	0	3
Control Delay (s)	0.0	0.0	0.0	9.4	0.0	0.0	16.5
Lane LOS				A			C
Approach Delay (s)	0.0			0.2			16.5
Approach LOS				C			C

Intersection Summary	
Average Delay	0.2
Intersection Capacity Utilization	32.2%
Analysis Period (min)	15
	ICU Level of Service A

Lanes, Volumes, Timings

LA 3132 (Inner Loop) Extension - Stage 0 Study

111: Ashley River Dr NB & Flournoy Lucas Rd

2011 Existing AM Peak

	→	↖	↗	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑	↖	↗
Volume (vph)	644	0	0	627	206	73
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt						0.850
Fit Protected					0.950	
Satd. Flow (prot)	3282	0	0	3374	1805	1568
Fit Permitted				0.950		
Satd. Flow (perm)	3282	0	0	3374	1805	1568
Link Speed (mph)	45			45	30	
Link Distance (ft)	127			2333	283	
Travel Time (s)	1.9			35.3	6.4	
Peak Hour Factor	0.79	0.79	0.84	0.84	0.81	0.81
Heavy Vehicles (%)	10%	0%	0%	7%	0%	3%
Adj. Flow (vph)	815	0	0	746	254	90
Shared Lane Traffic (%)						
Lane Group Flow (vph)	815	0	0	746	254	90
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	14			14	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane	Yes			Yes		
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	35.9%
ICU Level of Service	A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis LA 3132 (Inner Loop) Extension - Stage 0 Study

111: Ashley River Dr NB & Flournoy Lucas Rd

2011 Existing AM Peak

	→	↖	↗	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑	↖	↗
Volume (veh/h)	644	0	0	627	206	73
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.79	0.79	0.84	0.84	0.81	0.81
Hourly flow rate (vph)	815	0	0	746	254	90
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLT			TWLT		
Median storage (veh)	2			2		
Upstream signal (ft)	877					
pX, platoon unblocked			0.97		0.97	0.97
vC, conflicting volume			815		1188	408
vC1, stage 1 conf vol					815	
vC2, stage 2 conf vol					373	
vCu, unblocked vol			747		1132	327
tC, single (s)			4.1		6.8	7.0
tC, 2 stage (s)					5.8	
tF (s)			2.2		3.5	3.3
p0 queue free %			100		33	86
cM capacity (veh/h)			844		382	646

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2
Volume Total	408	408	373	373	254	90
Volume Left	0	0	0	0	254	0
Volume Right	0	0	0	0	0	90
cSH	1700	1700	1700	1700	382	646
Volume to Capacity	0.24	0.24	0.22	0.22	0.67	0.14
Queue Length 95th (ft)	0	0	0	0	116	12
Control Delay (s)	0.0	0.0	0.0	0.0	31.4	11.5
Lane LOS					D	B
Approach Delay (s)	0.0		0.0		26.2	
Approach LOS					D	

Intersection Summary

Average Delay	4.7
Intersection Capacity Utilization	35.9%
ICU Level of Service	A
Analysis Period (min)	15

Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
 112: Flournoy Lucas Rd & Oaks Retirement Rd 2011 Existing AM Peak

	↖	→	←	↗	↘	↙
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↘	↖↖	↖↗		↘	↖
Volume (vph)	38	682	662	27	6	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	375			0	0	0
Storage Lanes	1			0	1	1
Taper Length (ft)	50				50	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Frt			0.994			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1687	3610	3419	0	1805	1524
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1687	3610	3419	0	1805	1524
Link Speed (mph)		45	45		30	
Link Distance (ft)		2333	1050		729	
Travel Time (s)		35.3	15.9		16.6	
Peak Hour Factor	0.80	0.80	0.81	0.81	0.79	0.79
Heavy Vehicles (%)	7%	0%	5%	4%	0%	6%
Adj. Flow (vph)	48	853	817	33	8	20
Shared Lane Traffic (%)						
Lane Group Flow (vph)	48	852	850	0	8	20
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		14	14		28	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane		Yes	Yes			
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	35.8%
ICU Level of Service	A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis LA 3132 (Inner Loop) Extension - Stage 0 Study
 112: Flournoy Lucas Rd & Oaks Retirement Rd 2011 Existing AM Peak

	↖	→	←	↗	↘	↙
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↘	↖↖	↖↗		↘	↖
Volume (veh/h)	38	682	662	27	6	16
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.80	0.80	0.81	0.81	0.79	0.79
Hourly flow rate (vph)	48	852	817	33	8	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	851				1355	425
vC1, stage 1 conf vol					834	
vC2, stage 2 conf vol					521	
vCu, unblocked vol	851				1355	425
tC, single (s)	4.2				6.8	7.0
tC, 2 stage (s)					5.8	
tF (s)	2.3				3.5	3.4
p0 queue free %	94				98	96
cM capacity (veh/h)	752				331	566

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1	SB 2
Volume Total	48	426	426	545	306	8	20
Volume Left	48	0	0	0	0	8	0
Volume Right	0	0	0	0	33	0	20
cSH	752	1700	1700	1700	1700	331	566
Volume to Capacity	0.06	0.25	0.25	0.32	0.18	0.02	0.04
Queue Length 95th (ft)	5	0	0	0	0	2	3
Control Delay (s)	10.1	0.0	0.0	0.0	0.0	16.1	11.6
Lane LOS	B					C	B
Approach Delay (s)	0.5			0.0		12.8	
Approach LOS						B	

Intersection Summary	
Average Delay	0.5
Intersection Capacity Utilization	35.8%
ICU Level of Service	A
Analysis Period (min)	15

Lanes, Volumes, Timings
101: Flournoy Lucas Rd & LA 3132 SB

LA 3132 (Inner Loop) Extension - Stage 0 Study
2011 Existing PM Peak

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	ø1	ø2	ø6	ø11	ø12
Lane Configurations		↑↑	↑↑		↓↓	↓↓					
Volume (vph)	0	444	361	0	462	210					
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900					
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	0.95					
Frt					0.953						
Flt Protected					0.967						
Satd. Flow (prot)	0	3574	3610	0	3262	0					
Flt Permitted					0.967						
Satd. Flow (perm)	0	3574	3610	0	3262	0					
Right Turn on Red				Yes		Yes					
Satd. Flow (RTOR)					69						
Link Speed (mph)		45	45		45						
Link Distance (ft)		986	649		631						
Travel Time (s)		14.9	9.8		9.6						
Peak Hour Factor	0.95	0.95	0.84	0.84	0.90	0.90					
Heavy Vehicles (%)	0%	1%	0%	0%	6%	0%					
Adj. Flow (vph)	0	467	430	0	513	233					
Shared Lane Traffic (%)											
Lane Group Flow (vph)	0	467	430	0	746	0					
Enter Blocked Intersection	No	No	No	No	No	No					
Lane Alignment	Left	Left	Left	Right	Left	Right					
Median Width(ft)		34	34		24						
Link Offset(ft)		0	0		0						
Crosswalk Width(ft)		16	16		16						
Two way Left Turn Lane											
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00					
Turning Speed (mph)		15		9	15	9					
Turn Type		NA	NA		NA						
Protected Phases		6 11	2 11		4		1	2	6	11	12
Permitted Phases											
Detector Phase		6 11	2 11		4						
Switch Phase											
Minimum Initial (s)					7.0		4.0	15.0	15.0	5.0	15.0
Minimum Split (s)					13.0		10.0	21.0	21.0	11.0	21.0
Total Split (s)					50.0		15.0	60.0	60.0	15.0	50.0
Total Split (%)					40.0%		12%	48%	48%	12%	40%
Yellow Time (s)					3.5		5.0	5.0	5.0	5.0	5.0
All-Red Time (s)					1.5		1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)					0.0						
Total Lost Time (s)					5.0						
Lead/Lag											
Lead-Lag Optimize?											
Recall Mode					None		None	Min	Min	None	None
Act Effct Green (s)		41.3	41.3		35.1						
Actuated g/C Ratio		0.47	0.47		0.40						
v/c Ratio		0.28	0.25		0.56						
Control Delay		15.5	15.7		20.7						
Queue Delay		0.0	0.0		0.0						
Total Delay		15.5	15.7		20.7						

Lanes, Volumes, Timings
101: Flournoy Lucas Rd & LA 3132 SB

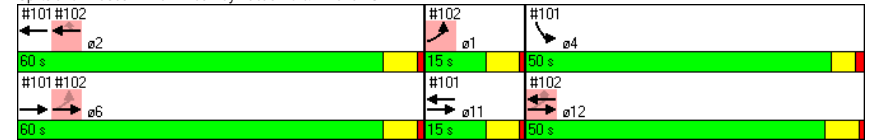
LA 3132 (Inner Loop) Extension - Stage 0 Study
2011 Existing PM Peak

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	ø1	ø2	ø6	ø11	ø12
LOS		B	B		C						
Approach Delay		15.5	15.7		20.7						
Approach LOS		B	B		C						
Queue Length 50th (ft)		82	84		137						
Queue Length 95th (ft)		131	122		257						
Internal Link Dist (ft)		906	569		551						
Turn Bay Length (ft)											
Base Capacity (vph)		2327	2350		1781						
Starvation Cap Reductn		0	0		0						
Spillback Cap Reductn		0	0		0						
Storage Cap Reductn		0	0		0						
Reduced v/c Ratio		0.20	0.18		0.42						

Intersection Summary

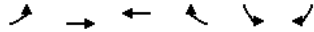
Area Type:	Other
Cycle Length:	125
Actuated Cycle Length:	88
Natural Cycle:	55
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.56
Intersection Signal Delay:	17.9
Intersection Capacity Utilization:	43.1%
Intersection LOS:	B
ICU Level of Service:	A
Analysis Period (min):	15

Splits and Phases: 101: Flournoy Lucas Rd & LA 3132 SB



Lanes, Volumes, Timings
102: Flournoy Lucas Rd & LA3132 NB

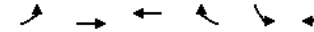
LA 3132 (Inner Loop) Extension - Stage 0 Study
2011 Existing PM Peak



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	ø2	ø4	ø6	ø11	ø12
Lane Configurations	↔	↕	↕	↕	↔	↔					
Volume (vph)	152	751	364	399	0	0					
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900					
Storage Length (ft)	200			85	0	0					
Storage Lanes	1			1	0	0					
Taper Length (ft)	50				50						
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00					
Frt				0.850							
Fit Protected	0.950										
Satd. Flow (prot)	1770	3438	3574	1482	0	0					
Fit Permitted	0.497										
Satd. Flow (perm)	926	3438	3574	1482	0	0					
Right Turn on Red				Yes		Yes					
Satd. Flow (RTOR)				481							
Link Speed (mph)		45	45		30						
Link Distance (ft)		649	750		608						
Travel Time (s)		9.8	11.4		13.8						
Peak Hour Factor	0.94	0.94	0.83	0.83	0.92	0.92					
Heavy Vehicles (%)	2%	5%	1%	9%	0%	0%					
Adj. Flow (vph)	162	799	439	481	0	0					
Shared Lane Traffic (%)											
Lane Group Flow (vph)	162	799	439	481	0	0					
Enter Blocked Intersection	No	No	No	No	No	No					
Lane Alignment	Left	Left	Left	Right	Left	Right					
Median Width(ft)		24	34		0						
Link Offset(ft)		0	0		0						
Crosswalk Width(ft)		16	16		16						
Two way Left Turn Lane											
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00					
Turning Speed (mph)	15				9	15					
Turn Type	pm+pt	NA	NA	Perm							
Protected Phases	1	6 12	2 12				2	4	6	11	12
Permitted Phases	6 12			2 12							
Detector Phase	1	6 12	2 12	2 12							
Switch Phase											
Minimum Initial (s)	4.0						15.0	7.0	15.0	5.0	15.0
Minimum Split (s)	10.0						21.0	13.0	21.0	11.0	21.0
Total Split (s)	15.0						60.0	50.0	60.0	15.0	50.0
Total Split (%)	12.0%						48%	40%	48%	12%	40%
Yellow Time (s)	5.0						5.0	3.5	5.0	5.0	5.0
All-Red Time (s)	1.0						1.0	1.5	1.0	1.0	1.0
Lost Time Adjust (s)	0.0										
Total Lost Time (s)	6.0										
Lead/Lag											
Lead-Lag Optimize?											
Recall Mode	None						Min	None	Min	None	None
Act Effct Green (s)	75.4	66.0	66.0	66.0							
Actuated g/C Ratio	0.86	0.75	0.75	0.75							
v/c Ratio	0.18	0.31	0.16	0.39							

Lanes, Volumes, Timings
102: Flournoy Lucas Rd & LA3132 NB

LA 3132 (Inner Loop) Extension - Stage 0 Study
2011 Existing PM Peak

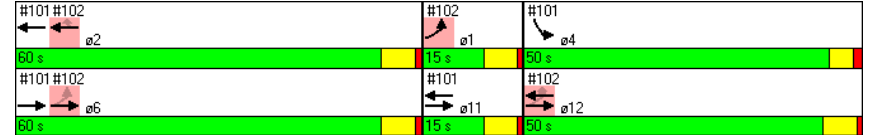


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	ø2	ø4	ø6	ø11	ø12
Control Delay	2.2	1.5	2.9	1.2							
Queue Delay	0.0	0.0	0.0	0.0							
Total Delay	2.2	1.5	2.9	1.2							
LOS	A	A	A	A							
Approach Delay		1.6	2.0								
Approach LOS		A	A								
Queue Length 50th (ft)	3	21	27	0							
Queue Length 95th (ft)	28	24	33	10							
Internal Link Dist (ft)		569	670		528						
Turn Bay Length (ft)	200				85						
Base Capacity (vph)	884	3376	3510	1464							
Starvation Cap Reductn	0	0	0	0							
Spillback Cap Reductn	0	0	0	0							
Storage Cap Reductn	0	0	0	0							
Reduced v/c Ratio	0.18	0.24	0.13	0.33							

Intersection Summary

Area Type:	Other
Cycle Length:	125
Actuated Cycle Length:	88
Natural Cycle:	55
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.56
Intersection Signal Delay:	1.8
Intersection Capacity Utilization:	43.1%
Intersection LOS:	A
ICU Level of Service:	A
Analysis Period (min):	15

Splits and Phases: 102: Flournoy Lucas Rd & LA3132 NB



Lanes, Volumes, Timings
103: LA 1 & Flournoy Lucas Rd

LA 3132 (Inner Loop) Extension - Stage 0 Study
2011 Existing PM Peak

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔		↔	↔	↔	↔	↔	↔	↔	↔	↔
Volume (vph)	344	240	57	0	187	9	138	183	3	2	217	410
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	0	0	0	0	125	0	165	0	165	165
Storage Lanes	1	0	0	0	0	0	1	0	1	0	1	1
Taper Length (ft)	50			50			50		50			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt		0.971			0.994			0.997				0.850
Flt Protected	0.950						0.950			0.950		
Satd. Flow (prot)	1787	1709	0	0	1853	0	1570	3368	0	1805	3438	1599
Flt Permitted	0.260						0.513			0.612		
Satd. Flow (perm)	489	1709	0	0	1853	0	848	3368	0	1163	3438	1599
Right Turn on Red			Yes			Yes			Yes			No
Satd. Flow (RTOR)		10			2			2				
Link Speed (mph)		50			50			55				55
Link Distance (ft)		784			651			1092				934
Travel Time (s)		10.7			8.9			13.5				11.6
Peak Hour Factor	0.89	0.89	0.89	0.80	0.80	0.80	0.83	0.83	0.83	0.81	0.81	0.81
Heavy Vehicles (%)	1%	2%	33%	0%	2%	0%	15%	7%	0%	0%	5%	1%
Adj. Flow (vph)	387	270	64	0	234	11	166	220	4	2	268	506
Shared Lane Traffic (%)												
Lane Group Flow (vph)	387	334	0	0	245	0	166	224	0	2	268	506
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			0			12				12
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA		Perm	NA		pm+pt	NA		pm+pt	NA	pt+ov
Protected Phases	3	8			4		1	6		5	2	23
Permitted Phases	8			4			6			2		
Detector Phase	3	8		4	4		1	6		5	2	23
Switch Phase												
Minimum Initial (s)	5.0	10.0		7.0	7.0		7.0	15.0		5.0	15.0	
Minimum Split (s)	11.5	16.5		13.5	13.5		15.0	23.0		13.0	23.0	
Total Split (s)	30.0	60.0		30.0	30.0		15.0	60.0		15.0	60.0	
Total Split (%)	22.2%	44.4%		22.2%	22.2%		11.1%	44.4%		11.1%	44.4%	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.5	5.5		5.5	5.5	
All-Red Time (s)	1.5	1.5		1.5	1.5		2.5	2.5		2.5	2.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.5	6.5		6.5	6.5		8.0	8.0		8.0	8.0	
Lead/Lag	Lead			Lag	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes			Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None		None	Min		None	Min	
Act Effect Green (s)	50.2	50.2		21.2	21.2		49.7	48.5		41.4	35.7	64.7
Actuated g/C Ratio	0.43	0.43		0.18	0.18		0.43	0.42		0.36	0.31	0.56
v/c Ratio	0.84	0.45		0.72	0.72		0.41	0.16		0.00	0.25	0.57

Lanes, Volumes, Timings
103: LA 1 & Flournoy Lucas Rd

LA 3132 (Inner Loop) Extension - Stage 0 Study
2011 Existing PM Peak

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	42.8	26.2			58.9		24.8	22.2		18.5	30.5	19.3
Queue Delay	0.0	0.0			0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	42.8	26.2			58.9		24.8	22.2		18.5	30.5	19.3
LOS	D	C			E		C	C		B	C	B
Approach Delay		35.1			58.9			23.3				23.1
Approach LOS		D			E			C				C
Queue Length 50th (ft)	204	166			174		80	54		1	82	242
Queue Length 95th (ft)	#412	296			261		116	87		5	102	286
Internal Link Dist (ft)		704			571			1012				854
Turn Bay Length (ft)							125				165	165
Base Capacity (vph)	480	808			384		408	1565		469	1569	896
Starvation Cap Reductn	0	0			0		0	0		0	0	0
Spillback Cap Reductn	0	0			0		0	0		0	0	0
Storage Cap Reductn	0	0			0		0	0		0	0	0
Reduced v/c Ratio	0.81	0.41			0.64		0.41	0.14		0.00	0.17	0.56

Intersection Summary

Area Type:	Other
Cycle Length:	135
Actuated Cycle Length:	115.9
Natural Cycle:	80
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.84
Intersection Signal Delay:	31.3
Intersection Capacity Utilization:	73.8%
ICU Level of Service:	D
Analysis Period (min):	15
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 103: LA 1 & Flournoy Lucas Rd



Lanes, Volumes, Timings
104: LA 1 & Harts Island Rd

LA 3132 (Inner Loop) Extension - Stage 0 Study
2011 Existing PM Peak

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	27	1	0	191	137	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	240			0
Storage Lanes	1	0	1			0
Taper Length (ft)	50					
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95
Frt	0.994			0.980		
Flt Protected	0.954					
Satd. Flow (prot)	1802	0	1900	3312	3226	0
Flt Permitted	0.954					
Satd. Flow (perm)	1802	0	1900	3312	3226	0
Link Speed (mph)	30			65	65	
Link Distance (ft)	1541			1427	7545	
Travel Time (s)	35.0			15.0	79.1	
Peak Hour Factor	0.64	0.64	0.78	0.78	0.72	0.72
Heavy Vehicles (%)	0%	0%	0%	9%	9%	14%
Adj. Flow (vph)	42	2	0	245	190	29
Shared Lane Traffic (%)						
Lane Group Flow (vph)	44	0	0	245	219	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			76	62	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	15.3%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis
104: LA 1 & Harts Island Rd

LA 3132 (Inner Loop) Extension - Stage 0 Study
2011 Existing PM Peak

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	27	1	0	191	137	21
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.64	0.64	0.78	0.78	0.72	0.72
Hourly flow rate (vph)	42	2	0	245	190	29
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				Raised	Raised	
Median storage (veh)				3	2	
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	327	110	219			
vC1, stage 1 conf vol	205					
vC2, stage 2 conf vol	122					
vCu, unblocked vol	327	110	219			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3	2.2			
p0 queue free %	95	100	100			
cM capacity (veh/h)	789	929	1362			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	44	0	122	122	127	93
Volume Left	42	0	0	0	0	0
Volume Right	2	0	0	0	0	29
cSH	793	1700	1700	1700	1700	1700
Volume to Capacity	0.06	0.00	0.07	0.07	0.07	0.05
Queue Length 95th (ft)	4	0	0	0	0	0
Control Delay (s)	9.8	0.0	0.0	0.0	0.0	0.0
Lane LOS	A					
Approach Delay (s)	9.8	0.0			0.0	
Approach LOS	A					

Intersection Summary

Average Delay	0.8
Intersection Capacity Utilization	15.3%
Analysis Period (min)	15
	ICU Level of Service A

Lanes, Volumes, Timings
105: Ellerbe Rd & Flournoy Lucas Rd

LA 3132 (Inner Loop) Extension - Stage 0 Study
2011 Existing PM Peak

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	11	112	64	345	163	26	49	229	193	29	435	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	140			0	150			0	115	120	150	0
Storage Lanes	1			0	1			1	1	1	1	1
Taper Length (ft)	50			50				50		50		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.945				0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1805	1773	0	1787	1863	1615	1805	1863	1599	1752	1863	1615
Flt Permitted	0.419			0.630			0.216			0.591		
Satd. Flow (perm)	796	1773	0	1185	1863	1615	410	1863	1599	1090	1863	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		34				29			230			24
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		848			838			697			896	
Travel Time (s)		12.8			12.7			10.6			13.6	
Peak Hour Factor	0.87	0.87	0.87	0.89	0.89	0.89	0.84	0.84	0.84	0.89	0.89	0.89
Heavy Vehicles (%)	0%	2%	0%	1%	2%	0%	0%	2%	1%	3%	2%	0%
Adj. Flow (vph)	13	129	74	388	183	29	58	273	230	33	489	24
Shared Lane Traffic (%)												
Lane Group Flow (vph)	13	203	0	388	183	29	58	273	230	33	489	24
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)	12			12			12			12		
Link Offset(ft)	0			0			0			0		
Crosswalk Width(ft)		16		16			16			16		
Two way Left Turn Lane				Yes								Yes
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8			4		4	6		6	2		2
Detector Phase	3	8		7	4	4	1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	7.0	15.0		7.0	15.0	15.0	7.0	10.0	10.0	7.0	10.0	10.0
Minimum Split (s)	12.0	20.0		14.0	22.0	22.0	12.0	15.0	15.0	14.0	17.0	17.0
Total Split (s)	15.0	40.0		15.0	40.0	40.0	15.0	26.0	26.0	15.0	26.0	26.0
Total Split (%)	15.6%	41.7%		15.6%	41.7%	41.7%	15.6%	27.1%	27.1%	15.6%	27.1%	27.1%
Yellow Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	0.0	0.0		2.0	2.0	2.0	0.0	0.0	0.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0		7.0	7.0	7.0	5.0	5.0	5.0	7.0	7.0	7.0
Lead/Lag	Lead	Lead		Lag	Lag	Lag	Lead	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Min		None	Min	Min	None	None	None	None	None	None
Act Effect Green (s)	15.7	15.7		26.6	26.6	26.6	23.1	23.1	23.1	20.8	19.2	19.2
Actuated g/C Ratio	0.23	0.23		0.38	0.38	0.38	0.33	0.33	0.33	0.30	0.28	0.28
v/c Ratio	0.05	0.48		0.74	0.26	0.05	0.20	0.44	0.34	0.08	0.95	0.05

Lanes, Volumes, Timings
105: Ellerbe Rd & Flournoy Lucas Rd

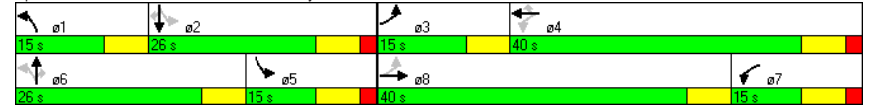
LA 3132 (Inner Loop) Extension - Stage 0 Study
2011 Existing PM Peak

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	24.2	25.0		34.2	19.2	8.7	20.8	23.0	5.1	22.5	58.3	10.1
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.2	25.0		34.2	19.2	8.7	20.8	23.0	5.1	22.5	58.3	10.1
LOS	C	C		C	B	A	C	C	A	C	E	B
Approach Delay		25.0			28.4			15.4			54.1	
Approach LOS		C			C			B			D	
Queue Length 50th (ft)	5	68		135	56	0	14	76	0	11	-226	0
Queue Length 95th (ft)	18	128		#380	131	19	46	172	40	33	#442	18
Internal Link Dist (ft)		768			758			617			816	
Turn Bay Length (ft)	140			150			115		120	150		
Base Capacity (vph)	326	920		525	895	791	339	632	695	414	515	464
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	0.04	0.22		0.74	0.20	0.04	0.17	0.43	0.33	0.08	0.95	0.05

Intersection Summary

Area Type:	Other
Cycle Length:	96
Actuated Cycle Length:	69.5
Natural Cycle:	90
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.95
Intersection Signal Delay:	31.5
Intersection Capacity Utilization:	80.3%
ICU Level of Service:	D
Analysis Period (min):	15
~ Volume exceeds capacity, queue is theoretically infinite.	
Queue shown is maximum after two cycles.	
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 105: Ellerbe Rd & Flournoy Lucas Rd



Lanes, Volumes, Timings
106: LA 1 & Leonard Rd

LA 3132 (Inner Loop) Extension - Stage 0 Study
2011 Existing PM Peak

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	86	13	31	367	200	176
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	145			0
Storage Lanes	1	0	1			0
Taper Length (ft)	50		50			
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95
Frt	0.982			0.930		
Flt Protected	0.958		0.950			
Satd. Flow (prot)	1772	0	1703	3223	3023	0
Flt Permitted	0.958		0.950			
Satd. Flow (perm)	1772	0	1703	3223	3023	0
Link Speed (mph)	50		65	65		
Link Distance (ft)	1319		7545	2639		
Travel Time (s)	18.0		79.1	27.7		
Peak Hour Factor	0.88	0.88	0.87	0.87	0.89	0.89
Heavy Vehicles (%)	1%	0%	6%	12%	19%	2%
Adj. Flow (vph)	98	15	36	422	225	198
Shared Lane Traffic (%)						
Lane Group Flow (vph)	113	0	36	422	423	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12		66	78		
Link Offset(ft)	0		0	0		
Crosswalk Width(ft)	16		16	16		
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	30.1%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis
106: LA 1 & Leonard Rd

LA 3132 (Inner Loop) Extension - Stage 0 Study
2011 Existing PM Peak

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	86	13	31	367	200	176
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.88	0.88	0.87	0.87	0.89	0.89
Hourly flow rate (vph)	98	15	36	422	225	198
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				Raised	Raised	
Median storage (veh)				2	3	
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	606	211	422			
vC1, stage 1 conf vol	324					
vC2, stage 2 conf vol	282					
vCu, unblocked vol	606	211	422			
tC, single (s)	6.8	6.9	4.2			
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3	2.3			
p0 queue free %	85	98	97			
cM capacity (veh/h)	636	800	1105			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	112	36	211	211	150	273
Volume Left	98	36	0	0	0	0
Volume Right	15	0	0	0	0	198
cSH	653	1105	1700	1700	1700	1700
Volume to Capacity	0.17	0.03	0.12	0.12	0.09	0.16
Queue Length 95th (ft)	15	2	0	0	0	0
Control Delay (s)	11.7	8.4	0.0	0.0	0.0	0.0
Lane LOS	B	A				
Approach Delay (s)	11.7	0.7			0.0	
Approach LOS	B					

Intersection Summary

Average Delay	1.6
Intersection Capacity Utilization	30.1%
Analysis Period (min)	15
	ICU Level of Service A

Lanes, Volumes, Timings

LA 3132 (Inner Loop) Extension - Stage 0 Study

107: LA 1 & Bert Kouns Industrial Loop

2011 Existing PM Peak

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	435	757	76	271	703	89	161	687	232	111	776	571
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	230		230	150			115	220		220	230	230
Storage Lanes	2		1	1			1	2		1	2	1
Taper Length (ft)	50						50			50		
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt			0.850				0.850			0.850		0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3502	3539	1568	1787	3539	1583	3335	3574	1553	3502	3574	1599
Flt Permitted	0.950			0.359			0.950			0.950		
Satd. Flow (perm)	3502	3539	1568	675	3539	1583	3335	3574	1553	3502	3574	1599
Right Turn on Red			No			Yes			Yes			Yes
Satd. Flow (RTOR)						25			37			72
Link Speed (mph)		50			50			45				45
Link Distance (ft)		1652			1693			1702				1927
Travel Time (s)		22.5			23.1			25.8				29.2
Peak Hour Factor	0.98	0.98	0.98	0.91	0.91	0.91	0.85	0.85	0.85	0.91	0.91	0.91
Heavy Vehicles (%)	0%	2%	3%	1%	2%	2%	5%	1%	4%	0%	1%	1%
Adj. Flow (vph)	444	772	78	298	773	98	189	808	273	122	853	627
Shared Lane Traffic (%)												
Lane Group Flow (vph)	444	772	78	298	773	98	189	808	273	122	853	627
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24		24			24			24		24
Link Offset(ft)		0		0			0			0		0
Crosswalk Width(ft)		16		16			16			16		16
Two way Left Turn Lane					Yes							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Prot	NA	Prot	pm+pt	NA	pt+ov	Prot	NA	pt+ov	Prot	NA	pt+ov
Protected Phases	1	6	6	5	2	2	3	8	5	8	7	4
Permitted Phases				2								1
Detector Phase	1	6	6	5	2	2	3	8	5	8	7	4
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0		5.0	10.0		5.0	10.0	
Minimum Split (s)	11.0	22.0	22.0	11.0	22.0		11.0	22.0		11.0	22.0	
Total Split (s)	21.0	36.0	36.0	21.0	36.0		20.0	40.0		13.0	33.0	
Total Split (%)	19.1%	32.7%	32.7%	19.1%	32.7%		18.2%	36.4%		11.8%	30.0%	
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5		1.5	1.5		1.5	1.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0		6.0	6.0		6.0	6.0	
Lead/Lag	Lead	Lead	Lead	Lag	Lag		Lead	Lead		Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	C-Min	C-Min	None	C-Min		None	None		None	None	
Act Effect Green (s)	15.2	29.7	29.7	30.1	30.1		11.4	31.2		52.8	9.5	29.4
Actuated g/C Ratio	0.14	0.27	0.27	0.27	0.27		0.36	0.10		0.28	0.48	0.09
v/c Ratio	0.92	0.81	0.18	0.87	0.80		0.17	0.80		0.36	0.40	0.89

Lanes, Volumes, Timings

LA 3132 (Inner Loop) Extension - Stage 0 Study

107: LA 1 & Bert Kouns Industrial Loop

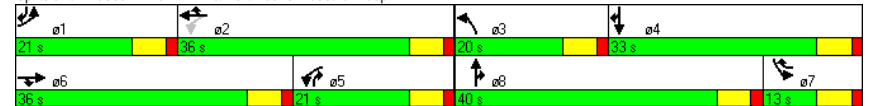
2011 Existing PM Peak

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	71.9	45.2	32.3	67.8	44.5	10.7	52.7	42.8	16.4	53.0	52.3	32.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	71.9	45.2	32.3	67.8	44.5	10.7	52.7	42.8	16.4	53.0	52.3	32.9
LOS	E	D	C	E	D	B	D	D	B	D	D	C
Approach Delay		53.6			47.6			38.6				44.8
Approach LOS		D			D			D				D
Queue Length 50th (ft)	161	266	42	184	267	21	66	272	98	43	305	334
Queue Length 95th (ft)	#257	341	82	#349	342	45	94	314	143	74	#446	#571
Internal Link Dist (ft)		1572			1613			1622			1847	
Turn Bay Length (ft)	230		230	150		115	220		220	230		230
Base Capacity (vph)	485	973	431	342	967	586	424	1105	803	303	954	774
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	0.92	0.79	0.18	0.87	0.80	0.17	0.45	0.73	0.34	0.40	0.89	0.81

Intersection Summary

Area Type: Other
 Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 100 (91%), Referenced to phase 2:WBT and 6:EBT, Start of Green
 Natural Cycle: 90
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.92
 Intersection Signal Delay: 46.1
 Intersection Capacity Utilization 82.0%
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 107: LA 1 & Bert Kouns Industrial Loop



Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
 108: Bert Kouns Industrial Loop & LA 3132 EB Off Ramp/LA 3132 EB On Ramp⁰¹¹ Existing PM Peak



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔				↕	↕	↕	↔	↔	↔
Volume (vph)	1140	1	13	0	0	0	0	693	44	213	800	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		110	0		0	0	0	0	295	0	0
Storage Lanes	1		1	0		0	0	0	0	1	0	0
Taper Length (ft)	50			50			50			50		
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frnt			0.850				0.991					
Flt Protected	0.950	0.952								0.950		
Satd. Flow (prot)	1715	1718	1615	0	0	0	0	3544	0	1805	3574	0
Flt Permitted	0.950	0.952								0.230		
Satd. Flow (perm)	1715	1718	1615	0	0	0	0	3544	0	437	3574	0
Right Turn on Red			Yes			Yes		Yes				Yes
Satd. Flow (RTOR)			6					7				
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1564			1165			530			537	
Travel Time (s)		23.7			17.7			8.0			8.1	
Peak Hour Factor	0.93	0.93	0.93	0.92	0.92	0.92	0.86	0.86	0.86	0.96	0.96	0.96
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	1%	0%
Adj. Flow (vph)	1226	1	14	0	0	0	0	806	51	222	833	0
Shared Lane Traffic (%)	50%											
Lane Group Flow (vph)	613	614	14	0	0	0	0	857	0	222	833	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)	12			12			27			27		
Link Offset(ft)	0			0			0			0		
Crosswalk Width(ft)	16			16			16			16		
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Split	NA	Perm					NA	custom	NA		
Protected Phases	4	4						6		5	2.5	
Permitted Phases			4							2		
Detector Phase	4	4	4					6		5	2.5	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0					15.0		5.0		
Minimum Split (s)	11.0	11.0	11.0					21.0		10.0		
Total Split (s)	36.0	36.0	36.0					54.0		20.0		
Total Split (%)	32.7%	32.7%	32.7%					49.1%		18.2%		
Yellow Time (s)	5.0	5.0	5.0					5.0		5.0		
All-Red Time (s)	1.0	1.0	1.0					1.0		0.0		
Lost Time Adjust (s)	0.0	0.0	0.0					0.0		0.0		
Total Lost Time (s)	6.0	6.0	6.0					6.0		5.0		
Lead/Lag								Lag		Lead		
Lead-Lag Optimize?								Yes		Yes		
Recall Mode	None	None	None					None		None		
Act Effct Green (s)	30.0	30.0	30.0					48.1		63.9	66.7	
Actuated g/C Ratio	0.27	0.27	0.27					0.44		0.58	0.61	
v/c Ratio	1.31	1.31	0.03					0.55		0.51	0.38	

Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
 108: Bert Kouns Industrial Loop & LA 3132 EB Off Ramp/LA 3132 EB On Ramp⁰¹¹ Existing PM Peak

Lane Group	ø1	ø2	ø8
Lane Configurations			
Volume (vph)			
Ideal Flow (vphpl)			
Storage Length (ft)			
Storage Lanes			
Taper Length (ft)			
Lane Util. Factor			
Frnt			
Flt Protected			
Satd. Flow (prot)			
Flt Permitted			
Satd. Flow (perm)			
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (mph)			
Link Distance (ft)			
Travel Time (s)			
Peak Hour Factor			
Heavy Vehicles (%)			
Adj. Flow (vph)			
Shared Lane Traffic (%)			
Lane Group Flow (vph)			
Enter Blocked Intersection			
Lane Alignment			
Median Width(ft)			
Link Offset(ft)			
Crosswalk Width(ft)			
Two way Left Turn Lane			
Headway Factor			
Turning Speed (mph)			
Turn Type			
Protected Phases	1	2	8
Permitted Phases			
Detector Phase			
Switch Phase			
Minimum Initial (s)	5.0	15.0	12.0
Minimum Split (s)	10.0	21.0	18.0
Total Split (s)	20.0	54.0	36.0
Total Split (%)	18%	49%	33%
Yellow Time (s)	5.0	5.0	5.0
All-Red Time (s)	0.0	1.0	1.0
Lost Time Adjust (s)			
Total Lost Time (s)			
Lead/Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	
Recall Mode	None	None	None
Act Effct Green (s)			
Actuated g/C Ratio			
v/c Ratio			

Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
 108: Bert Kouns Industrial Loop & LA 3132 EB Off Ramp/LA 3132 EB On Ramp⁰¹¹ Existing PM Peak

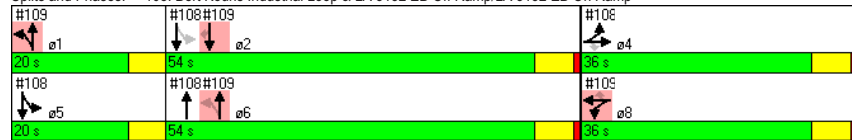


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	188.3	188.1	22.2					24.4	24.6	3.3		
Queue Delay	32.8	32.7	0.0					0.4	0.0	0.0		
Total Delay	221.2	220.8	22.2					24.9	24.6	3.3		
LOS	F	F	C					C	C	A		
Approach Delay		218.7						24.9		7.8		
Approach LOS		F						C		A		
Queue Length 50th (ft)	~587	~588	4					229	50	25		
Queue Length 95th (ft)	#816	#817	20					272	m118	30		
Internal Link Dist (ft)		1484			1085			450		457		
Turn Bay Length (ft)			110						295			
Base Capacity (vph)	468	469	445					1555	441	2209		
Starvation Cap Reductn	0	0	0					0	0	0		
Spillback Cap Reductn	25	25	0					276	0	0		
Storage Cap Reductn	0	0	0					0	0	0		
Reduced v/c Ratio	1.38	1.38	0.03					0.67	0.50	0.38		

Intersection Summary

Area Type: Other
 Cycle Length: 110
 Actuated Cycle Length: 110
 Natural Cycle: 110
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.33
 Intersection Signal Delay: 95.4 Intersection LOS: F
 Intersection Capacity Utilization 163.2% ICU Level of Service H
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 108: Bert Kouns Industrial Loop & LA 3132 EB Off Ramp/LA 3132 EB On Ramp



Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
 108: Bert Kouns Industrial Loop & LA 3132 EB Off Ramp/LA 3132 EB On Ramp⁰¹¹ Existing PM Peak

Lane Group	ø1	ø2	ø8
Control Delay			
Queue Delay			
Total Delay			
LOS			
Approach Delay			
Approach LOS			
Queue Length 50th (ft)			
Queue Length 95th (ft)			
Internal Link Dist (ft)			
Turn Bay Length (ft)			
Base Capacity (vph)			
Starvation Cap Reductn			
Spillback Cap Reductn			
Storage Cap Reductn			
Reduced v/c Ratio			

Intersection Summary

Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
 109: Bert Kouns Industrial Loop & LA 3132 WB On Ramp/LA 3132 WB Off Ramp Existing PM Peak



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	6	0	102	31	1805	0	0	1036	1527
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	0	0	0	200	295	0	0	0	0	115
Storage Lanes	0	0	0	0	0	1	1	0	0	0	0	1
Taper Length (ft)	50			50			50			50		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frnt						0.850						0.850
Fit Protected					0.950		0.950					
Satd. Flow (prot)	0	0	0	0	1805	1615	1752	3539	0	0	3574	1583
Fit Permitted					0.950		0.136					
Satd. Flow (perm)	0	0	0	0	1805	1615	251	3539	0	0	3574	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						18						910
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		311			1075			537			687	
Travel Time (s)		4.7			16.3			8.1			10.4	
Peak Hour Factor	0.92	0.92	0.92	0.82	0.82	0.82	0.96	0.96	0.96	0.95	0.95	0.95
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	3%	2%	0%	0%	1%	2%
Adj. Flow (vph)	0	0	0	7	0	124	32	1880	0	0	1091	1607
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	7	124	32	1880	0	0	1091	1607
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			27			27	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type				Split	NA	Perm	custom	NA			NA	Perm
Protected Phases				8	8		1	1	6		2	
Permitted Phases						8	6					2
Detector Phase				8	8	8	1	1	6		2	2
Switch Phase												
Minimum Initial (s)				12.0	12.0	12.0	5.0				15.0	15.0
Minimum Split (s)				18.0	18.0	18.0	10.0				21.0	21.0
Total Split (s)				36.0	36.0	36.0	20.0				54.0	54.0
Total Split (%)				32.7%	32.7%	32.7%	18.2%				49.1%	49.1%
Yellow Time (s)				5.0	5.0	5.0	5.0				5.0	5.0
All-Red Time (s)				1.0	1.0	1.0	0.0				1.0	1.0
Lost Time Adjust (s)					0.0	0.0	0.0				0.0	0.0
Total Lost Time (s)					6.0	6.0	5.0				6.0	6.0
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Recall Mode				None	None	None	None				None	None
Act Effect Green (s)				30.0	30.0	30.0	64.1	68.1			48.0	48.0
Actuated g/C Ratio				0.27	0.27	0.27	0.58	0.62			0.44	0.44
v/c Ratio					0.01	0.27	0.09	0.86			0.70	1.33

Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
 109: Bert Kouns Industrial Loop & LA 3132 WB On Ramp/LA 3132 WB Off Ramp Existing PM Peak

Lane Group	ø4	ø5	ø6
Lane Configurations			
Volume (vph)			
Ideal Flow (vphpl)			
Storage Length (ft)			
Storage Lanes			
Taper Length (ft)			
Lane Util. Factor			
Frnt			
Fit Protected			
Satd. Flow (prot)			
Fit Permitted			
Satd. Flow (perm)			
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (mph)			
Link Distance (ft)			
Travel Time (s)			
Peak Hour Factor			
Heavy Vehicles (%)			
Adj. Flow (vph)			
Shared Lane Traffic (%)			
Lane Group Flow (vph)			
Enter Blocked Intersection			
Lane Alignment			
Median Width(ft)			
Link Offset(ft)			
Crosswalk Width(ft)			
Two way Left Turn Lane			
Headway Factor			
Turning Speed (mph)			
Turn Type			
Protected Phases	4	5	6
Permitted Phases			
Detector Phase			
Switch Phase			
Minimum Initial (s)	5.0	5.0	15.0
Minimum Split (s)	11.0	10.0	21.0
Total Split (s)	36.0	20.0	54.0
Total Split (%)	33%	18%	49%
Yellow Time (s)	5.0	5.0	5.0
All-Red Time (s)	1.0	0.0	1.0
Lost Time Adjust (s)			
Total Lost Time (s)			
Lead/Lag		Lead	Lag
Lead-Lag Optimize?		Yes	Yes
Recall Mode	None	None	None
Act Effect Green (s)			
Actuated g/C Ratio			
v/c Ratio			

Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
 109: Bert Kouns Industrial Loop & LA 3132 WB On Ramp/LA 3132 WB Off Ramp #1 Existing PM Peak



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay					29.5	28.7	9.5	24.0			28.1	171.9
Queue Delay					0.0	0.0	0.0	1.4			0.0	0.0
Total Delay					29.5	28.7	9.5	25.5			28.1	171.9
LOS					C	C	A	C			C	F
Approach Delay					28.7			25.2			113.8	
Approach LOS					C			C			F	
Queue Length 50th (ft)					4	58	12	697			321	~1100
Queue Length 95th (ft)					14	98	m14	m426			399	#1368
Internal Link Dist (ft)		231			995			457			607	
Turn Bay Length (ft)						200	295					115
Base Capacity (vph)					492	454	351	2192			1560	1204
Starvation Cap Reductn					0	0	0	153			0	0
Spillback Cap Reductn					0	0	0	0			0	0
Storage Cap Reductn					0	0	0	0			0	0
Reduced v/c Ratio					0.01	0.27	0.09	0.92			0.70	1.33

Intersection Summary

Area Type: Other
 Cycle Length: 110
 Actuated Cycle Length: 110
 Natural Cycle: 110
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.33
 Intersection Signal Delay: 75.7 Intersection LOS: E
 Intersection Capacity Utilization 163.2% ICU Level of Service H
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 109: Bert Kouns Industrial Loop & LA 3132 WB On Ramp/LA 3132 WB Off Ramp

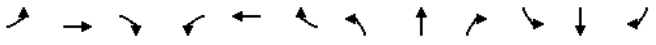


Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
 109: Bert Kouns Industrial Loop & LA 3132 WB On Ramp/LA 3132 WB Off Ramp #1 Existing PM Peak

Lane Group	ø4	ø5	ø6
Control Delay			
Queue Delay			
Total Delay			
LOS			
Approach Delay			
Approach LOS			
Queue Length 50th (ft)			
Queue Length 95th (ft)			
Internal Link Dist (ft)			
Turn Bay Length (ft)			
Base Capacity (vph)			
Starvation Cap Reductn			
Spillback Cap Reductn			
Storage Cap Reductn			
Reduced v/c Ratio			

Intersection Summary


Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
 110: Ashley River Dr SB & Flournoy Lucas Rd 2011 Existing PM Peak



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↕	↔	↔	↕	↔	↔	↔	↔	↔	↕	↔
Volume (vph)	0	574	159	70	748	1	0	0	0	7	0	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	180	0	120	0	0	0	0	0	0	0	0	0
Storage Lanes	1	0	1	0	0	0	0	0	0	0	0	0
Taper Length (ft)	50	0	50	0	50	0	0	0	0	50	0	0
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.967											
Frt Protected	0.950											
Satd. Flow (prot)	1900	3327	0	1805	3406	0	0	0	0	0	1709	0
Frt Permitted	0.950											
Satd. Flow (perm)	1900	3327	0	1805	3406	0	0	0	0	0	1709	0
Link Speed (mph)	45		1%		45		30		30		30	
Link Distance (ft)	750		127		320		340		340		340	
Travel Time (s)	11.4		1.9		7.3		7.7		7.7		7.7	
Peak Hour Factor	0.92	0.92	0.92	0.85	0.85	0.85	0.92	0.92	0.92	0.41	0.41	0.41
Heavy Vehicles (%)	0%	6%	1%	0%	6%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	624	173	82	880	1	0	0	0	17	0	27
Shared Lane Traffic (%)	0											
Lane Group Flow (vph)	0	797	0	82	881	0	0	0	0	0	44	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)	12		14		0		0		0		0	
Link Offset(ft)	0		0		0		0		0		0	
Crosswalk Width(ft)	16		16		16		16		16		16	
Two way Left Turn Lane	Yes											
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15	9	15	9	15	9	15	9	15	9
Sign Control	Free		Free		Stop		Stop		Stop		Stop	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	38.2% ICU Level of Service A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis LA 3132 (Inner Loop) Extension - Stage 0 Study
 110: Ashley River Dr SB & Flournoy Lucas Rd 2011 Existing PM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↕	↔	↔	↕	↔	↔	↔	↔	↔	↕	↔
Volume (veh/h)	0	574	159	70	748	1	0	0	0	7	0	11
Sign Control	Free		Free		Stop		Stop		Stop		Stop	
Grade	0%											
Peak Hour Factor	0.92	0.92	0.92	0.85	0.85	0.85	0.92	0.92	0.92	0.41	0.41	0.41
Hourly flow rate (vph)	0	624	173	82	880	1	0	0	0	17	0	27
Pedestrians	0											
Lane Width (ft)	12											
Walking Speed (ft/s)	3.5											
Percent Blockage	0%											
Right turn flare (veh)	0											
Median type	None			TWLTL								
Median storage (veh)	2											
Upstream signal (ft)	750											
pX, platoon unblocked	0.94			0.94			0.94			0.94		
vC, conflicting volume	881		797		1342		1756		398		1357	
vC1, stage 1 conf vol	710		710		1045		1045		1045		1045	
vC2, stage 2 conf vol	632		1046		312		797		312		797	
vCu, unblocked vol	881		651		1232		1674		226		1248	
tC, single (s)	4.1		4.1		7.5		6.5		6.9		7.5	
tC, 2 stage (s)	6.5		5.5		6.5		5.5		6.5		5.5	
tF (s)	2.2		2.2		3.5		4.0		3.3		3.5	
p0 queue free %	100		91		100		100		92		100	
cM capacity (veh/h)	776		886		305		246		734		217	

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1	
Volume Total	0	416	381	82	587	295	44	
Volume Left	0	0	0	82	0	0	17	
Volume Right	0	0	173	0	0	1	27	
cSH	1700	1700	1700	886	1700	1700	349	
Volume to Capacity	0.00	0.24	0.22	0.09	0.35	0.17	0.13	
Queue Length 95th (ft)	0	0	0	8	0	0	11	
Control Delay (s)	0.0	0.0	0.0	9.5	0.0	0.0	16.8	
Lane LOS	A			C				
Approach Delay (s)	0.0		0.8			16.8		
Approach LOS	C		C			C		

Intersection Summary	
Average Delay	0.8
Intersection Capacity Utilization	38.2% ICU Level of Service A
Analysis Period (min)	15

Lanes, Volumes, Timings

LA 3132 (Inner Loop) Extension - Stage 0 Study

111: Ashley River Dr NB & Flournoy Lucas Rd

2011 Existing PM Peak

	→	↖	↗	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑	↖	↗
Volume (vph)	607	0	0	752	77	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt						0.850
Fit Protected						0.950
Satd. Flow (prot)	3406	0	0	3438	1805	1568
Fit Permitted						0.950
Satd. Flow (perm)	3406	0	0	3438	1805	1568
Link Speed (mph)	45			45	30	
Link Distance (ft)	127			2333	283	
Travel Time (s)	1.9			35.3	6.4	
Peak Hour Factor	0.88	0.88	0.80	0.80	0.66	0.66
Heavy Vehicles (%)	6%	0%	0%	5%	0%	3%
Adj. Flow (vph)	690	0	0	940	117	61
Shared Lane Traffic (%)						
Lane Group Flow (vph)	690	0	0	940	117	61
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	14			14	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane	Yes			Yes		
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	31.7%
ICU Level of Service	A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis LA 3132 (Inner Loop) Extension - Stage 0 Study

111: Ashley River Dr NB & Flournoy Lucas Rd

2011 Existing PM Peak

	→	↖	↗	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑	↖	↗
Volume (veh/h)	607	0	0	752	77	40
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.88	0.88	0.80	0.80	0.66	0.66
Hourly flow rate (vph)	690	0	0	940	117	61
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLT			TWLT		
Median storage (veh)	2			2		
Upstream signal (ft)	877					
pX, platoon unblocked			0.98		0.98	0.98
vC, conflicting volume			690		1160	345
vC1, stage 1 conf vol					690	
vC2, stage 2 conf vol					470	
vCu, unblocked vol			647		1126	296
tC, single (s)			4.1		6.8	7.0
tC, 2 stage (s)					5.8	
tF (s)			2.2		3.5	3.3
p0 queue free %			100		71	91
cM capacity (veh/h)			931		407	685

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2
Volume Total	345	345	470	470	117	61
Volume Left	0	0	0	0	117	0
Volume Right	0	0	0	0	0	61
cSH	1700	1700	1700	1700	407	685
Volume to Capacity	0.20	0.20	0.28	0.28	0.29	0.09
Queue Length 95th (ft)	0	0	0	0	29	7
Control Delay (s)	0.0	0.0	0.0	0.0	17.4	10.8
Lane LOS					C	B
Approach Delay (s)	0.0		0.0		15.1	
Approach LOS					C	

Intersection Summary

Average Delay	1.5
Intersection Capacity Utilization	31.7%
ICU Level of Service	A
Analysis Period (min)	15

Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
 112: Flournoy Lucas Rd & Oaks Retirement Rd 2011 Existing PM Peak

	↖	→	←	↗	↘	
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖	↖↖	↖↖		↖	↖
Volume (vph)	14	599	702	24	21	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	375			0	0	0
Storage Lanes	1			0	1	1
Taper Length (ft)	50				50	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Frt			0.995			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1805	3471	3426	0	1805	1553
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1805	3471	3426	0	1805	1553
Link Speed (mph)		45	45		30	
Link Distance (ft)		2333	1050		729	
Travel Time (s)		35.3	15.9		16.6	
Peak Hour Factor	0.88	0.88	0.77	0.77	0.64	0.64
Heavy Vehicles (%)	0%	4%	5%	0%	0%	4%
Adj. Flow (vph)	16	681	912	31	33	44
Shared Lane Traffic (%)						
Lane Group Flow (vph)	16	681	943	0	33	44
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		14	14		28	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane		Yes	Yes			
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	30.2%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis LA 3132 (Inner Loop) Extension - Stage 0 Study
 112: Flournoy Lucas Rd & Oaks Retirement Rd 2011 Existing PM Peak

	↖	→	←	↗	↘	
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖	↖↖	↖↖		↖	↖
Volume (veh/h)	14	599	702	24	21	28
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.88	0.88	0.77	0.77	0.64	0.64
Hourly flow rate (vph)	16	681	912	31	33	44
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		TWLT	TWLT			
Median storage (veh)		2	2			
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	943				1299	471
vC1, stage 1 conf vol					927	
vC2, stage 2 conf vol					372	
vCu, unblocked vol	943				1299	471
tC, single (s)	4.1				6.8	7.0
tC, 2 stage (s)					5.8	
tF (s)	2.2				3.5	3.3
p0 queue free %	98				90	92
cM capacity (veh/h)	736				323	533

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1	SB 2
Volume Total	16	340	340	608	335	33	44
Volume Left	16	0	0	0	0	33	0
Volume Right	0	0	0	0	31	0	44
cSH	736	1700	1700	1700	1700	323	533
Volume to Capacity	0.02	0.20	0.20	0.36	0.20	0.10	0.08
Queue Length 95th (ft)	2	0	0	0	0	8	7
Control Delay (s)	10.0	0.0	0.0	0.0	0.0	17.4	12.4
Lane LOS	B					C	B
Approach Delay (s)	0.2			0.0		14.5	
Approach LOS						B	

Intersection Summary	
Average Delay	0.7
Intersection Capacity Utilization	30.2%
Analysis Period (min)	15
	ICU Level of Service A



APPENDIX C | Intersection Analysis of No-Build Conditions (2015 & 2032)

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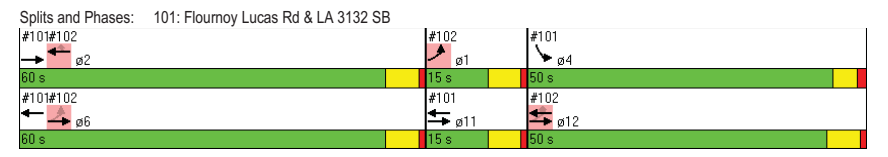
Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
101: Flournoy Lucas Rd & LA 3132 SB

	↖	→	←	↗	↘						
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	ø1	ø2	ø6	ø11	ø12
Lane Configurations		↕↕	↕↕		↕↕						
Volume (vph)	0	801	171	0	556	108					
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900					
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	0.95					
Frt					0.976						
Flt Protected					0.960						
Satd. Flow (prot)	0	3505	3406	0	3073	0					
Flt Permitted					0.960						
Satd. Flow (perm)	0	3505	3406	0	3073	0					
Right Turn on Red				Yes		Yes					
Satd. Flow (RTOR)					21						
Link Speed (mph)		45	45		45						
Link Distance (ft)		986	649		631						
Travel Time (s)		14.9	9.8		9.6						
Peak Hour Factor	0.86	0.86	0.81	0.81	0.80	0.80					
Heavy Vehicles (%)	0%	3%	6%	0%	14%	4%					
Adj. Flow (vph)	0	931	211	0	695	135					
Shared Lane Traffic (%)											
Lane Group Flow (vph)	0	931	211	0	830	0					
Enter Blocked Intersection	No	No	No	No	No	No					
Lane Alignment	Left	Left	Left	Right	Left	Right					
Median Width(ft)		34	34		24						
Link Offset(ft)		0	0		0						
Crosswalk Width(ft)		16	16		16						
Two way Left Turn Lane											
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00					
Turning Speed (mph)	15			9	15	9					
Turn Type		NA	NA		NA						
Protected Phases		2 11	6 11		4		1	2	6	11	12
Permitted Phases											
Detector Phase		2 11	6 11		4						
Switch Phase											
Minimum Initial (s)					7.0		4.0	15.0	15.0	5.0	15.0
Minimum Split (s)					13.0		10.0	21.0	21.0	11.0	21.0
Total Split (s)					50.0		15.0	60.0	60.0	15.0	50.0
Total Split (%)					40.0%		12%	48%	48%	12%	40%
Yellow Time (s)					3.5		5.0	5.0	5.0	5.0	5.0
All-Red Time (s)					1.5		1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)					0.0						
Total Lost Time (s)					5.0						
Lead/Lag											
Lead-Lag Optimize?											
Recall Mode					None		None	Min	Min	None	None
Act Effect Green (s)		63.6	63.6		42.2						
Actuated g/C Ratio		0.54	0.54		0.36						
v/c Ratio		0.49	0.11		0.74						
Control Delay		17.8	14.0		37.1						
Queue Delay		0.0	0.0		0.0						
Total Delay		17.8	14.0		37.1						

Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
101: Flournoy Lucas Rd & LA 3132 SB

	↖	→	←	↗	↘						
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	ø1	ø2	ø6	ø11	ø12
LOS		B	B		D						
Approach Delay		17.8	14.0		37.1						
Approach LOS		B	B		D						
Queue Length 50th (ft)		232	45		292						
Queue Length 95th (ft)		267	60		311						
Internal Link Dist (ft)		906	569		551						
Turn Bay Length (ft)											
Base Capacity (vph)		1951	1896		1216						
Starvation Cap Reductn		0	0		0						
Spillback Cap Reductn		0	0		0						
Storage Cap Reductn		0	0		0						
Reduced v/c Ratio		0.48	0.11		0.68						

Intersection Summary	
Area Type:	Other
Cycle Length:	125
Actuated Cycle Length:	117
Natural Cycle:	60
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.74
Intersection Signal Delay:	25.5
Intersection Capacity Utilization:	80.4%
Analysis Period (min):	15
Intersection LOS:	C
ICU Level of Service:	D



Lanes, Volumes, Timings
102: Flournoy Lucas Rd & LA3132 NB

LA 3132 (Inner Loop) Extension - Stage 0 Study

	↖	→	←	↗	↘	↙					
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	ø2	ø4	ø6	ø11	ø12
Lane Configurations	↖	↗	↗	↖							
Volume (vph)	506	851	171	685	0	0					
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900					
Storage Length (ft)	200			85	0	0					
Storage Lanes	1			1	0	0					
Taper Length (ft)	50				50						
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00					
Frt				0.850							
Flt Protected	0.950										
Satd. Flow (prot)	1787	3312	3343	1538	0	0					
Flt Permitted	0.620										
Satd. Flow (perm)	1166	3312	3343	1538	0	0					
Right Turn on Red				Yes		Yes					
Satd. Flow (RTOR)				316							
Link Speed (mph)		45	45		45						
Link Distance (ft)		649	750		607						
Travel Time (s)		9.8	11.4		9.2						
Peak Hour Factor	0.86	0.86	0.81	0.81	0.92	0.92					
Heavy Vehicles (%)	1%	9%	8%	5%	0%	0%					
Adj. Flow (vph)	588	990	211	846	0	0					
Shared Lane Traffic (%)											
Lane Group Flow (vph)	588	990	211	846	0	0					
Enter Blocked Intersection	No	No	No	No	No	No					
Lane Alignment	Left	Left	Left	Right	Left	Right					
Median Width(ft)		24	34		0						
Link Offset(ft)		0	0		0						
Crosswalk Width(ft)		16	16		16						
Two way Left Turn Lane											
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00					
Turning Speed (mph)	15			9	15	9					
Turn Type	pm+pt	NA	NA	Perm							
Protected Phases	1	6 12	2 12				2	4	6	11	12
Permitted Phases	6 12			2 12							
Detector Phase	1	6 12	2 12	2 12							
Switch Phase											
Minimum Initial (s)	4.0						15.0	7.0	15.0	5.0	15.0
Minimum Split (s)	10.0						21.0	13.0	21.0	11.0	21.0
Total Split (s)	15.0						60.0	50.0	60.0	15.0	50.0
Total Split (%)	12.0%						48%	40%	48%	12%	40%
Yellow Time (s)	5.0						5.0	3.5	5.0	5.0	5.0
All-Red Time (s)	1.0						1.0	1.5	1.0	1.0	1.0
Lost Time Adjust (s)	0.0										
Total Lost Time (s)	6.0										
Lead/Lag											
Lead-Lag Optimize?											
Recall Mode	None						Min	None	Min	None	None
Act Effect Green (s)	104.8	95.6	95.6	95.6							
Actuated g/C Ratio	0.90	0.82	0.82	0.82							
v/c Ratio	0.54	0.37	0.08	0.64							

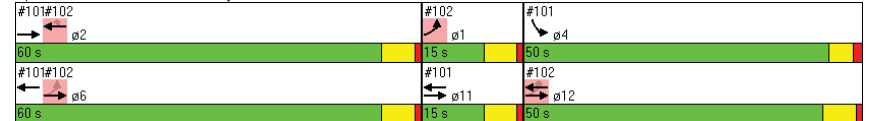
Lanes, Volumes, Timings
102: Flournoy Lucas Rd & LA3132 NB

LA 3132 (Inner Loop) Extension - Stage 0 Study

	↖	→	←	↗	↘	↙					
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	ø2	ø4	ø6	ø11	ø12
Control Delay	12.7	1.0	2.0	4.6							
Queue Delay	0.0	0.0	0.0	0.0							
Total Delay	12.7	1.0	2.0	4.6							
LOS	B	A	A	A							
Approach Delay		5.4	4.1								
Approach LOS		A	A								
Queue Length 50th (ft)	180	21	12	94							
Queue Length 95th (ft)	235	23	16	112							
Internal Link Dist (ft)		569	670		527						
Turn Bay Length (ft)	200			85							
Base Capacity (vph)	1093	2883	2909	1380							
Starvation Cap Reductn	0	0	0	0							
Spillback Cap Reductn	0	0	0	0							
Storage Cap Reductn	0	0	0	0							
Reduced v/c Ratio	0.54	0.34	0.07	0.61							

Intersection Summary	
Area Type:	Other
Cycle Length:	125
Actuated Cycle Length:	117
Natural Cycle:	60
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.74
Intersection Signal Delay:	4.9
Intersection LOS:	A
Intersection Capacity Utilization:	80.4%
ICU Level of Service:	D
Analysis Period (min):	15

Splits and Phases: 102: Flournoy Lucas Rd & LA3132 NB



Lanes, Volumes, Timings
103: LA 1 & Flournoy Lucas Rd

LA 3132 (Inner Loop) Extension - Stage 0 Study

	↖	→	↘	↙	←	↖	↙	↘	↙	↘	↙	↘
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖	↖	↖	↖	↖	↖	↖	↖	↖	↖	↖
Volume (vph)	610	23	242	18	10	9	397	346	0	0	298	459
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	0			0	125		0	165	165
Storage Lanes	1		0	0			0	1		0	1	1
Taper Length (ft)	50			50				50			50	
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt		0.863					0.969					0.850
Flt Protected	0.950						0.976				0.950	
Satd. Flow (prot)	3400	1295	0	0	1747	0	1347	3282	0	1900	3406	1553
Flt Permitted	0.950						0.763				0.335	
Satd. Flow (perm)	3400	1295	0	0	1366	0	475	3282	0	1900	3406	1553
Right Turn on Red			Yes			Yes			Yes			No
Satd. Flow (RTOR)		302			10							
Link Speed (mph)		50			50			55				55
Link Distance (ft)		784			651			1092				934
Travel Time (s)		10.7			8.9			13.5				11.6
Peak Hour Factor	0.80	0.80	0.80	0.86	0.86	0.86	0.86	0.86	0.86	0.80	0.80	0.80
Heavy Vehicles (%)	3%	2%	29%	0%	1%	11%	34%	10%	0%	0%	6%	4%
Adj. Flow (vph)	762	29	302	21	12	10	462	402	0	0	372	574
Shared Lane Traffic (%)												
Lane Group Flow (vph)	762	331	0	0	43	0	462	402	0	0	372	574
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			0			12				12
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15			9	15			9	15
Turn Type	Prot	NA		Perm	NA		pm+pt	NA		pm+pt	NA	pt+ov
Protected Phases	3	8			4		1	6		5	2	2 3
Permitted Phases				4			6			2		
Detector Phase	3	8		4	4		1	6		5	2	2 3
Switch Phase												
Minimum Initial (s)	5.0	10.0		7.0	7.0		7.0	15.0		5.0	15.0	
Minimum Split (s)	11.5	16.5		13.5	13.5		15.0	23.0		13.0	23.0	
Total Split (s)	26.0	39.5		13.5	13.5		27.0	37.5		13.0	23.5	
Total Split (%)	28.9%	43.9%		15.0%	15.0%		30.0%	41.7%		14.4%	26.1%	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.5	5.5		5.5	5.5	
All-Red Time (s)	1.5	1.5		1.5	1.5		2.5	2.5		2.5	2.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.5	6.5		6.5	6.5		8.0	8.0		8.0	8.0	
Lead/Lag	Lead			Lag	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes			Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None		None	Min		None	Min	
Act Effect Green (s)	19.6	27.2		7.0	7.0		42.8	42.8		15.6	41.8	
Actuated g/C Ratio	0.23	0.32		0.08	0.08		0.51	0.51		0.18	0.49	
v/c Ratio	0.97	0.53		0.35	0.35		1.06	0.24		0.59	0.75	

Lanes, Volumes, Timings
103: LA 1 & Flournoy Lucas Rd

LA 3132 (Inner Loop) Extension - Stage 0 Study

	↖	→	↘	↙	←	↖	↙	↘	↙	↘	↙	↘
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	59.6	7.0			40.4		81.3	13.3			37.1	26.5
Queue Delay	0.0	0.0			0.0		0.0	0.0			0.0	0.0
Total Delay	59.6	7.0			40.4		81.3	13.3			37.1	26.5
LOS	E	A			D		F	B			D	C
Approach Delay		43.7			40.4			49.6			30.7	
Approach LOS		D			D			D			C	
Queue Length 50th (ft)	~242	11			18		~230	69			104	269
Queue Length 95th (ft)	#290	44			49		#389	94			132	337
Internal Link Dist (ft)		704			571		1012				854	
Turn Bay Length (ft)	200						125					165
Base Capacity (vph)	789	692			123		437	1659			628	766
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	0.97	0.48			0.35		1.06	0.24			0.59	0.75
Intersection Summary												
Area Type:	Other											
Cycle Length:	90											
Actuated Cycle Length:	84.6											
Natural Cycle Length:	90											
Control Type:	Actuated-Uncoordinated											
Maximum v/c Ratio:	1.06											
Intersection Signal Delay:	41.2											
Intersection LOS:	D											
Intersection Capacity Utilization:	77.3%											
ICU Level of Service:	D											
Analysis Period (min):	15											
~ Volume exceeds capacity, queue is theoretically infinite.												
Queue shown is maximum after two cycles.												
# 95th percentile volume exceeds capacity, queue may be longer.												
Queue shown is maximum after two cycles.												
Splits and Phases: 103: LA 1 & Flournoy Lucas Rd												

Lanes, Volumes, Timings
105: Ellerbe Rd & Flournoy Lucas Rd

LA 3132 (Inner Loop) Extension - Stage 0 Study

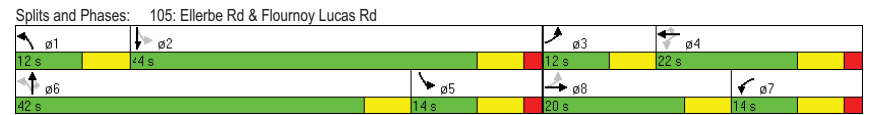
	↖	→	↘	↙	←	↖	↙	↘	↙	↘	↙	↘
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↘		↖	↘	↖	↖	↖	↖	↖	↖	↖
Volume (vph)	12	118	61	57	118	32	75	1112	364	26	323	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	140		0	150		0	115		120	150		0
Storage Lanes	1		0	1		1	1		1	1		0
Taper Length (ft)	50			50			50			50		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Frt		0.949				0.850			0.850		0.999	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1671	1700	0	1656	1727	1468	1770	3574	1568	1736	3404	0
Flt Permitted	0.443			0.619			0.425			0.132		
Satd. Flow (perm)	779	1700	0	1079	1727	1468	792	3574	1568	241	3404	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		25				39			245		1	
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		848			838			697			896	
Travel Time (s)		12.8			12.7			10.6			13.6	
Peak Hour Factor	0.80	0.80	0.80	0.82	0.82	0.82	0.81	0.81	0.81	0.80	0.80	0.80
Heavy Vehicles (%)	8%	4%	10%	9%	10%	10%	2%	1%	3%	4%	6%	0%
Adj. Flow (vph)	15	148	76	70	144	39	93	1373	449	32	408	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	15	224	0	70	144	39	93	1373	449	32	408	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane					Yes						Yes	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8			4		4	6		6	2		
Detector Phase	3	8		7	4	4	1	6	6	5	2	
Switch Phase												
Minimum Initial (s)	7.0	15.0		7.0	15.0	15.0	7.0	10.0	10.0	7.0	10.0	
Minimum Split (s)	12.0	20.0		14.0	22.0	22.0	12.0	15.0	15.0	14.0	17.0	
Total Split (s)	12.0	20.0		14.0	22.0	22.0	12.0	42.0	42.0	14.0	44.0	
Total Split (%)	13.3%	22.2%		15.6%	24.4%	24.4%	13.3%	46.7%	46.7%	15.6%	48.9%	
Yellow Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	0.0	0.0		2.0	2.0	2.0	0.0	0.0	0.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0	5.0		7.0	7.0	7.0	5.0	5.0	5.0	7.0	7.0	
Lead/Lag	Lead	Lead		Lag	Lag	Lag	Lead	Lead	Lead	Lag	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	Min		None	Min	Min	None	None	None	None	None	
Act Effect Green (s)	16.2	16.2		24.5	22.4	22.4	35.5	35.5	35.5	35.5	32.0	
Actuated g/C Ratio	0.20	0.20		0.31	0.28	0.28	0.44	0.44	0.44	0.44	0.40	
v/c Ratio	0.06	0.62		0.18	0.30	0.09	0.21	0.87	0.54	0.13	0.30	

Lanes, Volumes, Timings
105: Ellerbe Rd & Flournoy Lucas Rd

LA 3132 (Inner Loop) Extension - Stage 0 Study

	↖	→	↘	↙	←	↖	↙	↘	↙	↘	↙	↘
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	32.3	38.6		28.8	28.7	10.8	17.1	29.4	11.1	21.4	18.2	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	32.3	38.6		28.8	28.7	10.8	17.1	29.4	11.1	21.4	18.2	
LOS	C	D		C	C	B	B	C	B	C	B	
Approach Delay		38.2			26.0			24.5			18.4	
Approach LOS		D			C			C			B	
Queue Length 50th (ft)	7	109		29	62	0	32	383	79	11	79	
Queue Length 95th (ft)	22	161		67	122	23	56	407	133	25	98	
Internal Link Dist (ft)		768			758			617			816	
Turn Bay Length (ft)	140			150			115		120	150		
Base Capacity (vph)	239	364		383	484	439	441	1720	882	243	1639	
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	0.06	0.62		0.18	0.30	0.09	0.21	0.80	0.51	0.13	0.25	

Intersection Summary	
Area Type:	Other
Cycle Length:	90
Actuated Cycle Length:	80
Natural Cycle Length:	90
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.87
Intersection Signal Delay:	24.9
Intersection LOS:	C
Intersection Capacity Utilization:	74.9%
ICU Level of Service:	D
Analysis Period (min):	15



Lanes, Volumes, Timings
106: LA 1 & Leonard Rd

LA 3132 (Inner Loop) Extension - Stage 0 Study

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	48	71	44	695	526	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	145			0
Storage Lanes	1	0	1			0
Taper Length (ft)	50		50			
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95
Frt	0.919			0.992		
Flt Protected	0.980		0.950			
Satd. Flow (prot)	1691	0	1444	3034	3010	0
Flt Permitted	0.980		0.950			
Satd. Flow (perm)	1691	0	1444	3034	3010	0
Link Speed (mph)	50			65	65	
Link Distance (ft)	1319			1584	2639	
Travel Time (s)	18.0			16.6	27.7	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.89	0.89
Heavy Vehicles (%)	3%	0%	25%	19%	20%	2%
Adj. Flow (vph)	60	89	55	869	591	35
Shared Lane Traffic (%)						
Lane Group Flow (vph)	149	0	55	869	626	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			66	78	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	35.9%
ICU Level of Service	A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis LA 3132 (Inner Loop) Extension - Stage 0 Study
106: LA 1 & Leonard Rd

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	48	71	44	695	526	31
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.89	0.89
Hourly flow rate (vph)	60	89	55	869	591	35
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				Raised	Raised	
Median storage (veh)				2	3	
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1153	313	626			
vC1, stage 1 conf vol	608					
vC2, stage 2 conf vol	544					
vCu, unblocked vol	1153	313	626			
tC, single (s)	6.9	6.9	4.6			
tC, 2 stage (s)	5.9					
tF (s)	3.5	3.3	2.5			
p0 queue free %	86	87	93			
cM capacity (veh/h)	420	689	811			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	149	55	434	434	394	232
Volume Left	60	55	0	0	0	0
Volume Right	89	0	0	0	0	35
cSH	547	811	1700	1700	1700	1700
Volume to Capacity	0.27	0.07	0.26	0.26	0.23	0.14
Queue Length 95th (ft)	27	5	0	0	0	0
Control Delay (s)	14.0	9.8	0.0	0.0	0.0	0.0
Lane LOS	B	A				
Approach Delay (s)	14.0	0.6			0.0	
Approach LOS	B					

Intersection Summary

Average Delay	1.5
Intersection Capacity Utilization	35.9%
ICU Level of Service	A
Analysis Period (min)	15

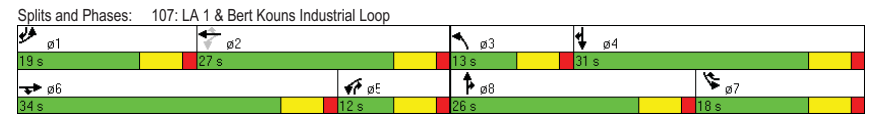
Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
107: LA 1 & Bert Kouns Industrial Loop

	↖	→	↘	↙	←	↖	↙	↘	↙	↘	↙	↘
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↖	↖↖	↖	↖	↖↖	↖	↖↖	↖↖	↖	↖↖	↖↖	↖
Volume (vph)	442	871	103	175	823	50	120	784	166	131	578	275
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	230		230	150		115	220		220	230		230
Storage Lanes	2		1	1		1	2		1	2		1
Taper Length (ft)	50			50			50			50		
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3303	3471	1482	1770	3539	1615	3303	3505	1495	3433	3471	1568
Flt Permitted	0.950			0.293			0.950			0.950		
Satd. Flow (perm)	3303	3471	1482	546	3539	1615	3303	3505	1495	3433	3471	1568
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			116			7			104			41
Link Speed (mph)		50			50			45				45
Link Distance (ft)		1652			1693			1702				1927
Travel Time (s)		22.5			23.1			25.8				29.2
Peak Hour Factor	0.89	0.89	0.89	0.92	0.92	0.92	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	6%	4%	9%	2%	2%	0%	6%	3%	8%	2%	4%	3%
Adj. Flow (vph)	497	979	116	190	895	54	132	862	182	144	635	302
Shared Lane Traffic (%)												
Lane Group Flow (vph)	497	979	116	190	895	54	132	862	182	144	635	302
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24				24
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane					Yes							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Prot	NA	Prot	pm+pt	NA	pm+ov	Prot	NA	pt+ov	Prot	NA	pt+ov
Protected Phases	1	6	6	5	2	7	3	8	5	8	7	4
Permitted Phases				2		2						1
Detector Phase	1	6	6	5	2	7	3	8	5	8	7	4
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	12.0	5.0	10.0		12.0	10.0	
Minimum Split (s)	11.0	16.0	16.0	11.0	16.0	18.0	11.0	16.0		18.0	16.0	
Total Split (s)	19.0	34.0	34.0	12.0	27.0	18.0	13.0	26.0		18.0	31.0	
Total Split (%)	21.1%	37.8%	37.8%	13.3%	30.0%	20.0%	14.4%	28.9%		20.0%	34.4%	
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5		4.5	4.5	
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5		1.5	1.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0		6.0	6.0	
Lead/Lag	Lead	Lead	Lead	Lag	Lag	Lag	Lead	Lead		Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Recall Mode	None	C-Min	C-Min	None	C-Min	None	None	None		None	None	
Act Effect Green (s)	13.0	28.0	28.0	21.0	21.0	33.0	6.9	20.0	32.0	12.0	25.1	44.1
Actuated g/C Ratio	0.14	0.31	0.31	0.23	0.23	0.37	0.08	0.22	0.36	0.13	0.28	0.49
v/c Ratio	1.04	0.91	0.21	0.91	1.08	0.09	0.52	1.11	0.30	0.31	0.66	0.38

Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
107: LA 1 & Bert Kouns Industrial Loop

	↖	→	↘	↙	←	↖	↙	↘	↙	↘	↙	↘
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	91.7	43.1	5.7	81.5	90.8	8.9	47.7	99.9	10.9	37.4	32.5	14.0
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	91.7	43.1	5.7	81.5	90.8	8.9	47.7	99.9	10.9	37.4	32.5	14.0
LOS	F	D	A	F	F	A	D	F	B	D	C	B
Approach Delay		55.5			85.4			80.3				28.0
Approach LOS		E			F			F				C
Queue Length 50th (ft)	~159	279	0	93	~303	9	38	~297	30	38	167	88
Queue Length 95th (ft)	#253	#390	36	#221	#422	21	67	#415	78	67	226	149
Internal Link Dist (ft)		1572			1613			1622				1847
Turn Bay Length (ft)	230		230	150		115	220		220	230		230
Base Capacity (vph)	477	1080	541	209	826	597	257	779	599	458	968	790
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.04	0.91	0.21	0.91	1.08	0.09	0.51	1.11	0.30	0.31	0.66	0.38

Intersection Summary
 Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBT, Start of Green
 Natural Cycle: 90
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.11
 Intersection Signal Delay: 62.2 Intersection LOS: E
 Intersection Capacity Utilization 87.0% ICU Level of Service E
 Analysis Period (min) 15
 ~ 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.



Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
108: Bert Kouns Industrial Loop & LA 3132 EB Off Ramp/LA 3132 EB On Ramp

	↖	→	↘	↙	←	↖	↙	↘	↙	↘	↙	↘
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖	↖					↖		↖	↖	
Volume (vph)	487	4	7	0	0	0	0	1052	116	28	796	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		110	0		0	0		0	295		0
Storage Lanes	1		1	0		0	0		0	1		0
Taper Length (ft)	50			50			50			50		
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt			0.850					0.985				
Flt Protected	0.950	0.953								0.950		
Satd. Flow (prot)	1681	1687	1615	0	0	0	0	3449	0	1736	3574	0
Flt Permitted	0.950	0.953								0.083		
Satd. Flow (perm)	1681	1687	1615	0	0	0	0	3449	0	152	3574	0
Right Turn on Red			Yes			Yes		Yes				Yes
Satd. Flow (RTOR)			7					13				
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1564			1165			530			537	
Travel Time (s)		23.7			17.7			8.0			8.1	
Peak Hour Factor	0.83	0.83	0.83	0.92	0.92	0.92	0.87	0.87	0.87	0.82	0.82	0.82
Heavy Vehicles (%)	2%	0%	0%	0%	0%	0%	0%	2%	13%	4%	1%	0%
Adj. Flow (vph)	587	5	8	0	0	0	0	1209	133	34	971	0
Shared Lane Traffic (%)	50%											
Lane Group Flow (vph)	293	299	8	0	0	0	0	1342	0	34	971	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			27			27	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Split	NA	Perm					NA	custom	NA		
Protected Phases	4	4						6		5	2.5	
Permitted Phases			4							2		
Detector Phase	4	4	4					6		5	2.5	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0					15.0		5.0		
Minimum Split (s)	11.0	11.0	11.0					21.0		10.0		
Total Split (s)	36.0	36.0	36.0					54.0		20.0		
Total Split (%)	32.7%	32.7%	32.7%					49.1%		18.2%		
Yellow Time (s)	5.0	5.0	5.0					5.0		5.0		
All-Red Time (s)	1.0	1.0	1.0					1.0		0.0		
Lost Time Adjust (s)	0.0	0.0	0.0					0.0		0.0		
Total Lost Time (s)	6.0	6.0	6.0					6.0		5.0		
Lead/Lag								Lag		Lead		
Lead-Lag Optimize?								Yes		Yes		
Recall Mode	None	None	None					None		None		
Act Effect Green (s)	27.0	27.0	27.0					48.1		63.9	66.6	
Actuated g/C Ratio	0.25	0.25	0.25					0.45		0.60	0.62	
v/c Ratio	0.69	0.70	0.02					0.86		0.11	0.44	

Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
108: Bert Kouns Industrial Loop & LA 3132 EB Off Ramp/LA 3132 EB On Ramp

Lane Group	ø1	ø2	ø8
Lane Configurations			
Volume (vph)			
Ideal Flow (vphpl)			
Storage Length (ft)			
Storage Lanes			
Taper Length (ft)			
Lane Util. Factor			
Frt			
Flt Protected			
Satd. Flow (prot)			
Flt Permitted			
Satd. Flow (perm)			
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (mph)			
Link Distance (ft)			
Travel Time (s)			
Peak Hour Factor			
Heavy Vehicles (%)			
Adj. Flow (vph)			
Shared Lane Traffic (%)			
Lane Group Flow (vph)			
Enter Blocked Intersection			
Lane Alignment			
Median Width(ft)			
Link Offset(ft)			
Crosswalk Width(ft)			
Two way Left Turn Lane			
Headway Factor			
Turning Speed (mph)			
Turn Type			
Protected Phases	1	2	8
Permitted Phases			
Detector Phase			
Switch Phase			
Minimum Initial (s)	5.0	15.0	12.0
Minimum Split (s)	10.0	21.0	18.0
Total Split (s)	20.0	54.0	36.0
Total Split (%)	18%	49%	33%
Yellow Time (s)	5.0	5.0	5.0
All-Red Time (s)	0.0	1.0	1.0
Lost Time Adjust (s)			
Total Lost Time (s)			
Lead/Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	
Recall Mode	None	None	None
Act Effect Green (s)			
Actuated g/C Ratio			
v/c Ratio			

Lanes, Volumes, Timings
 108: Bert Kouns Industrial Loop & LA 3132 EB Off Ramp/LA 3132 EB On Ramp

LA 3132 (Inner Loop) Extension - Stage 0 Study

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	45.5	46.1	17.9					33.9		8.8	6.1	
Queue Delay	0.0	0.0	0.0					0.0		0.0	0.0	
Total Delay	45.5	46.1	17.9					33.9		8.8	6.1	
LOS	D	D	B					C		A	A	
Approach Delay		45.4						33.9			6.2	
Approach LOS		D						C			A	
Queue Length 50th (ft)	191	196	1					445		5	75	
Queue Length 95th (ft)	263	268	12					518		m9	81	
Internal Link Dist (ft)		1484				1085		450			457	
Turn Bay Length (ft)			110							295		
Base Capacity (vph)	472	474	459					1556		313	2274	
Starvation Cap Reductn	0	0	0					0		0	28	
Spillback Cap Reductn	0	0	0					0		0	0	
Storage Cap Reductn	0	0	0					0		0	0	
Reduced v/c Ratio	0.62	0.63	0.02					0.86		0.11	0.43	

Intersection Summary

Area Type: Other
 Cycle Length: 110
 Actuated Cycle Length: 107
 Natural Cycle: 80
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.93
 Intersection Signal Delay: 26.8 Intersection LOS: C
 Intersection Capacity Utilization 83.4% ICU Level of Service E
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 108: Bert Kouns Industrial Loop & LA 3132 EB Off Ramp/LA 3132 EB On Ramp



Lanes, Volumes, Timings
 108: Bert Kouns Industrial Loop & LA 3132 EB Off Ramp/LA 3132 EB On Ramp

LA 3132 (Inner Loop) Extension - Stage 0 Study

Lane Group	ø1	ø2	ø8
Control Delay			
Queue Delay			
Total Delay			
LOS			
Approach Delay			
Approach LOS			
Queue Length 50th (ft)			
Queue Length 95th (ft)			
Internal Link Dist (ft)			
Turn Bay Length (ft)			
Base Capacity (vph)			
Starvation Cap Reductn			
Spillback Cap Reductn			
Storage Cap Reductn			
Reduced v/c Ratio			

Intersection Summary

Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
109: Bert Kouns Industrial Loop & LA 3132 WB On Ramp/LA 3132 WB Off Ramp

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↕	↕	↕	↕			↕	↕
Volume (vph)	0	0	0	89	0	305	14	1539	0	0	734	890
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	0	0	0	200	295	0	0	0	0	100
Storage Lanes	0	0	0	0	0	1	1	0	0	0	0	1
Taper Length (ft)	50			50			50			50		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt						0.850						0.850
Flt Protected					0.950		0.950					
Satd. Flow (prot)	0	0	0	0	1805	1599	1805	3539	0	0	3539	1568
Flt Permitted					0.950		0.250					
Satd. Flow (perm)	0	0	0	0	1805	1599	475	3539	0	0	3539	1568
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						23						669
Link Speed (mph)		45			45			45				45
Link Distance (ft)		276			1075			537				687
Travel Time (s)		4.2			16.3			8.1				10.4
Peak Hour Factor	0.92	0.92	0.92	0.81	0.81	0.81	0.86	0.86	0.86	0.89	0.89	0.89
Heavy Vehicles (%)	0%	0%	0%	0%	0%	1%	0%	2%	0%	0%	2%	3%
Adj. Flow (vph)	0	0	0	110	0	377	16	1790	0	0	825	1000
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	110	377	16	1790	0	0	825	1000
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			27				27
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type				Split	NA	Perm	custom	NA			NA	Perm
Protected Phases				8	8		1	1	6		2	
Permitted Phases						8	6					2
Detector Phase				8	8	8	1	1	6		2	2
Switch Phase												
Minimum Initial (s)				12.0	12.0	12.0	5.0				15.0	15.0
Minimum Split (s)				18.0	18.0	18.0	10.0				21.0	21.0
Total Split (s)				36.0	36.0	36.0	20.0				54.0	54.0
Total Split (%)				32.7%	32.7%	32.7%	18.2%				49.1%	49.1%
Yellow Time (s)				5.0	5.0	5.0	5.0				5.0	5.0
All-Red Time (s)				1.0	1.0	1.0	0.0				1.0	1.0
Lost Time Adjust (s)					0.0	0.0	0.0				0.0	0.0
Total Lost Time (s)					6.0	6.0	5.0				6.0	6.0
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Recall Mode				None	None	None	None				None	None
Act Effect Green (s)					27.0	27.0	64.1	68.0			48.0	48.0
Actuated g/C Ratio					0.25	0.25	0.60	0.64			0.45	0.45
v/c Ratio					0.24	0.90	0.03	0.80			0.52	0.93

Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
109: Bert Kouns Industrial Loop & LA 3132 WB On Ramp/LA 3132 WB Off Ramp

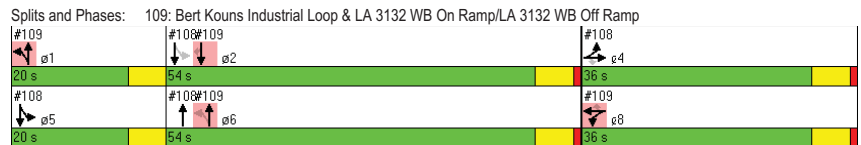
Lane Group	ø4	ø5	ø6
Lane Configurations			
Volume (vph)			
Ideal Flow (vphpl)			
Storage Length (ft)			
Storage Lanes			
Taper Length (ft)			
Lane Util. Factor			
Frt			
Flt Protected			
Satd. Flow (prot)			
Flt Permitted			
Satd. Flow (perm)			
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (mph)			
Link Distance (ft)			
Travel Time (s)			
Peak Hour Factor			
Heavy Vehicles (%)			
Adj. Flow (vph)			
Shared Lane Traffic (%)			
Lane Group Flow (vph)			
Enter Blocked Intersection			
Lane Alignment			
Median Width(ft)			
Link Offset(ft)			
Crosswalk Width(ft)			
Two way Left Turn Lane			
Headway Factor			
Turning Speed (mph)			
Turn Type			
Protected Phases	4	5	6
Permitted Phases			
Detector Phase			
Switch Phase			
Minimum Initial (s)	5.0	5.0	15.0
Minimum Split (s)	11.0	10.0	21.0
Total Split (s)	36.0	20.0	54.0
Total Split (%)	33%	18%	49%
Yellow Time (s)	5.0	5.0	5.0
All-Red Time (s)	1.0	0.0	1.0
Lost Time Adjust (s)			
Total Lost Time (s)			
Lead/Lag		Lead	Lag
Lead-Lag Optimize?		Yes	Yes
Recall Mode	None	None	None
Act Effect Green (s)			
Actuated g/C Ratio			
v/c Ratio			

Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
 109: Bert Kouns Industrial Loop & LA 3132 WB On Ramp/LA 3132 WB Off Ramp

	↖	→	↘	↙	←	↖	↙	↑	↘	↘	↓	↙
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay					33.0	61.3	8.3	13.5			23.2	25.9
Queue Delay					0.0	0.0	0.0	0.5			0.0	0.0
Total Delay					33.0	61.3	8.3	13.9			23.2	25.9
LOS					C	E	A	B			C	C
Approach Delay					54.9			13.9			24.7	
Approach LOS					D			B			C	
Queue Length 50th (ft)					60	237	4	268			220	279
Queue Length 95th (ft)					96	#309	m6	324			275	#634
Internal Link Dist (ft)		196			995			457			607	
Turn Bay Length (ft)						200	295					100
Base Capacity (vph)					507	466	471	2250			1590	1073
Starvation Cap Reductn					0	0	0	138			0	0
Spillback Cap Reductn					0	0	0	0			0	0
Storage Cap Reductn					0	0	0	0			0	0
Reduced v/c Ratio					0.22	0.81	0.03	0.85			0.52	0.93

Intersection Summary

Area Type: Other
 Cycle Length: 110
 Actuated Cycle Length: 107
 Natural Cycle: 80
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.93
 Intersection Signal Delay: 23.5 Intersection LOS: C
 Intersection Capacity Utilization 83.4% ICU Level of Service E
 Analysis Period (min) 15
 # 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.



Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
 109: Bert Kouns Industrial Loop & LA 3132 WB On Ramp/LA 3132 WB Off Ramp

Lane Group	ø4	ø5	ø6
Control Delay			
Queue Delay			
Total Delay			
LOS			
Approach Delay			
Approach LOS			
Queue Length 50th (ft)			
Queue Length 95th (ft)			
Internal Link Dist (ft)			
Turn Bay Length (ft)			
Base Capacity (vph)			
Starvation Cap Reductn			
Spillback Cap Reductn			
Storage Cap Reductn			
Reduced v/c Ratio			

Intersection Summary

Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
110: Ashley River Dr SB & Flournoy Lucas Rd

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↕	↔	↔	↕	↔	↔	↕	↔	↔	↕	↔
Volume (vph)	0	753	98	26	854	8	0	0	0	4	0	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	180		0	120		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	50			50			50			50		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.983			0.999						0.961	
Frt Protected				0.950							0.966	
Satd. Flow (prot)	1900	3214	0	1703	3404	0	0	0	0	0	1764	0
Frt Permitted				0.950							0.966	
Satd. Flow (perm)	1900	3214	0	1703	3404	0	0	0	0	0	1764	0
Link Speed (mph)		45			45				30		30	
Link Distance (ft)		750			127				320		340	
Travel Time (s)		11.4			1.9				7.3		7.7	
Peak Hour Factor	0.87	0.87	0.87	0.89	0.89	0.89	0.92	0.92	0.92	0.80	0.80	0.80
Heavy Vehicles (%)	0%	11%	6%	6%	6%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	866	113	29	960	9	0	0	0	5	0	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	979	0	29	969	0	0	0	0	0	7	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			14				0		0	
Link Offset(ft)		0			0				0		0	
Crosswalk Width(ft)		16			16				16		16	
Two way Left Turn Lane					Yes							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free				Stop			Stop

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	33.9%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis LA 3132 (Inner Loop) Extension - Stage 0 Study
110: Ashley River Dr SB & Flournoy Lucas Rd

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↕	↔	↔	↕	↔	↔	↕	↔	↔	↕	↔
Volume (veh/h)	0	753	98	26	854	8	0	0	0	4	0	2
Sign Control		Free			Free				Stop		Stop	
Grade		0%			0%				0%		0%	
Peak Hour Factor	0.87	0.87	0.87	0.89	0.89	0.89	0.92	0.92	0.92	0.80	0.80	0.80
Hourly flow rate (vph)	0	866	113	29	960	9	0	0	0	5	0	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)		750										
pX, platoon unblocked					0.93		0.93	0.93	0.93	0.93	0.93	0.93
vC, conflicting volume	969				978		1463	1949	489	1455	2001	484
vC1, stage 1 conf vol							922	922		1022	1022	
vC2, stage 2 conf vol							541	1027		433	978	
vCu, unblocked vol	969				825		1346	1869	299	1338	1925	484
tC, single (s)	4.1				4.2		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				2.3		3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100				96		100	100	100	98	100	100
cM capacity (veh/h)	720				721		286	239	654	233	226	534

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1
Volume Total	0	577	401	29	640	329	8
Volume Left	0	0	0	29	0	0	5
Volume Right	0	0	113	0	0	9	2
cSH	1700	1700	1700	721	1700	1700	287
Volume to Capacity	0.00	0.34	0.24	0.04	0.38	0.19	0.03
Queue Length 95th (ft)	0	0	0	3	0	0	2
Control Delay (s)	0.0	0.0	0.0	10.2	0.0	0.0	17.9
Lane LOS				B			C
Approach Delay (s)	0.0			0.3			17.9
Approach LOS							C

Intersection Summary	
Average Delay	0.2
Intersection Capacity Utilization	33.9%
Analysis Period (min)	15
	ICU Level of Service A

Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
111: Ashley River Dr NB & Flournoy Lucas Rd

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑	↘	↗
Volume (vph)	757	0	0	599	289	103
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt						0.850
Flt Protected					0.950	
Satd. Flow (prot)	3282	0	0	3374	1805	1568
Flt Permitted				0.950		
Satd. Flow (perm)	3282	0	0	3374	1805	1568
Link Speed (mph)	45			45	30	
Link Distance (ft)	127			2333	283	
Travel Time (s)	1.9			35.3	6.4	
Peak Hour Factor	0.80	0.80	0.84	0.84	0.81	0.81
Heavy Vehicles (%)	10%	0%	0%	7%	0%	3%
Adj. Flow (vph)	946	0	0	713	357	127
Shared Lane Traffic (%)						
Lane Group Flow (vph)	946	0	0	713	357	127
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	14			14	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane	Yes			Yes		
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	43.6%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis LA 3132 (Inner Loop) Extension - Stage 0 Study
111: Ashley River Dr NB & Flournoy Lucas Rd

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑	↘	↗
Volume (veh/h)	757	0	0	599	289	103
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.80	0.80	0.84	0.84	0.81	0.81
Hourly flow rate (vph)	946	0	0	713	357	127
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)	877					
pX, platoon unblocked			0.95	0.95	0.95	
vC, conflicting volume			946	1303	473	
vC1, stage 1 conf vol				946		
vC2, stage 2 conf vol				357		
vCu, unblocked vol			833	1209	333	
tC, single (s)			4.1	6.8	7.0	
tC, 2 stage (s)				5.8		
tF (s)			2.2	3.5	3.3	
p0 queue free %			100	0	80	
cM capacity (veh/h)			766	343	625	

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2
Volume Total	473	473	357	357	357	127
Volume Left	0	0	0	0	357	0
Volume Right	0	0	0	0	0	127
cSH	1700	1700	1700	1700	343	625
Volume to Capacity	0.28	0.28	0.21	0.21	1.04	0.20
Queue Length 95th (ft)	0	0	0	0	311	19
Control Delay (s)	0.0	0.0	0.0	0.0	95.1	12.2
Lane LOS					F	B
Approach Delay (s)	0.0		0.0		73.3	
Approach LOS					F	

Intersection Summary	
Average Delay	16.6
Intersection Capacity Utilization	43.6%
Analysis Period (min)	15
	ICU Level of Service A

Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
112: Flournoy Lucas Rd & Oaks Retirement Rd

	↖	→	←	↗	↘	↙
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖	↗	↗		↖	↗
Volume (vph)	38	822	583	27	6	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	375			0	0	0
Storage Lanes	1			0	1	1
Taper Length (ft)	50				50	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Frt			0.993			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1687	3610	3415	0	1805	1524
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1687	3610	3415	0	1805	1524
Link Speed (mph)		45	45		30	
Link Distance (ft)		2333	1050		729	
Travel Time (s)		35.3	15.9		16.6	
Peak Hour Factor	0.80	0.80	0.81	0.81	0.80	0.80
Heavy Vehicles (%)	7%	0%	5%	4%	0%	6%
Adj. Flow (vph)	48	1028	720	33	8	20
Shared Lane Traffic (%)						
Lane Group Flow (vph)	48	1028	753	0	8	20
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		14	14		28	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane		Yes	Yes			
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		15		9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	33.6%
ICU Level of Service	A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis LA 3132 (Inner Loop) Extension - Stage 0 Study
112: Flournoy Lucas Rd & Oaks Retirement Rd

	↖	→	←	↗	↘	↙
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖	↗	↗		↖	↗
Volume (veh/h)	38	822	583	27	6	16
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.80	0.80	0.81	0.81	0.80	0.80
Hourly flow rate (vph)	48	1028	720	33	8	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	753				1345	377
vC1, stage 1 conf vol						736
vC2, stage 2 conf vol						609
vCu, unblocked vol	753				1345	377
tC, single (s)	4.2				6.8	7.0
tC, 2 stage (s)					5.8	
tF (s)	2.3				3.5	3.4
p0 queue free %	94				98	97
cM capacity (veh/h)	821				343	610

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1	SB 2
Volume Total	48	514	514	480	273	8	20
Volume Left	48	0	0	0	0	8	0
Volume Right	0	0	0	0	33	0	20
cSH	821	1700	1700	1700	1700	343	610
Volume to Capacity	0.06	0.30	0.30	0.28	0.16	0.02	0.03
Queue Length 95th (ft)	5	0	0	0	0	2	3
Control Delay (s)	9.7	0.0	0.0	0.0	0.0	15.7	11.1
Lane LOS	A					C	B
Approach Delay (s)	0.4			0.0		12.4	
Approach LOS						B	

Intersection Summary	
Average Delay	0.4
Intersection Capacity Utilization	33.6%
ICU Level of Service	A
Analysis Period (min)	15

Lanes, Volumes, Timings
201: LA 1 & I-69 WB Ramp

LA 3132 (Inner Loop) Extension - Stage 0 Study

	↙	↖	↑	↗	↘	↓
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↖	↖	↑↑	↗	↖	↑↑
Volume (vph)	80	0	213	3	61	440
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300	0		0	275	
Storage Lanes	1	1		1	1	
Taper Length (ft)	50				50	
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt			0.850			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1641	1727	3195	1429	1656	3312
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1641	1727	3195	1429	1656	3312
Link Speed (mph)	40		65		65	
Link Distance (ft)	381		1423		531	
Travel Time (s)	6.5		14.9		5.6	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Heavy Vehicles (%)	10%	10%	13%	13%	9%	9%
Adj. Flow (vph)	100	0	266	4	68	489
Shared Lane Traffic (%)						
Lane Group Flow (vph)	100	0	266	4	68	489
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		76		76	
Link Offset(ft)	0		0		0	
Crosswalk Width(ft)	16		16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free		Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	23.7%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis
201: LA 1 & I-69 WB Ramp

	↙	↖	↑	↗	↘	↓
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↖	↖	↑↑	↗	↖	↑↑
Volume (veh/h)	80	0	213	3	61	440
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Hourly flow rate (vph)	100	0	266	4	68	489
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			Raised		Raised	
Median storage (veh)			3		3	
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	646	133			266	
vC1, stage 1 conf vol	266					
vC2, stage 2 conf vol	380					
vCu, unblocked vol	646	133			266	
tC, single (s)	7.0	7.1			4.3	
tC, 2 stage (s)	6.0					
tF (s)	3.6	3.4			2.3	
p0 queue free %	83	100			95	
cM capacity (veh/h)	572	867			1245	

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	100	0	133	133	4	68	244	244
Volume Left	100	0	0	0	0	68	0	0
Volume Right	0	0	0	0	4	0	0	0
cSH	572	1700	1700	1700	1700	1245	1700	1700
Volume to Capacity	0.17	0.00	0.08	0.08	0.00	0.05	0.14	0.14
Queue Length 95th (ft)	16	0	0	0	0	4	0	0
Control Delay (s)	12.6	0.0	0.0	0.0	0.0	8.1	0.0	0.0
Lane LOS	B	A				A		
Approach Delay (s)	12.6		0.0			1.0		
Approach LOS	B							

Intersection Summary

Average Delay	2.0
Intersection Capacity Utilization	23.7%
Analysis Period (min)	15
	ICU Level of Service A

Lanes, Volumes, Timings
202: LA 1 & I-69 EB Ramp

LA 3132 (Inner Loop) Extension - Stage 0 Study

	↙	↖	↑	↗	↘	↓
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↗	↑↑	↗	↘	↑↑
Volume (vph)	4	40	176	59	284	236
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300	0		490	260	
Storage Lanes	1	1		1	1	
Taper Length (ft)	50				50	
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt		0.850		0.850		
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1641	1468	3195	1429	1656	3312
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1641	1468	3195	1429	1656	3312
Link Speed (mph)	40		65		65	
Link Distance (ft)	452		3194		1423	
Travel Time (s)	7.7		33.5		14.9	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Heavy Vehicles (%)	10%	10%	13%	13%	9%	9%
Adj. Flow (vph)	5	50	220	74	316	262
Shared Lane Traffic (%)						
Lane Group Flow (vph)	5	50	220	74	316	262
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	24		76		76	
Link Offset(ft)	0		0		0	
Crosswalk Width(ft)	16		16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free		Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	33.9%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis LA 3132 (Inner Loop) Extension - Stage 0 Study
202: LA 1 & I-69 EB Ramp

	↙	↖	↑	↗	↘	↓
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↗	↑↑	↗	↘	↑↑
Volume (veh/h)	4	40	176	59	284	236
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Hourly flow rate (vph)	5	50	220	74	316	262
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			Raised		Raised	
Median storage (veh)			3		3	
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	982	110			220	
vC1, stage 1 conf vol	220					
vC2, stage 2 conf vol	762					
vCu, unblocked vol	982	110			220	
tC, single (s)	7.0	7.1			4.3	
tC, 2 stage (s)	6.0					
tF (s)	3.6	3.4			2.3	
p0 queue free %	98	94			76	
cM capacity (veh/h)	301	897			1297	

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	5	50	110	110	74	316	131	131
Volume Left	5	0	0	0	0	316	0	0
Volume Right	0	50	0	0	74	0	0	0
cSH	301	897	1700	1700	1700	1297	1700	1700
Volume to Capacity	0.02	0.06	0.06	0.06	0.04	0.24	0.08	0.08
Queue Length 95th (ft)	1	4	0	0	0	24	0	0
Control Delay (s)	17.2	9.2	0.0	0.0	0.0	8.7	0.0	0.0
Lane LOS	C	A				A		
Approach Delay (s)	10.0		0.0			4.7		
Approach LOS	A							

Intersection Summary

Average Delay	3.5
Intersection Capacity Utilization	33.9%
Analysis Period (min)	15
	ICU Level of Service A

Lanes, Volumes, Timings
301: LA 1 & Gate A

LA 3132 (Inner Loop) Extension - Stage 0 Study

	↙	↘	↑	↗	↖	↓
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↙		↗		↖	↘
Volume (vph)	5	19	725	8	21	577
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	150	
Storage Lanes	1	0		0	1	
Taper Length (ft)	50				50	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Frt	0.892		0.998			
Flt Protected	0.990				0.950	
Satd. Flow (prot)	1252	0	3180	0	1656	2560
Flt Permitted	0.990				0.950	
Satd. Flow (perm)	1252	0	3180	0	1656	2560
Link Speed (mph)	40		65		65	
Link Distance (ft)	496		4383		1584	
Travel Time (s)	8.5		46.0		16.6	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Heavy Vehicles (%)	34%	34%	13%	41%	9%	41%
Adj. Flow (vph)	6	24	906	10	23	641
Shared Lane Traffic (%)						
Lane Group Flow (vph)	30	0	916	0	23	641
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		66		66	
Link Offset(ft)	0		0		0	
Crosswalk Width(ft)	16		16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free		Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	30.3%
ICU Level of Service	A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis
301: LA 1 & Gate A

	↙	↘	↑	↗	↖	↓
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↙		↗		↖	↘
Volume (veh/h)	5	19	725	8	21	577
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Hourly flow rate (vph)	6	24	906	10	23	641
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			Raised		Raised	
Median storage (veh)			2		2	
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1278	458			916	
vC1, stage 1 conf vol	911					
vC2, stage 2 conf vol	367					
vCu, unblocked vol	1278	458			916	
tC, single (s)	7.5	7.6			4.3	
tC, 2 stage (s)	6.5					
tF (s)	3.8	3.6			2.3	
p0 queue free %	98	95			97	
cM capacity (veh/h)	262	471			698	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	30	604	312	23	321	321
Volume Left	6	0	0	23	0	0
Volume Right	24	0	10	0	0	0
cSH	404	1700	1700	698	1700	1700
Volume to Capacity	0.07	0.36	0.18	0.03	0.19	0.19
Queue Length 95th (ft)	6	0	0	3	0	0
Control Delay (s)	14.6	0.0	0.0	10.3	0.0	0.0
Lane LOS	B			B		
Approach Delay (s)	14.6	0.0		0.4		
Approach LOS	B					

Intersection Summary

Average Delay	0.4
Intersection Capacity Utilization	30.3%
ICU Level of Service	A
Analysis Period (min)	15

Lanes, Volumes, Timings
302: LA 1 & Gate B

LA 3132 (Inner Loop) Extension - Stage 0 Study

	↙	↖	↗	↘	↙	↖	↗	↘
Lane Group	WBL	WBR	NBU	NBT	NBR	SBL	SBT	
Lane Configurations	↙	↖	↗	↘	↙	↖	↗	↘
Volume (vph)	14	40	0	694	43	102	480	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	
Storage Length (ft)	0	0	250		0	250		
Storage Lanes	1	1	1		0	1		
Taper Length (ft)	50		50			50		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	0.95	
Frt		0.850		0.991				
Flt Protected	0.950					0.950		
Satd. Flow (prot)	1271	1137	1681	3145	0	1656	2865	
Flt Permitted	0.950					0.950		
Satd. Flow (perm)	1271	1137	1681	3145	0	1656	2865	
Link Speed (mph)	40			65			65	
Link Distance (ft)	464			1578			4383	
Travel Time (s)	7.9			16.6			46.0	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.90	0.90	
Heavy Vehicles (%)	42%	42%	13%	13%	26%	9%	26%	
Adj. Flow (vph)	18	50	0	868	54	113	533	
Shared Lane Traffic (%)								
Lane Group Flow (vph)	18	50	0	922	0	113	533	
Enter Blocked Intersection	No	No	No	No	No	No	No	
Lane Alignment	Left	Right	R NA	Left	Right	Left	Left	
Median Width(ft)	20			66			66	
Link Offset(ft)	0			0			0	
Crosswalk Width(ft)	16			16			16	
Two way Left Turn Lane								
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Turning Speed (mph)	15	9	9		9	15		
Sign Control	Stop			Free			Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	39.5%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis LA 3132 (Inner Loop) Extension - Stage 0 Study
302: LA 1 & Gate B

	↙	↖	↗	↘	↙	↖	↗	↘
Movement	WBL	WBR	NBU	NBT	NBR	SBL	SBT	
Lane Configurations	↙	↖	↗	↘	↙	↖	↗	↘
Volume (veh/h)	14	40	0	694	43	102	480	
Sign Control	Stop			Free			Free	
Grade	0%			0%			0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.90	0.90	
Hourly flow rate (vph)	18	50	0	868	54	113	533	
Pedestrians								
Lane Width (ft)								
Walking Speed (ft/s)								
Percent Blockage								
Right turn flare (veh)								
Median type				Raised			Raised	
Median storage (veh)				2			2	
Upstream signal (ft)								
pX, platoon unblocked				0.00				
vC, conflicting volume	1388	461	0			921		
vC1, stage 1 conf vol	894							
vC2, stage 2 conf vol	493							
vCu, unblocked vol	1388	461	0			921		
tC, single (s)	7.6	7.7	0.0			4.3		
tC, 2 stage (s)	6.6							
tF (s)	3.9	3.7	0.0			2.3		
p0 queue free %	92	89	0			84		
cM capacity (veh/h)	233	452	0			695		

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	18	50	578	343	0	113	267	267
Volume Left	18	0	0	0	0	113	0	0
Volume Right	0	50	0	54	0	0	0	0
cSH	233	452	1700	1700	1700	695	1700	1700
Volume to Capacity	0.08	0.11	0.34	0.20	0.00	0.16	0.16	0.16
Queue Length 95th (ft)	6	9	0	0	0	15	0	0
Control Delay (s)	21.7	14.0	0.0	0.0	0.0	11.2	0.0	0.0
Lane LOS	C	B				B		
Approach Delay (s)	16.0		0.0			2.0		
Approach LOS	C							

Intersection Summary

Average Delay	1.4
Intersection Capacity Utilization	39.5%
Analysis Period (min)	15
	ICU Level of Service A

Lanes, Volumes, Timings
303: LA 1 & Gate C

LA 3132 (Inner Loop) Extension - Stage 0 Study

	↙	↖	↑	↗	↘	↓
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↕	↗		↕
Volume (vph)	0	23	720	33	0	500
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	250	
Storage Lanes	0	1		1	0	
Taper Length (ft)	50				50	
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt		0.865		0.850		
Flt Protected						
Satd. Flow (prot)	0	1166	3195	1214	0	2714
Flt Permitted						
Satd. Flow (perm)	0	1166	3195	1214	0	2714
Link Speed (mph)	40		65			65
Link Distance (ft)	508		531			1081
Travel Time (s)	8.7		5.6			11.3
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Heavy Vehicles (%)	41%	41%	13%	33%	9%	33%
Adj. Flow (vph)	0	29	900	41	0	556
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	29	900	41	0	556
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	0		76			76
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary

Area Type: Other
 Control Type: Unsignalized
 Intersection Capacity Utilization 29.9% ICU Level of Service A
 Analysis Period (min) 15

HCM Unsignalized Intersection Capacity Analysis LA 3132 (Inner Loop) Extension - Stage 0 Study
303: LA 1 & Gate C

	↙	↖	↑	↗	↘	↓
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↕	↗		↕
Volume (veh/h)	0	23	720	33	0	500
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Hourly flow rate (vph)	0	29	900	41	0	556
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			Raised			Raised
Median storage (veh)			3			3
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1178	450			941	
vC1, stage 1 conf vol	900					
vC2, stage 2 conf vol	278					
vCu, unblocked vol	1178	450			941	
tC, single (s)	7.6	7.7			4.3	
tC, 2 stage (s)	6.6					
tF (s)	3.9	3.7			2.3	
p0 queue free %	100	94			100	
cM capacity (veh/h)	272	462			682	

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	29	450	450	41	278	278
Volume Left	0	0	0	0	0	0
Volume Right	29	0	0	41	0	0
cSH	462	1700	1700	1700	1700	1700
Volume to Capacity	0.06	0.26	0.26	0.02	0.16	0.16
Queue Length 95th (ft)	5	0	0	0	0	0
Control Delay (s)	13.3	0.0	0.0	0.0	0.0	0.0
Lane LOS	B					
Approach Delay (s)	13.3	0.0			0.0	
Approach LOS	B					

Intersection Summary

Average Delay 0.3
 Intersection Capacity Utilization 29.9% ICU Level of Service A
 Analysis Period (min) 15

Lanes, Volumes, Timings
304: LA 1 & Gate D

LA 3132 (Inner Loop) Extension - Stage 0 Study

	↙	↖	↑	↗	↘	↓
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↙	↖	↑↑	↗	↘	↓↑
Volume (vph)	1	21	214	1	210	218
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	250		300	280	
Storage Lanes	1	1		1	1	
Taper Length (ft)	50				50	
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt		0.850		0.850		
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1068	956	3195	950	1656	2124
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1068	956	3195	950	1656	2124
Link Speed (mph)	40		65		65	
Link Distance (ft)	420		716		503	
Travel Time (s)	7.2		7.5		5.3	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Heavy Vehicles (%)	69%	69%	13%	70%	9%	70%
Adj. Flow (vph)	1	26	268	1	233	242
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1	26	268	1	233	242
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		76		76	
Link Offset(ft)	0		0		0	
Crosswalk Width(ft)	16		16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free		Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	30.9%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis
304: LA 1 & Gate D

	↙	↖	↑	↗	↘	↓
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↙	↖	↑↑	↗	↘	↓↑
Volume (veh/h)	1	21	214	1	210	218
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Hourly flow rate (vph)	1	26	268	1	233	242
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		10				
Median type			Raised		Raised	
Median storage (veh)			3		3	
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	855	134			269	
vC1, stage 1 conf vol	268					
vC2, stage 2 conf vol	588					
vCu, unblocked vol	855	134			269	
tC, single (s)	8.2	8.3			4.3	
tC, 2 stage (s)	7.2					
tF (s)	4.2	4.0			2.3	
p0 queue free %	100	96			81	
cM capacity (veh/h)	293	714			1243	

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	28	134	134	1	233	121	121
Volume Left	1	0	0	0	233	0	0
Volume Right	26	0	0	1	0	0	0
cSH	748	1700	1700	1700	1243	1700	1700
Volume to Capacity	0.04	0.08	0.08	0.00	0.19	0.07	0.07
Queue Length 95th (ft)	3	0	0	0	17	0	0
Control Delay (s)	10.6	0.0	0.0	0.0	8.6	0.0	0.0
Lane LOS	B				A		
Approach Delay (s)	10.6	0.0			4.2		
Approach LOS	B						

Intersection Summary

Average Delay	3.0
Intersection Capacity Utilization	30.9%
Analysis Period (min)	15
	ICU Level of Service A

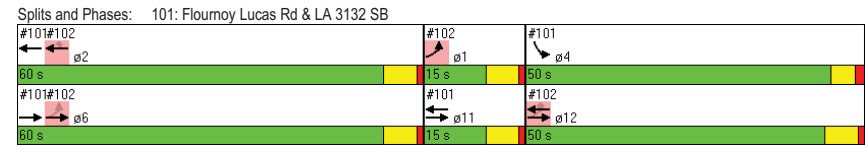
Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
101: Flournoy Lucas Rd & LA 3132 SB

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	ø1	ø2	ø6	ø11	ø12
Lane Configurations		↕↕	↕↕		↕↕						
Volume (vph)	0	393	299	0	623	267					
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900					
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	0.95					
Frt					0.955						
Flt Protected					0.966						
Satd. Flow (prot)	0	3574	3610	0	3263	0					
Flt Permitted					0.966						
Satd. Flow (perm)	0	3574	3610	0	3263	0					
Right Turn on Red				Yes	Yes						
Satd. Flow (RTOR)					63						
Link Speed (mph)		45	45		45						
Link Distance (ft)		986	649		631						
Travel Time (s)		14.9	9.8		9.6						
Peak Hour Factor	0.95	0.95	0.84	0.84	0.90	0.90					
Heavy Vehicles (%)	0%	1%	0%	0%	6%	0%					
Adj. Flow (vph)	0	414	356	0	692	297					
Shared Lane Traffic (%)											
Lane Group Flow (vph)	0	414	356	0	989	0					
Enter Blocked Intersection	No	No	No	No	No	No					
Lane Alignment	Left	Left	Left	Right	Left	Right					
Median Width(ft)		34	34		24						
Link Offset(ft)		0	0		0						
Crosswalk Width(ft)		16	16		16						
Two way Left Turn Lane											
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00					
Turning Speed (mph)	15				9	15					
Number of Detectors		2	2		1						
Detector Template		Thru	Thru		Left						
Leading Detector (ft)		100	100		20						
Trailing Detector (ft)		0	0		0						
Detector 1 Position(ft)		0	0		0						
Detector 1 Size(ft)		6	6		20						
Detector 1 Type		CI+Ex	CI+Ex		CI+Ex						
Detector 1 Channel											
Detector 1 Extend (s)		0.0	0.0		0.0						
Detector 1 Queue (s)		0.0	0.0		0.0						
Detector 1 Delay (s)		0.0	0.0		0.0						
Detector 2 Position(ft)		94	94								
Detector 2 Size(ft)		6	6								
Detector 2 Type		CI+Ex	CI+Ex								
Detector 2 Channel											
Detector 2 Extend (s)		0.0	0.0								
Turn Type		NA	NA		NA						
Protected Phases		6 11	2 11		4		1	2	6	11	12
Permitted Phases											
Detector Phase		6 11	2 11		4						
Switch Phase											
Minimum Initial (s)					7.0		4.0	15.0	15.0	5.0	15.0

Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
101: Flournoy Lucas Rd & LA 3132 SB

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	ø1	ø2	ø6	ø11	ø12
Minimum Split (s)					13.0		10.0	21.0	21.0	11.0	21.0
Total Split (s)					50.0		15.0	60.0	60.0	15.0	50.0
Total Split (%)					40.0%		12%	48%	48%	12%	40%
Maximum Green (s)					45.0		9.0	54.0	54.0	9.0	44.0
Yellow Time (s)					3.5		5.0	5.0	5.0	5.0	5.0
All-Red Time (s)					1.5		1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)					0.0						
Total Lost Time (s)					5.0						
Lead/Lag											
Lead-Lag Optimize?											
Vehicle Extension (s)					2.5		3.0	4.3	4.3	4.3	4.3
Recall Mode					None		None	Min	Min	None	None
Act Effct Green (s)		41.5	41.5		38.6						
Actuated g/C Ratio		0.45	0.45		0.42						
v/c Ratio		0.26	0.22		0.70						
Control Delay		16.4	16.6		24.3						
Queue Delay		0.0	0.0		0.0						
Total Delay		16.4	16.6		24.3						
LOS		B	B		C						
Approach Delay		16.4	16.6		24.3						
Approach LOS		B	B		C						

Intersection Summary	
Area Type:	Other
Cycle Length:	125
Actuated Cycle Length:	91.6
Natural Cycle:	60
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.70
Intersection Signal Delay:	20.9
Intersection Capacity Utilization:	56.4%
Analysis Period (min):	15
Intersection LOS:	C
ICU Level of Service:	B



Lanes, Volumes, Timings
102: Flournoy Lucas Rd & LA3132 NB

LA 3132 (Inner Loop) Extension - Stage 0 Study

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	ø2	ø4	ø6	ø11	ø12
Lane Configurations	↔	↕	↕	↕							
Volume (vph)	218	798	299	554	0	0					
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900					
Storage Length (ft)	200			85	0	0					
Storage Lanes	1			1	0	0					
Taper Length (ft)	50				50						
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00					
Frt				0.850							
Flt Protected	0.950										
Satd. Flow (prot)	1770	3438	3574	1482	0	0					
Flt Permitted	0.537										
Satd. Flow (perm)	1000	3438	3574	1482	0	0					
Right Turn on Red				Yes		Yes					
Satd. Flow (RTOR)				631							
Link Speed (mph)		45	45		30						
Link Distance (ft)		649	750		608						
Travel Time (s)		9.8	11.4		13.8						
Peak Hour Factor	0.94	0.94	0.83	0.83	0.92	0.92					
Heavy Vehicles (%)	2%	5%	1%	9%	0%	0%					
Adj. Flow (vph)	232	849	360	667	0	0					
Shared Lane Traffic (%)											
Lane Group Flow (vph)	232	849	360	667	0	0					
Enter Blocked Intersection	No	No	No	No	No	No					
Lane Alignment	Left	Left	Left	Right	Left	Right					
Median Width(ft)		24	34		0						
Link Offset(ft)		0	0		0						
Crosswalk Width(ft)		16	16		16						
Two way Left Turn Lane											
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00					
Turning Speed (mph)	15			9	15	9					
Number of Detectors	1	2	2	1							
Detector Template	Left	Thru	Thru	Right							
Leading Detector (ft)	20	100	100	20							
Trailing Detector (ft)	0	0	0	0							
Detector 1 Position(ft)	0	0	0	0							
Detector 1 Size(ft)	20	6	6	20							
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex							
Detector 1 Channel											
Detector 1 Extend (s)	0.0	0.0	0.0	0.0							
Detector 1 Queue (s)	0.0	0.0	0.0	0.0							
Detector 1 Delay (s)	0.0	0.0	0.0	0.0							
Detector 2 Position(ft)		94	94								
Detector 2 Size(ft)		6	6								
Detector 2 Type		CI+Ex	CI+Ex								
Detector 2 Channel											
Detector 2 Extend (s)		0.0	0.0								
Turn Type	pm+pt	NA	NA	Perm							
Protected Phases	1	6 12	2 12				2	4	6	11	12
Permitted Phases	6 12			2 12							

Lanes, Volumes, Timings
102: Flournoy Lucas Rd & LA3132 NB

LA 3132 (Inner Loop) Extension - Stage 0 Study

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	ø2	ø4	ø6	ø11	ø12
Detector Phase	1	6 12	2 12	2 12							
Switch Phase											
Minimum Initial (s)	4.0						15.0	7.0	15.0	5.0	15.0
Minimum Split (s)	10.0						21.0	13.0	21.0	11.0	21.0
Total Split (s)	15.0						60.0	50.0	60.0	15.0	50.0
Total Split (%)	12.0%						48%	40%	48%	12%	40%
Maximum Green (s)	9.0						54.0	45.0	54.0	9.0	44.0
Yellow Time (s)	5.0						5.0	3.5	5.0	5.0	5.0
All-Red Time (s)	1.0						1.0	1.5	1.0	1.0	1.0
Lost Time Adjust (s)	0.0										
Total Lost Time (s)	6.0										
Lead/Lag											
Lead-Lag Optimize?											
Vehicle Extension (s)	3.0						4.3	2.5	4.3	4.3	4.3
Recall Mode	None						Min	None	Min	None	None
Act Effect Green (s)	79.1	70.0	70.0	70.0							
Actuated g/C Ratio	0.86	0.76	0.76	0.76							
v/c Ratio	0.25	0.32	0.13	0.52							
Control Delay	4.2	0.9	2.7	1.8							
Queue Delay	0.0	0.0	0.0	0.0							
Total Delay	4.2	0.9	2.7	1.8							
LOS	A	A	A	A							
Approach Delay		1.6	2.1								
Approach LOS		A	A								
Intersection Summary											
Area Type:	Other										
Cycle Length:	125										
Actuated Cycle Length:	91.6										
Natural Cycle:	60										
Control Type:	Actuated-Uncoordinated										
Maximum v/c Ratio:	0.70										
Intersection Signal Delay:	1.9					Intersection LOS: A					
Intersection Capacity Utilization:	56.4%					ICU Level of Service B					
Analysis Period (min):	15										
Splits and Phases: 102: Flournoy Lucas Rd & LA3132 NB											
#101#102	← ø2		↖ ø1		↘ ø4						
60 s	[Green]		[Green]		[Green]						
#101#102	→ ø6		↖ ø11		↘ ø12						
60 s	[Green]		[Green]		[Green]						

Lanes, Volumes, Timings
103: LA 1 & Flournoy Lucas Rd

LA 3132 (Inner Loop) Extension - Stage 0 Study

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔		↔	↔		↔	↔		↔	↔	↔
Volume (vph)	501	167	298	27	10	9	279	292	3	2	331	574
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	0		0	125		0	165		165
Storage Lanes	1		0	0		0	1		0	1		1
Taper Length (ft)	50			50			50			50		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt		0.904			0.974			0.998				0.850
Flt Protected	0.950				0.971		0.950			0.950		
Satd. Flow (prot)	3467	1410	0	0	1789	0	1570	3370	0	1805	3438	1599
Flt Permitted	0.950				0.554		0.399			0.539		
Satd. Flow (perm)	3467	1410	0	0	1021	0	659	3370	0	1024	3438	1599
Right Turn on Red			Yes			Yes			Yes			No
Satd. Flow (RTOR)		110			11			1				
Link Speed (mph)	50			50			55			55		
Link Distance (ft)	784			651			1092			934		
Travel Time (s)	10.7			8.9			13.5			11.6		
Peak Hour Factor	0.89	0.89	0.89	0.80	0.80	0.80	0.83	0.83	0.83	0.81	0.81	0.81
Heavy Vehicles (%)	1%	2%	33%	0%	2%	0%	15%	7%	0%	0%	5%	1%
Adj. Flow (vph)	563	188	335	34	12	11	336	352	4	2	409	709
Shared Lane Traffic (%)												
Lane Group Flow (vph)	563	523	0	0	57	0	336	356	0	2	409	709
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)	24			0			12			12		
Link Offset(ft)	0			0			0			0		
Crosswalk Width(ft)	16			16			16			16		
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100		20	100	20
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)				94			94			94		94
Detector 2 Size(ft)				6			6			6		6
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				0.0
Turn Type	Prot	NA		Perm	NA		pm+pt	NA		pm+pt	NA	pt+ov
Protected Phases	3	8		4			1	6		5	2	2 3
Permitted Phases				4			6			2		

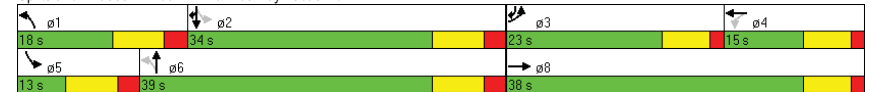
Lanes, Volumes, Timings
103: LA 1 & Flournoy Lucas Rd

LA 3132 (Inner Loop) Extension - Stage 0 Study

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	3	8		4	4		1	6		5	2	2 3
Switch Phase												
Minimum Initial (s)	5.0	10.0		7.0	7.0		7.0	15.0		5.0	15.0	
Minimum Split (s)	11.5	16.5		13.5	13.5		15.0	23.0		13.0	23.0	
Total Split (s)	23.0	38.0		15.0	15.0		18.0	39.0		13.0	34.0	
Total Split (%)	25.6%	42.2%		16.7%	16.7%		20.0%	43.3%		14.4%	37.8%	
Maximum Green (s)	16.5	31.5		8.5	8.5		10.0	31.0		5.0	26.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.5	5.5		5.5	5.5	
All-Red Time (s)	1.5	1.5		1.5	1.5		2.5	2.5		2.5	2.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.5	6.5			6.5		8.0	8.0		8.0	8.0	
Lead/Lag	Lead			Lag	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes			Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	2.5	6.0		6.0	6.0		3.0	5.0		3.0	5.0	
Recall Mode	None	None		None	None		None	Min		None	Min	
Act Effct Green (s)	19.0	30.8			8.5		42.8	40.8		30.4	25.4	50.9
Actuated g/C Ratio	0.21	0.35			0.10		0.48	0.46		0.34	0.29	0.57
v/c Ratio	0.76	0.93			0.53		0.80	0.23		0.01	0.42	0.77
Control Delay	42.4	48.3			51.9		33.2	16.0		13.0	27.3	23.3
Queue Delay	0.0	0.0			0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	42.4	48.3			51.9		33.2	16.0		13.0	27.3	23.3
LOS	D	D			D		C	B		B	C	C
Approach Delay		45.2			51.9			24.4			24.7	
Approach LOS		D			D			C			C	

Intersection Summary		
Area Type:	Other	
Cycle Length:	90	
Actuated Cycle Length:	88.7	
Natural Cycle:	90	
Control Type:	Actuated-Uncoordinated	
Maximum v/c Ratio:	0.93	
Intersection Signal Delay:	32.7	Intersection LOS: C
Intersection Capacity Utilization 75.6%		ICU Level of Service D
Analysis Period (min)	15	

Splits and Phases: 103: LA 1 & Flournoy Lucas Rd



Lanes, Volumes, Timings
106: LA 1 & Leonard Rd

LA 3132 (Inner Loop) Extension - Stage 0 Study

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	29	43	71	612	611	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	145			0
Storage Lanes	1	0	1			0
Taper Length (ft)	50		50			
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95
Frt	0.919			0.989		
Flt Protected	0.980		0.950			
Satd. Flow (prot)	1704	0	1703	3223	3031	0
Flt Permitted	0.980		0.950			
Satd. Flow (perm)	1704	0	1703	3223	3031	0
Link Speed (mph)	50			65	65	
Link Distance (ft)	1319			1583	2639	
Travel Time (s)	18.0			16.6	27.7	
Peak Hour Factor	0.88	0.88	0.87	0.87	0.89	0.89
Heavy Vehicles (%)	1%	0%	6%	12%	19%	2%
Adj. Flow (vph)	33	49	82	703	687	52
Shared Lane Traffic (%)						
Lane Group Flow (vph)	82	0	82	703	739	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			66	78	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	36.5%
ICU Level of Service	A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis
106: LA 1 & Leonard Rd

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	29	43	71	612	611	46
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.88	0.88	0.87	0.87	0.89	0.89
Hourly flow rate (vph)	33	49	82	703	687	52
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				Raised	Raised	
Median storage (veh)				2	3	
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1227	369	738			
vC1, stage 1 conf vol	712					
vC2, stage 2 conf vol	515					
vCu, unblocked vol	1227	369	738			
tC, single (s)	6.8	6.9	4.2			
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3	2.3			
p0 queue free %	92	92	90			
cM capacity (veh/h)	393	634	838			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	82	82	352	352	458	281
Volume Left	33	82	0	0	0	0
Volume Right	49	0	0	0	0	52
cSH	509	838	1700	1700	1700	1700
Volume to Capacity	0.16	0.10	0.21	0.21	0.27	0.17
Queue Length 95th (ft)	14	8	0	0	0	0
Control Delay (s)	13.4	9.8	0.0	0.0	0.0	0.0
Lane LOS	B	A				
Approach Delay (s)	13.4	1.0			0.0	
Approach LOS	B					

Intersection Summary

Average Delay	1.2
Intersection Capacity Utilization	36.5%
ICU Level of Service	A
Analysis Period (min)	15

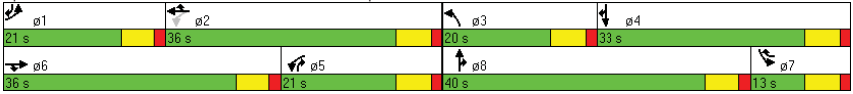
Lanes, Volumes, Timings
107: LA 1 & Bert Kouns Industrial Loop

LA 3132 (Inner Loop) Extension - Stage 0 Study

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Volume (vph)	223	693	124	224	641	89	109	751	251	111	896	256
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	230		230	150		115	220		220	230		230
Storage Lanes	2		1	1		1	2		1	2		1
Taper Length (ft)	50			50			50			50		
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3502	3539	1568	1787	3539	1583	3335	3574	1553	3502	3574	1599
Flt Permitted	0.950			0.383			0.950			0.950		
Satd. Flow (perm)	3502	3539	1568	720	3539	1583	3335	3574	1553	3502	3574	1599
Right Turn on Red			No			Yes			Yes			Yes
Satd. Flow (RTOR)						56			45			130
Link Speed (mph)		50			50			45				45
Link Distance (ft)		1652			1693			1702				1927
Travel Time (s)		22.5			23.1			25.8				29.2
Peak Hour Factor	0.98	0.98	0.98	0.91	0.91	0.91	0.85	0.85	0.85	0.91	0.91	0.91
Heavy Vehicles (%)	0%	2%	3%	1%	2%	2%	5%	1%	4%	0%	1%	1%
Adj. Flow (vph)	228	707	127	246	704	98	128	884	295	122	985	281
Shared Lane Traffic (%)												
Lane Group Flow (vph)	228	707	127	246	704	98	128	884	295	122	985	281
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24				24
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane					Yes							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94				94
Detector 2 Size(ft)		6			6			6				6
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				0.0
Turn Type	Prot	NA	Prot	pm+pt	NA	pt+ov	Prot	NA	pt+ov	Prot	NA	pt+ov
Protected Phases	1	6	6	5	2	2.7	3	8	5.8	7	4	1.4
Permitted Phases												2

Lanes, Volumes, Timings
107: LA 1 & Bert Kouns Industrial Loop

LA 3132 (Inner Loop) Extension - Stage 0 Study

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	1	6	6	5	2	2.7	3	8	5.8	7	4	1.4
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0		5.0	10.0		5.0	10.0	
Minimum Split (s)	11.0	22.0	22.0	11.0	22.0		11.0	22.0		11.0	22.0	
Total Split (s)	21.0	36.0	36.0	21.0	36.0		20.0	40.0		13.0	33.0	
Total Split (%)	19.1%	32.7%	32.7%	19.1%	32.7%		18.2%	36.4%		11.8%	30.0%	
Maximum Green (s)	15.0	30.0	30.0	15.0	30.0		14.0	34.0		7.0	27.0	
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5		1.5	1.5		1.5	1.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0		6.0	6.0		6.0	6.0	
Lead/Lag	Lead	Lead	Lead	Lag	Lag		Lead	Lead		Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Min	C-Min	None	C-Min		None	None		None	None	
Walk Time (s)		5.0	5.0		5.0			5.0			5.0	
Flash Dont Walk (s)		11.0	11.0		11.0			11.0			11.0	
Pedestrian Calls (/hr)		0	0		0			0			0	
Act Effect Green (s)	12.3	27.0	27.0	29.7	29.7	41.4	9.6	32.3	53.2	11.8	34.5	52.8
Actuated g/C Ratio	0.11	0.25	0.25	0.27	0.27	0.38	0.09	0.29	0.48	0.11	0.31	0.48
v/c Ratio	0.58	0.81	0.33	0.73	0.74	0.16	0.44	0.84	0.38	0.33	0.88	0.34
Control Delay	52.4	47.1	35.8	53.5	41.8	7.1	52.1	44.6	16.2	50.7	47.3	11.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.4	47.1	35.8	53.5	41.8	7.1	52.1	44.6	16.2	50.7	47.3	11.0
LOS	D	D	D	D	D	A	D	D	B	D	D	B
Approach Delay		46.9			41.3			39.0				40.3
Approach LOS		D			D			D				D
Intersection Summary												
Area Type:	Other											
Cycle Length:	110											
Actuated Cycle Length:	110											
Offset:	100 (91%), Referenced to phase 2:WBT and 6:EBT, Start of Green											
Natural Cycle:	80											
Control Type:	Actuated-Coordinated											
Maximum v/c Ratio:	0.88											
Intersection Signal Delay:	41.6						Intersection LOS: D					
Intersection Capacity Utilization:	80.5%						ICU Level of Service D					
Analysis Period (min):	15											
Splits and Phases: 107: LA 1 & Bert Kouns Industrial Loop												
												

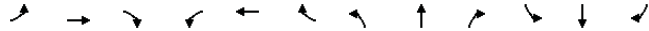
Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
108: Bert Kouns Industrial Loop & LA 3132 EB Off Ramp/LA 3132 EB On Ramp

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗	↘					↕	↗	↘	↕	↕
Volume (vph)	679	1	13	0	0	0	0	818	128	67	964	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		110	0		0	0		0	295		0
Storage Lanes	1		1	0		0	0		0	1		0
Taper Length (ft)	50			50			50			50		
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt			0.850					0.980				
Flt Protected	0.950	0.953								0.950		
Satd. Flow (prot)	1715	1720	1615	0	0	0	0	3507	0	1805	3574	0
Flt Permitted	0.950	0.953								0.146		
Satd. Flow (perm)	1715	1720	1615	0	0	0	0	3507	0	277	3574	0
Right Turn on Red			Yes			Yes		Yes				Yes
Satd. Flow (RTOR)			9					20				
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1564			1165			530			537	
Travel Time (s)		23.7			17.7			8.0			8.1	
Peak Hour Factor	0.93	0.93	0.93	0.92	0.92	0.92	0.86	0.86	0.86	0.96	0.96	0.96
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	1%	0%
Adj. Flow (vph)	730	1	14	0	0	0	0	951	149	70	1004	0
Shared Lane Traffic (%)	50%											
Lane Group Flow (vph)	365	366	14	0	0	0	0	1100	0	70	1004	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			27			27	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1					2		1	2	
Detector Template	Left	Thru	Right					Thru		Left	Thru	
Leading Detector (ft)	20	100	20					100		20	100	
Trailing Detector (ft)	0	0	0					0		0	0	
Detector 1 Position(ft)	0	0	0					0		0	0	
Detector 1 Size(ft)	20	6	20					6		20	6	
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex					CI+Ex		CI+Ex	CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0					0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0					0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0					0.0		0.0	0.0	
Detector 2 Position(ft)			94					94			94	
Detector 2 Size(ft)			6					6			6	
Detector 2 Type			CI+Ex					CI+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)			0.0					0.0			0.0	
Turn Type	Split	NA	Perm					NA		custom	NA	
Protected Phases	4	4						6		5	2 5	
Permitted Phases			4							2		

Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
108: Bert Kouns Industrial Loop & LA 3132 EB Off Ramp/LA 3132 EB On Ramp

Lane Group	ø1	ø2	ø8
Lane Configurations			
Volume (vph)			
Ideal Flow (vphpl)			
Storage Length (ft)			
Storage Lanes			
Taper Length (ft)			
Lane Util. Factor			
Frt			
Flt Protected			
Satd. Flow (prot)			
Flt Permitted			
Satd. Flow (perm)			
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (mph)			
Link Distance (ft)			
Travel Time (s)			
Peak Hour Factor			
Heavy Vehicles (%)			
Adj. Flow (vph)			
Shared Lane Traffic (%)			
Lane Group Flow (vph)			
Enter Blocked Intersection			
Lane Alignment			
Median Width(ft)			
Link Offset(ft)			
Crosswalk Width(ft)			
Two way Left Turn Lane			
Headway Factor			
Turning Speed (mph)			
Number of Detectors			
Detector Template			
Leading Detector (ft)			
Trailing Detector (ft)			
Detector 1 Position(ft)			
Detector 1 Size(ft)			
Detector 1 Type			
Detector 1 Channel			
Detector 1 Extend (s)			
Detector 1 Queue (s)			
Detector 1 Delay (s)			
Detector 2 Position(ft)			
Detector 2 Size(ft)			
Detector 2 Type			
Detector 2 Channel			
Detector 2 Extend (s)			
Turn Type			
Protected Phases	1	2	8
Permitted Phases			

Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
108: Bert Kouns Industrial Loop & LA 3132 EB Off Ramp/LA 3132 EB On Ramp

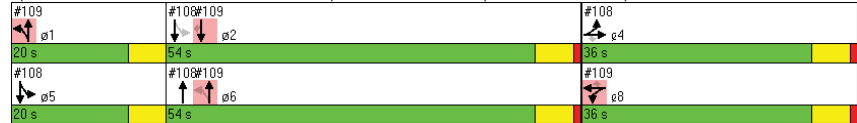


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	4					6		5	2	5
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0					15.0		5.0		
Minimum Split (s)	11.0	11.0	11.0					21.0		10.0		
Total Split (s)	36.0	36.0	36.0					54.0		20.0		
Total Split (%)	32.7%	32.7%	32.7%					49.1%		18.2%		
Maximum Green (s)	30.0	30.0	30.0					48.0		15.0		
Yellow Time (s)	5.0	5.0	5.0					5.0		5.0		
All-Red Time (s)	1.0	1.0	1.0					1.0		0.0		
Lost Time Adjust (s)	0.0	0.0	0.0					0.0		0.0		
Total Lost Time (s)	6.0	6.0	6.0					6.0		5.0		
Lead/Lag								Lag		Lead		
Lead-Lag Optimize?								Yes		Yes		
Vehicle Extension (s)	2.5	2.5	2.5					3.5		2.0		
Recall Mode	None	None	None					None		None		
Act Effct Green (s)	26.0	26.0	26.0					48.4		63.9		66.6
Actuated g/C Ratio	0.24	0.24	0.24					0.46		0.60		0.63
v/c Ratio	0.87	0.87	0.03					0.68		0.18		0.45
Control Delay	59.8	59.7	19.3					25.8		7.4		4.8
Queue Delay	0.0	0.0	0.0					0.0		0.0		0.0
Total Delay	59.8	59.7	19.3					25.8		7.4		4.8
LOS	E	E	B					C		A		A
Approach Delay		59.0						25.8				5.0
Approach LOS		E						C				A

Intersection Summary

Area Type: Other
 Cycle Length: 110
 Actuated Cycle Length: 106.2
 Natural Cycle: 65
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.87
 Intersection Signal Delay: 26.6 Intersection LOS: C
 Intersection Capacity Utilization 75.3% ICU Level of Service D
 Analysis Period (min) 15

Splits and Phases: 108: Bert Kouns Industrial Loop & LA 3132 EB Off Ramp/LA 3132 EB On Ramp



Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
108: Bert Kouns Industrial Loop & LA 3132 EB Off Ramp/LA 3132 EB On Ramp

Lane Group	ø1	ø2	ø8
Detector Phase			
Switch Phase			
Minimum Initial (s)	5.0	15.0	12.0
Minimum Split (s)	10.0	21.0	18.0
Total Split (s)	20.0	54.0	36.0
Total Split (%)	18%	49%	33%
Maximum Green (s)	15.0	48.0	30.0
Yellow Time (s)	5.0	5.0	5.0
All-Red Time (s)	0.0	1.0	1.0
Lost Time Adjust (s)			
Total Lost Time (s)			
Lead/Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	
Vehicle Extension (s)	2.0	3.5	3.0
Recall Mode	None	None	None
Act Effct Green (s)			
Actuated g/C Ratio			
v/c Ratio			
Control Delay			
Queue Delay			
Total Delay			
LOS			
Approach Delay			
Approach LOS			

Intersection Summary

Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
109: Bert Kouns Industrial Loop & LA 3132 WB On Ramp/LA 3132 WB Off Ramp

	↖	→	↘	↙	←	↖	↙	↑	↘	↘	↓	↘
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↕	↕	↕	↕			↕	↕
Volume (vph)	0	0	0	68	0	144	31	1497	0	0	962	758
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	0	0	0	200	295	0	0	0	0	115
Storage Lanes	0	0	0	0	0	1	1	0	0	0	0	1
Taper Length (ft)	50	0	0	50	0	0	50	0	0	50	0	0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt						0.850					0.850	
Flt Protected					0.950		0.950					
Satd. Flow (prot)	0	0	0	0	1805	1615	1752	3539	0	0	3574	1583
Flt Permitted					0.950		0.174					
Satd. Flow (perm)	0	0	0	0	1805	1615	321	3539	0	0	3574	1583
Right Turn on Red			Yes			Yes		Yes			Yes	
Satd. Flow (RTOR)						38						487
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		311			1075			537			687	
Travel Time (s)		4.7			16.3			8.1			10.4	
Peak Hour Factor	0.92	0.92	0.92	0.82	0.82	0.82	0.96	0.96	0.96	0.95	0.95	0.95
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	3%	2%	0%	0%	1%	2%
Adj. Flow (vph)	0	0	0	83	0	176	32	1559	0	0	1013	798
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	83	176	32	1559	0	0	1013	798
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)	0	0	0	0	0	0	0	27	0	0	0	0
Link Offset(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Crosswalk Width(ft)	16	0	0	16	0	0	16	0	0	16	0	0
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	9	15	9	15	9	15	9	15	9	15
Number of Detectors				1	2	1	1	2			2	1
Detector Template				Left	Thru	Right	Left	Thru			Thru	Right
Leading Detector (ft)				20	100	20	20	100			100	20
Trailing Detector (ft)				0	0	0	0	0			0	0
Detector 1 Position(ft)				0	0	0	0	0			0	0
Detector 1 Size(ft)				20	6	20	20	6			6	20
Detector 1 Type				Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 1 Queue (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 1 Delay (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 2 Position(ft)					94			94			94	
Detector 2 Size(ft)					6			6			6	
Detector 2 Type					Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)					0.0			0.0			0.0	
Turn Type				Split	NA	Perm	custom	NA			NA	Perm
Protected Phases				8	8		1	1	6		2	
Permitted Phases						8	6					2

Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
109: Bert Kouns Industrial Loop & LA 3132 WB On Ramp/LA 3132 WB Off Ramp

	↖	→	↘
Lane Group	ø4	ø5	ø6
Lane Configurations			
Volume (vph)			
Ideal Flow (vphpl)			
Storage Length (ft)			
Storage Lanes			
Taper Length (ft)			
Lane Util. Factor			
Frt			
Flt Protected			
Satd. Flow (prot)			
Flt Permitted			
Satd. Flow (perm)			
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (mph)			
Link Distance (ft)			
Travel Time (s)			
Peak Hour Factor			
Heavy Vehicles (%)			
Adj. Flow (vph)			
Shared Lane Traffic (%)			
Lane Group Flow (vph)			
Enter Blocked Intersection			
Lane Alignment			
Median Width(ft)			
Link Offset(ft)			
Crosswalk Width(ft)			
Two way Left Turn Lane			
Headway Factor			
Turning Speed (mph)			
Number of Detectors			
Detector Template			
Leading Detector (ft)			
Trailing Detector (ft)			
Detector 1 Position(ft)			
Detector 1 Size(ft)			
Detector 1 Type			
Detector 1 Channel			
Detector 1 Extend (s)			
Detector 1 Queue (s)			
Detector 1 Delay (s)			
Detector 2 Position(ft)			
Detector 2 Size(ft)			
Detector 2 Type			
Detector 2 Channel			
Detector 2 Extend (s)			
Turn Type			
Protected Phases	4	5	6
Permitted Phases			

Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
109: Bert Kouns Industrial Loop & LA 3132 WB On Ramp/LA 3132 WB Off Ramp

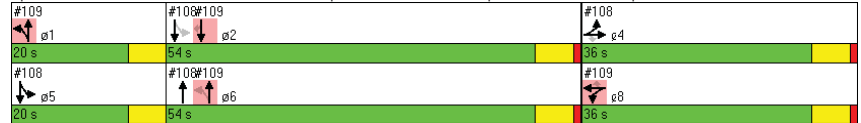


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase				8	8	8	1	16			2	2
Switch Phase												
Minimum Initial (s)				12.0	12.0	12.0	5.0				15.0	15.0
Minimum Split (s)				18.0	18.0	18.0	10.0				21.0	21.0
Total Split (s)				36.0	36.0	36.0	20.0				54.0	54.0
Total Split (%)				32.7%	32.7%	32.7%	18.2%				49.1%	49.1%
Maximum Green (s)				30.0	30.0	30.0	15.0				48.0	48.0
Yellow Time (s)				5.0	5.0	5.0	5.0				5.0	5.0
All-Red Time (s)				1.0	1.0	1.0	0.0				1.0	1.0
Lost Time Adjust (s)				0.0	0.0	0.0	0.0				0.0	0.0
Total Lost Time (s)				6.0	6.0	6.0	5.0				6.0	6.0
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Vehicle Extension (s)				3.0	3.0	3.0	2.0				3.5	3.5
Recall Mode				None	None	None	None				None	None
Act Effct Green (s)				26.0	26.0	26.0	64.4	68.4			48.1	48.1
Actuated g/C Ratio				0.24	0.24	0.24	0.61	0.64			0.45	0.45
v/c Ratio				0.19	0.42	0.08	0.68				0.63	0.81
Control Delay				32.3	28.9	8.0	13.6				24.9	17.6
Queue Delay				0.0	0.0	0.0	0.3				0.0	0.0
Total Delay				32.3	28.9	8.0	13.9				24.9	17.6
LOS				C	C	A	B				C	B
Approach Delay				30.0			13.8				21.7	
Approach LOS				C			B				C	

Intersection Summary

Area Type: Other
 Cycle Length: 110
 Actuated Cycle Length: 106.2
 Natural Cycle: 65
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.87
 Intersection Signal Delay: 18.8 Intersection LOS: B
 Intersection Capacity Utilization 75.3% ICU Level of Service D
 Analysis Period (min) 15

Splits and Phases: 109: Bert Kouns Industrial Loop & LA 3132 WB On Ramp/LA 3132 WB Off Ramp



Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
109: Bert Kouns Industrial Loop & LA 3132 WB On Ramp/LA 3132 WB Off Ramp

Lane Group	ø4	ø5	ø6
Detector Phase			
Switch Phase			
Minimum Initial (s)	5.0	5.0	15.0
Minimum Split (s)	11.0	10.0	21.0
Total Split (s)	36.0	20.0	54.0
Total Split (%)	33%	18%	49%
Maximum Green (s)	30.0	15.0	48.0
Yellow Time (s)	5.0	5.0	5.0
All-Red Time (s)	1.0	0.0	1.0
Lost Time Adjust (s)			
Total Lost Time (s)			
Lead/Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes
Vehicle Extension (s)	2.5	2.0	3.5
Recall Mode	None	None	None
Act Effct Green (s)			
Actuated g/C Ratio			
v/c Ratio			
Control Delay			
Queue Delay			
Total Delay			
LOS			
Approach Delay			
Approach LOS			

Intersection Summary

Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
110: Ashley River Dr SB & Flournoy Lucas Rd

	↖	→	↘	↙	←	↖	↙	↘	↙	↘	↙	↘
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↗		↖	↖↗						↖↗	
Volume (vph)	0	552	246	108	841	1	0	0	0	7	0	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	180		0	120		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	50			50			50			50		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.954									0.918	
Flt Protected				0.950							0.981	
Satd. Flow (prot)	1900	3297	0	1805	3406	0	0	0	0	0	1711	0
Flt Permitted				0.950							0.981	
Satd. Flow (perm)	1900	3297	0	1805	3406	0	0	0	0	0	1711	0
Link Speed (mph)		45			45				30			30
Link Distance (ft)		750			127				320			340
Travel Time (s)		11.4			1.9				7.3			7.7
Peak Hour Factor	0.92	0.92	0.92	0.85	0.85	0.85	0.92	0.92	0.80	0.80	0.80	0.80
Heavy Vehicles (%)	0%	6%	1%	0%	6%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	600	267	127	989	1	0	0	0	9	0	14
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	867	0	127	990	0	0	0	0	0	23	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			14				0			0
Link Offset(ft)		0			0				0			0
Crosswalk Width(ft)		16			16				16			16
Two way Left Turn Lane					Yes							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	42.4%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis LA 3132 (Inner Loop) Extension - Stage 0 Study
110: Ashley River Dr SB & Flournoy Lucas Rd

	↖	→	↘	↙	←	↖	↙	↘	↙	↘	↙	↘
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↗		↖	↖↗						↖↗	
Volume (veh/h)	0	552	246	108	841	1	0	0	0	7	0	11
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.85	0.85	0.85	0.92	0.92	0.92	0.80	0.80	0.80
Hourly flow rate (vph)	0	600	267	127	989	1	0	0	0	9	0	14
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)		750										
pX, platoon unblocked					0.93		0.93	0.93	0.93	0.93	0.93	0.93
vC, conflicting volume	991				867		1496	1978	434	1544	2112	495
vC1, stage 1 conf vol							734	734		1244	1244	
vC2, stage 2 conf vol							763	1245		300	867	
vCu, unblocked vol	991				715		1389	1906	251	1440	2048	495
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 %	100				85		100	100	100	94	100	97
cM capacity (veh/h)	706				835		256	191	705	154	169	525

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1
Volume Total	0	400	467	127	660	331	22
Volume Left	0	0	0	127	0	0	9
Volume Right	0	0	267	0	0	1	14
cSH	1700	1700	1700	835	1700	1700	271
Volume to Capacity	0.00	0.24	0.27	0.15	0.39	0.19	0.08
Queue Length 95th (ft)	0	0	0	13	0	0	7
Control Delay (s)	0.0	0.0	0.0	10.1	0.0	0.0	19.5
Lane LOS				B			C
Approach Delay (s)	0.0			1.1			19.5
Approach LOS							C

Intersection Summary	
Average Delay	0.9
Intersection Capacity Utilization	42.4%
Analysis Period (min)	15
	ICU Level of Service A

Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
111: Ashley River Dr NB & Flournoy Lucas Rd

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑	↘	↗
Volume (vph)	559	0	0	825	125	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt						0.850
Fit Protected					0.950	
Satd. Flow (prot)	3406	0	0	3438	1805	1568
Fit Permitted					0.950	
Satd. Flow (perm)	3406	0	0	3438	1805	1568
Link Speed (mph)	45			45	30	
Link Distance (ft)	127			2333	283	
Travel Time (s)	1.9			35.3	6.4	
Peak Hour Factor	0.88	0.88	0.80	0.80	0.80	0.80
Heavy Vehicles (%)	6%	0%	0%	5%	0%	3%
Adj. Flow (vph)	635	0	0	1031	156	81
Shared Lane Traffic (%)						
Lane Group Flow (vph)	635	0	0	1031	156	81
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	14			14	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane	Yes			Yes		
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	36.4%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis LA 3132 (Inner Loop) Extension - Stage 0 Study
111: Ashley River Dr NB & Flournoy Lucas Rd

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑	↘	↗
Volume (veh/h)	559	0	0	825	125	65
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.88	0.88	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	635	0	0	1031	156	81
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)	877					
pX, platoon unblocked						
vC, conflicting volume			635		1151	318
vC1, stage 1 conf vol					635	
vC2, stage 2 conf vol					516	
vCu, unblocked vol			635		1151	318
tC, single (s)			4.1		6.8	7.0
tC, 2 stage (s)					5.8	
tF (s)			2.2		3.5	3.3
p0 queue free %			100		62	88
cM capacity (veh/h)			958		406	675

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2
Volume Total	318	318	516	516	156	81
Volume Left	0	0	0	0	156	0
Volume Right	0	0	0	0	0	81
cSH	1700	1700	1700	1700	406	675
Volume to Capacity	0.19	0.19	0.30	0.30	0.38	0.12
Queue Length 95th (ft)	0	0	0	0	44	10
Control Delay (s)	0.0	0.0	0.0	0.0	19.3	11.1
Lane LOS					C	B
Approach Delay (s)	0.0		0.0		16.5	
Approach LOS					C	

Intersection Summary	
Average Delay	2.1
Intersection Capacity Utilization	36.4%
Analysis Period (min)	15
	ICU Level of Service A

Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
112: Flournoy Lucas Rd & Oaks Retirement Rd

	↖	→	←	↗	↘	↙
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖	↗	↗	↖	↖	↗
Volume (vph)	14	610	797	24	21	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	375			0	0	0
Storage Lanes	1			0	1	1
Taper Length (ft)	50				50	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Frt			0.996			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1805	3471	3429	0	1805	1553
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1805	3471	3429	0	1805	1553
Link Speed (mph)		45	45		30	
Link Distance (ft)		2333	1050		729	
Travel Time (s)		35.3	15.9		16.6	
Peak Hour Factor	0.88	0.88	0.80	0.80	0.80	0.80
Heavy Vehicles (%)	0%	4%	5%	0%	0%	4%
Adj. Flow (vph)	16	693	996	30	26	35
Shared Lane Traffic (%)						
Lane Group Flow (vph)	16	693	1026	0	26	35
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		14	14		28	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane		Yes	Yes			
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		15		9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	32.8%
ICU Level of Service	A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis LA 3132 (Inner Loop) Extension - Stage 0 Study
112: Flournoy Lucas Rd & Oaks Retirement Rd

	↖	→	←	↗	↘	↙
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖	↗	↗	↖	↖	↗
Volume (veh/h)	14	610	797	24	21	28
Sign Control	Free	Free	Free	Free	Stop	Stop
Grade		0%	0%		0%	
Peak Hour Factor	0.88	0.88	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	16	693	996	30	26	35
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	1026				1390	513
vC1, stage 1 conf vol						1011
vC2, stage 2 conf vol						378
vCu, unblocked vol	1026				1390	513
tC, single (s)	4.1				6.8	7.0
tC, 2 stage (s)					5.8	
tF (s)	2.2				3.5	3.3
p0 queue free %	98				91	93
cM capacity (veh/h)	684				294	501

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1	SB 2
Volume Total	16	347	347	664	362	26	35
Volume Left	16	0	0	0	0	26	0
Volume Right	0	0	0	0	30	0	35
cSH	684	1700	1700	1700	1700	294	501
Volume to Capacity	0.02	0.20	0.20	0.39	0.21	0.09	0.07
Queue Length 95th (ft)	2	0	0	0	0	7	6
Control Delay (s)	10.4	0.0	0.0	0.0	0.0	18.4	12.7
Lane LOS	B					C	B
Approach Delay (s)	0.2			0.0		15.2	
Approach LOS						C	

Intersection Summary	
Average Delay	0.6
Intersection Capacity Utilization	32.8%
ICU Level of Service	A
Analysis Period (min)	15

Lanes, Volumes, Timings
201: LA 1 & I-69 WB Ramp

LA 3132 (Inner Loop) Extension - Stage 0 Study

	↙	↖	↑	↗	↘	↓
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↙	↖	↑↑	↗	↘	↑↑
Volume (vph)	67	0	156	3	68	595
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300	0		0	275	
Storage Lanes	1	1		1	1	
Taper Length (ft)	50				50	
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt			0.850			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1641	1727	3034	1357	1656	3312
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1641	1727	3034	1357	1656	3312
Link Speed (mph)	40		65		65	
Link Distance (ft)	384		1426		533	
Travel Time (s)	6.5		15.0		5.6	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Heavy Vehicles (%)	10%	10%	19%	19%	9%	9%
Adj. Flow (vph)	84	0	195	4	76	661
Shared Lane Traffic (%)						
Lane Group Flow (vph)	84	0	195	4	76	661
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		76		76	
Link Offset(ft)	0		0		0	
Crosswalk Width(ft)	16		16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free		Free	

Intersection Summary

Area Type: Other
 Control Type: Unsignalized
 Intersection Capacity Utilization 26.8% ICU Level of Service A
 Analysis Period (min) 15

HCM Unsignalized Intersection Capacity Analysis LA 3132 (Inner Loop) Extension - Stage 0 Study
201: LA 1 & I-69 WB Ramp

	↙	↖	↑	↗	↘	↓
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↙	↖	↑↑	↗	↘	↑↑
Volume (veh/h)	67	0	156	3	68	595
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Hourly flow rate (vph)	84	0	195	4	76	661
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			Raised		Raised	
Median storage (veh)			3		3	
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	677	98			195	
vC1, stage 1 conf vol	195					
vC2, stage 2 conf vol	482					
vCu, unblocked vol	677	98			195	
tC, single (s)	7.0	7.1			4.3	
tC, 2 stage (s)	6.0					
tF (s)	3.6	3.4			2.3	
p0 queue free %	84	100			94	
cM capacity (veh/h)	521	914			1326	

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	84	0	98	98	4	76	331	331
Volume Left	84	0	0	0	0	76	0	0
Volume Right	0	0	0	0	4	0	0	0
cSH	521	1700	1700	1700	1700	1326	1700	1700
Volume to Capacity	0.16	0.00	0.06	0.06	0.00	0.06	0.19	0.19
Queue Length 95th (ft)	14	0	0	0	0	5	0	0
Control Delay (s)	13.2	0.0	0.0	0.0	0.0	7.9	0.0	0.0
Lane LOS	B	A				A		
Approach Delay (s)	13.2		0.0			0.8		
Approach LOS	B							

Intersection Summary

Average Delay 1.7
 Intersection Capacity Utilization 26.8% ICU Level of Service A
 Analysis Period (min) 15

Lanes, Volumes, Timings
202: LA 1 & I-69 EB Ramp

LA 3132 (Inner Loop) Extension - Stage 0 Study

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↘	↕	↘	↘	↕
Volume (vph)	0	15	143	55	419	243
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300	0		490	260	
Storage Lanes	1	1		1	1	
Taper Length (ft)	50				50	
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt		0.850		0.850		
Flt Protected					0.950	
Satd. Flow (prot)	1727	1468	3034	1357	1656	3312
Flt Permitted					0.950	
Satd. Flow (perm)	1727	1468	3034	1357	1656	3312
Link Speed (mph)	40		65		65	
Link Distance (ft)	460		3193		1426	
Travel Time (s)	7.8		33.5		15.0	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Heavy Vehicles (%)	10%	10%	19%	19%	9%	9%
Adj. Flow (vph)	0	19	179	69	466	270
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	19	179	69	466	270
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	24		76		76	
Link Offset(ft)	0		0		0	
Crosswalk Width(ft)	16		16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free		Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	33.8%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis LA 3132 (Inner Loop) Extension - Stage 0 Study
202: LA 1 & I-69 EB Ramp

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↘	↕	↘	↘	↕
Volume (veh/h)	0	15	143	55	419	243
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Hourly flow rate (vph)	0	19	179	69	466	270
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			Raised		Raised	
Median storage (veh)			3		3	
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1245	89			179	
vC1, stage 1 conf vol	179					
vC2, stage 2 conf vol	1066					
vCu, unblocked vol	1245	89			179	
tC, single (s)	7.0	7.1			4.3	
tC, 2 stage (s)	6.0					
tF (s)	3.6	3.4			2.3	
p0 queue free %	100	98			65	
cM capacity (veh/h)	179	926			1345	

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	0	19	89	89	69	466	135	135
Volume Left	0	0	0	0	0	466	0	0
Volume Right	0	19	0	0	69	0	0	0
cSH	1700	926	1700	1700	1700	1345	1700	1700
Volume to Capacity	0.00	0.02	0.05	0.05	0.04	0.35	0.08	0.08
Queue Length 95th (ft)	0	2	0	0	0	39	0	0
Control Delay (s)	0.0	9.0	0.0	0.0	0.0	9.1	0.0	0.0
Lane LOS	A	A				A		
Approach Delay (s)	9.0		0.0			5.8		
Approach LOS	A							

Intersection Summary

Average Delay	4.4
Intersection Capacity Utilization	33.8%
Analysis Period (min)	15
	ICU Level of Service A

Lanes, Volumes, Timings
301: LA 1 & Gate A

LA 3132 (Inner Loop) Extension - Stage 0 Study

	↙	↖	↑	↗	↘	↓
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↙		↗		↘	↘
Volume (vph)	14	37	575	4	11	642
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	150	
Storage Lanes	1	0		0	1	
Taper Length (ft)	50				50	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Frt	0.903		0.999			
Flt Protected	0.986				0.950	
Satd. Flow (prot)	1497	0	3031	0	1656	3059
Flt Permitted	0.986				0.950	
Satd. Flow (perm)	1497	0	3031	0	1656	3059
Link Speed (mph)	40		65		65	
Link Distance (ft)	496		4385		1583	
Travel Time (s)	8.5		46.0		16.6	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Heavy Vehicles (%)	13%	13%	19%	18%	9%	18%
Adj. Flow (vph)	18	46	719	5	12	713
Shared Lane Traffic (%)						
Lane Group Flow (vph)	64	0	724	0	12	713
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		66		66	
Link Offset(ft)	0		0		0	
Crosswalk Width(ft)	16		16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free		Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	27.7%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis
301: LA 1 & Gate A

	↙	↖	↑	↗	↘	↓
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↙		↗		↘	↘
Volume (veh/h)	14	37	575	4	11	642
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Hourly flow rate (vph)	18	46	719	5	12	713
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			Raised		Raised	
Median storage (veh)			2		2	
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1102	362			724	
vC1, stage 1 conf vol	721					
vC2, stage 2 conf vol	381					
vCu, unblocked vol	1102	362			724	
tC, single (s)	7.1	7.2			4.3	
tC, 2 stage (s)	6.1					
tF (s)	3.6	3.4			2.3	
p0 queue free %	95	92			99	
cM capacity (veh/h)	370	604			830	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	64	479	245	12	357	357
Volume Left	18	0	0	12	0	0
Volume Right	46	0	5	0	0	0
cSH	515	1700	1700	830	1700	1700
Volume to Capacity	0.12	0.28	0.14	0.01	0.21	0.21
Queue Length 95th (ft)	11	0	0	1	0	0
Control Delay (s)	13.0	0.0	0.0	9.4	0.0	0.0
Lane LOS	B			A		
Approach Delay (s)	13.0	0.0		0.2		
Approach LOS	B					

Intersection Summary

Average Delay	0.6
Intersection Capacity Utilization	27.7%
Analysis Period (min)	15
	ICU Level of Service A

Lanes, Volumes, Timings
302: LA 1 & Gate B

LA 3132 (Inner Loop) Extension - Stage 0 Study

	↙	↖	↗	↕	↘	↙	↘
Lane Group	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Lane Configurations	↙	↖	↗	↕	↘	↙	↘
Volume (vph)	30	79	0	499	13	35	621
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	250		0	250	
Storage Lanes	1	1	1		0	1	
Taper Length (ft)	50		50			50	
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	0.95
Frt		0.850		0.996			
Flt Protected	0.950					0.950	
Satd. Flow (prot)	1517	1357	1597	3003	0	1656	2423
Flt Permitted	0.950					0.950	
Satd. Flow (perm)	1517	1357	1597	3003	0	1656	2423
Link Speed (mph)	40			65			65
Link Distance (ft)	499			1577			4385
Travel Time (s)	8.5			16.5			46.0
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.90	0.90
Heavy Vehicles (%)	19%	19%	19%	19%	49%	9%	49%
Adj. Flow (vph)	38	99	0	624	16	39	690
Shared Lane Traffic (%)							
Lane Group Flow (vph)	38	99	0	640	0	39	690
Enter Blocked Intersection	No	No	No	No	No	No	No
Lane Alignment	Left	Right	R NA	Left	Right	Left	Left
Median Width(ft)	20			66			66
Link Offset(ft)	0			0			0
Crosswalk Width(ft)	16			16			16
Two way Left Turn Lane							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	9		9	15	
Sign Control	Stop			Free			Free

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	33.8%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis
302: LA 1 & Gate B

	↙	↖	↗	↕	↘	↙	↘
Movement	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Lane Configurations	↙	↖	↗	↕	↘	↙	↘
Volume (veh/h)	30	79	0	499	13	35	621
Sign Control	Stop			Free			Free
Grade	0%			0%			0%
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.90	0.90
Hourly flow rate (vph)	38	99	0	624	16	39	690
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type				Raised			Raised
Median storage (veh)				2			2
Upstream signal (ft)							
pX, platoon unblocked				0.00			
vC, conflicting volume	1055	320	0			640	
vC1, stage 1 conf vol	632						
vC2, stage 2 conf vol	423						
vCu, unblocked vol	1055	320	0			640	
tC, single (s)	7.2	7.3	0.0			4.3	
tC, 2 stage (s)	6.2						
tF (s)	3.7	3.5	0.0			2.3	
p0 queue free %	90	84	0			96	
cM capacity (veh/h)	379	628	0			894	

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	38	99	416	224	0	39	345	345
Volume Left	38	0	0	0	0	39	0	0
Volume Right	0	99	0	16	0	0	0	0
cSH	379	628	1700	1700	1700	894	1700	1700
Volume to Capacity	0.10	0.16	0.24	0.13	0.00	0.04	0.20	0.20
Queue Length 95th (ft)	8	14	0	0	0	3	0	0
Control Delay (s)	15.5	11.8	0.0	0.0	0.0	9.2	0.0	0.0
Lane LOS	C	B				A		
Approach Delay (s)	12.8		0.0			0.5		
Approach LOS	B							

Intersection Summary

Average Delay	1.4
Intersection Capacity Utilization	33.8%
Analysis Period (min)	15
	ICU Level of Service A

Lanes, Volumes, Timings
303: LA 1 & Gate C

LA 3132 (Inner Loop) Extension - Stage 0 Study

	↙	↖	↑	↗	↘	↓
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↕	↗		↕
Volume (vph)	0	47	479	12	0	663
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	250	
Storage Lanes	0	1		1	0	
Taper Length (ft)	50				50	
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt		0.865		0.850		
Flt Protected						
Satd. Flow (prot)	0	1325	3034	1077	0	2407
Flt Permitted						
Satd. Flow (perm)	0	1325	3034	1077	0	2407
Link Speed (mph)	40		65			65
Link Distance (ft)	508		533			1082
Travel Time (s)	8.7		5.6			11.3
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Heavy Vehicles (%)	24%	24%	19%	50%	9%	50%
Adj. Flow (vph)	0	59	599	15	0	737
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	59	599	15	0	737
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	0		76			76
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	23.2%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis LA 3132 (Inner Loop) Extension - Stage 0 Study
303: LA 1 & Gate C

	↙	↖	↑	↗	↘	↓
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↕	↗		↕
Volume (veh/h)	0	47	479	12	0	663
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Hourly flow rate (vph)	0	59	599	15	0	737
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			Raised			Raised
Median storage (veh)			3			3
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	967	299			614	
vC1, stage 1 conf vol	599					
vC2, stage 2 conf vol	368					
vCu, unblocked vol	967	299			614	
tC, single (s)	7.3	7.4			4.3	
tC, 2 stage (s)	6.3					
tF (s)	3.7	3.5			2.3	
p0 queue free %	100	91			100	
cM capacity (veh/h)	428	636			915	

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	59	299	299	15	368	368
Volume Left	0	0	0	0	0	0
Volume Right	59	0	0	15	0	0
cSH	636	1700	1700	1700	1700	1700
Volume to Capacity	0.09	0.18	0.18	0.01	0.22	0.22
Queue Length 95th (ft)	8	0	0	0	0	0
Control Delay (s)	11.2	0.0	0.0	0.0	0.0	0.0
Lane LOS	B					
Approach Delay (s)	11.2	0.0			0.0	
Approach LOS	B					

Intersection Summary

Average Delay	0.5
Intersection Capacity Utilization	23.2%
Analysis Period (min)	15
	ICU Level of Service A

Lanes, Volumes, Timings
304: LA 1 & Gate D

LA 3132 (Inner Loop) Extension - Stage 0 Study

	↙	↖	↑	↗	↘	↓
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↙	↖	↑↑	↗	↘	↑↑
Volume (vph)	1	18	180	0	11	234
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	250		300	280	
Storage Lanes	1	1		1	1	
Taper Length (ft)	50				50	
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt	0.850					
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1337	1196	3034	1195	1656	2270
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1337	1196	3034	1195	1656	2270
Link Speed (mph)	40		65		65	
Link Distance (ft)	501		710		505	
Travel Time (s)	8.5		7.4		5.3	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Heavy Vehicles (%)	35%	35%	19%	59%	9%	59%
Adj. Flow (vph)	1	23	225	0	12	260
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1	22	225	0	12	260
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		76		76	
Link Offset(ft)	0		0		0	
Crosswalk Width(ft)	16		16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free		Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	19.1%
ICU Level of Service	A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis
304: LA 1 & Gate D

	↙	↖	↑	↗	↘	↓
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↙	↖	↑↑	↗	↘	↑↑
Volume (veh/h)	1	18	180	0	11	234
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Hourly flow rate (vph)	1	22	225	0	12	260
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		10				
Median type			Raised		Raised	
Median storage (veh)			3		3	
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	379	112			225	
vC1, stage 1 conf vol	225					
vC2, stage 2 conf vol	154					
vCu, unblocked vol	379	112			225	
tC, single (s)	7.5	7.6			4.3	
tC, 2 stage (s)	6.5					
tF (s)	3.9	3.6			2.3	
p0 queue free %	100	97			99	
cM capacity (veh/h)	666	823			1291	

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	24	112	112	0	12	130	130
Volume Left	1	0	0	0	12	0	0
Volume Right	22	0	0	0	0	0	0
cSH	869	1700	1700	1700	1291	1700	1700
Volume to Capacity	0.03	0.07	0.07	0.00	0.01	0.08	0.08
Queue Length 95th (ft)	2	0	0	0	1	0	0
Control Delay (s)	9.5	0.0	0.0	0.0	7.8	0.0	0.0
Lane LOS	A				A		
Approach Delay (s)	9.5	0.0			0.4		
Approach LOS	A						

Intersection Summary

Average Delay	0.6
Intersection Capacity Utilization	19.1%
ICU Level of Service	A
Analysis Period (min)	15

Lanes, Volumes, Timings
101: Flournoy Lucas Rd & LA 3132 SB

LA 3132 (Inner Loop) Extension - Stage 0 Study

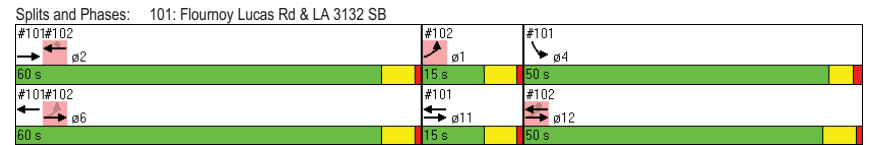
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	ø1	ø2	ø6	ø11	ø12
Lane Configurations		↑↑	↑↑		↑↑						
Volume (vph)	0	1050	208	0	672	137					
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900					
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	0.95					
Frt					0.975						
Flt Protected					0.960						
Satd. Flow (prot)	0	3505	3406	0	3072	0					
Flt Permitted					0.960						
Satd. Flow (perm)	0	3505	3406	0	3072	0					
Right Turn on Red				Yes	Yes						
Satd. Flow (RTOR)					22						
Link Speed (mph)		45	45		45						
Link Distance (ft)		986	649		631						
Travel Time (s)		14.9	9.8		9.6						
Peak Hour Factor	0.86	0.86	0.81	0.81	0.80	0.80					
Heavy Vehicles (%)	0%	3%	6%	0%	14%	4%					
Adj. Flow (vph)	0	1221	257	0	840	171					
Shared Lane Traffic (%)											
Lane Group Flow (vph)	0	1221	257	0	1011	0					
Enter Blocked Intersection	No	No	No	No	No	No					
Lane Alignment	Left	Left	Left	Right	Left	Right					
Median Width(ft)		34	34		24						
Link Offset(ft)		0	0		0						
Crosswalk Width(ft)		16	16		16						
Two way Left Turn Lane											
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00					
Turning Speed (mph)	15			9	15	9					
Number of Detectors		2	2		1						
Detector Template		Thru	Thru		Left						
Leading Detector (ft)		100	100		20						
Trailing Detector (ft)		0	0		0						
Detector 1 Position(ft)		0	0		0						
Detector 1 Size(ft)		6	6		20						
Detector 1 Type		CI+Ex	CI+Ex		CI+Ex						
Detector 1 Channel											
Detector 1 Extend (s)		0.0	0.0		0.0						
Detector 1 Queue (s)		0.0	0.0		0.0						
Detector 1 Delay (s)		0.0	0.0		0.0						
Detector 2 Position(ft)		94	94								
Detector 2 Size(ft)		6	6								
Detector 2 Type		CI+Ex	CI+Ex								
Detector 2 Channel											
Detector 2 Extend (s)		0.0	0.0								
Turn Type		NA	NA		NA						
Protected Phases		2 11	6 11		4		1	2	6	11	12
Permitted Phases											
Detector Phase		2 11	6 11		4						
Switch Phase											
Minimum Initial (s)					7.0		4.0	15.0	15.0	5.0	15.0

Lanes, Volumes, Timings
101: Flournoy Lucas Rd & LA 3132 SB

LA 3132 (Inner Loop) Extension - Stage 0 Study

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	ø1	ø2	ø6	ø11	ø12
Minimum Split (s)					13.0		10.0	21.0	21.0	11.0	21.0
Total Split (s)					50.0		15.0	60.0	60.0	15.0	50.0
Total Split (%)					40.0%		12%	48%	48%	12%	40%
Maximum Green (s)					45.0		9.0	54.0	54.0	9.0	44.0
Yellow Time (s)					3.5		5.0	5.0	5.0	5.0	5.0
All-Red Time (s)					1.5		1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)					0.0						
Total Lost Time (s)					5.0						
Lead/Lag											
Lead-Lag Optimize?											
Vehicle Extension (s)					2.5		3.0	4.3	4.3	4.3	4.3
Recall Mode					None		None	Min	Min	None	None
Act Effct Green (s)		69.0	69.0		45.0						
Actuated g/C Ratio		0.55	0.55		0.36						
v/c Ratio		0.63	0.14		0.90						
Control Delay		21.1	14.4		49.3						
Queue Delay		0.0	0.0		0.0						
Total Delay		21.1	14.4		49.3						
LOS		C	B		D						
Approach Delay		21.1	14.4		49.3						
Approach LOS		C	B		D						

Intersection Summary	
Area Type:	Other
Cycle Length:	125
Actuated Cycle Length:	125
Natural Cycle:	60
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.90
Intersection Signal Delay:	31.9
Intersection Capacity Utilization:	101.6%
Analysis Period (min):	15
Intersection LOS:	C
ICU Level of Service:	G



Lanes, Volumes, Timings
102: Flournoy Lucas Rd & LA3132 NB

LA 3132 (Inner Loop) Extension - Stage 0 Study

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	ø2	ø4	ø6	ø11	ø12
Lane Configurations	↔	↕	↕	↕							
Volume (vph)	665	1057	208	884	0	0					
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900					
Storage Length (ft)	200			85	0	0					
Storage Lanes	1			1	0	0					
Taper Length (ft)	50				50						
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00					
Frt				0.850							
Flt Protected	0.950										
Satd. Flow (prot)	1787	3312	3343	1538	0	0					
Flt Permitted	0.593										
Satd. Flow (perm)	1116	3312	3343	1538	0	0					
Right Turn on Red				Yes		Yes					
Satd. Flow (RTOR)				197							
Link Speed (mph)		45	45		45						
Link Distance (ft)		649	750		607						
Travel Time (s)		9.8	11.4		9.2						
Peak Hour Factor	0.86	0.86	0.81	0.81	0.92	0.92					
Heavy Vehicles (%)	1%	9%	8%	5%	0%	0%					
Adj. Flow (vph)	773	1229	257	1091	0	0					
Shared Lane Traffic (%)											
Lane Group Flow (vph)	773	1229	257	1091	0	0					
Enter Blocked Intersection	No	No	No	No	No	No					
Lane Alignment	Left	Left	Left	Right	Left	Right					
Median Width(ft)		24	34		0						
Link Offset(ft)		0	0		0						
Crosswalk Width(ft)		16	16		16						
Two way Left Turn Lane											
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00					
Turning Speed (mph)	15			9	15	9					
Number of Detectors	1	2	2	1							
Detector Template	Left	Thru	Thru	Right							
Leading Detector (ft)	20	100	100	20							
Trailing Detector (ft)	0	0	0	0							
Detector 1 Position(ft)	0	0	0	0							
Detector 1 Size(ft)	20	6	6	20							
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex							
Detector 1 Channel											
Detector 1 Extend (s)	0.0	0.0	0.0	0.0							
Detector 1 Queue (s)	0.0	0.0	0.0	0.0							
Detector 1 Delay (s)	0.0	0.0	0.0	0.0							
Detector 2 Position(ft)		94	94								
Detector 2 Size(ft)		6	6								
Detector 2 Type		CI+Ex	CI+Ex								
Detector 2 Channel											
Detector 2 Extend (s)		0.0	0.0								
Turn Type	pm+pt	NA	NA	Perm							
Protected Phases	1	6 12	2 12				2	4	6	11	12
Permitted Phases	6 12			2 12							

Lanes, Volumes, Timings
102: Flournoy Lucas Rd & LA3132 NB

LA 3132 (Inner Loop) Extension - Stage 0 Study

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	ø2	ø4	ø6	ø11	ø12
Detector Phase	1	6 12	2 12	2 12							
Switch Phase											
Minimum Initial (s)	4.0						15.0	7.0	15.0	5.0	15.0
Minimum Split (s)	10.0						21.0	13.0	21.0	11.0	21.0
Total Split (s)	15.0						60.0	50.0	60.0	15.0	50.0
Total Split (%)	12.0%						48%	40%	48%	12%	40%
Maximum Green (s)	9.0						54.0	45.0	54.0	9.0	44.0
Yellow Time (s)	5.0						5.0	3.5	5.0	5.0	5.0
All-Red Time (s)	1.0						1.0	1.5	1.0	1.0	1.0
Lost Time Adjust (s)	0.0										
Total Lost Time (s)	6.0										
Lead/Lag											
Lead-Lag Optimize?											
Vehicle Extension (s)	3.0						4.3	2.5	4.3	4.3	4.3
Recall Mode	None						Min	None	Min	None	None
Act Effect Green (s)	113.0	104.0	104.0	104.0							
Actuated g/C Ratio	0.90	0.83	0.83	0.83							
v/c Ratio	0.73	0.45	0.09	0.83							
Control Delay	24.4	1.0	2.0	11.6							
Queue Delay	0.0	0.4	0.0	0.0							
Total Delay	24.4	1.5	2.0	11.6							
LOS	C	A	A	B							
Approach Delay		10.3	9.8								
Approach LOS		B	A								
Intersection Summary											
Area Type:	Other										
Cycle Length:	125										
Actuated Cycle Length:	125										
Natural Cycle:	60										
Control Type:	Actuated-Uncoordinated										
Maximum v/c Ratio:	0.90										
Intersection Signal Delay:	10.1					Intersection LOS: B					
Intersection Capacity Utilization	101.6%					ICU Level of Service G					
Analysis Period (min)	15										
Splits and Phases: 102: Flournoy Lucas Rd & LA3132 NB											
#101#102	↔ ø2		↕ ø1		↕ ø4						
60 s	60 s		15 s		50 s						
#101#102	↔ ø6		↕ ø11		↕ ø12						
60 s	60 s		15 s		50 s						

Lanes, Volumes, Timings
103: LA 1 & Flournoy Lucas Rd

LA 3132 (Inner Loop) Extension - Stage 0 Study

	↖	→	↘	↙	←	↖	↙	↘	↙	↘	↙	↘
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↖	↖	↖		↖↖		↖↖	↖↖		↖	↖↖	↖
Volume (vph)	765	23	292	0	0	9	536	667	0	0	382	555
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		200	0		0	125		0	165		165
Storage Lanes	1		1	0		0	2		0	1		1
Taper Length (ft)	50			50			50			50		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	0.97	0.95	0.95	1.00	0.95	1.00
Frt			0.850			0.865						0.850
Flt Protected	0.950						0.950					
Satd. Flow (prot)	3400	1863	1252	0	1481	0	2613	3282	0	1900	3406	1553
Flt Permitted	0.950						0.950					
Satd. Flow (perm)	3400	1863	1252	0	1481	0	2613	3282	0	1900	3406	1553
Right Turn on Red			Yes			Yes			Yes			No
Satd. Flow (RTOR)			365			113						
Link Speed (mph)		50			50			55				55
Link Distance (ft)		784			651			1092				934
Travel Time (s)		10.7			8.9			13.5				11.6
Peak Hour Factor	0.80	0.80	0.80	0.86	0.86	0.86	0.86	0.86	0.86	0.80	0.80	0.80
Heavy Vehicles (%)	3%	2%	29%	0%	1%	11%	34%	10%	0%	0%	6%	4%
Adj. Flow (vph)	956	29	365	0	0	10	623	776	0	0	478	694
Shared Lane Traffic (%)												
Lane Group Flow (vph)	956	29	365	0	10	0	623	776	0	0	478	694
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			0			24				24
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2		1	2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100		20	100		20	100	20
Trailing Detector (ft)	0	0	0	0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0	0	0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6	20	20	6		20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94				94
Detector 2 Size(ft)		6			6			6				6
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				0.0
Turn Type	Prot	NA	Perm	Perm	NA		Prot	NA		Prot	NA	pt+ov
Protected Phases	3	8			4		1	6		5	2	2 3
Permitted Phases			8		4							

Lanes, Volumes, Timings
103: LA 1 & Flournoy Lucas Rd

LA 3132 (Inner Loop) Extension - Stage 0 Study

	↖	→	↘	↙	←	↖	↙	↘	↙	↘	↙	↘
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	3	8	8	4	4		1	6		5	2	2 3
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	7.0	7.0		7.0	15.0		5.0	15.0	
Minimum Split (s)	11.5	16.5	16.5	13.5	13.5		15.0	23.0		13.0	23.0	
Total Split (s)	37.0	50.5	50.5	33.5	33.5		33.0	46.5		13.0	26.5	
Total Split (%)	33.6%	45.9%	45.9%	12.3%	12.3%		30.0%	42.3%		11.8%	24.1%	
Maximum Green (s)	30.5	44.0	44.0	7.0	7.0		25.0	38.5		5.0	18.5	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.5	5.5		5.5	5.5	
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5		2.5	2.5		2.5	2.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.5	6.5	6.5		6.5		8.0	8.0		8.0	8.0	
Lead/Lag	Lead			Lag	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes			Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	2.5	6.0	6.0	6.0	6.0		3.0	5.0		3.0	5.0	
Recall Mode	None	None	None	None	None		None	Min		None	Min	
Act Effect Green (s)	30.6	33.0	33.0		7.0		25.1	51.6		18.6	55.7	
Actuated g/C Ratio	0.31	0.33	0.33		0.07		0.25	0.52		0.19	0.56	
v/c Ratio	0.91	0.05	0.55		0.05		0.94	0.45		0.75	0.80	
Control Delay	47.4	22.0	5.9		0.4		61.3	16.6		47.2	26.9	
Queue Delay	0.0	0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Total Delay	47.4	22.0	5.9		0.4		61.3	16.6		47.2	26.9	
LOS	D	C	A		A		E	B		D	C	
Approach Delay		35.7			0.4			36.5			35.2	
Approach LOS		D			A			D			D	
Intersection Summary												
Area Type:	Other											
Cycle Length:	110											
Actuated Cycle Length:	99.2											
Natural Cycle:	110											
Control Type:	Actuated-Uncoordinated											
Maximum v/c Ratio:	0.94											
Intersection Signal Delay:	35.7						Intersection LOS: D					
Intersection Capacity Utilization:	75.0%						ICU Level of Service D					
Analysis Period (min):	15											
Splits and Phases: 103: LA 1 & Flournoy Lucas Rd												
↖ ø1	↘ ø2	↙ ø3	← ø4	↖ ø5	↙ ø6	↘ ø8						
33 s	26.5 s	37 s	13.5 s	13 s	46.5 s	50.5 s						

Lanes, Volumes, Timings
105: Ellerbe Rd & Flournoy Lucas Rd

LA 3132 (Inner Loop) Extension - Stage 0 Study

	↖	→	↘	↙	←	↖	↙	↘	↙	↘	↙	↘
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↘		↖	↘	↖	↖	↖	↖	↖	↖	↖
Volume (vph)	12	168	45	71	152	48	107	1373	483	26	442	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	140		0	150		0	115		120	150		0
Storage Lanes	1		0	1		1	1		1	1		0
Taper Length (ft)	50			50			50			50		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Frt		0.968				0.850			0.850		0.999	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1671	1747	0	1656	1727	1468	1770	3574	1568	1736	3404	0
Flt Permitted	0.391			0.538			0.331			0.123		
Satd. Flow (perm)	688	1747	0	938	1727	1468	617	3574	1568	225	3404	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		13				59			263		1	
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		848			838			697			896	
Travel Time (s)		12.8			12.7			10.6			13.6	
Peak Hour Factor	0.80	0.80	0.80	0.82	0.82	0.82	0.81	0.81	0.81	0.80	0.80	0.80
Heavy Vehicles (%)	8%	4%	10%	9%	10%	10%	2%	1%	3%	4%	6%	0%
Adj. Flow (vph)	15	210	56	87	185	59	132	1695	596	32	552	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	15	266	0	87	185	59	132	1695	596	32	556	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane					Yes						Yes	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100		20	100	20	20	100	20	20	100	
Trailing Detector (ft)	0	0		0	0	0	0	0	0	0	0	
Detector 1 Position(ft)	0	0		0	0	0	0	0	0	0	0	
Detector 1 Size(ft)	20	6		20	6	20	20	6	20	20	6	
Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8			4		4	6		6	2		

Lanes, Volumes, Timings
105: Ellerbe Rd & Flournoy Lucas Rd

LA 3132 (Inner Loop) Extension - Stage 0 Study

	↖	→	↘	↙	←	↖	↙	↘	↙	↘	↙	↘
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	3	8		7	4	4	1	6	6	5	2	
Switch Phase												
Minimum Initial (s)	7.0	15.0		7.0	15.0	15.0	7.0	10.0	10.0	7.0	10.0	
Minimum Split (s)	12.0	20.0		14.0	22.0	22.0	12.0	15.0	15.0	14.0	17.0	
Total Split (s)	12.0	20.0		14.0	22.0	22.0	12.0	42.0	42.0	14.0	44.0	
Total Split (%)	13.3%	22.2%		15.6%	24.4%	24.4%	13.3%	46.7%	46.7%	15.6%	48.9%	
Maximum Green (s)	7.0	15.0		7.0	15.0	15.0	7.0	37.0	37.0	7.0	37.0	
Yellow Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	0.0	0.0		2.0	2.0	2.0	0.0	0.0	0.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0	5.0		7.0	7.0	7.0	5.0	5.0	5.0	7.0	7.0	
Lead/Lag	Lead	Lead		Lag	Lag	Lag	Lead	Lead	Lead	Lag	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	Min		None	Min	Min	None	None	None	None	None	
Act Effect Green (s)	15.8	15.8		24.0	22.2	22.2	37.7	37.7	37.7	37.5	34.2	
Actuated g/C Ratio	0.19	0.19		0.29	0.27	0.27	0.46	0.46	0.46	0.46	0.42	
v/c Ratio	0.07	0.77		0.26	0.39	0.13	0.34	1.03	0.69	0.14	0.39	
Control Delay	32.4	49.4		30.4	30.3	9.4	18.5	56.7	16.1	22.0	19.0	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	32.4	49.4		30.4	30.3	9.4	18.5	56.7	16.1	22.0	19.0	
LOS	C	D		C	C	A	B	E	B	C	B	
Approach Delay		48.5			26.6			44.7			19.2	
Approach LOS		D			C			D			B	
Intersection Summary												
Area Type:	Other											
Cycle Length:	90											
Actuated Cycle Length:	82											
Natural Cycle:	90											
Control Type:	Actuated-Uncoordinated											
Maximum v/c Ratio:	1.03											
Intersection Signal Delay:	39.2						Intersection LOS: D					
Intersection Capacity Utilization:	82.1%						ICU Level of Service E					
Analysis Period (min):	15											
Splits and Phases: 105: Ellerbe Rd & Flournoy Lucas Rd												

Lanes, Volumes, Timings
106: LA 1 & Leonard Rd

LA 3132 (Inner Loop) Extension - Stage 0 Study

	↖	↘	↙	↑	↓	↗
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↖		↙	↑↑	↑↓	
Volume (vph)	161	88	95	1042	626	47
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	145			0
Storage Lanes	1	0	1			0
Taper Length (ft)	50		50			
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95
Frt	0.952			0.989		
Flt Protected	0.969		0.950			
Satd. Flow (prot)	1719	0	1444	3034	3007	0
Flt Permitted	0.969		0.950			
Satd. Flow (perm)	1719	0	1444	3034	3007	0
Link Speed (mph)	50			65	65	
Link Distance (ft)	1319			1584	2639	
Travel Time (s)	18.0			16.6	27.7	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.89	0.89
Heavy Vehicles (%)	3%	0%	25%	19%	20%	2%
Adj. Flow (vph)	201	110	119	1303	703	53
Shared Lane Traffic (%)						
Lane Group Flow (vph)	311	0	119	1302	756	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			66	78	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	49.8%
ICU Level of Service	A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis
106: LA 1 & Leonard Rd

	↖	↘	↙	↑	↓	↗
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↖		↙	↑↑	↑↓	
Volume (veh/h)	161	88	95	1042	626	47
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.89	0.89
Hourly flow rate (vph)	201	110	119	1302	703	53
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				Raised	Raised	
Median storage (veh)				2	3	
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1619	378	756			
vC1, stage 1 conf vol	730					
vC2, stage 2 conf vol	889					
vCu, unblocked vol	1619	378	756			
tC, single (s)	6.9	6.9	4.6			
tC, 2 stage (s)	5.9					
tF (s)	3.5	3.3	2.5			
p0 queue free %	27	82	83			
cM capacity (veh/h)	274	625	715			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	311	119	651	651	469	287
Volume Left	201	119	0	0	0	0
Volume Right	110	0	0	0	0	53
cSH	342	715	1700	1700	1700	1700
Volume to Capacity	0.91	0.17	0.38	0.38	0.28	0.17
Queue Length 95th (ft)	226	15	0	0	0	0
Control Delay (s)	63.8	11.0	0.0	0.0	0.0	0.0
Lane LOS	F	B				
Approach Delay (s)	63.8	0.9			0.0	
Approach LOS	F					

Intersection Summary

Average Delay	8.5
Intersection Capacity Utilization	49.8%
ICU Level of Service	A
Analysis Period (min)	15

Lanes, Volumes, Timings
107: LA 1 & Bert Kouns Industrial Loop

LA 3132 (Inner Loop) Extension - Stage 0 Study

	↖	→	↘	↙	←	↖	↙	↘	↙	↘	↙	↘
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↖	↖↖	↖	↖↖	↖↖	↖	↖↖	↖↖	↖	↖↖	↖↖	↖
Volume (vph)	376	1057	105	321	933	50	123	1124	324	131	910	137
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	230		230	150		115	220		220	230		230
Storage Lanes	2		1	2		1	2		1	2		1
Taper Length (ft)	50			50			50			50		
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3303	3471	1482	3433	3539	1615	3303	3505	1495	3433	3471	1568
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3303	3471	1482	3433	3539	1615	3303	3505	1495	3433	3471	1568
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			69			8			28			15
Link Speed (mph)		50			50			45			45	
Link Distance (ft)		1652			1693			1702			1927	
Travel Time (s)		22.5			23.1			25.8			29.2	
Peak Hour Factor	0.89	0.89	0.89	0.92	0.92	0.92	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	6%	4%	9%	2%	2%	0%	6%	3%	8%	2%	4%	3%
Adj. Flow (vph)	422	1188	118	349	1014	54	135	1235	356	144	1000	151
Shared Lane Traffic (%)												
Lane Group Flow (vph)	422	1188	118	349	1014	54	135	1235	356	144	1000	151
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane					Yes							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Prot	Prot	NA	pm+ov	Prot	NA	pt+ov	Prot	NA	pt+ov
Protected Phases	1	6	6	5	2	7	3	8	5 8	7	4	14
Permitted Phases						2						

Lanes, Volumes, Timings
107: LA 1 & Bert Kouns Industrial Loop

LA 3132 (Inner Loop) Extension - Stage 0 Study

	↖	→	↘	↙	←	↖	↙	↘	↙	↘	↙	↘
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	1	6	6	5	2	7	3	8	5 8	7	4	14
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	12.0	5.0	10.0		12.0	10.0	
Minimum Split (s)	11.0	16.0	16.0	11.0	16.0	18.0	11.0	16.0		18.0	16.0	
Total Split (s)	25.0	55.0	55.0	21.0	51.0	18.0	14.0	56.0		18.0	60.0	
Total Split (%)	16.7%	36.7%	36.7%	14.0%	34.0%	12.0%	9.3%	37.3%		12.0%	40.0%	
Maximum Green (s)	19.0	49.0	49.0	15.0	45.0	12.0	8.0	50.0		12.0	54.0	
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5		4.5	4.5	
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5		1.5	1.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0		6.0	6.0	
Lead/Lag	Lead	Lead	Lead	Lag	Lag	Lag	Lead	Lead		Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	3.0	3.0	5.0		3.0	5.0	
Recall Mode	None	C-Min	C-Min	None	C-Min	None	None	None		None	None	
Act Effect Green (s)	19.0	49.0	49.0	15.0	45.0	57.0	8.0	50.0		71.0	12.0	54.0
Actuated g/C Ratio	0.13	0.33	0.33	0.10	0.30	0.38	0.05	0.33		0.47	0.08	0.36
v/c Ratio	1.01	1.05	0.22	1.02	0.95	0.09	0.77	1.06		0.49	0.52	0.80
Control Delay	110.2	88.4	17.2	118.2	70.0	14.5	96.5	90.4		27.6	73.6	49.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	110.2	88.4	17.2	118.2	70.0	14.5	96.5	90.4		27.6	73.6	49.0
LOS	F	F	B	F	E	B	F	F		C	E	D
Approach Delay		88.8			79.7			77.9				48.1
Approach LOS		F			E			E				D
Intersection Summary												
Area Type:	Other											
Cycle Length:	150											
Actuated Cycle Length:	150											
Offset:	0 (0%), Referenced to phase 2:WBT and 6:EBT, Start of Green											
Natural Cycle:	150											
Control Type:	Actuated-Coordinated											
Maximum v/c Ratio:	1.06											
Intersection Signal Delay:	75.1						Intersection LOS: E					
Intersection Capacity Utilization:	99.4%						ICU Level of Service F					
Analysis Period (min):	15											
Splits and Phases: 107: LA 1 & Bert Kouns Industrial Loop												

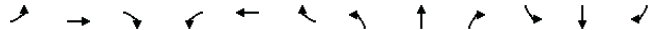
Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
108: Bert Kouns Industrial Loop & LA 3132 EB Off Ramp/LA 3132 EB On Ramp

	↖	→	↘	↙	←	↖	↙	↘	↙	↘	↙	↘
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖	↖					↖		↖	↖	
Volume (vph)	586	4	7	0	0	0	0	1192	190	42	1157	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		110	0		0	0		0	295		0
Storage Lanes	1		1	0		0	0		0	1		0
Taper Length (ft)	50			50			50			50		
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt			0.850					0.979				
Flt Protected	0.950	0.953								0.950		
Satd. Flow (prot)	1681	1687	1615	0	0	0	0	3414	0	1736	3574	0
Flt Permitted	0.950	0.953								0.083		
Satd. Flow (perm)	1681	1687	1615	0	0	0	0	3414	0	152	3574	0
Right Turn on Red			Yes			Yes		Yes			Yes	
Satd. Flow (RTOR)			5					20				
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1564			1165			530			537	
Travel Time (s)		23.7			17.7			8.0			8.1	
Peak Hour Factor	0.83	0.83	0.83	0.92	0.92	0.92	0.87	0.87	0.87	0.82	0.82	0.82
Heavy Vehicles (%)	2%	0%	0%	0%	0%	0%	0%	2%	13%	4%	1%	0%
Adj. Flow (vph)	706	5	8	0	0	0	0	1370	218	51	1411	0
Shared Lane Traffic (%)	50%											
Lane Group Flow (vph)	353	358	8	0	0	0	0	1588	0	51	1411	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			27			27	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1					2		1	2	
Detector Template	Left	Thru	Right					Thru		Left	Thru	
Leading Detector (ft)	20	100	20					100		20	100	
Trailing Detector (ft)	0	0	0					0		0	0	
Detector 1 Position(ft)	0	0	0					0		0	0	
Detector 1 Size(ft)	20	6	20					6		20	6	
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex					CI+Ex		CI+Ex	CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0					0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0					0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0					0.0		0.0	0.0	
Detector 2 Position(ft)		94						94			94	
Detector 2 Size(ft)		6						6			6	
Detector 2 Type		CI+Ex						CI+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0						0.0			0.0	
Turn Type	Split	NA	Perm					NA	custom		NA	
Protected Phases	4	4						6		5	2 5	
Permitted Phases			4								2	

Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
108: Bert Kouns Industrial Loop & LA 3132 EB Off Ramp/LA 3132 EB On Ramp

Lane Group	ø1	ø2	ø8
Lane Configurations			
Volume (vph)			
Ideal Flow (vphpl)			
Storage Length (ft)			
Storage Lanes			
Taper Length (ft)			
Lane Util. Factor			
Frt			
Flt Protected			
Satd. Flow (prot)			
Flt Permitted			
Satd. Flow (perm)			
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (mph)			
Link Distance (ft)			
Travel Time (s)			
Peak Hour Factor			
Heavy Vehicles (%)			
Adj. Flow (vph)			
Shared Lane Traffic (%)			
Lane Group Flow (vph)			
Enter Blocked Intersection			
Lane Alignment			
Median Width(ft)			
Link Offset(ft)			
Crosswalk Width(ft)			
Two way Left Turn Lane			
Headway Factor			
Turning Speed (mph)			
Number of Detectors			
Detector Template			
Leading Detector (ft)			
Trailing Detector (ft)			
Detector 1 Position(ft)			
Detector 1 Size(ft)			
Detector 1 Type			
Detector 1 Channel			
Detector 1 Extend (s)			
Detector 1 Queue (s)			
Detector 1 Delay (s)			
Detector 2 Position(ft)			
Detector 2 Size(ft)			
Detector 2 Type			
Detector 2 Channel			
Detector 2 Extend (s)			
Turn Type			
Protected Phases	1	2	8
Permitted Phases			

Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
108: Bert Kouns Industrial Loop & LA 3132 EB Off Ramp/LA 3132 EB On Ramp

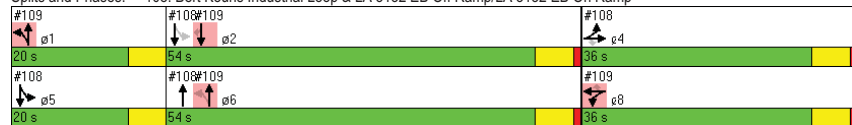


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	4					6		5	2	5
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0					15.0		5.0		
Minimum Split (s)	11.0	11.0	11.0					21.0		10.0		
Total Split (s)	36.0	36.0	36.0					54.0		20.0		
Total Split (%)	32.7%	32.7%	32.7%					49.1%		18.2%		
Maximum Green (s)	30.0	30.0	30.0					48.0		15.0		
Yellow Time (s)	5.0	5.0	5.0					5.0		5.0		
All-Red Time (s)	1.0	1.0	1.0					1.0		0.0		
Lost Time Adjust (s)	0.0	0.0	0.0					0.0		0.0		
Total Lost Time (s)	6.0	6.0	6.0					6.0		5.0		
Lead/Lag								Lag		Lead		
Lead-Lag Optimize?								Yes		Yes		
Vehicle Extension (s)	2.5	2.5	2.5					3.5		2.0		
Minimum Gap (s)	2.5	2.5	2.5					2.5		2.0		
Time Before Reduce (s)	0.0	0.0	0.0					20.0		0.0		
Time To Reduce (s)	0.0	0.0	0.0					20.0		0.0		
Recall Mode	None	None	None					None		None		
Act Effect Green (s)	30.0	30.0	30.0					48.0		64.0		68.0
Actuated g/C Ratio	0.27	0.27	0.27					0.44		0.58		0.62
v/c Ratio	0.77	0.78	0.02					1.06		0.17		0.64
Control Delay	49.6	50.1	21.1					71.0		12.0		8.0
Queue Delay	0.0	0.0	0.0					0.0		0.0		0.0
Total Delay	49.6	50.1	21.1					71.0		12.0		8.0
LOS	D	D	C					E		B		A
Approach Delay		49.5						71.0		8.2		
Approach LOS		D						E		A		

Intersection Summary

Area Type: Other
 Cycle Length: 110
 Actuated Cycle Length: 110
 Natural Cycle: 120
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.18
 Intersection Signal Delay: 42.5 Intersection LOS: D
 Intersection Capacity Utilization 84.8% ICU Level of Service E
 Analysis Period (min) 15

Splits and Phases: 108: Bert Kouns Industrial Loop & LA 3132 EB Off Ramp/LA 3132 EB On Ramp



Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
108: Bert Kouns Industrial Loop & LA 3132 EB Off Ramp/LA 3132 EB On Ramp

Lane Group	ø1	ø2	ø8
Detector Phase			
Switch Phase			
Minimum Initial (s)	5.0	15.0	12.0
Minimum Split (s)	10.0	21.0	18.0
Total Split (s)	20.0	54.0	36.0
Total Split (%)	18%	49%	33%
Maximum Green (s)	15.0	48.0	30.0
Yellow Time (s)	5.0	5.0	5.0
All-Red Time (s)	0.0	1.0	1.0
Lost Time Adjust (s)			
Total Lost Time (s)			
Lead/Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	
Vehicle Extension (s)	2.0	3.5	3.0
Minimum Gap (s)	2.0	2.5	3.0
Time Before Reduce (s)	0.0	20.0	0.0
Time To Reduce (s)	0.0	20.0	0.0
Recall Mode	None	None	None
Act Effect Green (s)			
Actuated g/C Ratio			
v/c Ratio			
Control Delay			
Queue Delay			
Total Delay			
LOS			
Approach Delay			
Approach LOS			

Intersection Summary

Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
109: Bert Kouns Industrial Loop & LA 3132 WB On Ramp/LA 3132 WB Off Ramp

	↖	→	↘	↙	←	↖	↗	↘	↙	↖	↗	↘	↙
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations					↕	↕	↕	↕			↕	↕	
Volume (vph)	0	0	0	177	0	427	14	1778	0	0	1021	812	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Storage Length (ft)	0	0	0	0	0	200	295	0	0	0	0	100	
Storage Lanes	0	0	0	0	0	1	1	0	0	0	0	1	
Taper Length (ft)	50	0	0	50	0	0	50	0	0	50	0	0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Frt						0.850					0.850		
Flt Protected					0.950		0.950						
Satd. Flow (prot)	0	0	0	0	1805	1599	1805	3539	0	0	3539	1568	
Flt Permitted					0.950		0.117						
Satd. Flow (perm)	0	0	0	0	1805	1599	222	3539	0	0	3539	1568	
Right Turn on Red			Yes			Yes		Yes				Yes	
Satd. Flow (RTOR)						12						438	
Link Speed (mph)		45			45			45				45	
Link Distance (ft)		276			1075			537				687	
Travel Time (s)		4.2			16.3			8.1				10.4	
Peak Hour Factor	0.92	0.92	0.92	0.81	0.81	0.81	0.86	0.86	0.86	0.89	0.89	0.89	
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	1%	2%	0%	0%	2%	3%	
Adj. Flow (vph)	0	0	0	219	0	527	16	2067	0	0	1147	912	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	0	0	0	0	219	527	16	2067	0	0	1147	912	
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No	
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right	
Median Width(ft)		0			0			27				27	
Link Offset(ft)		0			0			0				0	
Crosswalk Width(ft)		16			16			16				16	
Two way Left Turn Lane													
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Turning Speed (mph)		15		9	15		9	15		9	15	9	
Number of Detectors				1	2	1	1	2			2	1	
Detector Template				Left	Thru	Right	Left	Thru			Thru	Right	
Leading Detector (ft)				20	100	20	20	100			100	20	
Trailing Detector (ft)				0	0	0	0	0			0	0	
Detector 1 Position(ft)				0	0	0	0	0			0	0	
Detector 1 Size(ft)				20	6	20	20	6			6	20	
Detector 1 Type				Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex	
Detector 1 Channel													
Detector 1 Extend (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0	
Detector 1 Queue (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0	
Detector 1 Delay (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0	
Detector 2 Position(ft)					94			94			94		
Detector 2 Size(ft)					6			6			6		
Detector 2 Type					Cl+Ex			Cl+Ex			Cl+Ex		
Detector 2 Channel													
Detector 2 Extend (s)					0.0			0.0			0.0		
Turn Type				Split	NA	Perm	custom	NA			NA	Perm	
Protected Phases				8	8		1	1	6		2		
Permitted Phases						8	6					2	

Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
109: Bert Kouns Industrial Loop & LA 3132 WB On Ramp/LA 3132 WB Off Ramp

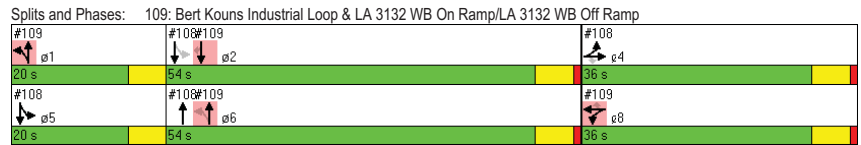
Lane Group	ø4	ø5	ø6
Lane Configurations			
Volume (vph)			
Ideal Flow (vphpl)			
Storage Length (ft)			
Storage Lanes			
Taper Length (ft)			
Lane Util. Factor			
Frt			
Flt Protected			
Satd. Flow (prot)			
Flt Permitted			
Satd. Flow (perm)			
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (mph)			
Link Distance (ft)			
Travel Time (s)			
Peak Hour Factor			
Heavy Vehicles (%)			
Adj. Flow (vph)			
Shared Lane Traffic (%)			
Lane Group Flow (vph)			
Enter Blocked Intersection			
Lane Alignment			
Median Width(ft)			
Link Offset(ft)			
Crosswalk Width(ft)			
Two way Left Turn Lane			
Headway Factor			
Turning Speed (mph)			
Number of Detectors			
Detector Template			
Leading Detector (ft)			
Trailing Detector (ft)			
Detector 1 Position(ft)			
Detector 1 Size(ft)			
Detector 1 Type			
Detector 1 Channel			
Detector 1 Extend (s)			
Detector 1 Queue (s)			
Detector 1 Delay (s)			
Detector 2 Position(ft)			
Detector 2 Size(ft)			
Detector 2 Type			
Detector 2 Channel			
Detector 2 Extend (s)			
Turn Type			
Protected Phases	4	5	6
Permitted Phases			

Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
109: Bert Kouns Industrial Loop & LA 3132 WB On Ramp/LA 3132 WB Off Ramp



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase				8	8	8	1	16			2	2
Switch Phase												
Minimum Initial (s)				12.0	12.0	12.0	5.0				15.0	15.0
Minimum Split (s)				18.0	18.0	18.0	10.0				21.0	21.0
Total Split (s)				36.0	36.0	36.0	20.0				54.0	54.0
Total Split (%)				32.7%	32.7%	32.7%	18.2%				49.1%	49.1%
Maximum Green (s)				30.0	30.0	30.0	15.0				48.0	48.0
Yellow Time (s)				5.0	5.0	5.0	5.0				5.0	5.0
All-Red Time (s)				1.0	1.0	1.0	0.0				1.0	1.0
Lost Time Adjust (s)				0.0	0.0	0.0	0.0				0.0	0.0
Total Lost Time (s)				6.0	6.0	6.0	5.0				6.0	6.0
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Vehicle Extension (s)				3.0	3.0	3.0	2.0				3.5	3.5
Minimum Gap (s)				3.0	3.0	3.0	2.0				2.5	2.5
Time Before Reduce (s)				0.0	0.0	0.0	0.0				20.0	20.0
Time To Reduce (s)				0.0	0.0	0.0	0.0				20.0	20.0
Recall Mode				None	None	None	None				None	None
Act Effect Green (s)				30.0	30.0	30.0	64.0	69.0			48.0	48.0
Actuated g/C Ratio				0.27	0.27	0.27	0.58	0.63			0.44	0.44
v/c Ratio				0.45	1.18	0.05	0.93				0.74	0.98
Control Delay				36.6	139.6	8.7	18.6				29.5	41.9
Queue Delay				0.0	0.0	0.0	12.0				0.0	0.0
Total Delay				36.6	139.6	8.7	30.6				29.5	41.9
LOS				D	F	A	C				C	D
Approach Delay				109.3			30.4				35.0	
Approach LOS				F			C				C	

Intersection Summary	
Area Type:	Other
Cycle Length:	110
Actuated Cycle Length:	110
Natural Cycle:	120
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	1.18
Intersection Signal Delay:	44.4
Intersection LOS:	D
Intersection Capacity Utilization:	84.8%
ICU Level of Service:	E
Analysis Period (min):	15



Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
109: Bert Kouns Industrial Loop & LA 3132 WB On Ramp/LA 3132 WB Off Ramp

Lane Group	ø4	ø5	ø6
Detector Phase			
Switch Phase			
Minimum Initial (s)	5.0	5.0	15.0
Minimum Split (s)	11.0	10.0	21.0
Total Split (s)	36.0	20.0	54.0
Total Split (%)	33%	18%	49%
Maximum Green (s)	30.0	15.0	48.0
Yellow Time (s)	5.0	5.0	5.0
All-Red Time (s)	1.0	0.0	1.0
Lost Time Adjust (s)			
Total Lost Time (s)			
Lead/Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes
Vehicle Extension (s)	2.5	2.0	3.5
Minimum Gap (s)	2.5	2.0	2.5
Time Before Reduce (s)	0.0	0.0	20.0
Time To Reduce (s)	0.0	0.0	20.0
Recall Mode	None	None	None
Act Effect Green (s)			
Actuated g/C Ratio			
v/c Ratio			
Control Delay			
Queue Delay			
Total Delay			
LOS			
Approach Delay			
Approach LOS			

Intersection Summary

Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
110: Ashley River Dr SB & Flournoy Lucas Rd

	↖	→	↘	↙	←	↖	↙	↘	↙	↘	↙	↘
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↗		↖	↖↗						↖↗	
Volume (vph)	0	959	98	26	1090	8	0	0	0	4	0	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	180		0	120		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	50			50			50			50		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.986			0.999						0.961	
Flt Protected				0.950							0.966	
Satd. Flow (prot)	1900	3220	0	1703	3404	0	0	0	0	0	1764	0
Flt Permitted				0.950							0.966	
Satd. Flow (perm)	1900	3220	0	1703	3404	0	0	0	0	0	1764	0
Link Speed (mph)		45			45				30		30	
Link Distance (ft)		750			127				320		340	
Travel Time (s)		11.4			1.9				7.3		7.7	
Peak Hour Factor	0.87	0.87	0.87	0.89	0.89	0.89	0.92	0.92	0.92	0.80	0.80	0.80
Heavy Vehicles (%)	0%	11%	6%	6%	6%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	1102	113	29	1225	9	0	0	0	5	0	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1215	0	29	1234	0	0	0	0	0	7	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			14				0		0	
Link Offset(ft)		0			0				0		0	
Crosswalk Width(ft)		16			16				16		16	
Two way Left Turn Lane					Yes							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free				Stop		Stop	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	40.4%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis LA 3132 (Inner Loop) Extension - Stage 0 Study
110: Ashley River Dr SB & Flournoy Lucas Rd

	↖	→	↘	↙	←	↖	↙	↘	↙	↘	↙	↘
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↗		↖	↖↗						↖↗	
Volume (veh/h)	0	959	98	26	1090	8	0	0	0	4	0	2
Sign Control	Free				Free				Stop		Stop	
Grade	0%				0%				0%		0%	
Peak Hour Factor	0.87	0.87	0.87	0.89	0.89	0.89	0.92	0.92	0.92	0.80	0.80	0.80
Hourly flow rate (vph)	0	1102	113	29	1225	9	0	0	0	5	0	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)		750										
pX, platoon unblocked					0.90		0.90	0.90	0.90	0.90	0.90	0.90
vC, conflicting volume	1234				1215		1832	2451	607	1839	2503	617
vC1, stage 1 conf vol							1159	1159		1288	1288	
vC2, stage 2 conf vol							673	1292		551	1215	
vCu, unblocked vol	1234				1020		1704	2391	346	1712	2448	617
tC, single (s)	4.1				4.2		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				2.3		3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100				95		100	100	100	97	100	99
cM capacity (veh/h)	572				588		212	176	591	160	164	438

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1
Volume Total	0	735	480	29	816	417	8
Volume Left	0	0	0	29	0	0	5
Volume Right	0	0	113	0	0	9	2
cSH	1700	1700	1700	588	1700	1700	203
Volume to Capacity	0.00	0.43	0.28	0.05	0.48	0.25	0.04
Queue Length 95th (ft)	0	0	0	4	0	0	3
Control Delay (s)	0.0	0.0	0.0	11.4	0.0	0.0	23.5
Lane LOS				B			C
Approach Delay (s)	0.0			0.3			23.5
Approach LOS							C

Intersection Summary	
Average Delay	0.2
Intersection Capacity Utilization	40.4%
Analysis Period (min)	15
	ICU Level of Service A

Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
111: Ashley River Dr NB & Flournoy Lucas Rd

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑	↘	↗
Volume (vph)	963	0	0	835	289	103
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt						0.850
Flt Protected					0.950	
Satd. Flow (prot)	3282	0	0	3374	1805	1568
Flt Permitted				0.950		
Satd. Flow (perm)	3282	0	0	3374	1805	1568
Link Speed (mph)	45			45	30	
Link Distance (ft)	127			2333	283	
Travel Time (s)	1.9			35.3	6.4	
Peak Hour Factor	0.80	0.80	0.84	0.84	0.81	0.81
Heavy Vehicles (%)	10%	0%	0%	7%	0%	3%
Adj. Flow (vph)	1204	0	0	994	357	127
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1204	0	0	994	357	127
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	14			14	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane	Yes			Yes		
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	49.3%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis LA 3132 (Inner Loop) Extension - Stage 0 Study
111: Ashley River Dr NB & Flournoy Lucas Rd

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑	↘	↗
Volume (veh/h)	963	0	0	835	289	103
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.80	0.80	0.84	0.84	0.81	0.81
Hourly flow rate (vph)	1204	0	0	994	357	127
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)	877					
pX, platoon unblocked			0.92		0.92	0.92
vC, conflicting volume			1204		1701	602
vC1, stage 1 conf vol					1204	
vC2, stage 2 conf vol					497	
vCu, unblocked vol			1037		1580	380
tC, single (s)			4.1		6.8	7.0
tC, 2 stage (s)					5.8	
tF (s)			2.2		3.5	3.3
p0 queue free %			100		0	77
cM capacity (veh/h)			620		257	563

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2
Volume Total	602	602	497	497	357	127
Volume Left	0	0	0	0	357	0
Volume Right	0	0	0	0	0	127
cSH	1700	1700	1700	1700	257	563
Volume to Capacity	0.35	0.35	0.29	0.29	1.39	0.23
Queue Length 95th (ft)	0	0	0	0	485	22
Control Delay (s)	0.0	0.0	0.0	0.0	235.2	13.2
Lane LOS					F	B
Approach Delay (s)	0.0		0.0		176.9	
Approach LOS					F	

Intersection Summary	
Average Delay	31.9
Intersection Capacity Utilization	49.3%
Analysis Period (min)	15
	ICU Level of Service A

Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
112: Flournoy Lucas Rd & Oaks Retirement Rd

	↖	→	←	↗	↘	↙
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖	↗	↗		↖	↗
Volume (vph)	38	1028	819	27	6	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	375			0	0	0
Storage Lanes	1			0	1	1
Taper Length (ft)	50				50	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Frt			0.995			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1687	3610	3422	0	1805	1524
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1687	3610	3422	0	1805	1524
Link Speed (mph)		45	45		30	
Link Distance (ft)		2333	1050		729	
Travel Time (s)		35.3	15.9		16.6	
Peak Hour Factor	0.80	0.80	0.81	0.81	0.80	0.80
Heavy Vehicles (%)	7%	0%	5%	4%	0%	6%
Adj. Flow (vph)	48	1285	1011	33	8	20
Shared Lane Traffic (%)						
Lane Group Flow (vph)	48	1285	1044	0	8	20
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		14	14		28	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane		Yes	Yes			
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		15		9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	40.2%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis LA 3132 (Inner Loop) Extension - Stage 0 Study
112: Flournoy Lucas Rd & Oaks Retirement Rd

	↖	→	←	↗	↘	↙
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖	↗	↗		↖	↗
Volume (veh/h)	38	1028	819	27	6	16
Sign Control	Free	Free	Free	Stop	Stop	Stop
Grade		0%	0%		0%	
Peak Hour Factor	0.80	0.80	0.81	0.81	0.80	0.80
Hourly flow rate (vph)	48	1285	1011	33	8	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	1044				1765	522
vC1, stage 1 conf vol						1028
vC2, stage 2 conf vol						738
vCu, unblocked vol	1044				1765	522
tC, single (s)	4.2				6.8	7.0
tC, 2 stage (s)					5.8	
tF (s)	2.3				3.5	3.4
p0 queue free %	92				97	96
cM capacity (veh/h)	633				249	489

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1	SB 2
Volume Total	48	642	642	674	370	8	20
Volume Left	48	0	0	0	0	8	0
Volume Right	0	0	0	0	33	0	20
cSH	633	1700	1700	1700	1700	249	489
Volume to Capacity	0.08	0.38	0.38	0.40	0.22	0.03	0.04
Queue Length 95th (ft)	6	0	0	0	0	2	3
Control Delay (s)	11.2	0.0	0.0	0.0	0.0	19.9	12.7
Lane LOS	B					C	B
Approach Delay (s)	0.4			0.0		14.6	
Approach LOS						B	

Intersection Summary	
Average Delay	0.4
Intersection Capacity Utilization	40.2%
Analysis Period (min)	15
	ICU Level of Service A

Lanes, Volumes, Timings
201: LA 1 & I-69 WB Ramp

LA 3132 (Inner Loop) Extension - Stage 0 Study

	↙ ↘		↑		↗ ↖	
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↗	↑↑	↗	↘	↑↑
Volume (vph)	124	0	371	0	85	534
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300	0	0	0	275	0
Storage Lanes	1	1		1	1	
Taper Length (ft)	50				50	
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Fr						
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1641	1727	3195	1681	1656	3312
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1641	1727	3195	1681	1656	3312
Link Speed (mph)	40		65		65	
Link Distance (ft)	381		1423		531	
Travel Time (s)	6.5		14.9		5.6	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Heavy Vehicles (%)	10%	10%	13%	13%	9%	9%
Adj. Flow (vph)	155	0	464	0	94	593
Shared Lane Traffic (%)						
Lane Group Flow (vph)	155	0	464	0	94	593
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		76		76	
Link Offset(ft)	0		0		0	
Crosswalk Width(ft)	16		16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free		Free	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	31.8%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis LA 3132 (Inner Loop) Extension - Stage 0 Study
201: LA 1 & I-69 WB Ramp

	↙ ↘		↑		↗ ↖	
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↗	↑↑	↗	↘	↑↑
Volume (veh/h)	124	0	371	0	85	534
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Hourly flow rate (vph)	155	0	464	0	94	593
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			Raised		Raised	
Median storage (veh)			3		3	
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	949	232			464	
vC1, stage 1 conf vol	464					
vC2, stage 2 conf vol	486					
vCu, unblocked vol	949	232			464	
tC, single (s)	7.0	7.1			4.3	
tC, 2 stage (s)	6.0					
tF (s)	3.6	3.4			2.3	
p0 queue free %	66	100			91	
cM capacity (veh/h)	457	746			1046	

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	155	0	232	232	0	94	297	297
Volume Left	155	0	0	0	0	94	0	0
Volume Right	0	0	0	0	0	0	0	0
cSH	457	1700	1700	1700	1700	1046	1700	1700
Volume to Capacity	0.34	0.00	0.14	0.14	0.00	0.09	0.17	0.17
Queue Length 95th (ft)	37	0	0	0	0	7	0	0
Control Delay (s)	16.9	0.0	0.0	0.0	0.0	8.8	0.0	0.0
Lane LOS	C	A				A		
Approach Delay (s)	16.9		0.0			1.2		
Approach LOS	C							

Intersection Summary	
Average Delay	2.6
Intersection Capacity Utilization	31.8%
Analysis Period (min)	15
	ICU Level of Service A

Lanes, Volumes, Timings
202: LA 1 & I-69 EB Ramp

LA 3132 (Inner Loop) Extension - Stage 0 Study

	↙	↖	↑	↗	↘	↓
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↙	↖	↑↑	↗	↘	↑↑
Volume (vph)	3	156	218	141	370	288
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300	0		490	260	
Storage Lanes	1	1		1	1	
Taper Length (ft)	50				50	
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt		0.850		0.850		
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1641	1468	3195	1429	1656	3312
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1641	1468	3195	1429	1656	3312
Link Speed (mph)	40		65		65	
Link Distance (ft)	452		3194		1423	
Travel Time (s)	7.7		33.5		14.9	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Heavy Vehicles (%)	10%	10%	13%	13%	9%	9%
Adj. Flow (vph)	4	195	273	176	411	320
Shared Lane Traffic (%)						
Lane Group Flow (vph)	4	195	272	176	411	320
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	24		76		76	
Link Offset(ft)	0		0		0	
Crosswalk Width(ft)	16		16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free		Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	39.9%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis
202: LA 1 & I-69 EB Ramp

	↙	↖	↑	↗	↘	↓
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↙	↖	↑↑	↗	↘	↑↑
Volume (veh/h)	3	156	218	141	370	288
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Hourly flow rate (vph)	4	195	272	176	411	320
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			Raised		Raised	
Median storage (veh)			3		3	
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1255	136			272	
vC1, stage 1 conf vol	272					
vC2, stage 2 conf vol	982					
vCu, unblocked vol	1255	136			272	
tC, single (s)	7.0	7.1			4.3	
tC, 2 stage (s)	6.0					
tF (s)	3.6	3.4			2.3	
p0 queue free %	98	77			67	
cM capacity (veh/h)	202	863			1238	

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	4	195	136	136	176	411	160	160
Volume Left	4	0	0	0	0	411	0	0
Volume Right	0	195	0	0	176	0	0	0
cSH	202	863	1700	1700	1700	1238	1700	1700
Volume to Capacity	0.02	0.23	0.08	0.08	0.10	0.33	0.09	0.09
Queue Length 95th (ft)	1	22	0	0	0	37	0	0
Control Delay (s)	23.1	10.4	0.0	0.0	0.0	9.3	0.0	0.0
Lane LOS	C	B				A		
Approach Delay (s)	10.6		0.0			5.3		
Approach LOS	B							

Intersection Summary

Average Delay	4.3
Intersection Capacity Utilization	39.9%
Analysis Period (min)	15
	ICU Level of Service A

Lanes, Volumes, Timings
301: LA 1 & Gate A

LA 3132 (Inner Loop) Extension - Stage 0 Study

	↙	↖	↑	↗	↘	↓
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↙		↕		↘	↘
Volume (vph)	5	14	1123	8	21	693
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	150	
Storage Lanes	1	0		0	1	
Taper Length (ft)	50				50	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Frt	0.899		0.999			
Flt Protected	0.988				0.950	
Satd. Flow (prot)	1259	0	3186	0	1656	2560
Flt Permitted	0.988				0.950	
Satd. Flow (perm)	1259	0	3186	0	1656	2560
Link Speed (mph)	40		65		65	
Link Distance (ft)	496		4383		1584	
Travel Time (s)	8.5		46.0		16.6	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Heavy Vehicles (%)	34%	34%	13%	41%	9%	41%
Adj. Flow (vph)	6	18	1404	10	23	770
Shared Lane Traffic (%)						
Lane Group Flow (vph)	24	0	1414	0	23	770
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		66		66	
Link Offset(ft)	0		0		0	
Crosswalk Width(ft)	16		16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free		Free	

Intersection Summary

Area Type: Other
 Control Type: Unsignalized
 Intersection Capacity Utilization 41.3% ICU Level of Service A
 Analysis Period (min) 15

HCM Unsignalized Intersection Capacity Analysis
301: LA 1 & Gate A

	↙	↖	↑	↗	↘	↓
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↙		↕		↘	↘
Volume (veh/h)	5	14	1123	8	21	693
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Hourly flow rate (vph)	6	18	1404	10	23	770
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			Raised		Raised	
Median storage (veh)			2		2	
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1840	707			1414	
vC1, stage 1 conf vol	1409					
vC2, stage 2 conf vol	432					
vCu, unblocked vol	1840	707			1414	
tC, single (s)	7.5	7.6			4.3	
tC, 2 stage (s)	6.5					
tF (s)	3.8	3.6			2.3	
p0 queue free %	95	94			95	
cM capacity (veh/h)	137	312			444	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	24	936	478	23	385	385
Volume Left	6	0	0	23	0	0
Volume Right	18	0	10	0	0	0
cSH	233	1700	1700	444	1700	1700
Volume to Capacity	0.10	0.55	0.28	0.05	0.23	0.23
Queue Length 95th (ft)	8	0	0	4	0	0
Control Delay (s)	22.2	0.0	0.0	13.6	0.0	0.0
Lane LOS	C			B		
Approach Delay (s)	22.2	0.0		0.4		
Approach LOS	C					

Intersection Summary

Average Delay 0.4
 Intersection Capacity Utilization 41.3% ICU Level of Service A
 Analysis Period (min) 15

Lanes, Volumes, Timings
302: LA 1 & Gate B

LA 3132 (Inner Loop) Extension - Stage 0 Study

	↙	↖	↗	↑	↘	↙	↘
Lane Group	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Lane Configurations	↙	↖	↗	↑	↘	↙	↘
Volume (vph)	13	41	0	1090	48	97	600
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	250		0	250	
Storage Lanes	1	1	1		0	1	
Taper Length (ft)	50		50			50	
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	0.95
Frt		0.850		0.994			
Flt Protected	0.950					0.950	
Satd. Flow (prot)	1271	1137	1681	3160	0	1656	2865
Flt Permitted	0.950					0.950	
Satd. Flow (perm)	1271	1137	1681	3160	0	1656	2865
Link Speed (mph)	40			65			65
Link Distance (ft)	464			1578			4383
Travel Time (s)	7.9			16.6			46.0
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.90	0.90
Heavy Vehicles (%)	42%	42%	13%	13%	26%	9%	26%
Adj. Flow (vph)	16	51	0	1363	60	108	667
Shared Lane Traffic (%)							
Lane Group Flow (vph)	16	51	0	1422	0	108	667
Enter Blocked Intersection	No	No	No	No	No	No	No
Lane Alignment	Left	Right	R NA	Left	Right	Left	Left
Median Width(ft)	20			66			66
Link Offset(ft)	0			0			0
Crosswalk Width(ft)	16			16			16
Two way Left Turn Lane							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	9		9	15	
Sign Control	Stop			Free			Free

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	50.4%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis
302: LA 1 & Gate B

	↙	↖	↗	↑	↘	↙	↘
Movement	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Lane Configurations	↙	↖	↗	↑	↘	↙	↘
Volume (veh/h)	13	41	0	1090	48	97	600
Sign Control	Stop			Free			Free
Grade	0%			0%			0%
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.90	0.90
Hourly flow rate (vph)	16	51	0	1362	60	108	667
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type				Raised			Raised
Median storage (veh)				2			2
Upstream signal (ft)							
pX, platoon unblocked				0.00			
vC, conflicting volume	1941	711	0			1422	
vC1, stage 1 conf vol	1392						
vC2, stage 2 conf vol	549						
vCu, unblocked vol	1941	711	0			1422	
tC, single (s)	7.6	7.7	0.0			4.3	
tC, 2 stage (s)	6.6						
tF (s)	3.9	3.7	0.0			2.3	
p0 queue free %	87	83	0			76	
cM capacity (veh/h)	124	296	0			440	

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	16	51	908	514	0	108	333	333
Volume Left	16	0	0	0	0	108	0	0
Volume Right	0	51	0	60	0	0	0	0
cSH	124	296	1700	1700	1700	440	1700	1700
Volume to Capacity	0.13	0.17	0.53	0.30	0.00	0.24	0.20	0.20
Queue Length 95th (ft)	11	15	0	0	0	24	0	0
Control Delay (s)	38.3	19.7	0.0	0.0	0.0	15.8	0.0	0.0
Lane LOS	E	C				C		
Approach Delay (s)	24.2		0.0			2.2		
Approach LOS	C							

Intersection Summary

Average Delay	1.5
Intersection Capacity Utilization	50.4%
Analysis Period (min)	15
	ICU Level of Service A

Lanes, Volumes, Timings
303: LA 1 & Gate C

LA 3132 (Inner Loop) Extension - Stage 0 Study

	↙	↖	↑	↗	↘	↓
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↕	↗		↕
Volume (vph)	0	24	1120	34	0	619
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	250	
Storage Lanes	0	1		1	0	
Taper Length (ft)	50				50	
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt		0.865		0.850		
Flt Protected						
Satd. Flow (prot)	0	1166	3195	1214	0	2714
Flt Permitted						
Satd. Flow (perm)	0	1166	3195	1214	0	2714
Link Speed (mph)	40		65			65
Link Distance (ft)	508		531			1081
Travel Time (s)	8.7		5.6			11.3
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Heavy Vehicles (%)	41%	41%	13%	33%	9%	33%
Adj. Flow (vph)	0	30	1400	43	0	688
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	30	1400	42	0	688
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	0		76			76
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	41.0%
ICU Level of Service	A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis
303: LA 1 & Gate C

	↙	↖	↑	↗	↘	↓
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↕	↗		↕
Volume (veh/h)	0	24	1120	34	0	619
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Hourly flow rate (vph)	0	30	1400	42	0	688
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			Raised			Raised
Median storage (veh)			3			3
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1744	700			1442	
vC1, stage 1 conf vol	1400					
vC2, stage 2 conf vol	344					
vCu, unblocked vol	1744	700			1442	
tC, single (s)	7.6	7.7			4.3	
tC, 2 stage (s)	6.6					
tF (s)	3.9	3.7			2.3	
p0 queue free %	100	90			100	
cM capacity (veh/h)	135	304			432	

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	30	700	700	42	344	344
Volume Left	0	0	0	0	0	0
Volume Right	30	0	0	42	0	0
cSH	304	1700	1700	1700	1700	1700
Volume to Capacity	0.10	0.41	0.41	0.03	0.20	0.20
Queue Length 95th (ft)	8	0	0	0	0	0
Control Delay (s)	18.2	0.0	0.0	0.0	0.0	0.0
Lane LOS	C					
Approach Delay (s)	18.2	0.0			0.0	
Approach LOS	C					

Intersection Summary

Average Delay	0.3
Intersection Capacity Utilization	41.0%
ICU Level of Service	A
Analysis Period (min)	15

Lanes, Volumes, Timings
304: LA 1 & Gate D

LA 3132 (Inner Loop) Extension - Stage 0 Study

	↙	↖	↑	↗	↘	↓
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↙	↖	↑↑	↗	↘	↑↑
Volume (vph)	1	20	339	0	21	270
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	250		300	280	
Storage Lanes	1	1		1	1	
Taper Length (ft)	50				50	
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt	0.850					
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1068	956	3195	1118	1656	2124
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1068	956	3195	1118	1656	2124
Link Speed (mph)	40		65		65	
Link Distance (ft)	420		716		503	
Travel Time (s)	7.2		7.5		5.3	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Heavy Vehicles (%)	69%	69%	13%	70%	9%	70%
Adj. Flow (vph)	1	25	424	0	23	300
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1	25	424	0	23	300
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		76		76	
Link Offset(ft)	0		0		0	
Crosswalk Width(ft)	16		16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free		Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	26.0%
ICU Level of Service	A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis
304: LA 1 & Gate D

	↙	↖	↑	↗	↘	↓
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↙	↖	↑↑	↗	↘	↑↑
Volume (veh/h)	1	20	339	0	21	270
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Hourly flow rate (vph)	1	25	424	0	23	300
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		10				
Median type			Raised		Raised	
Median storage (veh)			3		3	
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	620	212			424	
vC1, stage 1 conf vol	424					
vC2, stage 2 conf vol	197					
vCu, unblocked vol	620	212			424	
tC, single (s)	8.2	8.3			4.3	
tC, 2 stage (s)	7.2					
tF (s)	4.2	4.0			2.3	
p0 queue free %	100	96			98	
cM capacity (veh/h)	452	622			1084	

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	26	212	212	0	23	150	150
Volume Left	1	0	0	0	23	0	0
Volume Right	25	0	0	0	0	0	0
cSH	653	1700	1700	1700	1084	1700	1700
Volume to Capacity	0.04	0.12	0.12	0.00	0.02	0.09	0.09
Queue Length 95th (ft)	3	0	0	0	2	0	0
Control Delay (s)	11.1	0.0	0.0	0.0	8.4	0.0	0.0
Lane LOS	B				A		
Approach Delay (s)	11.1	0.0			0.6		
Approach LOS	B						

Intersection Summary

Average Delay	0.6
Intersection Capacity Utilization	26.0%
ICU Level of Service	A
Analysis Period (min)	15

Lanes, Volumes, Timings
101: Flournoy Lucas Rd & LA 3132 SB

LA 3132 (Inner Loop) Extension - Stage 0 Study

	↖	→	←	↗	↘	↙					
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	ø1	ø2	ø6	ø11	ø12
Lane Configurations		↕↕	↕↕		↗↘						
Volume (vph)	0	507	378	0	808	346					
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900					
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	0.95					
Frt					0.955						
Flt Protected					0.966						
Satd. Flow (prot)	0	3574	3610	0	3263	0					
Flt Permitted					0.966						
Satd. Flow (perm)	0	3574	3610	0	3263	0					
Right Turn on Red				Yes		Yes					
Satd. Flow (RTOR)					62						
Link Speed (mph)		45	45		45						
Link Distance (ft)		986	649		631						
Travel Time (s)		14.9	9.8		9.6						
Peak Hour Factor	0.95	0.95	0.84	0.84	0.90	0.90					
Heavy Vehicles (%)	0%	1%	0%	0%	6%	0%					
Adj. Flow (vph)	0	534	450	0	898	384					
Shared Lane Traffic (%)											
Lane Group Flow (vph)	0	534	450	0	1282	0					
Enter Blocked Intersection	No	No	No	No	No	No					
Lane Alignment	Left	Left	Left	Right	Left	Right					
Median Width(ft)		34	34		24						
Link Offset(ft)		0	0		0						
Crosswalk Width(ft)		16	16		16						
Two way Left Turn Lane											
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00					
Turning Speed (mph)	15			9	15	9					
Turn Type		NA	NA		NA						
Protected Phases		6 11	2 11		4		1	2	6	11	12
Permitted Phases											
Detector Phase		6 11	2 11		4						
Switch Phase											
Minimum Initial (s)					7.0		4.0	15.0	15.0	5.0	15.0
Minimum Split (s)					13.0		10.0	21.0	21.0	11.0	21.0
Total Split (s)					50.0		15.0	60.0	60.0	15.0	50.0
Total Split (%)					40.0%		12%	48%	48%	12%	40%
Yellow Time (s)					3.5		5.0	5.0	5.0	5.0	5.0
All-Red Time (s)					1.5		1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)					0.0						
Total Lost Time (s)					5.0						
Lead/Lag											
Lead-Lag Optimize?											
Recall Mode					None		None	Min	Min	None	None
Act Effect Green (s)		52.8	52.8		45.5						
Actuated g/C Ratio		0.48	0.48		0.42						
v/c Ratio		0.31	0.26		0.92						
Control Delay		17.1	17.3		42.2						
Queue Delay		0.0	0.0		0.0						
Total Delay		17.1	17.3		42.2						

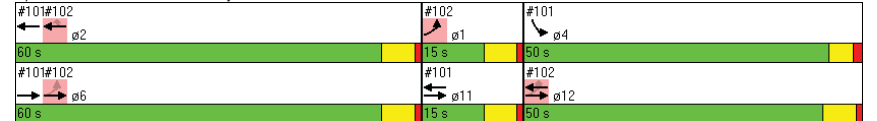
Lanes, Volumes, Timings
101: Flournoy Lucas Rd & LA 3132 SB

LA 3132 (Inner Loop) Extension - Stage 0 Study

	↖	→	←	↗	↘	↙					
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	ø1	ø2	ø6	ø11	ø12
LOS		B	B		D						
Approach Delay		17.1	17.3		42.2						
Approach LOS		B	B		D						
Queue Length 50th (ft)		114	103		412						
Queue Length 95th (ft)		148	126		#705						
Internal Link Dist (ft)		906	569		551						
Turn Bay Length (ft)											
Base Capacity (vph)		1923	1942		1393						
Starvation Cap Reductn		0	0		0						
Spillback Cap Reductn		0	0		0						
Storage Cap Reductn		0	0		0						
Reduced v/c Ratio		0.28	0.23		0.92						

Intersection Summary	
Area Type:	Other
Cycle Length:	125
Actuated Cycle Length:	109.5
Natural Cycle:	60
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.92
Intersection Signal Delay:	31.4
Intersection Capacity Utilization:	69.4%
ICU Level of Service:	C
Analysis Period (min):	15
#	95th percentile volume exceeds capacity, queue may be longer.
	Queue shown is maximum after two cycles.

Splits and Phases: 101: Flournoy Lucas Rd & LA 3132 SB



Lanes, Volumes, Timings
102: Flournoy Lucas Rd & LA3132 NB

LA 3132 (Inner Loop) Extension - Stage 0 Study

	↖	→	←	↗	↘	↙					
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	ø2	ø4	ø6	ø11	ø12
Lane Configurations	↖	↗	↗	↖							
Volume (vph)	308	1006	378	684	0	0					
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900					
Storage Length (ft)	200			85	0	0					
Storage Lanes	1			1	0	0					
Taper Length (ft)	50				50						
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00					
Frt				0.850							
Flt Protected	0.950										
Satd. Flow (prot)	1770	3438	3574	1482	0	0					
Flt Permitted	0.490										
Satd. Flow (perm)	913	3438	3574	1482	0	0					
Right Turn on Red				Yes		Yes					
Satd. Flow (RTOR)				470							
Link Speed (mph)		45	45		30						
Link Distance (ft)		649	750		608						
Travel Time (s)		9.8	11.4		13.8						
Peak Hour Factor	0.94	0.94	0.83	0.83	0.92	0.92					
Heavy Vehicles (%)	2%	5%	1%	9%	0%	0%					
Adj. Flow (vph)	328	1070	455	824	0	0					
Shared Lane Traffic (%)											
Lane Group Flow (vph)	328	1070	455	824	0	0					
Enter Blocked Intersection	No	No	No	No	No	No					
Lane Alignment	Left	Left	Left	Right	Left	Right					
Median Width(ft)		24	34		0						
Link Offset(ft)		0	0		0						
Crosswalk Width(ft)		16	16		16						
Two way Left Turn Lane											
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00					
Turning Speed (mph)	15			9	15	9					
Turn Type	pm+pt	NA	NA	Perm							
Protected Phases	1	6 12	2 12				2	4	6	11	12
Permitted Phases	6 12			2 12							
Detector Phase	1	6 12	2 12	2 12							
Switch Phase											
Minimum Initial (s)	4.0				15.0	7.0	15.0	5.0	15.0		
Minimum Split (s)	10.0				21.0	13.0	21.0	11.0	21.0		
Total Split (s)	15.0				60.0	50.0	60.0	15.0	50.0		
Total Split (%)	12.0%				48%	40%	48%	12%	40%		
Yellow Time (s)	5.0				5.0	3.5	5.0	5.0	5.0		
All-Red Time (s)	1.0				1.0	1.5	1.0	1.0	1.0		
Lost Time Adjust (s)	0.0										
Total Lost Time (s)	6.0										
Lead/Lag											
Lead-Lag Optimize?											
Recall Mode	None				Min	None	Min	None	None		
Act Effect Green (s)	97.4	88.3	88.3	88.3							
Actuated g/C Ratio	0.89	0.81	0.81	0.81							
v/c Ratio	0.37	0.39	0.16	0.64							

Lanes, Volumes, Timings
102: Flournoy Lucas Rd & LA3132 NB

LA 3132 (Inner Loop) Extension - Stage 0 Study

	↖	→	←	↗	↘	↙					
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	ø2	ø4	ø6	ø11	ø12
Control Delay	8.0	0.7	2.4	3.9							
Queue Delay	0.0	0.1	0.0	0.0							
Total Delay	8.0	0.9	2.4	3.9							
LOS	A	A	A	A							
Approach Delay		2.6	3.3								
Approach LOS		A	A								
Queue Length 50th (ft)	89	14	28	49							
Queue Length 95th (ft)	137	m16	34	63							
Internal Link Dist (ft)		569	670		528						
Turn Bay Length (ft)	200			85							
Base Capacity (vph)	883	3201	3328	1412							
Starvation Cap Reductn	0	999	0	0							
Spillback Cap Reductn	0	0	0	0							
Storage Cap Reductn	0	0	0	0							
Reduced v/c Ratio	0.37	0.49	0.14	0.58							
Intersection Summary											
Area Type:	Other										
Cycle Length:	125										
Actuated Cycle Length:	109.5										
Natural Cycle:	60										
Control Type:	Actuated-Uncoordinated										
Maximum v/c Ratio:	0.92										
Intersection Signal Delay:	2.9										
Intersection LOS:	A										
Intersection Capacity Utilization:	69.4%										
ICU Level of Service:	C										
Analysis Period (min):	15										
m Volume for 95th percentile queue is metered by upstream signal.											
Splits and Phases: 102: Flournoy Lucas Rd & LA3132 NB											
#101#102	←	↖	↗	↘	↙	↘	#102	↖	↗	↘	#101
60 s	ø2						15 s	ø1			50 s
#101#102	↖	↗	↘	↙	↘	↙	#101	↖	↗	↘	#102
60 s	ø6						15 s	ø11			50 s

Lanes, Volumes, Timings
103: LA 1 & Flounroy Lucas Rd

LA 3132 (Inner Loop) Extension - Stage 0 Study

	↖	→	↘	↙	←	↖	↙	↘	↙	↘	↙	↘
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↖	↖	↖		↖↖		↖↖	↖↖		↖	↖↖	↖
Volume (vph)	616	167	390	90	0	9	307	338	0	0	476	754
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		200	0		0	125		0	165		165
Storage Lanes	1		1	0		0	2		0	1		1
Taper Length (ft)	50			50			50			50		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	0.97	0.95	0.95	1.00	0.95	1.00
Frt			0.850		0.988							0.850
Flt Protected	0.950				0.956		0.950					
Satd. Flow (prot)	3467	1863	1214	0	1795	0	3045	3374	0	1900	3438	1599
Flt Permitted	0.950				0.619		0.950					
Satd. Flow (perm)	3467	1863	1214	0	1162	0	3045	3374	0	1900	3438	1599
Right Turn on Red			Yes		Yes		Yes		Yes			No
Satd. Flow (RTOR)			262		3							
Link Speed (mph)		50			50			55				55
Link Distance (ft)		784			651			1092				934
Travel Time (s)		10.7			8.9			13.5				11.6
Peak Hour Factor	0.89	0.89	0.89	0.80	0.80	0.80	0.83	0.83	0.83	0.81	0.81	0.81
Heavy Vehicles (%)	1%	2%	33%	0%	2%	0%	15%	7%	0%	0%	5%	1%
Adj. Flow (vph)	692	188	438	112	0	11	370	407	0	0	588	931
Shared Lane Traffic (%)												
Lane Group Flow (vph)	692	188	438	0	123	0	370	407	0	0	588	931
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			0			24				24
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Prot	NA	Perm	Perm	NA		Prot	NA		Prot	NA	pt+ov
Protected Phases	3	8			4		1	6		5	2	2 3
Permitted Phases			8	4								
Detector Phase	3	8	8	4	4		1	6		5	2	2 3
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	7.0	7.0		7.0	15.0		5.0	15.0	
Minimum Split (s)	11.5	16.5	16.5	13.5	13.5		15.0	23.0		13.0	23.0	
Total Split (s)	33.0	53.2	53.2	20.2	20.2		24.0	63.8		13.0	52.8	
Total Split (%)	25.4%	40.9%	40.9%	15.5%	15.5%		18.5%	49.1%		10.0%	40.6%	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.5	5.5		5.5	5.5	
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5		2.5	2.5		2.5	2.5	
Lost Time Adjust (s)	0.0	0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.5	6.5	6.5		6.5		8.0	8.0		8.0	8.0	
Lead/Lag	Lead			Lag	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes			Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	None	None	None	None		None	Min		None	Min	
Act Effect Green (s)	26.5	46.7	46.7		13.7		16.0	68.8		44.8	77.8	
Actuated g/C Ratio	0.20	0.36	0.36		0.11		0.12	0.53		0.34	0.60	
v/c Ratio	0.98	0.28	0.73		0.98		0.99	0.23		0.50	0.97	

Lanes, Volumes, Timings
103: LA 1 & Flounroy Lucas Rd

LA 3132 (Inner Loop) Extension - Stage 0 Study

	↖	→	↘	↙	←	↖	↙	↘	↙	↘	↙	↘
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	80.5	31.1	21.7		132.8		100.0	16.8			35.5	49.1
Queue Delay	0.0	0.0	0.0		0.0		0.0	0.0			0.0	0.0
Total Delay	80.5	31.1	21.7		132.8		100.0	16.8			35.5	49.1
LOS	F	C	C		F		F	B			D	D
Approach Delay		53.9			132.8			56.4				43.8
Approach LOS		D			F			E				D
Queue Length 50th (ft)	302	112	131		103		162	93			205	715
Queue Length 95th (ft)	#420	172	265		#196		#233	113			230	#812
Internal Link Dist (ft)		704			571			1012				854
Turn Bay Length (ft)	200		200				125					165
Base Capacity (vph)	707	669	604		125		375	1786			1185	957
Starvation Cap Reductn	0	0	0		0		0	0			0	0
Spillback Cap Reductn	0	0	0		0		0	0			0	0
Storage Cap Reductn	0	0	0		0		0	0			0	0
Reduced v/c Ratio	0.98	0.28	0.73		0.98		0.99	0.23			0.50	0.97
Intersection Summary												
Area Type:	Other											
Cycle Length:	130											
Actuated Cycle Length:	130											
Natural Cycle Length:	130											
Control Type:	Actuated-Uncoordinated											
Maximum v/c Ratio:	0.99											
Intersection Signal Delay:	52.9											
Intersection Capacity Utilization:	80.0%											
ICU Level of Service:	D											
Analysis Period (min):	15											
# 95th percentile volume exceeds capacity, queue may be longer.												
Queue shown is maximum after two cycles.												
Splits and Phases: 103: LA 1 & Flounroy Lucas Rd												
↖ ø1	↘ ø2	↙ ø3	↘ ø4	↙ ø5	↘ ø6	↙ ø7	↘ ø8					
24 s	52.8 s	33 s	23.2 s	13 s	63.8 s	53.2 s						

Lanes, Volumes, Timings
105: Ellerbe Rd & Flournoy Lucas Rd

LA 3132 (Inner Loop) Extension - Stage 0 Study

	↖	→	↘	↙	←	↖	↙	↘	↙	↖	↘	↙
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↘		↖	↘	↘	↖	↖	↖	↖	↘	↘
Volume (vph)	11	106	108	166	168	20	54	461	243	29	1379	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	140		0	150		0	115		120	150		0
Storage Lanes	1		0	1		1	1		1	1		0
Taper Length (ft)	50			50			50			50		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Frt		0.924				0.850			0.850		0.998	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1805	1738	0	1787	1863	1615	1805	3539	1599	1752	3533	0
Flt Permitted	0.341			0.544			0.121			0.447		
Satd. Flow (perm)	648	1738	0	1023	1863	1615	230	3539	1599	825	3533	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		49				22			289		2	
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		848			838			697			896	
Travel Time (s)		12.8			12.7			10.6			13.6	
Peak Hour Factor	0.87	0.87	0.87	0.89	0.89	0.89	0.84	0.84	0.84	0.89	0.89	0.89
Heavy Vehicles (%)	0%	2%	0%	1%	2%	0%	0%	2%	1%	3%	2%	0%
Adj. Flow (vph)	13	122	124	187	189	22	64	549	289	33	1549	24
Shared Lane Traffic (%)												
Lane Group Flow (vph)	13	246	0	187	189	22	64	549	289	33	1573	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane					Yes						Yes	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8			4		4	6		6	2		
Detector Phase	3	8		7	4	4	1	6	6	5	2	
Switch Phase												
Minimum Initial (s)	7.0	15.0		7.0	15.0	15.0	7.0	10.0	10.0	7.0	10.0	
Minimum Split (s)	12.0	20.0		14.0	22.0	22.0	12.0	15.0	15.0	14.0	17.0	
Total Split (s)	12.0	20.0		14.0	22.0	22.0	12.0	42.0	42.0	14.0	44.0	
Total Split (%)	13.3%	22.2%		15.6%	24.4%	24.4%	13.3%	46.7%	46.7%	15.6%	48.9%	
Yellow Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	0.0	0.0		2.0	2.0	2.0	0.0	0.0	0.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0	5.0		7.0	7.0	7.0	5.0	5.0	5.0	7.0	7.0	
Lead/Lag	Lead	Lead		Lag	Lag	Lag	Lead	Lead	Lead	Lag	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	Min		None	Min	Min	None	None	None	None	None	
Act Effect Green (s)	15.0	15.0		24.8	24.8	24.8	38.6	38.6	38.6	37.1	37.1	
Actuated g/C Ratio	0.17	0.17		0.28	0.28	0.28	0.44	0.44	0.44	0.42	0.42	
v/c Ratio	0.06	0.72		0.53	0.36	0.05	0.28	0.35	0.33	0.07	1.05	

Lanes, Volumes, Timings
105: Ellerbe Rd & Flournoy Lucas Rd

LA 3132 (Inner Loop) Extension - Stage 0 Study

	↖	→	↘	↙	←	↖	↙	↘	↙	↖	↘	↙
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	32.4	41.9		37.5	30.0	12.7	22.4	19.8	4.4	17.1	64.5	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	32.4	41.9		37.5	30.0	12.7	22.4	19.8	4.4	17.1	64.5	
LOS	C	D		D	C	B	C	B	A	B	E	
Approach Delay		41.4				32.6			15.1		63.5	
Approach LOS		D				C			B		E	
Queue Length 50th (ft)	6	108		83	83	0	15	78	0	11	~533	
Queue Length 95th (ft)	22	#203		#213	168	20	52	169	43	28	#658	
Internal Link Dist (ft)		768			758			617			816	
Turn Bay Length (ft)	140			150			115		120	150		
Base Capacity (vph)	204	340		350	527	472	228	1738	932	470	1499	
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	0.06	0.72		0.53	0.36	0.05	0.28	0.32	0.31	0.07	1.05	
Intersection Summary												
Area Type:	Other											
Cycle Length:	90											
Actuated Cycle Length:	87.6											
Natural Cycle:	90											
Control Type:	Actuated-Uncoordinated											
Maximum v/c Ratio:	1.05											
Intersection Signal Delay:	44.0											
Intersection Capacity Utilization 80.7%	Intersection LOS: D											
	ICU Level of Service D											
Analysis Period (min)	15											
~ Volume exceeds capacity, queue is theoretically infinite.												
Queue shown is maximum after two cycles.												
# 95th percentile volume exceeds capacity, queue may be longer.												
Queue shown is maximum after two cycles.												
Splits and Phases: 105: Ellerbe Rd & Flournoy Lucas Rd												

Lanes, Volumes, Timings
106: LA 1 & Leonard Rd

LA 3132 (Inner Loop) Extension - Stage 0 Study

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	32	62	85	614	826	131
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	145			0
Storage Lanes	1	0	1			0
Taper Length (ft)	50		50			
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95
Frt	0.911			0.979		
Flt Protected	0.983		0.950			
Satd. Flow (prot)	1696	0	1703	3223	3029	0
Flt Permitted	0.983		0.950			
Satd. Flow (perm)	1696	0	1703	3223	3029	0
Link Speed (mph)	50			65	65	
Link Distance (ft)	1319			1583	2639	
Travel Time (s)	18.0			16.6	27.7	
Peak Hour Factor	0.88	0.88	0.87	0.87	0.89	0.89
Heavy Vehicles (%)	1%	0%	6%	12%	19%	2%
Adj. Flow (vph)	36	70	98	706	928	147
Shared Lane Traffic (%)						
Lane Group Flow (vph)	106	0	98	706	1075	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			66	78	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	47.3%
ICU Level of Service	A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis
106: LA 1 & Leonard Rd

LA 3132 (Inner Loop) Extension - Stage 0 Study

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	32	62	85	614	826	131
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.88	0.88	0.87	0.87	0.89	0.89
Hourly flow rate (vph)	36	70	98	706	928	147
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				Raised	Raised	
Median storage (veh)				2	3	
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1550	538	1075			
vC1, stage 1 conf vol	1002					
vC2, stage 2 conf vol	548					
vCu, unblocked vol	1550	538	1075			
tC, single (s)	6.8	6.9	4.2			
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3	2.3			
p0 queue free %	88	86	84			
cM capacity (veh/h)	292	493	621			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	107	98	353	353	619	457
Volume Left	36	98	0	0	0	0
Volume Right	70	0	0	0	0	147
cSH	399	621	1700	1700	1700	1700
Volume to Capacity	0.27	0.16	0.21	0.21	0.36	0.27
Queue Length 95th (ft)	27	14	0	0	0	0
Control Delay (s)	17.3	11.9	0.0	0.0	0.0	0.0
Lane LOS	C	B				
Approach Delay (s)	17.3	1.4			0.0	
Approach LOS	C					

Intersection Summary

Average Delay	1.5
Intersection Capacity Utilization	47.3%
ICU Level of Service	A
Analysis Period (min)	15

Lanes, Volumes, Timings
107: LA 1 & Bert Kouns Industrial Loop

LA 3132 (Inner Loop) Extension - Stage 0 Study

	↖	→	↘	↙	←	↖	↙	↘	↙	↘	↙	↘
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↖	↖↖	↖	↖↖	↖↖	↖	↖↖	↖↖	↖	↖↖	↖↖	↖
Volume (vph)	360	942	124	275	867	89	108	903	239	111	766	259
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	230		230	150		115	220		220	230		230
Storage Lanes	2		1	2		1	2		1	2		1
Taper Length (ft)	50			50			50			50		
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3502	3539	1568	3467	3539	1583	3335	3574	1553	3502	3574	1599
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3502	3539	1568	3467	3539	1583	3335	3574	1553	3502	3574	1599
Right Turn on Red			No			Yes			Yes			Yes
Satd. Flow (RTOR)						16			26			115
Link Speed (mph)		50			50			45				45
Link Distance (ft)		1652			1693			1702				1927
Travel Time (s)		22.5			23.1			25.8				29.2
Peak Hour Factor	0.98	0.98	0.98	0.91	0.91	0.91	0.85	0.85	0.85	0.91	0.91	0.91
Heavy Vehicles (%)	0%	2%	3%	1%	2%	2%	5%	1%	4%	0%	1%	1%
Adj. Flow (vph)	367	961	127	302	953	98	127	1062	281	122	842	285
Shared Lane Traffic (%)												
Lane Group Flow (vph)	367	961	127	302	953	98	127	1062	281	122	842	285
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24				24
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane					Yes							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Prot	NA	Prot	Prot	NA	pt+ov	Prot	NA	pt+ov	Prot	NA	pt+ov
Protected Phases	1	6	6	5	2	2	3	8	5	7	4	14
Permitted Phases												
Detector Phase	1	6	6	5	2	2	3	8	5	7	4	14
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0		5.0	10.0		5.0	10.0	
Minimum Split (s)	11.0	22.0	22.0	11.0	22.0		11.0	22.0		11.0	22.0	
Total Split (s)	21.0	36.0	36.0	21.0	36.0		20.0	40.0		13.0	33.0	
Total Split (%)	19.1%	32.7%	32.7%	19.1%	32.7%		18.2%	36.4%		11.8%	30.0%	
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5		1.5	1.5		1.5	1.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0		6.0	6.0		6.0	6.0	
Lead/Lag	Lead	Lead	Lead	Lag	Lag		Lead	Lead		Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	C-Min	C-Min	None	C-Min		None	None		None	None	
Act Effect Green (s)	14.5	30.1	30.1	15.0	30.5		9.5	34.0		6.9	31.4	
Actuated g/C Ratio	0.13	0.27	0.27	0.14	0.28		0.09	0.31		0.06	0.29	
v/c Ratio	0.79	0.99	0.30	0.64	0.97		0.18	0.44		0.55	0.82	

Lanes, Volumes, Timings
107: LA 1 & Bert Kouns Industrial Loop

LA 3132 (Inner Loop) Extension - Stage 0 Study

	↖	→	↘	↙	←	↖	↙	↘	↙	↘	↙	↘
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	59.7	67.9	34.0	51.8	62.3	12.3	52.1	57.1	16.6	59.9	45.2	12.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	59.7	67.9	34.0	51.8	62.3	12.3	52.1	57.1	16.6	59.9	45.2	12.1
LOS	E	E	C	D	E	B	D	E	B	E	D	B
Approach Delay		62.9			56.4			48.9				39.1
Approach LOS		E			E			D				D
Queue Length 50th (ft)	130	356	71	105	352	24	44	386	105	43	292	68
Queue Length 95th (ft)	#192	#500	125	152	#494	48	69	#474	154	74	#415	137
Internal Link Dist (ft)		1572			1613			1622			1847	
Turn Bay Length (ft)	230		230	150		115	220		220	230		230
Base Capacity (vph)	478	967	429	473	982	551	424	1105	790	223	1021	822
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	0.77	0.99	0.30	0.64	0.97	0.18	0.30	0.96	0.36	0.55	0.82	0.35
Intersection Summary												
Area Type:	Other											
Cycle Length:	110											
Actuated Cycle Length:	110											
Offset: 0 (0%), Referenced to phase 2:WBT and 6:EBT, Start of Green												
Natural Cycle:	90											
Control Type:	Actuated-Coordinated											
Maximum v/c Ratio:	0.99											
Intersection Signal Delay:	52.2						Intersection LOS: D					
Intersection Capacity Utilization:	83.4%						ICU Level of Service E					
Analysis Period (min):	15											
# 95th percentile volume exceeds capacity, queue may be longer.												
Queue shown is maximum after two cycles.												
Splits and Phases: 107: LA 1 & Bert Kouns Industrial Loop												

Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
108: Bert Kouns Industrial Loop & LA 3132 EB Off Ramp/LA 3132 EB On Ramp

	↖	→	↘	↙	←	↖	↙	↘	↙	↘	↙	↘
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖	↖					↖		↖	↖	
Volume (vph)	822	1	13	0	0	0	0	1018	252	82	1307	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		110	0		0	0		0	295		0
Storage Lanes	1		1	0		0	0		0	1		0
Taper Length (ft)	50			50			50			50		
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt			0.850					0.970				
Flt Protected	0.950	0.952								0.950		
Satd. Flow (prot)	1715	1718	1615	0	0	0	0	3474	0	1805	3574	0
Flt Permitted	0.950	0.952								0.083		
Satd. Flow (perm)	1715	1718	1615	0	0	0	0	3474	0	158	3574	0
Right Turn on Red			Yes			Yes		Yes			Yes	
Satd. Flow (RTOR)			8					35				
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1564			1165			530			537	
Travel Time (s)		23.7			17.7			8.0			8.1	
Peak Hour Factor	0.93	0.93	0.93	0.92	0.92	0.92	0.86	0.86	0.86	0.96	0.96	0.96
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	1%	0%
Adj. Flow (vph)	884	1	14	0	0	0	0	1184	293	85	1361	0
Shared Lane Traffic (%)	50%											
Lane Group Flow (vph)	442	443	14	0	0	0	0	1477	0	85	1361	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			27			27	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Split	NA	Perm					NA	custom	NA		
Protected Phases	4	4						6		5	2.5	
Permitted Phases			4							2		
Detector Phase	4	4	4					6		5	2.5	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0					15.0		5.0		
Minimum Split (s)	11.0	11.0	11.0					21.0		10.0		
Total Split (s)	36.0	36.0	36.0					54.0		20.0		
Total Split (%)	32.7%	32.7%	32.7%					49.1%		18.2%		
Yellow Time (s)	5.0	5.0	5.0					5.0		5.0		
All-Red Time (s)	1.0	1.0	1.0					1.0		0.0		
Lost Time Adjust (s)	0.0	0.0	0.0					0.0		0.0		
Total Lost Time (s)	6.0	6.0	6.0					6.0		5.0		
Lead/Lag								Lag		Lead		
Lead-Lag Optimize?								Yes		Yes		
Recall Mode	None	None	None					None		None		
Act Effect Green (s)	29.4	29.4	29.4					48.0		64.0	68.0	
Actuated g/C Ratio	0.27	0.27	0.27					0.44		0.59	0.62	
v/c Ratio	0.96	0.96	0.03					0.96		0.27	0.61	

Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
108: Bert Kouns Industrial Loop & LA 3132 EB Off Ramp/LA 3132 EB On Ramp

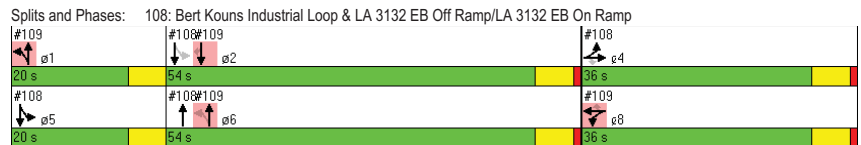
Lane Group	ø1	ø2	ø8
Lane Configurations			
Volume (vph)			
Ideal Flow (vphpl)			
Storage Length (ft)			
Storage Lanes			
Taper Length (ft)			
Lane Util. Factor			
Frt			
Flt Protected			
Satd. Flow (prot)			
Flt Permitted			
Satd. Flow (perm)			
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (mph)			
Link Distance (ft)			
Travel Time (s)			
Peak Hour Factor			
Heavy Vehicles (%)			
Adj. Flow (vph)			
Shared Lane Traffic (%)			
Lane Group Flow (vph)			
Enter Blocked Intersection			
Lane Alignment			
Median Width(ft)			
Link Offset(ft)			
Crosswalk Width(ft)			
Two way Left Turn Lane			
Headway Factor			
Turning Speed (mph)			
Turn Type			
Protected Phases	1	2	8
Permitted Phases			
Detector Phase			
Switch Phase			
Minimum Initial (s)	5.0	15.0	12.0
Minimum Split (s)	10.0	21.0	18.0
Total Split (s)	20.0	54.0	36.0
Total Split (%)	18%	49%	33%
Yellow Time (s)	5.0	5.0	5.0
All-Red Time (s)	0.0	1.0	1.0
Lost Time Adjust (s)			
Total Lost Time (s)			
Lead/Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	
Recall Mode	None	None	None
Act Effect Green (s)			
Actuated g/C Ratio			
v/c Ratio			

Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
 108: Bert Kouns Industrial Loop & LA 3132 EB Off Ramp/LA 3132 EB On Ramp

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	73.1	73.1	20.1					44.3		22.5	7.5	
Queue Delay	0.0	0.0	0.0					9.6		0.0	0.1	
Total Delay	73.1	73.1	20.1					53.9		22.5	7.5	
LOS	E	E	C					D		C	A	
Approach Delay		72.3						53.9			8.4	
Approach LOS		E						D			A	
Queue Length 50th (ft)	322	323	3					512		20	102	
Queue Length 95th (ft)	#530	#531	19					#623		m38	167	
Internal Link Dist (ft)		1484				1085		450			457	
Turn Bay Length (ft)			110							295		
Base Capacity (vph)	471	472	449					1544		319	2221	
Starvation Cap Reductn	0	0	0					0		0	87	
Spillback Cap Reductn	0	0	0					82		0	0	
Storage Cap Reductn	0	0	0					0		0	0	
Reduced v/c Ratio	0.94	0.94	0.03					1.01		0.27	0.64	

Intersection Summary

Area Type: Other
 Cycle Length: 110
 Actuated Cycle Length: 109.4
 Natural Cycle: 70
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.96
 Intersection Signal Delay: 41.0 Intersection LOS: D
 Intersection Capacity Utilization 77.7% ICU Level of Service D
 Analysis Period (min) 15
 # 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.



Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
 108: Bert Kouns Industrial Loop & LA 3132 EB Off Ramp/LA 3132 EB On Ramp

Lane Group	ø1	ø2	ø8
Control Delay			
Queue Delay			
Total Delay			
LOS			
Approach Delay			
Approach LOS			
Queue Length 50th (ft)			
Queue Length 95th (ft)			
Internal Link Dist (ft)			
Turn Bay Length (ft)			
Base Capacity (vph)			
Starvation Cap Reductn			
Spillback Cap Reductn			
Storage Cap Reductn			
Reduced v/c Ratio			

Intersection Summary

Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
109: Bert Kouns Industrial Loop & LA 3132 WB On Ramp/LA 3132 WB Off Ramp

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↕	↗	↘	↖	↗	↘	↖	↗
Volume (vph)	0	0	0	150	0	204	31	1841	0	0	1238	681
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	0	0	0	200	295	0	0	0	0	115
Storage Lanes	0	0	0	0	0	1	1	0	0	0	0	1
Taper Length (ft)	50	0	0	50	0	0	50	0	0	50	0	0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt						0.850						0.850
Flt Protected					0.950		0.950					
Satd. Flow (prot)	0	0	0	0	1805	1615	1752	3539	0	0	3574	1583
Flt Permitted					0.950		0.083					
Satd. Flow (perm)	0	0	0	0	1805	1615	153	3539	0	0	3574	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						17						340
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		311			1075			537			687	
Travel Time (s)		4.7			16.3			8.1			10.4	
Peak Hour Factor	0.92	0.92	0.92	0.82	0.82	0.82	0.96	0.96	0.96	0.95	0.95	0.95
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	3%	2%	0%	0%	1%	2%
Adj. Flow (vph)	0	0	0	183	0	249	32	1918	0	0	1303	717
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	183	249	32	1918	0	0	1303	717
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)	0	0	0	0	0	0	0	27	0	0	0	0
Link Offset(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Crosswalk Width(ft)	16	16	16	16	16	16	16	16	16	16	16	16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15	15	15	9	15	15	9	15	15	9
Turn Type				Split	NA	Perm	custom	NA			NA	Perm
Protected Phases				8	8	8	1	1	6		2	
Permitted Phases						8	6					2
Detector Phase				8	8	8	1	1	6		2	2
Switch Phase												
Minimum Initial (s)				12.0	12.0	12.0	5.0				15.0	15.0
Minimum Split (s)				18.0	18.0	18.0	10.0				21.0	21.0
Total Split (s)				36.0	36.0	36.0	20.0				54.0	54.0
Total Split (%)				32.7%	32.7%	32.7%	18.2%				49.1%	49.1%
Yellow Time (s)				5.0	5.0	5.0	5.0				5.0	5.0
All-Red Time (s)				1.0	1.0	1.0	0.0				1.0	1.0
Lost Time Adjust (s)				0.0	0.0	0.0	0.0				0.0	0.0
Total Lost Time (s)				6.0	6.0	6.0	5.0				6.0	6.0
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Recall Mode				None	None	None	None				None	None
Act Effect Green (s)				29.4	29.4	29.4	64.0	69.0			48.0	48.0
Actuated g/C Ratio				0.27	0.27	0.27	0.59	0.63			0.44	0.44
v/c Ratio				0.38	0.56	0.10	0.86				0.83	0.81

Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
109: Bert Kouns Industrial Loop & LA 3132 WB On Ramp/LA 3132 WB Off Ramp

Lane Group	ø4	ø5	ø6
Lane Configurations			
Volume (vph)			
Ideal Flow (vphpl)			
Storage Length (ft)			
Storage Lanes			
Taper Length (ft)			
Lane Util. Factor			
Frt			
Flt Protected			
Satd. Flow (prot)			
Flt Permitted			
Satd. Flow (perm)			
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (mph)			
Link Distance (ft)			
Travel Time (s)			
Peak Hour Factor			
Heavy Vehicles (%)			
Adj. Flow (vph)			
Shared Lane Traffic (%)			
Lane Group Flow (vph)			
Enter Blocked Intersection			
Lane Alignment			
Median Width(ft)			
Link Offset(ft)			
Crosswalk Width(ft)			
Two way Left Turn Lane			
Headway Factor			
Turning Speed (mph)			
Turn Type			
Protected Phases	4	5	6
Permitted Phases			
Detector Phase			
Switch Phase			
Minimum Initial (s)	5.0	5.0	15.0
Minimum Split (s)	11.0	10.0	21.0
Total Split (s)	36.0	20.0	54.0
Total Split (%)	33%	18%	49%
Yellow Time (s)	5.0	5.0	5.0
All-Red Time (s)	1.0	0.0	1.0
Lost Time Adjust (s)			
Total Lost Time (s)			
Lead/Lag		Lead	Lag
Lead-Lag Optimize?		Yes	Yes
Recall Mode	None	None	None
Act Effect Green (s)			
Actuated g/C Ratio			
v/c Ratio			

Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
 109: Bert Kouns Industrial Loop & LA 3132 WB On Ramp/LA 3132 WB Off Ramp

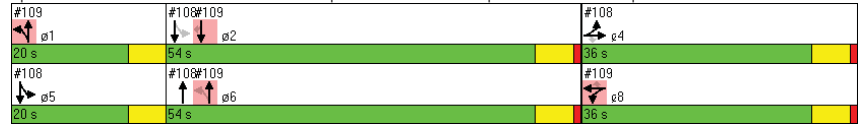


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay					35.2	37.5	9.2	18.1			33.0	22.1
Queue Delay					0.0	0.0	0.0	6.9			0.0	0.0
Total Delay					35.2	37.5	9.2	25.0			33.0	22.1
LOS					D	D	A	C			C	C
Approach Delay					36.5			24.7			29.1	
Approach LOS					D			C			C	
Queue Length 50th (ft)					105	140	10	384			420	242
Queue Length 95th (ft)					152	198	m10	m420			516	429
Internal Link Dist (ft)		231			995			457			607	
Turn Bay Length (ft)						200	295					115
Base Capacity (vph)					495	455	309	2232			1569	885
Starvation Cap Reductn					0	0	0	286			0	0
Spillback Cap Reductn					0	0	0	0			0	0
Storage Cap Reductn					0	0	0	0			0	0
Reduced v/c Ratio					0.37	0.55	0.10	0.99			0.83	0.81

Intersection Summary

Area Type: Other
 Cycle Length: 110
 Actuated Cycle Length: 109.4
 Natural Cycle: 70
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.96
 Intersection Signal Delay: 27.9 Intersection LOS: C
 Intersection Capacity Utilization 77.7% ICU Level of Service D
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 109: Bert Kouns Industrial Loop & LA 3132 WB On Ramp/LA 3132 WB Off Ramp



Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
 109: Bert Kouns Industrial Loop & LA 3132 WB On Ramp/LA 3132 WB Off Ramp

Lane Group	ø4	ø5	ø6
Control Delay			
Queue Delay			
Total Delay			
LOS			
Approach Delay			
Approach LOS			
Queue Length 50th (ft)			
Queue Length 95th (ft)			
Internal Link Dist (ft)			
Turn Bay Length (ft)			
Base Capacity (vph)			
Starvation Cap Reductn			
Spillback Cap Reductn			
Storage Cap Reductn			
Reduced v/c Ratio			

Intersection Summary

Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
110: Ashley River Dr SB & Flournoy Lucas Rd

	↖	→	↘	↙	←	↖	↙	↘	↙	↘	↙	↘
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↗		↖	↖↗						↖↗	
Volume (vph)	0	760	246	108	1051	1	0	0	0	7	0	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	180		0	120		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	50			50			50			50		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.963									0.918	
Flt Protected				0.950							0.981	
Satd. Flow (prot)	1900	3318	0	1805	3406	0	0	0	0	0	1711	0
Flt Permitted				0.950							0.981	
Satd. Flow (perm)	1900	3318	0	1805	3406	0	0	0	0	0	1711	0
Link Speed (mph)		45			45				30			30
Link Distance (ft)		750			127				320			340
Travel Time (s)		11.4			1.9				7.3			7.7
Peak Hour Factor	0.92	0.92	0.92	0.85	0.85	0.85	0.92	0.92	0.92	0.80	0.80	0.80
Heavy Vehicles (%)	0%	6%	1%	0%	6%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	826	267	127	1236	1	0	0	0	9	0	14
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1093	0	127	1237	0	0	0	0	0	23	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			14				0			0
Link Offset(ft)		0			0				0			0
Crosswalk Width(ft)		16			16				16			16
Two way Left Turn Lane					Yes							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	48.2%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis LA 3132 (Inner Loop) Extension - Stage 0 Study
110: Ashley River Dr SB & Flournoy Lucas Rd

	↖	→	↘	↙	←	↖	↙	↘	↙	↘	↙	↘
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↗		↖	↖↗						↖↗	
Volume (veh/h)	0	760	246	108	1051	1	0	0	0	7	0	11
Sign Control	Free				Free				Stop			Stop
Grade		0%			0%				0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.85	0.85	0.85	0.92	0.92	0.92	0.80	0.80	0.80
Hourly flow rate (vph)	0	826	267	127	1236	1	0	0	0	9	0	14
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)		750										
pX, platoon unblocked					0.91		0.91	0.91	0.91	0.91	0.91	0.91
vC, conflicting volume	1238				1093		1846	2452	547	1904	2585	619
vC1, stage 1 conf vol							960	960		1491	1491	
vC2, stage 2 conf vol							886	1492		413	1093	
vCu, unblocked vol	1238				914		1737	2400	315	1801	2545	619
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 %	100				82		100	100	100	92	100	97
cM capacity (veh/h)	570				689		195	139	627	104	118	437

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1
Volume Total	0	551	543	127	824	413	22
Volume Left	0	0	0	127	0	0	9
Volume Right	0	0	267	0	0	1	14
cSH	1700	1700	1700	689	1700	1700	195
Volume to Capacity	0.00	0.32	0.32	0.18	0.48	0.24	0.12
Queue Length 95th (ft)	0	0	0	17	0	0	10
Control Delay (s)	0.0	0.0	0.0	11.4	0.0	0.0	25.9
Lane LOS				B			D
Approach Delay (s)	0.0			1.1			25.9
Approach LOS							D

Intersection Summary	
Average Delay	0.8
Intersection Capacity Utilization	48.2%
Analysis Period (min)	15
	ICU Level of Service A

Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
111: Ashley River Dr NB & Flournoy Lucas Rd

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑	↘	↗
Volume (vph)	767	0	0	1035	125	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt						0.850
Flt Protected					0.950	
Satd. Flow (prot)	3406	0	0	3438	1805	1568
Flt Permitted				0.950		
Satd. Flow (perm)	3406	0	0	3438	1805	1568
Link Speed (mph)	45			45	30	
Link Distance (ft)	127			2333	283	
Travel Time (s)	1.9			35.3	6.4	
Peak Hour Factor	0.88	0.88	0.80	0.80	0.80	0.80
Heavy Vehicles (%)	6%	0%	0%	5%	0%	3%
Adj. Flow (vph)	872	0	0	1294	156	81
Shared Lane Traffic (%)						
Lane Group Flow (vph)	872	0	0	1294	156	81
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	14			14	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane	Yes			Yes		
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	42.2%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis LA 3132 (Inner Loop) Extension - Stage 0 Study
111: Ashley River Dr NB & Flournoy Lucas Rd

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑	↘	↗
Volume (veh/h)	767	0	0	1035	125	65
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.88	0.88	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	872	0	0	1294	156	81
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)	877					
pX, platoon unblocked			0.96		0.96	0.96
vC, conflicting volume			872		1518	436
vC1, stage 1 conf vol					872	
vC2, stage 2 conf vol					647	
vCu, unblocked vol			773		1450	317
tC, single (s)			4.1		6.8	7.0
tC, 2 stage (s)					5.8	
tF (s)			2.2		3.5	3.3
p0 queue free %			100		52	87
cM capacity (veh/h)			814		324	646

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2
Volume Total	436	436	647	647	156	81
Volume Left	0	0	0	0	156	0
Volume Right	0	0	0	0	0	81
cSH	1700	1700	1700	1700	324	646
Volume to Capacity	0.26	0.26	0.38	0.38	0.48	0.13
Queue Length 95th (ft)	0	0	0	0	63	11
Control Delay (s)	0.0	0.0	0.0	0.0	26.1	11.4
Lane LOS					D	B
Approach Delay (s)	0.0		0.0		21.1	
Approach LOS					C	

Intersection Summary	
Average Delay	2.1
Intersection Capacity Utilization	42.2%
Analysis Period (min)	15
	ICU Level of Service A

Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
112: Flournoy Lucas Rd & Oaks Retirement Rd

	↖	→	←	↗	↘	↙
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖	↗	↗		↖	↗
Volume (vph)	14	818	1007	24	21	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	375			0	0	0
Storage Lanes	1			0	1	1
Taper Length (ft)	50				50	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Frt			0.997			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1805	3471	3432	0	1805	1553
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1805	3471	3432	0	1805	1553
Link Speed (mph)		45	45		30	
Link Distance (ft)		2333	1050		729	
Travel Time (s)		35.3	15.9		16.6	
Peak Hour Factor	0.88	0.88	0.80	0.80	0.80	0.80
Heavy Vehicles (%)	0%	4%	5%	0%	0%	4%
Adj. Flow (vph)	16	930	1259	30	26	35
Shared Lane Traffic (%)						
Lane Group Flow (vph)	16	930	1289	0	26	35
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		14	14		28	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane		Yes	Yes			
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		15		9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	38.6%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis LA 3132 (Inner Loop) Extension - Stage 0 Study
112: Flournoy Lucas Rd & Oaks Retirement Rd


	↖	→	←	↗	↘	↙
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖	↗	↗		↖	↗
Volume (veh/h)	14	818	1007	24	21	28
Sign Control	Free	Free	Free	Stop	Stop	Stop
Grade		0%	0%		0%	
Peak Hour Factor	0.88	0.88	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	16	930	1259	30	26	35
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	1289				1770	644
vC1, stage 1 conf vol					1274	
vC2, stage 2 conf vol					497	
vCu, unblocked vol	1289				1770	644
tC, single (s)	4.1				6.8	7.0
tC, 2 stage (s)					5.8	
tF (s)	2.2				3.5	3.3
p0 queue free %	97				88	91
cM capacity (veh/h)	545				214	411

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1	SB 2
Volume Total	16	465	465	839	450	26	35
Volume Left	16	0	0	0	0	26	0
Volume Right	0	0	0	0	30	0	35
cSH	545	1700	1700	1700	1700	214	411
Volume to Capacity	0.03	0.27	0.27	0.49	0.26	0.12	0.09
Queue Length 95th (ft)	2	0	0	0	0	10	7
Control Delay (s)	11.8	0.0	0.0	0.0	0.0	24.2	14.6
Lane LOS	B					C	B
Approach Delay (s)	0.2			0.0		18.7	
Approach LOS						C	

Intersection Summary	
Average Delay	0.6
Intersection Capacity Utilization	38.6%
Analysis Period (min)	15
	ICU Level of Service A

Lanes, Volumes, Timings
201: LA 1 & I-69 WB Ramp


LA 3132 (Inner Loop) Extension - Stage 0 Study

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↵	↶	↕	↶	↵	↶
Volume (vph)	127	0	172	3	123	769
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300	0	0	0	275	
Storage Lanes	1	1		1	1	
Taper Length (ft)	50				50	
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt			0.850			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1641	1727	3034	1357	1656	3312
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1641	1727	3034	1357	1656	3312
Link Speed (mph)	40		65		65	
Link Distance (ft)	384		1426		533	
Travel Time (s)	6.5		15.0		5.6	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Heavy Vehicles (%)	10%	10%	19%	19%	9%	9%
Adj. Flow (vph)	159	0	215	4	137	854
Shared Lane Traffic (%)						
Lane Group Flow (vph)	159	0	215	4	137	854
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		76		76	
Link Offset(ft)	0		0		0	
Crosswalk Width(ft)	16		16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free		Free	

Intersection Summary

Area Type: Other
 Control Type: Unsignalized
 Intersection Capacity Utilization 35.0% ICU Level of Service A
 Analysis Period (min) 15

HCM Unsignalized Intersection Capacity Analysis LA 3132 (Inner Loop) Extension - Stage 0 Study
201: LA 1 & I-69 WB Ramp

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↵	↶	↕	↶	↵	↶
Volume (veh/h)	127	0	172	3	123	769
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Hourly flow rate (vph)	159	0	215	4	137	854
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			Raised		Raised	
Median storage (veh)			3		3	
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	916	108			215	
vC1, stage 1 conf vol	215					
vC2, stage 2 conf vol	701					
vCu, unblocked vol	916	108			215	
tC, single (s)	7.0	7.1			4.3	
tC, 2 stage (s)	6.0					
tF (s)	3.6	3.4			2.3	
p0 queue free %	58	100			90	
cM capacity (veh/h)	382	901			1303	

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	159	0	108	108	4	137	427	427
Volume Left	159	0	0	0	0	137	0	0
Volume Right	0	0	0	0	4	0	0	0
cSH	382	1700	1700	1700	1700	1303	1700	1700
Volume to Capacity	0.42	0.00	0.06	0.06	0.00	0.10	0.25	0.25
Queue Length 95th (ft)	50	0	0	0	0	9	0	0
Control Delay (s)	21.0	0.0	0.0	0.0	0.0	8.1	0.0	0.0
Lane LOS	C	A				A		
Approach Delay (s)	21.0		0.0			1.1		
Approach LOS	C							

Intersection Summary

Average Delay 3.2
 Intersection Capacity Utilization 35.0% ICU Level of Service A
 Analysis Period (min) 15

Lanes, Volumes, Timings
202: LA 1 & I-69 EB Ramp

LA 3132 (Inner Loop) Extension - Stage 0 Study

	↙	↖	↑	↗	↘	↓
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↙	↖	↑↑	↗	↘	↓↑
Volume (vph)	0	17	157	95	560	336
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300	0		490	260	
Storage Lanes	1	1		1	1	
Taper Length (ft)	50				50	
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt		0.850		0.850		
Flt Protected					0.950	
Satd. Flow (prot)	1727	1468	3034	1357	1656	3312
Flt Permitted					0.950	
Satd. Flow (perm)	1727	1468	3034	1357	1656	3312
Link Speed (mph)	40		65			65
Link Distance (ft)	460		3193			1426
Travel Time (s)	7.8		33.5			15.0
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Heavy Vehicles (%)	10%	10%	19%	19%	9%	9%
Adj. Flow (vph)	0	21	196	119	622	373
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	21	196	119	622	373
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	24		76			76
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	43.6%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis
202: LA 1 & I-69 EB Ramp

	↙	↖	↑	↗	↘	↓
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↙	↖	↑↑	↗	↘	↓↑
Volume (veh/h)	0	17	157	95	560	336
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Hourly flow rate (vph)	0	21	196	119	622	373
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			Raised			Raised
Median storage (veh)			3			3
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1627	98			196	
vC1, stage 1 conf vol	196					
vC2, stage 2 conf vol	1431					
vCu, unblocked vol	1627	98			196	
tC, single (s)	7.0	7.1			4.3	
tC, 2 stage (s)	6.0					
tF (s)	3.6	3.4			2.3	
p0 queue free %	100	98			53	
cM capacity (veh/h)	91	914			1324	

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	0	21	98	98	119	622	187	187
Volume Left	0	0	0	0	0	622	0	0
Volume Right	0	21	0	0	119	0	0	0
cSH	1700	914	1700	1700	1700	1324	1700	1700
Volume to Capacity	0.00	0.02	0.06	0.06	0.07	0.47	0.11	0.11
Queue Length 95th (ft)	0	2	0	0	0	65	0	0
Control Delay (s)	0.0	9.0	0.0	0.0	0.0	10.1	0.0	0.0
Lane LOS	A	A				B		
Approach Delay (s)	9.0		0.0			6.3		
Approach LOS	A							

Intersection Summary

Average Delay	4.9
Intersection Capacity Utilization	43.6%
Analysis Period (min)	15
	ICU Level of Service A

Lanes, Volumes, Timings
301: LA 1 & Gate A

LA 3132 (Inner Loop) Extension - Stage 0 Study

	↙	↖	↑	↗	↘	↓
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↙		↕		↘	↕
Volume (vph)	12	39	660	4	11	877
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	150	
Storage Lanes	1	0		0	1	
Taper Length (ft)	50				50	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Frt	0.897		0.999			
Flt Protected	0.988				0.950	
Satd. Flow (prot)	1490	0	3031	0	1656	3059
Flt Permitted	0.988				0.950	
Satd. Flow (perm)	1490	0	3031	0	1656	3059
Link Speed (mph)	40		65		65	
Link Distance (ft)	496		4385		1583	
Travel Time (s)	8.5		46.0		16.6	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Heavy Vehicles (%)	13%	13%	19%	18%	9%	18%
Adj. Flow (vph)	15	49	825	5	12	974
Shared Lane Traffic (%)						
Lane Group Flow (vph)	64	0	830	0	12	974
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		66		66	
Link Offset(ft)	0		0		0	
Crosswalk Width(ft)	16		16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free		Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	34.2%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis
301: LA 1 & Gate A

	↙	↖	↑	↗	↘	↓
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↙		↕		↘	↕
Volume (veh/h)	12	39	660	4	11	877
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Hourly flow rate (vph)	15	49	825	5	12	974
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			Raised		Raised	
Median storage (veh)			2		2	
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1339	415			830	
vC1, stage 1 conf vol	828					
vC2, stage 2 conf vol	512					
vCu, unblocked vol	1339	415			830	
tC, single (s)	7.1	7.2			4.3	
tC, 2 stage (s)	6.1					
tF (s)	3.6	3.4			2.3	
p0 queue free %	95	91			98	
cM capacity (veh/h)	314	557			754	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	64	550	280	12	487	487
Volume Left	15	0	0	12	0	0
Volume Right	49	0	5	0	0	0
cSH	471	1700	1700	754	1700	1700
Volume to Capacity	0.14	0.32	0.16	0.02	0.29	0.29
Queue Length 95th (ft)	12	0	0	1	0	0
Control Delay (s)	13.8	0.0	0.0	9.9	0.0	0.0
Lane LOS	B			A		
Approach Delay (s)	13.8	0.0		0.1		
Approach LOS	B					

Intersection Summary

Average Delay	0.5
Intersection Capacity Utilization	34.2%
Analysis Period (min)	15
	ICU Level of Service A

Lanes, Volumes, Timings
302: LA 1 & Gate B

LA 3132 (Inner Loop) Extension - Stage 0 Study

	↙	↖	↗	↑	↘	↙	↘
Lane Group	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Lane Configurations	↙	↖	↗	↑	↘	↙	↘
Volume (vph)	28	82	0	582	12	36	853
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	250		0	250	
Storage Lanes	1	1	1		0	1	
Taper Length (ft)	50		50			50	
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	0.95
Frt		0.850		0.997			
Flt Protected	0.950					0.950	
Satd. Flow (prot)	1517	1357	1597	3009	0	1656	2423
Flt Permitted	0.950					0.950	
Satd. Flow (perm)	1517	1357	1597	3009	0	1656	2423
Link Speed (mph)	40			65			65
Link Distance (ft)	499			1577			4385
Travel Time (s)	8.5			16.5			46.0
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.90	0.90
Heavy Vehicles (%)	19%	19%	19%	19%	49%	9%	49%
Adj. Flow (vph)	35	103	0	728	15	40	948
Shared Lane Traffic (%)							
Lane Group Flow (vph)	35	102	0	743	0	40	948
Enter Blocked Intersection	No	No	No	No	No	No	No
Lane Alignment	Left	Right	R NA	Left	Right	Left	Left
Median Width(ft)	20			66			66
Link Offset(ft)	0			0			0
Crosswalk Width(ft)	16			16			16
Two way Left Turn Lane							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	9		9	15	
Sign Control	Stop			Free			Free

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	39.9%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis 3132 (Inner Loop) Extension - Stage 0 Study
302: LA 1 & Gate B

	↙	↖	↗	↑	↘	↙	↘
Movement	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Lane Configurations	↙	↖	↗	↑	↘	↙	↘
Volume (veh/h)	28	82	0	582	12	36	853
Sign Control	Stop			Free			Free
Grade	0%			0%			0%
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.90	0.90
Hourly flow rate (vph)	35	102	0	728	15	40	948
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type				Raised			Raised
Median storage (veh)				2			2
Upstream signal (ft)							
pX, platoon unblocked				0.00			
vC, conflicting volume	1289	371	0			742	
vC1, stage 1 conf vol	735						
vC2, stage 2 conf vol	554						
vCu, unblocked vol	1289	371	0			742	
tC, single (s)	7.2	7.3	0.0			4.3	
tC, 2 stage (s)	6.2						
tF (s)	3.7	3.5	0.0			2.3	
p0 queue free %	89	82	0			95	
cM capacity (veh/h)	318	580	0			816	

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	35	102	485	258	0	40	474	474
Volume Left	35	0	0	0	0	40	0	0
Volume Right	0	102	0	15	0	0	0	0
cSH	318	580	1700	1700	1700	816	1700	1700
Volume to Capacity	0.11	0.18	0.29	0.15	0.00	0.05	0.28	0.28
Queue Length 95th (ft)	9	16	0	0	0	4	0	0
Control Delay (s)	17.7	12.5	0.0	0.0	0.0	9.6	0.0	0.0
Lane LOS	C	B				A		
Approach Delay (s)	13.9		0.0			0.4		
Approach LOS	B							

Intersection Summary

Average Delay	1.2
Intersection Capacity Utilization	39.9%
Analysis Period (min)	15
	ICU Level of Service A

Lanes, Volumes, Timings
303: LA 1 & Gate C

LA 3132 (Inner Loop) Extension - Stage 0 Study

	↙	↖	↑	↗	↘	↓
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↕	↗		↕
Volume (vph)	0	47	559	12	0	892
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	250	
Storage Lanes	0	1		1	0	
Taper Length (ft)	50				50	
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt		0.865		0.850		
Flt Protected						
Satd. Flow (prot)	0	1325	3034	1077	0	2407
Flt Permitted						
Satd. Flow (perm)	0	1325	3034	1077	0	2407
Link Speed (mph)	40		65			65
Link Distance (ft)	508		533			1082
Travel Time (s)	8.7		5.6			11.3
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Heavy Vehicles (%)	24%	24%	19%	50%	9%	50%
Adj. Flow (vph)	0	59	699	15	0	991
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	59	699	15	0	991
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	0		76			76
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	28.0%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis LA 3132 (Inner Loop) Extension - Stage 0 Study
303: LA 1 & Gate C

	↙	↖	↑	↗	↘	↓
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↕	↗		↕
Volume (veh/h)	0	47	559	12	0	892
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Hourly flow rate (vph)	0	59	699	15	0	991
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			Raised			Raised
Median storage (veh)			3			3
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1194	349			714	
vC1, stage 1 conf vol	699					
vC2, stage 2 conf vol	496					
vCu, unblocked vol	1194	349			714	
tC, single (s)	7.3	7.4			4.3	
tC, 2 stage (s)	6.3					
tF (s)	3.7	3.5			2.3	
p0 queue free %	100	90			100	
cM capacity (veh/h)	366	587			837	

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	59	349	349	15	496	496
Volume Left	0	0	0	0	0	0
Volume Right	59	0	0	15	0	0
cSH	587	1700	1700	1700	1700	1700
Volume to Capacity	0.10	0.21	0.21	0.01	0.29	0.29
Queue Length 95th (ft)	8	0	0	0	0	0
Control Delay (s)	11.8	0.0	0.0	0.0	0.0	0.0
Lane LOS	B					
Approach Delay (s)	11.8	0.0			0.0	
Approach LOS	B					

Intersection Summary

Average Delay	0.4
Intersection Capacity Utilization	28.0%
Analysis Period (min)	15
	ICU Level of Service A

Lanes, Volumes, Timings
304: LA 1 & Gate D

LA 3132 (Inner Loop) Extension - Stage 0 Study

	↙	↖	↑	↗	↘	↓
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↙	↖	↑↑	↗	↘	↑↑
Volume (vph)	1	18	234	0	11	327
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	250		300	280	
Storage Lanes	1	1		1	1	
Taper Length (ft)	50				50	
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt	0.850					
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1337	1196	3034	1195	1656	2270
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1337	1196	3034	1195	1656	2270
Link Speed (mph)	40		65		65	
Link Distance (ft)	501		710		505	
Travel Time (s)	8.5		7.4		5.3	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Heavy Vehicles (%)	35%	35%	19%	59%	9%	59%
Adj. Flow (vph)	1	23	293	0	12	363
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1	22	292	0	12	363
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		76		76	
Link Offset(ft)	0		0		0	
Crosswalk Width(ft)	16		16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free		Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	19.1%
ICU Level of Service	A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis
304: LA 1 & Gate D

	↙	↖	↑	↗	↘	↓
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↙	↖	↑↑	↗	↘	↑↑
Volume (veh/h)	1	18	234	0	11	327
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Hourly flow rate (vph)	1	22	292	0	12	363
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		10				
Median type			Raised			Raised
Median storage (veh)			3			3
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	499	146			292	
vC1, stage 1 conf vol	292					
vC2, stage 2 conf vol	206					
vCu, unblocked vol	499	146			292	
tC, single (s)	7.5	7.6			4.3	
tC, 2 stage (s)	6.5					
tF (s)	3.9	3.6			2.3	
p0 queue free %	100	97			99	
cM capacity (veh/h)	603	779			1217	

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	24	146	146	0	12	182	182
Volume Left	1	0	0	0	12	0	0
Volume Right	22	0	0	0	0	0	0
cSH	823	1700	1700	1700	1217	1700	1700
Volume to Capacity	0.03	0.09	0.09	0.00	0.01	0.11	0.11
Queue Length 95th (ft)	2	0	0	0	1	0	0
Control Delay (s)	9.8	0.0	0.0	0.0	8.0	0.0	0.0
Lane LOS	A				A		
Approach Delay (s)	9.8	0.0			0.3		
Approach LOS	A						

Intersection Summary

Average Delay	0.5
Intersection Capacity Utilization	19.1%
ICU Level of Service	A
Analysis Period (min)	15



APPENDIX D | Intersection Analysis of Build Alternative A (2015 & 2032)

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Lanes, Volumes, Timings
101: Flournoy Lucas Rd & LA 3132 SB

LA 3132 (Inner Loop) Extension - Stage 0 Study
2015 Alternative A AM Peak with Improvements



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑		↑↑					↑↑	↑	
Volume (vph)	0	529	46	0	179	0	0	0	0	325	0	107
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		450	200		0	0	0	0	250		0
Storage Lanes	0		1	1		0	0	0	0	1		0
Taper Length (ft)	50				50					50		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	0.97	1.00	1.00
Fr't			0.850								0.850	
Fit Protected										0.950		
Satd. Flow (prot)	0	3505	1568	1863	3406	0	0	0	0	3072	1553	0
Fit Permitted										0.950		
Satd. Flow (perm)	0	3505	1568	1863	3406	0	0	0	0	3072	1553	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			53								702	
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		986			649			714			631	
Travel Time (s)		14.9			9.8			10.8			9.6	
Peak Hour Factor	0.86	0.86	0.86	0.81	0.81	0.81	0.92	0.92	0.92	0.80	0.80	0.80
Heavy Vehicles (%)	0%	3%	3%	2%	6%	0%	2%	2%	2%	14%	4%	4%
Adj. Flow (vph)	0	615	53	0	221	0	0	0	0	406	0	134
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	615	53	0	221	0	0	0	0	406	134	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		34			34			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type		NA	Perm	Perm	NA					Split	NA	
Protected Phases		2 11 14			6 11 14					4	4	
Permitted Phases			2 11 14	6 11 14								
Detector Phase		2 11 14	2 11 14	6 11 14	6 11 14					4	4	
Switch Phase												
Minimum Initial (s)										7.0	7.0	
Minimum Split (s)										13.0	13.0	
Total Split (s)										21.0	21.0	
Total Split (%)										28.0%	28.0%	
Yellow Time (s)										3.5	3.5	
All-Red Time (s)										1.5	1.5	
Lost Time Adjust (s)										0.0	0.0	
Total Lost Time (s)										5.0	5.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode										None	None	
Act Effect Green (s)		48.0	48.0		48.0					16.0	16.0	
Actuated g/C Ratio		0.64	0.64		0.64					0.21	0.21	
v/c Ratio		0.27	0.05		0.10					0.62	0.15	

Lanes, Volumes, Timings
101: Flournoy Lucas Rd & LA 3132 SB

LA 3132 (Inner Loop) Extension - Stage 0 Study
2015 Alternative A AM Peak with Improvements

Lane Group	ø1	ø2	ø6	ø8	ø11	ø12	ø14
Lane Configurations							
Volume (vph)							
Ideal Flow (vphpl)							
Storage Length (ft)							
Storage Lanes							
Taper Length (ft)							
Lane Util. Factor							
Fr't							
Fit Protected							
Satd. Flow (prot)							
Fit Permitted							
Satd. Flow (perm)							
Right Turn on Red							
Satd. Flow (RTOR)							
Link Speed (mph)							
Link Distance (ft)							
Travel Time (s)							
Peak Hour Factor							
Heavy Vehicles (%)							
Adj. Flow (vph)							
Shared Lane Traffic (%)							
Lane Group Flow (vph)							
Enter Blocked Intersection							
Lane Alignment							
Median Width(ft)							
Link Offset(ft)							
Crosswalk Width(ft)							
Two way Left Turn Lane							
Headway Factor							
Turning Speed (mph)							
Turn Type							
Protected Phases	1	2	6	8	11	12	14
Permitted Phases							
Detector Phase							
Switch Phase							
Minimum Initial (s)	4.0	15.0	15.0	15.0	5.0	15.0	4.0
Minimum Split (s)	10.0	21.0	21.0	21.0	11.0	21.0	20.0
Total Split (s)	12.0	21.0	21.0	21.0	12.0	21.0	21.0
Total Split (%)	16%	28%	28%	28%	16%	28%	28%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	0.5
Lost Time Adjust (s)							
Total Lost Time (s)							
Lead/Lag							
Lead-Lag Optimize?							
Recall Mode	None	Min	Min	Min	None	None	None
Act Effect Green (s)							
Actuated g/C Ratio							
v/c Ratio							

Lanes, Volumes, Timings
101: Flournoy Lucas Rd & LA 3132 SB

LA 3132 (Inner Loop) Extension - Stage 0 Study
2015 Alternative A AM Peak with Improvements

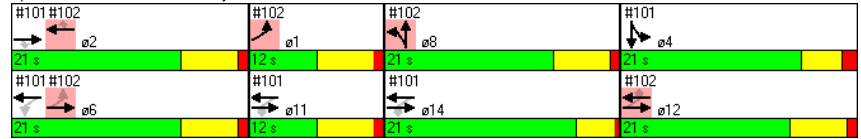


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	6.3	1.7			7.2					31.5	0.4	
Queue Delay	0.0	0.0			0.0					0.0	0.0	
Total Delay	6.3	1.7			7.2					31.5	0.4	
LOS	A	A			A					C	A	
Approach Delay	5.9				7.2						23.8	
Approach LOS	A				A						C	
Queue Length 50th (ft)	57	0			37					88	0	
Queue Length 95th (ft)	76	10			56					115	0	
Internal Link Dist (ft)	906				569			634			551	
Turn Bay Length (ft)		450								250		
Base Capacity (vph)	2243	1023			2180					655	884	
Starvation Cap Reductn	0	0			0					0	0	
Spillback Cap Reductn	0	0			0					0	0	
Storage Cap Reductn	0	0			0					0	0	
Reduced v/c Ratio	0.27	0.05			0.10					0.62	0.15	

Intersection Summary

Area Type: Other
 Cycle Length: 75
 Actuated Cycle Length: 75
 Natural Cycle: 75
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.62
 Intersection Signal Delay: 12.9
 Intersection Capacity Utilization 63.2%
 Analysis Period (min) 15
 Intersection LOS: B
 ICU Level of Service B

Splits and Phases: 101: Flournoy Lucas Rd & LA 3132 SB



Lanes, Volumes, Timings
101: Flournoy Lucas Rd & LA 3132 SB

LA 3132 (Inner Loop) Extension - Stage 0 Study
2015 Alternative A AM Peak with Improvements

Lane Group	ø1	ø2	ø6	ø8	ø11	ø12	ø14
Control Delay							
Queue Delay							
Total Delay							
LOS							
Approach Delay							
Approach LOS							
Queue Length 50th (ft)							
Queue Length 95th (ft)							
Internal Link Dist (ft)							
Turn Bay Length (ft)							
Base Capacity (vph)							
Starvation Cap Reductn							
Spillback Cap Reductn							
Storage Cap Reductn							
Reduced v/c Ratio							

Intersection Summary

Area Type: Other
 Cycle Length: 75
 Actuated Cycle Length: 75
 Natural Cycle: 75
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.62
 Intersection Signal Delay: 12.9
 Intersection Capacity Utilization 63.2%
 Analysis Period (min) 15
 Intersection LOS: B
 ICU Level of Service B

Lanes, Volumes, Timings
102: Flournoy Lucas Rd & LA3132 NB

LA 3132 (Inner Loop) Extension - Stage 0 Study
2015 Alternative A AM Peak with Improvements



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔			↔	↔	↔	↔				
Volume (vph)	268	586	0	0	179	340	0	0	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	0		85	0		650	0		0
Storage Lanes	1		0	0		1	1		0	0		0
Taper Length (ft)	50			50			50			50		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00
Fr						0.850						
Fit Protected	0.950											
Satd. Flow (prot)	1787	3312	0	0	3343	1538	1770	1770	0	0	0	0
Fit Permitted	0.614											
Satd. Flow (perm)	1155	3312	0	0	3343	1538	1770	1770	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						420						
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		649			750			719			607	
Travel Time (s)		9.8			11.4			10.9			9.2	
Peak Hour Factor	0.86	0.86	0.92	0.92	0.81	0.81	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	1%	9%	2%	2%	8%	5%	2%	2%	2%	0%	2%	0%
Adj. Flow (vph)	312	681	0	0	221	420	0	0	0	0	0	0
Shared Lane Traffic (%)							0%					
Lane Group Flow (vph)	312	681	0	0	221	420	0	0	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			34			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA			NA	Perm	Split					
Protected Phases	1	6 12			2 12		8	8				
Permitted Phases	6 12					2 12						
Detector Phase	1	6 12			2 12	2 12	8	8				
Switch Phase												
Minimum Initial (s)	4.0						15.0	15.0				
Minimum Split (s)	10.0						21.0	21.0				
Total Split (s)	12.0						21.0	21.0				
Total Split (%)	16.0%						28.0%	28.0%				
Yellow Time (s)	5.0						5.0	5.0				
All-Red Time (s)	1.0						1.0	1.0				
Lost Time Adjust (s)	0.0						0.0	0.0				
Total Lost Time (s)	6.0						6.0	6.0				
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None						Min	Min				
Act Effect Green (s)	42.0	36.0			36.0	36.0						
Actuated g/C Ratio	0.56	0.48			0.48	0.48						
v/c Ratio	0.45	0.43			0.14	0.44						

Lanes, Volumes, Timings
102: Flournoy Lucas Rd & LA3132 NB

LA 3132 (Inner Loop) Extension - Stage 0 Study
2015 Alternative A AM Peak with Improvements

Lane Group	ø2	ø4	ø6	ø11	ø12	ø14
Lane Configurations						
Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Fr						
Fit Protected						
Satd. Flow (prot)						
Fit Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Heavy Vehicles (%)						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Enter Blocked Intersection						
Lane Alignment						
Median Width(ft)						
Link Offset(ft)						
Crosswalk Width(ft)						
Two way Left Turn Lane						
Headway Factor						
Turning Speed (mph)						
Turn Type						
Protected Phases	2	4	6	11	12	14
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	15.0	7.0	15.0	5.0	15.0	4.0
Minimum Split (s)	21.0	13.0	21.0	11.0	21.0	20.0
Total Split (s)	21.0	21.0	21.0	12.0	21.0	21.0
Total Split (%)	28%	28%	28%	16%	28%	28%
Yellow Time (s)	5.0	3.5	5.0	5.0	5.0	3.5
All-Red Time (s)	1.0	1.5	1.0	1.0	1.0	0.5
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	Min	None	Min	None	None	None
Act Effect Green (s)						
Actuated g/C Ratio						
v/c Ratio						

Lanes, Volumes, Timings
102: Flournoy Lucas Rd & LA3132 NB

LA 3132 (Inner Loop) Extension - Stage 0 Study
2015 Alternative A AM Peak with Improvements

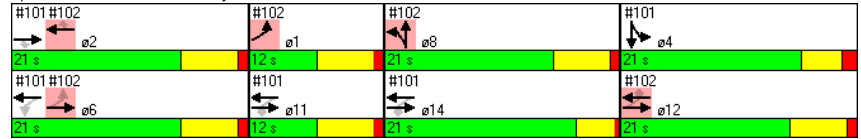


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	12.4	6.7			11.2	2.9						
Queue Delay	0.0	0.0			0.0	0.0						
Total Delay	12.4	6.7			11.2	2.9						
LOS	B	A			B	A						
Approach Delay		8.5			5.7							
Approach LOS		A			A							
Queue Length 50th (ft)	55	41			28	0						
Queue Length 95th (ft)	106	64			42	27						
Internal Link Dist (ft)		569			670			639			527	
Turn Bay Length (ft)	200					85						
Base Capacity (vph)	697	1590			1605	957						
Starvation Cap Reductn	0	0			0	0						
Spillback Cap Reductn	0	0			0	0						
Storage Cap Reductn	0	0			0	0						
Reduced v/c Ratio	0.45	0.43			0.14	0.44						

Intersection Summary

Area Type:	Other
Cycle Length:	75
Actuated Cycle Length:	75
Natural Cycle:	75
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.62
Intersection Signal Delay:	7.4
Intersection Capacity Utilization:	63.2%
Analysis Period (min):	15
Intersection LOS:	A
ICU Level of Service:	B

Splits and Phases: 102: Flournoy Lucas Rd & LA3132 NB



Lanes, Volumes, Timings
102: Flournoy Lucas Rd & LA3132 NB

LA 3132 (Inner Loop) Extension - Stage 0 Study
2015 Alternative A AM Peak with Improvements

Lane Group	ø2	ø4	ø6	ø11	ø12	ø14
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						
Queue Length 50th (ft)						
Queue Length 95th (ft)						
Internal Link Dist (ft)						
Turn Bay Length (ft)						
Base Capacity (vph)						
Starvation Cap Reductn						
Spillback Cap Reductn						
Storage Cap Reductn						
Reduced v/c Ratio						

Intersection Summary

Area Type:	Other
Cycle Length:	75
Actuated Cycle Length:	75
Natural Cycle:	75
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.62
Intersection Signal Delay:	7.4
Intersection Capacity Utilization:	63.2%
Analysis Period (min):	15
Intersection LOS:	A
ICU Level of Service:	B

Lanes, Volumes, Timings
103: LA 1 & Flournoy Lucas Rd

LA 3132 (Inner Loop) Extension - Stage 0 Study
2015 Alternative A AM Peak with Improvements

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔		↔	↔	↔	↔	↔	↔	↔	↔	↔
Volume (vph)	586	23	0	0	10	9	51	395	0	0	296	467
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	0	0	0	0	125	0	165	0	165	165
Storage Lanes	1	0	0	0	0	1	0	1	0	1	0	1
Taper Length (ft)	50			50			50		50			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Friction				0.939								0.850
Fit Protected	0.950				0.950							
Satd. Flow (prot)	1752	1863	0	0	1690	0	1347	3282	0	1900	3406	1553
Fit Permitted	0.449						0.348					
Satd. Flow (perm)	828	1863	0	0	1690	0	493	3282	0	1900	3406	1553
Right Turn on Red			Yes			Yes			Yes			No
Satd. Flow (RTOR)					10							
Link Speed (mph)		50			50			55				55
Link Distance (ft)		784			651			1092				934
Travel Time (s)		10.7			8.9			13.5				11.6
Peak Hour Factor	0.80	0.80	0.80	0.86	0.86	0.86	0.86	0.86	0.86	0.80	0.80	0.80
Heavy Vehicles (%)	3%	2%	29%	0%	1%	11%	34%	10%	0%	0%	6%	4%
Adj. Flow (vph)	732	29	0	0	12	10	59	459	0	0	370	584
Shared Lane Traffic (%)												
Lane Group Flow (vph)	732	29	0	0	22	0	59	459	0	0	370	584
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			0			12				12
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA		Perm	NA		pm+pt	NA		pm+pt	NA	pt+ov
Protected Phases	3	8			4		1	6		5	2	2 3
Permitted Phases	8			4			6			2		
Detector Phase	3	8		4	4		1	6		5	2	2 3
Switch Phase												
Minimum Initial (s)	5.0	10.0		7.0	7.0		7.0	15.0		5.0	15.0	
Minimum Split (s)	11.5	16.5		13.5	13.5		15.0	23.0		13.0	23.0	
Total Split (s)	38.1	51.6		13.5	13.5		15.0	25.4		13.0	23.4	
Total Split (%)	42.3%	57.3%		15.0%	15.0%		16.7%	28.2%		14.4%	26.0%	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.5	5.5		5.5	5.5	
All-Red Time (s)	1.5	1.5		1.5	1.5		2.5	2.5		2.5	2.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.5	6.5		6.5	6.5		8.0	8.0		8.0	8.0	
Lead/Lag	Lead			Lag	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes			Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None		None	Min		None	Min	
Act Effect Green (s)	37.1	37.1		7.2	7.2		23.8	23.8		15.8	58.9	
Actuated g/C Ratio	0.49	0.49		0.09	0.09		0.31	0.31		0.21	0.78	
v/c Ratio	0.91	0.03		0.13	0.13		0.25	0.45		0.52	0.48	

Lanes, Volumes, Timings
103: LA 1 & Flournoy Lucas Rd

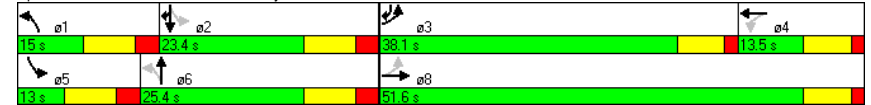
LA 3132 (Inner Loop) Extension - Stage 0 Study
2015 Alternative A AM Peak with Improvements

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	37.4	11.8			29.6		22.2	22.5			32.4	9.6
Queue Delay	0.0	0.0			0.0		0.0	0.0			0.0	0.0
Total Delay	37.4	11.8			29.6		22.2	22.5			32.4	9.6
LOS	D	B			C		C	C			C	A
Approach Delay		36.4			29.6			22.4			18.4	
Approach LOS		D			C			C			B	
Queue Length 50th (ft)	~347	8			5		17	78			83	111
Queue Length 95th (ft)	#448	19			28		49	140			132	248
Internal Link Dist (ft)		704			571			1012			854	
Turn Bay Length (ft)							125					165
Base Capacity (vph)	802	1141			170		236	1077			713	1169
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	0.91	0.03			0.13		0.25	0.43			0.52	0.50

Intersection Summary

Area Type:	Other
Cycle Length:	90
Actuated Cycle Length:	75.8
Natural Cycle:	90
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.91
Intersection Signal Delay:	25.5
Intersection Capacity Utilization:	76.2%
ICU Level of Service:	D
Analysis Period (min):	15
~ Volume exceeds capacity, queue is theoretically infinite.	
Queue shown is maximum after two cycles.	
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 103: LA 1 & Flournoy Lucas Rd



Lanes, Volumes, Timings
105: Ellerbe Rd & Flournoy Lucas Rd

LA 3132 (Inner Loop) Extension - Stage 0 Study
2015 Alternative A AM Peak with Improvements

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Volume (vph)	12	122	35	58	124	35	75	1368	133	26	370	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	140		150	150			0	115	120	150		
Storage Lanes	1		0	1			1	1	1	1		
Taper Length (ft)	50			50			50			50		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00	0.95
Frt		0.966					0.850		0.850		0.999	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1671	1742	0	1656	1727	1468	1770	3574	1615	1736	3404	0
Flt Permitted	0.433			0.634			0.390			0.123		
Satd. Flow (perm)	762	1742	0	1105	1727	1468	726	3574	1615	225	3404	0
Right Turn on Red			Yes			Yes		Yes			Yes	
Satd. Flow (RTOR)		14				43		73			1	
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		848			838			697			896	
Travel Time (s)		12.8			12.7			10.6			13.6	
Peak Hour Factor	0.80	0.80	0.80	0.82	0.82	0.82	0.81	0.81	0.81	0.80	0.80	0.80
Heavy Vehicles (%)	8%	4%	10%	9%	10%	10%	2%	1%	0%	4%	6%	0%
Adj. Flow (vph)	15	152	44	71	151	43	93	1689	164	32	462	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	15	196	0	71	151	43	93	1689	164	32	466	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)	12			12			12			12		
Link Offset(ft)	0			0			0			0		
Crosswalk Width(ft)		16		16			16			16		
Two way Left Turn Lane				Yes			Yes			Yes		
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15			9	15		9	15	9
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8			4	4		6		6	2		
Detector Phase	3	8		7	4		1	6		5	2	
Switch Phase												
Minimum Initial (s)	7.0	15.0		7.0	15.0	15.0	7.0	10.0	10.0	7.0	10.0	
Minimum Split (s)	12.0	20.0		14.0	22.0	22.0	12.0	15.0	15.0	14.0	17.0	
Total Split (s)	12.0	20.0		14.0	22.0	22.0	12.0	42.0	42.0	14.0	44.0	
Total Split (%)	13.3%	22.2%		15.6%	24.4%	24.4%	13.3%	46.7%	46.7%	15.6%	48.9%	
Yellow Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	0.0	0.0		2.0	2.0	2.0	0.0	0.0	0.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0	5.0		7.0	7.0	7.0	5.0	5.0	5.0	7.0	7.0	
Lead/Lag	Lead	Lead		Lag	Lag	Lag	Lead	Lead	Lead	Lag	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	Min		None	Min	Min	None	None	None	None	None	
Act Effect Green (s)	15.8	15.8		24.0	22.2	22.2	37.7	37.7	37.7	37.5	34.2	
Actuated g/C Ratio	0.19	0.19		0.29	0.27	0.27	0.46	0.46	0.46	0.46	0.42	
v/c Ratio	0.07	0.56		0.19	0.32	0.10	0.22	1.03	0.21	0.14	0.33	

Lanes, Volumes, Timings
105: Ellerbe Rd & Flournoy Lucas Rd

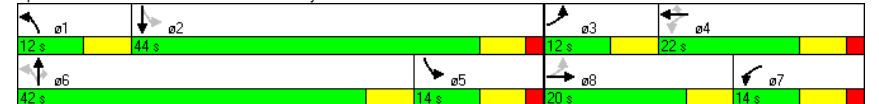
LA 3132 (Inner Loop) Extension - Stage 0 Study
2015 Alternative A AM Peak with Improvements

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	32.4	38.1		28.8	29.1	10.4	17.2	55.7	10.3	22.0	18.3	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	32.4	38.1		28.8	29.1	10.4	17.2	55.7	10.3	22.0	18.3	
LOS	C	D		C	C	B	B	E	B	C	B	
Approach Delay		37.7			26.0			50.0			18.5	
Approach LOS		D			C			D			B	
Queue Length 50th (ft)	7	98		29	66	0	32	-600	32	11	92	
Queue Length 95th (ft)	22	147		68	127	24	56	#616	61	25	113	
Internal Link Dist (ft)		768			758			617			816	
Turn Bay Length (ft)	140			150			115		120	150		
Base Capacity (vph)	226	347		372	469	430	425	1643	782	234	1565	
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.07	0.56		0.19	0.32	0.10	0.22	1.03	0.21	0.14	0.30	

Intersection Summary

Area Type:	Other
Cycle Length:	90
Actuated Cycle Length:	82
Natural Cycle:	90
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	1.03
Intersection Signal Delay:	41.6
Intersection Capacity Utilization:	82.0%
ICU Level of Service:	D
Analysis Period (min):	15
~ Volume exceeds capacity, queue is theoretically infinite.	
Queue shown is maximum after two cycles.	
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 105: Ellerbe Rd & Flournoy Lucas Rd



Lanes, Volumes, Timings
107: LA 1 & Bert Kouns Industrial Loop

LA 3132 (Inner Loop) Extension - Stage 0 Study
2015 Alternative A AM Peak with Improvements

	↖		→		↗		←		↖		↗	
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖	↖	↖	↖	↖	↖	↖	↖	↖	↖	↖
Volume (vph)	457	907	98	228	758	50	114	953	211	131	738	254
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	230		230	150		115	220		220	230		230
Storage Lanes	2		1	1		1	2		1	2		1
Taper Length (ft)	50			50			50			50		
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3303	3471	1482	1770	3539	1615	3303	3505	1495	3433	3471	1568
Flt Permitted	0.950			0.267			0.950			0.950		
Satd. Flow (perm)	3303	3471	1482	497	3539	1615	3303	3505	1495	3433	3471	1568
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			97			9			67			38
Link Speed (mph)		50			50			45			45	
Link Distance (ft)		1652			1693			1702			1927	
Travel Time (s)		22.5			23.1			25.8			29.2	
Peak Hour Factor	0.89	0.89	0.89	0.92	0.92	0.92	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	6%	4%	9%	2%	2%	0%	6%	3%	8%	2%	4%	3%
Adj. Flow (vph)	513	1019	110	248	824	54	125	1047	232	144	811	279
Shared Lane Traffic (%)												
Lane Group Flow (vph)	513	1019	110	248	824	54	125	1047	232	144	811	279
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24		24			24			24		
Link Offset(ft)		0		0			0			0		
Crosswalk Width(ft)		16		16			16			16		
Two way Left Turn Lane					Yes							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Prot	NA	Prot	pm+pt	NA	pt+ov	Prot	NA	pt+ov	Prot	NA	pt+ov
Protected Phases	1	6	6	5	2	2.7	3	8	5.8	7	4	1.4
Permitted Phases				2								
Detector Phase	1	6	6	5	2	2.7	3	8	5.8	7	4	1.4
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0		5.0	10.0		12.0	10.0	
Minimum Split (s)	11.0	16.0	16.0	11.0	16.0		11.0	16.0		18.0	16.0	
Total Split (s)	23.0	38.0	38.0	16.0	31.0		14.0	38.0		18.0	42.0	
Total Split (%)	20.9%	34.5%	34.5%	14.5%	28.2%		12.7%	34.5%		16.4%	38.2%	
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5		1.5	1.5		1.5	1.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0		6.0	6.0		6.0	6.0	
Lead/Lag	Lead	Lead	Lead	Lag	Lag		Lead	Lead		Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	C-Min	C-Min	None	C-Min		None	None		None	None	
Act Effect Green (s)	17.0	32.0	32.0	25.0	37.0		7.8	32.0	48.0	12.0	36.2	59.2
Actuated g/C Ratio	0.15	0.29	0.29	0.23	0.23	0.34	0.07	0.29	0.44	0.11	0.33	0.54
v/c Ratio	1.01	1.01	0.22	1.08	1.02	0.10	0.54	1.03	0.34	0.38	0.71	0.32

Lanes, Volumes, Timings
107: LA 1 & Bert Kouns Industrial Loop

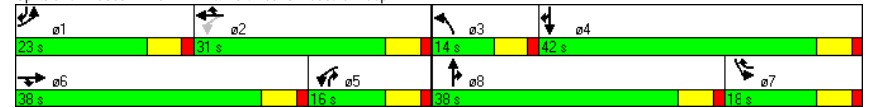
LA 3132 (Inner Loop) Extension - Stage 0 Study
2015 Alternative A AM Peak with Improvements

	↖		→		↗		←		↖		↗	
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	88.3	69.9	8.8	127.8	80.6	11.8	58.2	74.1	15.8	48.9	36.4	13.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	88.3	69.9	8.8	127.8	80.6	11.8	58.2	74.1	15.8	48.9	36.4	13.4
LOS	F	E	A	F	F	B	E	E	B	D	D	B
Approach Delay			71.5				87.7			63.0		32.7
Approach LOS			E				F			E		C
Queue Length 50th (ft)	~190	~384	7	~174	~326	12	44	~416	73	49	263	90
Queue Length 95th (ft)	#296	#518	47	#356	#452	29	75	#548	133	81	335	145
Internal Link Dist (ft)			1572				1613			1622		1847
Turn Bay Length (ft)	230		230	150		115	220		220	230		230
Base Capacity (vph)	510	1010	500	229	804	549	240	1020	690	375	1144	862
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.01	1.01	0.22	1.08	1.02	0.10	0.52	1.03	0.34	0.38	0.71	0.32

Intersection Summary

Area Type: Other
 Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 5 (5%), Referenced to phase 2:WBTL and 6:EBT, Start of Green
 Natural Cycle: 110
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.08
 Intersection Signal Delay: 63.8
 Intersection Capacity Utilization 94.0%
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 107: LA 1 & Bert Kouns Industrial Loop



Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
 108: Bert Kouns Industrial Loop & LA 3132 EB Off Ramp/LA 3132 EB On Ramp with Improvements



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔				↕	↕	↕	↔	↔	↔
Volume (vph)	535	4	7	0	0	0	0	1440	152	32	1003	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		110	0		0	0	0	0	295	0	0
Storage Lanes	1		1	0		0	0	0	0	1	0	0
Taper Length (ft)	50			50			50			50		
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Fr't			0.850				0.986					
Flt Protected	0.950	0.953								0.950		
Satd. Flow (prot)	1681	1687	1615	0	0	0	0	3454	0	1736	3574	0
Flt Permitted	0.950	0.953								0.129		
Satd. Flow (perm)	1681	1687	1615	0	0	0	0	3454	0	236	3574	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			6					20				
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1564			1165			530			537	
Travel Time (s)		23.7			17.7			8.0			8.1	
Peak Hour Factor	0.83	0.83	0.83	0.92	0.92	0.92	0.87	0.87	0.87	0.82	0.82	0.82
Heavy Vehicles (%)	2%	0%	0%	0%	0%	0%	0%	2%	13%	4%	1%	0%
Adj. Flow (vph)	645	5	8	0	0	0	0	1655	175	39	1223	0
Shared Lane Traffic (%)	50%											
Lane Group Flow (vph)	322	328	8	0	0	0	0	1830	0	39	1223	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			27			27	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Split	NA	Perm					NA	custom		NA	
Protected Phases	4	4						6		5	2.5	
Permitted Phases			4							2		
Detector Phase	4	4	4					6		5	2.5	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0					15.0		5.0		
Minimum Split (s)	11.0	11.0	11.0					21.0		10.0		
Total Split (s)	23.0	23.0	23.0					57.0		10.0		
Total Split (%)	25.6%	25.6%	25.6%					63.3%		11.1%		
Yellow Time (s)	5.0	5.0	5.0					5.0		5.0		
All-Red Time (s)	1.0	1.0	1.0					1.0		0.0		
Lost Time Adjust (s)	0.0	0.0	0.0					0.0		0.0		
Total Lost Time (s)	6.0	6.0	6.0					6.0		5.0		
Lead/Lag								Lag		Lead		
Lead-Lag Optimize?								Yes		Yes		
Recall Mode	None	None	None					None		None		
Act Effct Green (s)	17.0	17.0	17.0					51.0		37.0	35.0	
Actuated g/C Ratio	0.19	0.19	0.19					0.57		0.41	0.39	
v/c Ratio	1.01	1.03	0.03					0.93		0.22	0.88	

Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
 108: Bert Kouns Industrial Loop & LA 3132 EB Off Ramp/LA 3132 EB On Ramp with Improvements

Lane Group	ø1	ø2	ø8
Lane Configurations			
Volume (vph)			
Ideal Flow (vphpl)			
Storage Length (ft)			
Storage Lanes			
Taper Length (ft)			
Lane Util. Factor			
Fr't			
Flt Protected			
Satd. Flow (prot)			
Flt Permitted			
Satd. Flow (perm)			
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (mph)			
Link Distance (ft)			
Travel Time (s)			
Peak Hour Factor			
Heavy Vehicles (%)			
Adj. Flow (vph)			
Shared Lane Traffic (%)			
Lane Group Flow (vph)			
Enter Blocked Intersection			
Lane Alignment			
Median Width(ft)			
Link Offset(ft)			
Crosswalk Width(ft)			
Two way Left Turn Lane			
Headway Factor			
Turning Speed (mph)			
Turn Type			
Protected Phases	1	2	8
Permitted Phases			
Detector Phase			
Switch Phase			
Minimum Initial (s)	5.0	15.0	12.0
Minimum Split (s)	10.0	21.0	18.0
Total Split (s)	30.0	37.0	23.0
Total Split (%)	33%	41%	26%
Yellow Time (s)	5.0	5.0	5.0
All-Red Time (s)	0.0	1.0	1.0
Lost Time Adjust (s)			
Total Lost Time (s)			
Lead/Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	
Recall Mode	None	None	None
Act Effct Green (s)			
Actuated g/C Ratio			
v/c Ratio			

Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
 108: Bert Kouns Industrial Loop & LA 3132 EB Off Ramp/LA 3132 EB On Ramp with Improvements

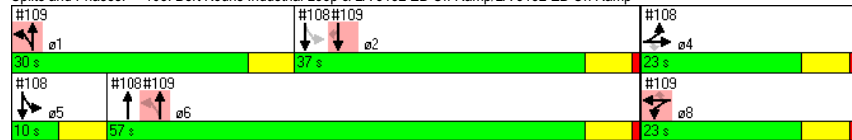


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	92.3	96.0	20.4					28.0	7.0	17.4		
Queue Delay	0.0	0.0	0.0					4.3	0.0	0.0		
Total Delay	92.3	96.0	20.4					32.3	7.0	17.4		
LOS	F	F	C					C	A	B		
Approach Delay		93.3						32.3		17.1		
Approach LOS		F						C		B		
Queue Length 50th (ft)	~198	~212	1					463	5	96		
Queue Length 95th (ft)	#331	#337	12					#563	m10	161		
Internal Link Dist (ft)		1484				1085		450		457		
Turn Bay Length (ft)			110							295		
Base Capacity (vph)	318	319	310					1966	180	1390		
Starvation Cap Reductn	0	0	0					0	0	0		
Spillback Cap Reductn	0	0	0					98	0	0		
Storage Cap Reductn	0	0	0					0	0	0		
Reduced v/c Ratio	1.01	1.03	0.03					0.98	0.22	0.88		

Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 90
 Natural Cycle: 90
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.03
 Intersection Signal Delay: 37.9 Intersection LOS: D
 Intersection Capacity Utilization 77.9% ICU Level of Service D
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 108: Bert Kouns Industrial Loop & LA 3132 EB Off Ramp/LA 3132 EB On Ramp



Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
 108: Bert Kouns Industrial Loop & LA 3132 EB Off Ramp/LA 3132 EB On Ramp with Improvements

Lane Group	ø1	ø2	ø8
Control Delay			
Queue Delay			
Total Delay			
LOS			
Approach Delay			
Approach LOS			
Queue Length 50th (ft)			
Queue Length 95th (ft)			
Internal Link Dist (ft)			
Turn Bay Length (ft)			
Base Capacity (vph)			
Starvation Cap Reductn			
Spillback Cap Reductn			
Storage Cap Reductn			
Reduced v/c Ratio			

Intersection Summary

Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
 109: Bert Kouns Industrial Loop & LA 3132 WB On Ramp/LA 3132 WB On Ramp with Improvements



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	149	0	82	14	1976	0	0	885	759
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	0	0	0	200	295	0	0	0	0	100
Storage Lanes	0	0	0	0	0	1	1	0	0	0	0	1
Taper Length (ft)	50			50			50			50		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frnt						0.850					0.850	
Fit Protected					0.950		0.950					
Satd. Flow (prot)	0	0	0	0	1805	1599	1805	3539	0	0	3539	1568
Fit Permitted					0.950		0.111					
Satd. Flow (perm)	0	0	0	0	1805	1599	211	3539	0	0	3539	1568
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						11						498
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		276			1075			537			687	
Travel Time (s)		4.2			16.3			8.1			10.4	
Peak Hour Factor	0.92	0.92	0.92	0.81	0.81	0.81	0.86	0.86	0.86	0.89	0.89	0.89
Heavy Vehicles (%)	0%	0%	0%	0%	0%	1%	0%	2%	0%	0%	2%	3%
Adj. Flow (vph)	0	0	0	184	0	101	16	2298	0	0	994	853
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	184	101	16	2298	0	0	994	853
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)	0							27			27	
Link Offset(ft)	0				0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type				Split	NA	Perm	custom	NA			NA	Perm
Protected Phases				8	8		1	1 6			2	
Permitted Phases						8	6					2
Detector Phase				8	8	8	1	1 6			2	2
Switch Phase												
Minimum Initial (s)				12.0	12.0	12.0	5.0				15.0	15.0
Minimum Split (s)				18.0	18.0	18.0	10.0				21.0	21.0
Total Split (s)				23.0	23.0	23.0	30.0				37.0	37.0
Total Split (%)				25.6%	25.6%	25.6%	33.3%				41.1%	41.1%
Yellow Time (s)				5.0	5.0	5.0	5.0				5.0	5.0
All-Red Time (s)				1.0	1.0	1.0	0.0				1.0	1.0
Lost Time Adjust (s)					0.0	0.0	0.0				0.0	0.0
Total Lost Time (s)					6.0	6.0	5.0				6.0	6.0
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Recall Mode				None	None	None	None				None	None
Act Effect Green (s)				17.0	17.0	17.0	62.0	62.0			31.0	31.0
Actuated g/C Ratio				0.19	0.19	0.19	0.69	0.69			0.34	0.34
v/c Ratio				0.54	0.32	0.03	0.94				0.82	0.98

Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
 109: Bert Kouns Industrial Loop & LA 3132 WB On Ramp/LA 3132 WB On Ramp with Improvements

Lane Group	ø4	ø5	ø6
Lane Configurations			
Volume (vph)			
Ideal Flow (vphpl)			
Storage Length (ft)			
Storage Lanes			
Taper Length (ft)			
Lane Util. Factor			
Frnt			
Fit Protected			
Satd. Flow (prot)			
Fit Permitted			
Satd. Flow (perm)			
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (mph)			
Link Distance (ft)			
Travel Time (s)			
Peak Hour Factor			
Heavy Vehicles (%)			
Adj. Flow (vph)			
Shared Lane Traffic (%)			
Lane Group Flow (vph)			
Enter Blocked Intersection			
Lane Alignment			
Median Width(ft)			
Link Offset(ft)			
Crosswalk Width(ft)			
Two way Left Turn Lane			
Headway Factor			
Turning Speed (mph)			
Turn Type			
Protected Phases	4	5	6
Permitted Phases			
Detector Phase			
Switch Phase			
Minimum Initial (s)	5.0	5.0	15.0
Minimum Split (s)	11.0	10.0	21.0
Total Split (s)	23.0	10.0	57.0
Total Split (%)	26%	11%	63%
Yellow Time (s)	5.0	5.0	5.0
All-Red Time (s)	1.0	0.0	1.0
Lost Time Adjust (s)			
Total Lost Time (s)			
Lead/Lag		Lead	Lag
Lead-Lag Optimize?		Yes	Yes
Recall Mode	None	None	None
Act Effect Green (s)			
Actuated g/C Ratio			
v/c Ratio			

Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
 109: Bert Kouns Industrial Loop & LA 3132 WB On Ramp/LA 3132 WB Off Ramp with Improvements

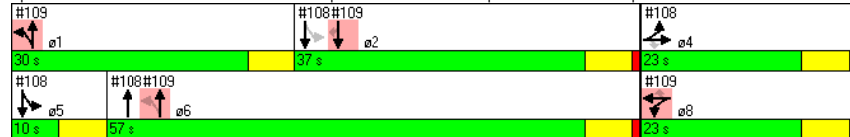


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay					39.7	31.4	4.2	13.1			33.5	40.9
Queue Delay					0.0	0.0	0.0	5.5			0.0	0.0
Total Delay					39.7	31.4	4.2	18.6			33.5	40.9
LOS					D	C	A	B			C	D
Approach Delay					36.7			18.5			36.9	
Approach LOS					D			B			D	
Queue Length 50th (ft)					95	44	2	257			267	242
Queue Length 95th (ft)					143	81	m3	m297			341	#514
Internal Link Dist (ft)		196			995			457			607	
Turn Bay Length (ft)						200	295					100
Base Capacity (vph)					341	311	588	2438			1219	867
Starvation Cap Reductn					0	0	0	124			0	0
Spillback Cap Reductn					0	0	0	0			0	0
Storage Cap Reductn					0	0	0	0			0	0
Reduced v/c Ratio					0.54	0.32	0.03	0.99			0.82	0.98

Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 90
 Natural Cycle: 90
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.03
 Intersection Signal Delay: 27.3 Intersection LOS: C
 Intersection Capacity Utilization 77.9% ICU Level of Service D
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 109: Bert Kouns Industrial Loop & LA 3132 WB On Ramp/LA 3132 WB Off Ramp

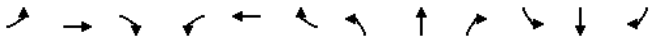


Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
 109: Bert Kouns Industrial Loop & LA 3132 WB On Ramp/LA 3132 WB Off Ramp with Improvements

Lane Group	ø4	ø5	ø6
Control Delay			
Queue Delay			
Total Delay			
LOS			
Approach Delay			
Approach LOS			
Queue Length 50th (ft)			
Queue Length 95th (ft)			
Internal Link Dist (ft)			
Turn Bay Length (ft)			
Base Capacity (vph)			
Starvation Cap Reductn			
Spillback Cap Reductn			
Storage Cap Reductn			
Reduced v/c Ratio			

Intersection Summary


Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
 110: Ashley River Dr SB & Flournoy Lucas Rd 2015 Alternative A AM Peak with Improvements



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↕↔	↔	↔	↕↔	↔	↔	↔	↔	↔	↕↔	↔
Volume (vph)	0	488	98	26	516	8	0	0	0	4	0	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	180	0	120	0	0	0	0	0	0	0	0	0
Storage Lanes	1	0	1	0	0	0	0	0	0	0	0	0
Taper Length (ft)	50	0	50	0	0	50	0	0	0	50	0	0
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.975			0.998						0.961	
Fit Protected				0.950							0.966	
Satd. Flow (prot)	1900	3195	0	1703	3402	0	0	0	0	0	1764	0
Fit Permitted				0.950							0.966	
Satd. Flow (perm)	1900	3195	0	1703	3402	0	0	0	0	0	1764	0
Link Speed (mph)	45	45	45	45	45	45	30	30	30	30	30	30
Link Distance (ft)	750	750	750	750	750	750	320	320	320	320	340	340
Travel Time (s)	11.4	11.4	11.4	11.4	11.4	11.4	7.3	7.3	7.3	7.3	7.7	7.7
Peak Hour Factor	0.87	0.87	0.87	0.89	0.89	0.89	0.92	0.92	0.92	0.80	0.80	0.80
Heavy Vehicles (%)	0%	11%	6%	6%	6%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	561	113	29	580	9	0	0	0	5	0	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	674	0	29	589	0	0	0	0	0	7	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)	12	12	12	12	14	14	0	0	0	0	0	0
Link Offset(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Crosswalk Width(ft)	16	16	16	16	16	16	16	16	16	16	16	16
Two way Left Turn Lane				Yes								
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	15	9	15	15	9	15	15	15	9	15	9
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	31.6%
ICU Level of Service	A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis LA 3132 (Inner Loop) Extension - Stage 0 Study
 110: Ashley River Dr SB & Flournoy Lucas Rd 2015 Alternative A AM Peak with Improvements



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↕↔	↔	↔	↕↔	↔	↔	↔	↔	↔	↕↔	↔
Volume (veh/h)	0	488	98	26	516	8	0	0	0	4	0	2
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.87	0.87	0.87	0.89	0.89	0.89	0.92	0.92	0.92	0.80	0.80	0.80
Hourly flow rate (vph)	0	561	113	29	580	9	0	0	0	5	0	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)		750										
pX, platoon unblocked				0.88			0.88	0.88	0.88	0.88	0.88	0.88
vC, conflicting volume	589			674			968	1264	337	923	1316	294
vC1, stage 1 conf vol							617	617		643	643	
vC2, stage 2 conf vol							351	647		280	674	
vCu, unblocked vol	589			359			693	1029	0	642	1088	294
tC, single (s)	4.1			4.2			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			2.3			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			97			100	100	100	99	100	100
cM capacity (veh/h)	996			1029			495	395	961	408	378	708

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1
Volume Total	0	374	300	29	387	202	8
Volume Left	0	0	0	29	0	0	5
Volume Right	0	0	113	0	0	9	2
cSH	1700	1700	1700	1029	1700	1700	475
Volume to Capacity	0.00	0.22	0.18	0.03	0.23	0.12	0.02
Queue Length 95th (ft)	0	0	0	2	0	0	1
Control Delay (s)	0.0	0.0	0.0	8.6	0.0	0.0	12.7
Lane LOS				A			B
Approach Delay (s)	0.0			0.4			12.7
Approach LOS				B			B

Intersection Summary	
Average Delay	0.3
Intersection Capacity Utilization	31.6%
ICU Level of Service	A
Analysis Period (min)	15

Lanes, Volumes, Timings

LA 3132 (Inner Loop) Extension - Stage 0 Study

111: Ashley River Dr NB & Flournoy Lucas Rd

2015 Alternative A AM Peak with Improvements

	→	↖	↗	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑	↖	↗
Volume (vph)	492	0	0	261	289	103
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt						0.850
Fit Protected					0.950	
Satd. Flow (prot)	3282	0	0	3374	1805	1568
Fit Permitted				0.950		
Satd. Flow (perm)	3282	0	0	3374	1805	1568
Link Speed (mph)	45			45	30	
Link Distance (ft)	127			2333	283	
Travel Time (s)	1.9			35.3	6.4	
Peak Hour Factor	0.80	0.80	0.84	0.84	0.81	0.81
Heavy Vehicles (%)	10%	0%	0%	7%	0%	3%
Adj. Flow (vph)	615	0	0	311	357	127
Shared Lane Traffic (%)						
Lane Group Flow (vph)	615	0	0	311	357	127
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	14			14	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane	Yes			Yes		
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	36.3%
ICU Level of Service	A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis LA 3132 (Inner Loop) Extension - Stage 0 Study

111: Ashley River Dr NB & Flournoy Lucas Rd

2015 Alternative A AM Peak with Improvements

	→	↖	↗	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑	↖	↗
Volume (veh/h)	492	0	0	261	289	103
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.80	0.80	0.84	0.84	0.81	0.81
Hourly flow rate (vph)	615	0	0	311	357	127
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWTL			TWTL		
Median storage (veh)	2			2		
Upstream signal (ft)	877					
pX, platoon unblocked			0.92		0.92	0.92
vC, conflicting volume			615		770	308
vC1, stage 1 conf vol					615	
vC2, stage 2 conf vol					155	
vCu, unblocked vol			403		572	68
tC, single (s)			4.1		6.8	7.0
tC, 2 stage (s)					5.8	
tF (s)			2.2		3.5	3.3
p0 queue free %			100		37	86
cM capacity (veh/h)			1071		564	898

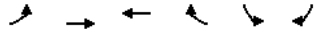
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2
Volume Total	308	308	155	155	357	127
Volume Left	0	0	0	0	357	0
Volume Right	0	0	0	0	0	127
cSH	1700	1700	1700	1700	564	898
Volume to Capacity	0.18	0.18	0.09	0.09	0.63	0.14
Queue Length 95th (ft)	0	0	0	0	110	12
Control Delay (s)	0.0	0.0	0.0	0.0	21.7	9.7
Lane LOS					C	A
Approach Delay (s)	0.0		0.0		18.5	
Approach LOS					C	

Intersection Summary

Average Delay	6.4
Intersection Capacity Utilization	36.3%
ICU Level of Service	A
Analysis Period (min)	15

Lanes, Volumes, Timings
 112: Flournoy Lucas Rd & Oaks Retirement Rd

LA 3132 (Inner Loop) Extension - Stage 0 Study
 2015 Alternative A AM Peak with Improvements

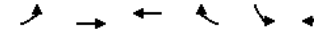


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↔	↕↕	↕↕		↔	↕↕
Volume (vph)	38	557	245	27	6	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	375			0	0	0
Storage Lanes	1			0	1	1
Taper Length (ft)	50				50	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Frt			0.985			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1687	3610	3390	0	1805	1524
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1687	3610	3390	0	1805	1524
Link Speed (mph)		45	45		30	
Link Distance (ft)		2333	1050		729	
Travel Time (s)		35.3	15.9		16.6	
Peak Hour Factor	0.80	0.80	0.81	0.81	0.80	0.80
Heavy Vehicles (%)	7%	0%	5%	4%	0%	6%
Adj. Flow (vph)	48	696	302	33	8	20
Shared Lane Traffic (%)						
Lane Group Flow (vph)	48	696	335	0	8	20
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		14	14		28	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane		Yes	Yes			
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	25.4%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis
 112: Flournoy Lucas Rd & Oaks Retirement Rd

LA 3132 (Inner Loop) Extension - Stage 0 Study
 2015 Alternative A AM Peak with Improvements



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↔	↕↕	↕↕		↔	↕↕
Volume (veh/h)	38	557	245	27	6	16
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.80	0.80	0.81	0.81	0.80	0.80
Hourly flow rate (vph)	48	696	302	33	8	20
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		TWLT	TWLT			
Median storage (veh)		2	2			
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	336				762	168
vC1, stage 1 conf vol					319	
vC2, stage 2 conf vol					443	
vCu, unblocked vol	336				762	168
tC, single (s)	4.2				6.8	7.0
tC, 2 stage (s)					5.8	
tF (s)	2.3				3.5	3.4
p0 queue free %	96				99	98
cM capacity (veh/h)	1185				525	834

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1	SB 2
Volume Total	48	348	348	202	134	8	20
Volume Left	48	0	0	0	0	8	0
Volume Right	0	0	0	0	33	0	20
cSH	1185	1700	1700	1700	1700	525	834
Volume to Capacity	0.04	0.20	0.20	0.12	0.08	0.01	0.02
Queue Length 95th (ft)	3	0	0	0	0	1	2
Control Delay (s)	8.2	0.0	0.0	0.0	0.0	12.0	9.4
Lane LOS	A					B	A
Approach Delay (s)	0.5			0.0		10.1	
Approach LOS						B	

Intersection Summary	
Average Delay	0.6
Intersection Capacity Utilization	25.4%
Analysis Period (min)	15
	ICU Level of Service A

Lanes, Volumes, Timings
201: LA 1 & I-69 WB Ramp

LA 3132 (Inner Loop) Extension - Stage 0 Study
2015 Alternative A AM Peak with Improvements

	↖ ↗		↑		↘ ↙	
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↖	↗	↑↑	↖	↗	↑↑
Volume (vph)	83	0	215	3	62	455
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300	0	0	0	275	
Storage Lanes	1	1		1		
Taper Length (ft)	50				50	
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt			0.850			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1641	1727	3195	1429	1656	3312
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1641	1727	3195	1429	1656	3312
Link Speed (mph)	40		65		65	
Link Distance (ft)	381		1423		531	
Travel Time (s)	6.5		14.9		5.6	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Heavy Vehicles (%)	10%	10%	13%	13%	9%	9%
Adj. Flow (vph)	104	0	269	4	69	506
Shared Lane Traffic (%)						
Lane Group Flow (vph)	104	0	269	4	69	506
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		76		76	
Link Offset(ft)	0		0		0	
Crosswalk Width(ft)	16		16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	24.0%
ICU Level of Service	A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis LA 3132 (Inner Loop) Extension - Stage 0 Study
201: LA 1 & I-69 WB Ramp

2015 Alternative A AM Peak with Improvements

	↖ ↗		↑		↘ ↙	
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↖	↗	↑↑	↖	↗	↑↑
Volume (veh/h)	83	0	215	3	62	455
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Hourly flow rate (vph)	104	0	269	4	69	506
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			Raised		Raised	
Median storage (veh)			3		3	
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	659	134			269	
vC1, stage 1 conf vol	269					
vC2, stage 2 conf vol	391					
vCu, unblocked vol	659	134			269	
tC, single (s)	7.0	7.1			4.3	
tC, 2 stage (s)	6.0					
tF (s)	3.6	3.4			2.3	
p0 queue free %	82	100			94	
cM capacity (veh/h)	565	865			1243	

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	104	0	134	134	4	69	253	253
Volume Left	104	0	0	0	0	69	0	0
Volume Right	0	0	0	0	4	0	0	0
cSH	565	1700	1700	1700	1700	1243	1700	1700
Volume to Capacity	0.18	0.00	0.08	0.08	0.00	0.06	0.15	0.15
Queue Length 95th (ft)	17	0	0	0	0	4	0	0
Control Delay (s)	12.8	0.0	0.0	0.0	0.0	8.1	0.0	0.0
Lane LOS	B	A				A		
Approach Delay (s)	12.8		0.0			1.0		
Approach LOS	B							

Intersection Summary	
Average Delay	2.0
Intersection Capacity Utilization	24.0%
ICU Level of Service	A
Analysis Period (min)	15

Lanes, Volumes, Timings
202: LA 1 & I-69 EB Ramp

LA 3132 (Inner Loop) Extension - Stage 0 Study
2015 Alternative A AM Peak with Improvements

	↖		↗		↓	
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↖	↖	↗	↗	↖	↖
Volume (vph)	4	42	176	60	301	237
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300	0		490	260	
Storage Lanes	1	1		1	1	
Taper Length (ft)	50				50	
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt		0.850		0.850		
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1641	1468	3195	1429	1656	3312
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1641	1468	3195	1429	1656	3312
Link Speed (mph)	40		65		65	
Link Distance (ft)	452		3194		1423	
Travel Time (s)	7.7		33.5		14.9	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Heavy Vehicles (%)	10%	10%	13%	13%	9%	9%
Adj. Flow (vph)	5	53	220	75	334	263
Shared Lane Traffic (%)						
Lane Group Flow (vph)	5	52	220	75	334	263
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	24		76		76	
Link Offset(ft)	0		0		0	
Crosswalk Width(ft)	16		16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free		Free	

Intersection Summary

Area Type: Other
 Control Type: Unsignalized
 Intersection Capacity Utilization 34.9% ICU Level of Service A
 Analysis Period (min) 15

HCM Unsignalized Intersection Capacity Analysis LA 3132 (Inner Loop) Extension - Stage 0 Study
202: LA 1 & I-69 EB Ramp

2015 Alternative A AM Peak with Improvements

	↖		↗		↓	
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↖	↖	↗	↗	↖	↖
Volume (veh/h)	4	42	176	60	301	237
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Hourly flow rate (vph)	5	52	220	75	334	263
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			Raised		Raised	
Median storage (veh)			3		3	
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1021	110			220	
vC1, stage 1 conf vol	220					
vC2, stage 2 conf vol	801					
vCu, unblocked vol	1021	110			220	
tC, single (s)	7.0	7.1			4.3	
tC, 2 stage (s)	6.0					
tF (s)	3.6	3.4			2.3	
p0 queue free %	98	94			74	
cM capacity (veh/h)	281	897			1297	

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	5	52	110	110	75	334	132	132
Volume Left	5	0	0	0	0	334	0	0
Volume Right	0	52	0	0	75	0	0	0
cSH	281	897	1700	1700	1700	1297	1700	1700
Volume to Capacity	0.02	0.06	0.06	0.06	0.04	0.26	0.08	0.08
Queue Length 95th (ft)	1	5	0	0	0	26	0	0
Control Delay (s)	18.0	9.3	0.0	0.0	0.0	8.7	0.0	0.0
Lane LOS	C	A				A		
Approach Delay (s)	10.0		0.0			4.9		
Approach LOS	B							

Intersection Summary

Average Delay 3.7
 Intersection Capacity Utilization 34.9% ICU Level of Service A
 Analysis Period (min) 15

Lanes, Volumes, Timings
301: LA 1 & Gate A

LA 3132 (Inner Loop) Extension - Stage 0 Study
2015 Alternative A AM Peak with Improvements

	←		↑		→	
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↕		↔	↕
Volume (vph)	5	0	789	8	21	571
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	0	0	250	
Storage Lanes	1	0		0	1	
Taper Length (ft)	50				50	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Frt		0.998				
Flt Protected	0.950			0.950		
Satd. Flow (prot)	1347	0	3180	0	1280	3312
Flt Permitted	0.950			0.950		
Satd. Flow (perm)	1347	0	3180	0	1280	3312
Link Speed (mph)	40		65		65	
Link Distance (ft)	496		4383		376	
Travel Time (s)	8.5		46.0		3.9	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Heavy Vehicles (%)	34%	34%	13%	41%	41%	9%
Adj. Flow (vph)	6	0	986	10	23	634
Shared Lane Traffic (%)						
Lane Group Flow (vph)	6	0	996	0	23	634
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		66		66	
Link Offset(ft)	0		0		0	
Crosswalk Width(ft)	16		16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free		Free	

Intersection Summary

Area Type: Other
 Control Type: Unsignalized
 Intersection Capacity Utilization 32.1% ICU Level of Service A
 Analysis Period (min) 15

HCM Unsignalized Intersection Capacity Analysis LA 3132 (Inner Loop) Extension - Stage 0 Study
301: LA 1 & Gate A

2015 Alternative A AM Peak with Improvements

	←		↑		→	
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↕		↔	↕
Volume (veh/h)	5	0	789	8	21	571
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Hourly flow rate (vph)	6	0	986	10	23	634
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			Raised		Raised	
Median storage (veh)			2		2	
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1355	498			996	
vC1, stage 1 conf vol	991					
vC2, stage 2 conf vol	364					
vCu, unblocked vol	1355	498			996	
tC, single (s)	7.5	7.6			4.9	
tC, 2 stage (s)	6.5					
tF (s)	3.8	3.6			2.6	
p0 queue free %	97	100			95	
cM capacity (veh/h)	237	441			496	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	6	658	339	23	317	317
Volume Left	6	0	0	23	0	0
Volume Right	0	0	10	0	0	0
cSH	237	1700	1700	496	1700	1700
Volume to Capacity	0.03	0.39	0.20	0.05	0.19	0.19
Queue Length 95th (ft)	2	0	0	4	0	0
Control Delay (s)	20.6	0.0	0.0	12.6	0.0	0.0
Lane LOS	C			B		
Approach Delay (s)	20.6	0.0		0.4		
Approach LOS	C					

Intersection Summary

Average Delay 0.3
 Intersection Capacity Utilization 32.1% ICU Level of Service A
 Analysis Period (min) 15

Lanes, Volumes, Timings
302: LA 1 & Gate B

LA 3132 (Inner Loop) Extension - Stage 0 Study
2015 Alternative A AM Peak with Improvements

Lane Group	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Lane Configurations							
Volume (vph)	20	40	0	757	43	103	473
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	250		0	250	
Storage Lanes	1	1	1		0	1	
Taper Length (ft)	50		50			50	
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	0.95
Frt		0.850		0.992			
Flt Protected	0.950				0.950		
Satd. Flow (prot)	1271	1137	1681	3150	0	1433	3312
Flt Permitted	0.950				0.950		
Satd. Flow (perm)	1271	1137	1681	3150	0	1433	3312
Link Speed (mph)	40			65			65
Link Distance (ft)	464			1578			4383
Travel Time (s)	7.9			16.6			46.0
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.90	0.90
Heavy Vehicles (%)	42%	42%	13%	13%	26%	26%	9%
Adj. Flow (vph)	25	50	0	946	54	114	526
Shared Lane Traffic (%)							
Lane Group Flow (vph)	25	50	0	1000	0	114	526
Enter Blocked Intersection	No	No	No	No	No	No	No
Lane Alignment	Left	Right	R NA	Left	Right	Left	Left
Median Width(ft)	20			66			66
Link Offset(ft)	0			0			0
Crosswalk Width(ft)	16			16			16
Two way Left Turn Lane							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	9		9	15	
Sign Control	Stop			Free			Free

Intersection Summary

Area Type: Other
 Control Type: Unsignalized
 Intersection Capacity Utilization 41.3% ICU Level of Service A
 Analysis Period (min) 15

HCM Unsignalized Intersection Capacity Analysis LA 3132 (Inner Loop) Extension - Stage 0 Study
302: LA 1 & Gate B

2015 Alternative A AM Peak with Improvements

Movement	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Lane Configurations							
Volume (veh/h)	20	40	0	757	43	103	473
Sign Control	Stop			Free			Free
Grade	0%			0%			0%
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.90	0.90
Hourly flow rate (vph)	25	50	0	946	54	114	526
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type				Raised			Raised
Median storage (veh)				2			2
Upstream signal (ft)							
pX, platoon unblocked			0.00				
vC, conflicting volume	1465	500	0			1000	
vC1, stage 1 conf vol	973						
vC2, stage 2 conf vol	492						
vCu, unblocked vol	1465	500	0			1000	
tC, single (s)	7.6	7.7	0.0			4.6	
tC, 2 stage (s)	6.6						
tF (s)	3.9	3.7	0.0			2.5	
p0 queue free %	88	88	0			80	
cM capacity (veh/h)	211	423	0			560	

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	25	50	631	369	0	114	263	263
Volume Left	25	0	0	0	0	114	0	0
Volume Right	0	50	0	54	0	0	0	0
cSH	211	423	1700	1700	1700	560	1700	1700
Volume to Capacity	0.12	0.12	0.37	0.22	0.00	0.20	0.15	0.15
Queue Length 95th (ft)	10	10	0	0	0	19	0	0
Control Delay (s)	24.4	14.7	0.0	0.0	0.0	13.1	0.0	0.0
Lane LOS	C	B				B		
Approach Delay (s)	17.9		0.0			2.3		
Approach LOS	C							

Intersection Summary

Average Delay 1.7
 Intersection Capacity Utilization 41.3% ICU Level of Service A
 Analysis Period (min) 15

Lanes, Volumes, Timings
303: LA 1 & Gate C

LA 3132 (Inner Loop) Extension - Stage 0 Study
2015 Alternative A AM Peak with Improvements

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↑	↑↑	↑		↑↑
Volume (vph)	0	24	782	33	0	516
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	0	0	250	
Storage Lanes	0	1		1	0	
Taper Length (ft)	50				50	
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt		0.865		0.850		
Fit Protected						
Satd. Flow (prot)	0	1166	3195	1214	0	3312
Fit Permitted						
Satd. Flow (perm)	0	1166	3195	1214	0	3312
Link Speed (mph)	40		65			65
Link Distance (ft)	508		531			1081
Travel Time (s)	8.7		5.6			11.3
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Heavy Vehicles (%)	41%	41%	13%	33%	33%	9%
Adj. Flow (vph)	0	30	978	41	0	573
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	30	978	41	0	573
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	0		76			76
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	31.6%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis LA 3132 (Inner Loop) Extension - Stage 0 Study
303: LA 1 & Gate C

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↑	↑↑	↑		↑↑
Volume (veh/h)	0	24	782	33	0	516
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Hourly flow rate (vph)	0	30	978	41	0	573
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			Raised			Raised
Median storage (veh)			3			3
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1264	489			1019	
vC1, stage 1 conf vol	978					
vC2, stage 2 conf vol	287					
vCu, unblocked vol	1264	489			1019	
tC, single (s)	7.6	7.7			4.8	
tC, 2 stage (s)	6.6					
tF (s)	3.9	3.7			2.5	
p0 queue free %	100	93			100	
cM capacity (veh/h)	244	433			518	

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	30	489	489	41	287	287
Volume Left	0	0	0	0	0	0
Volume Right	30	0	0	41	0	0
cSH	433	1700	1700	1700	1700	1700
Volume to Capacity	0.07	0.29	0.29	0.02	0.17	0.17
Queue Length 95th (ft)	6	0	0	0	0	0
Control Delay (s)	13.9	0.0	0.0	0.0	0.0	0.0
Lane LOS	B					
Approach Delay (s)	13.9	0.0			0.0	
Approach LOS	B					

Intersection Summary

Average Delay	0.3
Intersection Capacity Utilization	31.6%
Analysis Period (min)	15
	ICU Level of Service A

Lanes, Volumes, Timings
304: LA 1 & Gate D

LA 3132 (Inner Loop) Extension - Stage 0 Study
2015 Alternative A AM Peak with Improvements

	↙	↖	↑	↗	↘	↓
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↙	↖	↑↑	↗	↘	↘↘
Volume (vph)	1	21	254	0	21	217
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	250		300	280	
Storage Lanes	1	1		1	1	
Taper Length (ft)	50				50	
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt	0.850					
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1068	956	3195	1118	1062	3312
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1068	956	3195	1118	1062	3312
Link Speed (mph)	40		65		65	
Link Distance (ft)	420		716		503	
Travel Time (s)	7.2		7.5		5.3	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Heavy Vehicles (%)	69%	69%	13%	70%	70%	9%
Adj. Flow (vph)	1	26	318	0	23	241
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1	26	318	0	23	241
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		76		76	
Link Offset(ft)	0		0		0	
Crosswalk Width(ft)	16		16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	23.7%
ICU Level of Service A	
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis LA 3132 (Inner Loop) Extension - Stage 0 Study
304: LA 1 & Gate D

2015 Alternative A AM Peak with Improvements

	↙	↖	↑	↗	↘	↓
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↙	↖	↑↑	↗	↘	↘↘
Volume (veh/h)	1	21	254	0	21	217
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Hourly flow rate (vph)	1	26	318	0	23	241
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		10				
Median type			Raised			Raised
Median storage (veh)			3			3
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	485	159			318	
vC1, stage 1 conf vol	318					
vC2, stage 2 conf vol	167					
vCu, unblocked vol	485	159			318	
tC, single (s)	8.2	8.3			5.5	
tC, 2 stage (s)	7.2					
tF (s)	4.2	4.0			2.9	
p0 queue free %	100	96			97	
cM capacity (veh/h)	523	683			866	

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	28	159	159	0	23	121	121
Volume Left	1	0	0	0	23	0	0
Volume Right	26	0	0	0	0	0	0
cSH	715	1700	1700	1700	866	1700	1700
Volume to Capacity	0.04	0.09	0.09	0.00	0.03	0.07	0.07
Queue Length 95th (ft)	3	0	0	0	2	0	0
Control Delay (s)	10.5	0.0	0.0	0.0	9.3	0.0	0.0
Lane LOS	B				A		
Approach Delay (s)	10.5	0.0			0.8		
Approach LOS	B						

Intersection Summary	
Average Delay	0.8
Intersection Capacity Utilization	23.7%
ICU Level of Service	A
Analysis Period (min)	15

Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
 100: LA3132 NB/LA3132 SB & Flournoy Lucas Rd 2015 Alternative A AM Peak with SPU

Lane Group	EBL	EBT	EBR2	WBL	WBT	WBR2	SEL	SER2	NWL	NWR2
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Volume (vph)	268	261	46	0	179	340	325	107	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	350			250			0		0	
Storage Lanes	2			2			2		2	
Taper Length (ft)	50			50			50		50	
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	1.00	0.97	1.00
Frt			0.850			0.850		0.850		0.850
Frt Protected	0.950						0.950			
Satd. Flow (prot)	3467	3505	1615	3686	3406	1538	3367	1553	3686	1900
Frt Permitted	0.950						0.950			
Satd. Flow (perm)	3467	3505	1615	3686	3406	1538	3367	1553	3686	1900
Right Turn on Red			Yes			Yes		Yes		Yes
Satd. Flow (RTOR)			53			420		134		
Link Speed (mph)		45			45					
Link Distance (ft)		749			713					
Travel Time (s)		11.3			10.8					
Peak Hour Factor	0.86	0.86	0.86	0.81	0.81	0.81	0.80	0.80	0.90	0.90
Heavy Vehicles (%)	1%	3%	0%	0%	6%	5%	4%	0%	0%	0%
Adj. Flow (vph)	312	303	53	0	221	420	406	134	0	0
Shared Lane Traffic (%)										
Lane Group Flow (vph)	312	303	53	0	221	420	406	134	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Right	Left	Right
Median Width(ft)		24			34					
Link Offset(ft)		0			0					
Crosswalk Width(ft)		16			16					
Two way Left Turn Lane										
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15	9	15	9
Turn Type	Prot	NA	Free	Prot	NA	Free	Prot	Free	Prot	Free
Protected Phases	5	2		1	6		4		8	
Permitted Phases			Free			Free		Free		Free
Detector Phase	5	2		1	6		4		8	
Switch Phase										
Minimum Initial (s)	4.0	15.0		4.0	15.0		4.0		4.0	
Minimum Split (s)	10.0	21.0		10.0	21.0		22.0		10.0	
Total Split (s)	34.0	56.0		12.0	34.0		22.0		22.0	
Total Split (%)	37.8%	62.2%		13.3%	37.8%		24.4%		24.4%	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0		5.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0		1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0		0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0		6.0		6.0	
Lead/Lag	Lag	Lag		Lead	Lead					
Lead-Lag Optimize?	Yes	Yes		Yes	Yes					
Recall Mode	None	Min		None	Min		None		None	
Act Effct Green (s)	10.4	31.5	55.6		15.1	55.6	12.0	55.6		
Actuated g/C Ratio	0.19	0.57	1.00		0.27	1.00	0.22	1.00		
v/c Ratio	0.48	0.15	0.03		0.24	0.27	0.56	0.09		

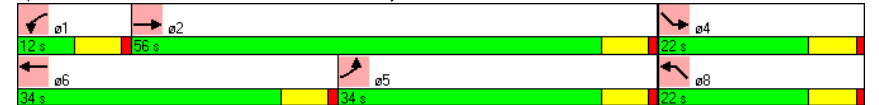
Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
 100: LA3132 NB/LA3132 SB & Flournoy Lucas Rd 2015 Alternative A AM Peak with SPU

Lane Group	EBL	EBT	EBR2	WBL	WBT	WBR2	SEL	SER2	NWL	NWR2
Control Delay	23.2	6.3	0.0		17.8	0.4	22.8	0.1		
Queue Delay	0.0	0.0	0.0		0.0	0.0	0.0	0.0		
Total Delay	23.2	6.3	0.0		17.8	0.4	22.8	0.1		
LOS	C	A	A		B	A	C	A		
Approach Delay			13.7				6.4			
Approach LOS			B				A			
Queue Length 50th (ft)	47	21	0		30	0	61	0		
Queue Length 95th (ft)	80	41	0		54	0	89	0		
Internal Link Dist (ft)		669			633					
Turn Bay Length (ft)	350		450		350		600			
Base Capacity (vph)	1755	3166	1615		1724	1538	974	1553		
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	0.18	0.10	0.03		0.13	0.27	0.42	0.09		

Intersection Summary

Area Type:	Other
Cycle Length:	90
Actuated Cycle Length:	55.6
Natural Cycle:	55
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.56
Intersection Signal Delay:	12.2
Intersection LOS:	B
Intersection Capacity Utilization:	42.8%
ICU Level of Service:	A
Analysis Period (min):	15

Splits and Phases: 100: LA3132 NB/LA3132 SB & Flournoy Lucas Rd



Lanes, Volumes, Timings
101: Flournoy Lucas Rd & LA 3132 SB

LA 3132 (Inner Loop) Extension - Stage 0 Study

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕	↗	↖	↕↕					↖↖	↗	
Volume (vph)	0	264	46	0	321	0	0	0	0	352	0	261
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		450	200		0	0		0	250		0
Storage Lanes	0		1	1		0	0		0	1		0
Taper Length (ft)	50			50			50			50		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	0.97	1.00	1.00
Frt			0.850								0.850	
Flt Protected										0.950		
Satd. Flow (prot)	0	3574	1615	1900	3610	0	0	0	0	3303	1615	0
Flt Permitted									0.950			
Satd. Flow (perm)	0	3574	1615	1900	3610	0	0	0	0	3303	1615	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			48								507	
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		986			649			714			631	
Travel Time (s)		14.9			9.8			10.8			9.6	
Peak Hour Factor	0.95	0.95	0.95	0.84	0.84	0.84	0.92	0.92	0.92	0.90	0.90	0.90
Heavy Vehicles (%)	0%	1%	0%	0%	0%	0%	2%	2%	2%	2%	6%	0%
Adj. Flow (vph)	0	278	48	0	382	0	0	0	0	391	0	290
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	278	48	0	382	0	0	0	0	391	290	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		34			34			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type		NA	Perm	Perm	NA					Split	NA	
Protected Phases		2 11 14			6 11 14					4	4	
Permitted Phases		2 11 14		6 11 14								
Detector Phase		2 11 14		6 11 14		6 11 14				4	4	
Switch Phase												
Minimum Initial (s)		7.0		7.0						7.0		
Minimum Split (s)		13.0		13.0						13.0		
Total Split (s)		21.0		21.0						21.0		
Total Split (%)		28.0%		28.0%						28.0%		
Yellow Time (s)		3.5		3.5						3.5		
All-Red Time (s)		1.5		1.5						1.5		
Lost Time Adjust (s)		0.0		0.0						0.0		
Total Lost Time (s)		5.0		5.0						5.0		
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode		None		None						None		
Act Effect Green (s)		48.0	48.0		48.0					16.0	16.0	
Actuated g/C Ratio		0.64	0.64		0.64					0.21	0.21	
v/c Ratio		0.12	0.05		0.17					0.55	0.39	

Lanes, Volumes, Timings
101: Flournoy Lucas Rd & LA 3132 SB

LA 3132 (Inner Loop) Extension - Stage 0 Study

Lane Group	ø1	ø2	ø6	ø8	ø11	ø12	ø14
Lane Configurations							
Volume (vph)							
Ideal Flow (vphpl)							
Storage Length (ft)							
Storage Lanes							
Taper Length (ft)							
Lane Util. Factor							
Frt							
Flt Protected							
Satd. Flow (prot)							
Flt Permitted							
Satd. Flow (perm)							
Right Turn on Red							
Satd. Flow (RTOR)							
Link Speed (mph)							
Link Distance (ft)							
Travel Time (s)							
Peak Hour Factor							
Heavy Vehicles (%)							
Adj. Flow (vph)							
Shared Lane Traffic (%)							
Lane Group Flow (vph)							
Enter Blocked Intersection							
Lane Alignment							
Median Width(ft)							
Link Offset(ft)							
Crosswalk Width(ft)							
Two way Left Turn Lane							
Headway Factor							
Turning Speed (mph)							
Turn Type							
Protected Phases	1	2	6	8	11	12	14
Permitted Phases							
Detector Phase							
Switch Phase							
Minimum Initial (s)	4.0	15.0	15.0	15.0	5.0	15.0	4.0
Minimum Split (s)	10.0	21.0	21.0	21.0	11.0	21.0	20.0
Total Split (s)	12.0	21.0	21.0	21.0	12.0	21.0	21.0
Total Split (%)	16%	28%	28%	28%	16%	28%	28%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	0.5
Lost Time Adjust (s)							
Total Lost Time (s)							
Lead/Lag							
Lead-Lag Optimize?							
Recall Mode	None	Min	Min	Min	None	None	None
Act Effect Green (s)							
Actuated g/C Ratio							
v/c Ratio							

Lanes, Volumes, Timings
101: Flournoy Lucas Rd & LA 3132 SB

LA 3132 (Inner Loop) Extension - Stage 0 Study

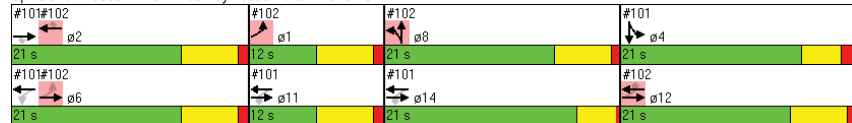


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay		5.4	1.8		7.6					29.8	1.5	
Queue Delay		0.0	0.0		0.0					0.0	0.0	
Total Delay		5.4	1.8		7.6					29.8	1.5	
LOS		A	A		A					C	A	
Approach Delay		4.9			7.6						17.8	
Approach LOS		A			A						B	
Queue Length 50th (ft)		23	0		68					84	0	
Queue Length 95th (ft)		36	10		95					126	0	
Internal Link Dist (ft)		906			569		634				551	
Turn Bay Length (ft)			450							250		
Base Capacity (vph)		2287	1051		2310					705	743	
Starvation Cap Reductn		0	0		0					0	0	
Spillback Cap Reductn		0	0		0					0	0	
Storage Cap Reductn		0	0		0					0	0	
Reduced v/c Ratio		0.12	0.05		0.17					0.55	0.39	

Intersection Summary

Area Type:	Other
Cycle Length:	75
Actuated Cycle Length:	75
Natural Cycle:	75
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.55
Intersection Signal Delay:	12.0
Intersection LOS:	B
Intersection Capacity Utilization:	55.3%
ICU Level of Service:	B
Analysis Period (min):	15

Splits and Phases: 101: Flournoy Lucas Rd & LA 3132 SB



Lanes, Volumes, Timings
101: Flournoy Lucas Rd & LA 3132 SB

LA 3132 (Inner Loop) Extension - Stage 0 Study

Lane Group	ø1	ø2	ø6	ø8	ø11	ø12	ø14
Control Delay							
Queue Delay							
Total Delay							
LOS							
Approach Delay							
Approach LOS							
Queue Length 50th (ft)							
Queue Length 95th (ft)							
Internal Link Dist (ft)							
Turn Bay Length (ft)							
Base Capacity (vph)							
Starvation Cap Reductn							
Spillback Cap Reductn							
Storage Cap Reductn							
Reduced v/c Ratio							

Intersection Summary

Area Type:	Other
Cycle Length:	75
Actuated Cycle Length:	75
Natural Cycle:	75
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.55
Intersection Signal Delay:	12.0
Intersection LOS:	B
Intersection Capacity Utilization:	55.3%
ICU Level of Service:	B
Analysis Period (min):	15

Lanes, Volumes, Timings
102: Flournoy Lucas Rd & LA3132 NB

LA 3132 (Inner Loop) Extension - Stage 0 Study

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗			↖	↗	↖	↗				
Volume (vph)	115	501	0	0	321	309	0	0	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	0		85	0		650	0		0
Storage Lanes	1		0	0		1	1		0	0		0
Taper Length (ft)	50			50			50			50		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00
Frt						0.850						
Flt Protected	0.950											
Satd. Flow (prot)	1770	3438	0	0	3574	1482	1805	1805	0	0	0	0
Flt Permitted	0.523											
Satd. Flow (perm)	974	3438	0	0	3574	1482	1805	1805	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						372						
Link Speed (mph)		45			45		45				45	
Link Distance (ft)		649			750		719				607	
Travel Time (s)		9.8			11.4		10.9				9.2	
Peak Hour Factor	0.94	0.94	0.94	0.83	0.83	0.83	0.80	0.80	0.80	0.92	0.92	0.92
Heavy Vehicles (%)	2%	5%	0%	0%	1%	9%	0%	0%	0%	0%	2%	0%
Adj. Flow (vph)	122	533	0	0	387	372	0	0	0	0	0	0
Shared Lane Traffic (%)							0%					
Lane Group Flow (vph)	122	533	0	0	387	372	0	0	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			34			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA			NA	Perm	Split					
Protected Phases	1	6 12			2 12		8	8				
Permitted Phases	6 12					2 12						
Detector Phase	1	6 12			2 12	2 12	8	8				
Switch Phase												
Minimum Initial (s)	4.0						15.0	15.0				
Minimum Split (s)	10.0						21.0	21.0				
Total Split (s)	12.0						21.0	21.0				
Total Split (%)	16.0%						28.0%	28.0%				
Yellow Time (s)	5.0						5.0	5.0				
All-Red Time (s)	1.0						1.0	1.0				
Lost Time Adjust (s)	0.0						0.0	0.0				
Total Lost Time (s)	6.0						6.0	6.0				
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None						Min	Min				
Act Effect Green (s)	41.9	36.0			36.0	36.0						
Actuated g/C Ratio	0.56	0.48			0.48	0.48						
v/c Ratio	0.20	0.32			0.23	0.41						

Lanes, Volumes, Timings
102: Flournoy Lucas Rd & LA3132 NB

LA 3132 (Inner Loop) Extension - Stage 0 Study

Lane Group	ø2	ø4	ø6	ø11	ø12	ø14
Lane Configurations						
Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Heavy Vehicles (%)						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Enter Blocked Intersection						
Lane Alignment						
Median Width(ft)						
Link Offset(ft)						
Crosswalk Width(ft)						
Two way Left Turn Lane						
Headway Factor						
Turning Speed (mph)						
Turn Type						
Protected Phases	2	4	6	11	12	14
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	15.0	7.0	15.0	5.0	15.0	4.0
Minimum Split (s)	21.0	13.0	21.0	11.0	21.0	20.0
Total Split (s)	21.0	21.0	21.0	12.0	21.0	21.0
Total Split (%)	28%	28%	28%	16%	28%	28%
Yellow Time (s)	5.0	3.5	5.0	5.0	5.0	3.5
All-Red Time (s)	1.0	1.5	1.0	1.0	1.0	0.5
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	Min	None	Min	None	None	None
Act Effect Green (s)						
Actuated g/C Ratio						
v/c Ratio						

Lanes, Volumes, Timings
102: Flournoy Lucas Rd & LA3132 NB

LA 3132 (Inner Loop) Extension - Stage 0 Study

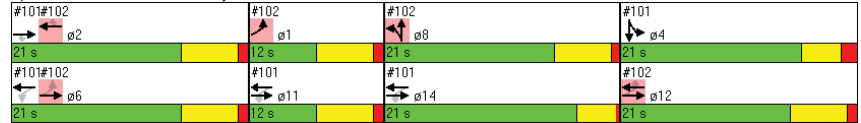


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	7.5	3.6			11.8	2.9						
Queue Delay	0.0	0.0			0.0	0.0						
Total Delay	7.5	3.6			11.8	2.9						
LOS	A	A			B	A						
Approach Delay		4.3			7.4							
Approach LOS		A			A							
Queue Length 50th (ft)	19	19			52	0						
Queue Length 95th (ft)	36	26			71	30						
Internal Link Dist (ft)		569			670		639				527	
Turn Bay Length (ft)	200					85						
Base Capacity (vph)	609	1650			1716	905						
Starvation Cap Reductn	0	0			0	0						
Spillback Cap Reductn	0	0			0	0						
Storage Cap Reductn	0	0			0	0						
Reduced v/c Ratio	0.20	0.32			0.23	0.41						

Intersection Summary

Area Type:	Other
Cycle Length:	75
Actuated Cycle Length:	75
Natural Cycle:	75
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.55
Intersection Signal Delay:	6.0
Intersection LOS:	A
Intersection Capacity Utilization:	55.3%
ICU Level of Service:	B
Analysis Period (min):	15

Splits and Phases: 102: Flournoy Lucas Rd & LA3132 NB



Lanes, Volumes, Timings
102: Flournoy Lucas Rd & LA3132 NB

LA 3132 (Inner Loop) Extension - Stage 0 Study

Lane Group	ø2	ø4	ø6	ø11	ø12	ø14
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						
Queue Length 50th (ft)						
Queue Length 95th (ft)						
Internal Link Dist (ft)						
Turn Bay Length (ft)						
Base Capacity (vph)						
Starvation Cap Reductn						
Spillback Cap Reductn						
Storage Cap Reductn						
Reduced v/c Ratio						

Intersection Summary

Area Type:	Other
Cycle Length:	75
Actuated Cycle Length:	75
Natural Cycle:	75
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.55
Intersection Signal Delay:	6.0
Intersection LOS:	A
Intersection Capacity Utilization:	55.3%
ICU Level of Service:	B
Analysis Period (min):	15

Lanes, Volumes, Timings
103: LA 1 & Flounroy Lucas Rd

LA 3132 (Inner Loop) Extension - Stage 0 Study

	↖	→	↗	↙	←	↖	↗	↙	↘	↑	↖	↗	↙	↘	↓	↖
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR				
Lane Configurations	↖	↗		↙	↘	↘	↖	↗		↖	↗	↘	↘	↘		↖
Volume (vph)	501	167	0	0	10	9	45	305	3	0	355	585				
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900				
Storage Length (ft)	0	0	0	0	0	0	125	0	165	165						
Storage Lanes	1	0	0	0	0	1	0	1	0	1						
Taper Length (ft)	50			50			50		50							
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00				
Frt					0.935		0.998				0.850					
Flt Protected	0.950					0.950										
Satd. Flow (prot)	1787	1863	0	0	1758	0	1570	3369	0	1900	3438	1599				
Flt Permitted	0.345					0.395										
Satd. Flow (perm)	649	1863	0	0	1758	0	653	3369	0	1900	3438	1599				
Right Turn on Red			Yes			Yes		Yes				No				
Satd. Flow (RTOR)					11		1									
Link Speed (mph)	50			50		55		55				55				
Link Distance (ft)	784			651		1092		934				11.6				
Travel Time (s)	10.7			8.9		13.5		11.6				11.6				
Peak Hour Factor	0.89	0.89	0.89	0.80	0.80	0.80	0.83	0.83	0.83	0.81	0.81	0.81				
Heavy Vehicles (%)	1%	2%	33%	0%	2%	0%	15%	7%	0%	0%	5%	1%				
Adj. Flow (vph)	563	188	0	0	12	11	54	367	4	0	438	722				
Shared Lane Traffic (%)																
Lane Group Flow (vph)	563	188	0	0	23	0	54	371	0	0	438	722				
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No				
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right				
Median Width(ft)	24			0		0	12		12		12					
Link Offset(ft)	0			0		0	0		0		0					
Crosswalk Width(ft)	16			16		16		16			16					
Two way Left Turn Lane																
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
Turning Speed (mph)	15		9	15		9	15		9	15		9				
Turn Type	pm+pt	NA		Perm	NA	pm+pt	NA		pm+pt	NA	pt+ov					
Protected Phases	3	8		4		4		1	6		5	2	2	3		
Permitted Phases	8			4		6		2			2					
Detector Phase	3	8		4	4		1	6		5	2	2	3			
Switch Phase																
Minimum Initial (s)	5.0	10.0		7.0	7.0		7.0	15.0		5.0	15.0					
Minimum Split (s)	11.5	16.5		13.5	13.5		15.0	23.0		13.0	23.0					
Total Split (s)	30.0	60.0		30.0	30.0		15.0	60.0		15.0	60.0					
Total Split (%)	22.2%	44.4%		22.2%	22.2%		11.1%	44.4%		11.1%	44.4%					
Yellow Time (s)	5.0	5.0		5.0	5.0		5.5	5.5		5.5	5.5					
All-Red Time (s)	1.5	1.5		1.5	1.5		2.5	2.5		2.5	2.5					
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0					
Total Lost Time (s)	6.5	6.5		6.5	6.5		8.0	8.0		8.0	8.0					
Lead/Lag	Lead			Lag	Lag		Lead	Lag		Lead	Lag					
Lead-Lag Optimize?	Yes			Yes	Yes		Yes	Yes		Yes	Yes					
Recall Mode	None	None		None	None		None	Min		None	Min					
Act Effect Green (s)	34.4	34.4		10.3	10.3		49.5	49.5		38.4	74.7					
Actuated g/C Ratio	0.34	0.34		0.10	0.10		0.50	0.50		0.38	0.75					
v/c Ratio	1.08	0.29		0.12	0.12		0.14	0.22		0.33	0.60					

Lanes, Volumes, Timings
103: LA 1 & Flounroy Lucas Rd

LA 3132 (Inner Loop) Extension - Stage 0 Study

	↖	→	↗	↙	←	↖	↗	↙	↘	↑	↖	↗	↙	↘	↓	↖
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR				
Control Delay	98.1	29.7					36.4				13.4	13.7			22.5	12.6
Queue Delay	0.0	0.0					0.0				0.0	0.0			0.0	0.0
Total Delay	98.1	29.7					36.4				13.4	13.7			22.5	12.6
LOS	F	C					D				B	B			C	B
Approach Delay		81.0					36.4				13.7				16.4	
Approach LOS		F					D				B				B	
Queue Length 50th (ft)	~471	106					9				19	72			115	299
Queue Length 95th (ft)	#704	170					32				37	94			140	368
Internal Link Dist (ft)		704					571				1012				854	
Turn Bay Length (ft)										125						165
Base Capacity (vph)	520	1107					467			395	2181				1985	1171
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	1.08	0.17					0.05			0.14	0.17				0.22	0.62

Intersection Summary

Area Type: Other

Cycle Length: 135

Actuated Cycle Length: 99.9

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.08

Intersection Signal Delay: 36.7

Intersection LOS: D

Intersection Capacity Utilization 71.5%

ICU Level of Service C

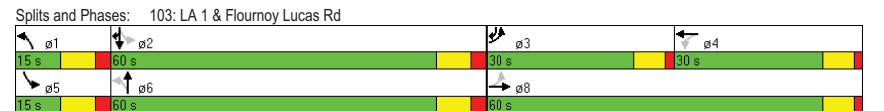
Analysis Period (min) 15

~ 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.



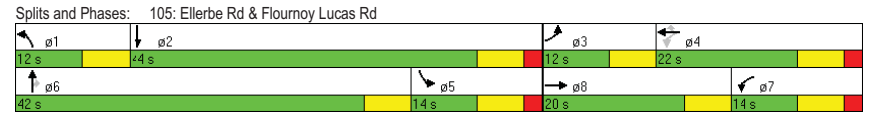
Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
 105: Ellerbe Rd & Flournoy Lucas Rd

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗	↘	↖	↗	↘	↖	↗	↘	↖	↗	↘
Volume (vph)	11	102	66	134	146	0	41	483	72	29	1150	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	140		150	150		0	115		120	150		0
Storage Lanes	1		0	1		1	1		1	1		0
Taper Length (ft)	50			50			50			50		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Frt		0.941							0.850		0.997	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1805	1766	0	1787	1863	1900	1805	3539	1599	1752	3530	0
Flt Permitted	0.950			0.636			0.950			0.950		
Satd. Flow (perm)	1805	1766	0	1196	1863	1900	1805	3539	1599	1752	3530	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		31							86			2
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		848			838			697			896	
Travel Time (s)		12.8			12.7			10.6			13.6	
Peak Hour Factor	0.87	0.87	0.87	0.89	0.89	0.89	0.84	0.84	0.84	0.89	0.89	0.89
Heavy Vehicles (%)	0%	2%	0%	1%	2%	0%	0%	2%	1%	3%	2%	0%
Adj. Flow (vph)	13	117	76	151	164	0	49	575	86	33	1292	24
Shared Lane Traffic (%)												
Lane Group Flow (vph)	13	193	0	151	164	0	49	575	86	33	1316	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane					Yes						Yes	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Prot	NA		pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases				4		4			6			
Detector Phase	3	8		7	4	4	1	6	6	5	2	
Switch Phase												
Minimum Initial (s)	6.0	10.0		7.0	15.0	15.0	7.0	10.0	10.0	7.0	10.0	
Minimum Split (s)	12.0	20.0		14.0	22.0	22.0	12.0	15.0	15.0	14.0	17.0	
Total Split (s)	12.0	20.0		14.0	22.0	22.0	12.0	42.0	42.0	14.0	44.0	
Total Split (%)	13.3%	22.2%		15.6%	24.4%	24.4%	13.3%	46.7%	46.7%	15.6%	48.9%	
Yellow Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	0.0	0.0		2.0	2.0	2.0	0.0	0.0	0.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0	5.0		7.0	7.0	7.0	5.0	5.0	5.0	7.0	7.0	
Lead/Lag	Lead	Lead		Lag	Lag	Lag	Lead	Lead	Lead	Lag	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	Min		None	Min	Min	None	None	None	None	None	
Act Effect Green (s)	6.5	12.7		22.9	22.9		7.2	33.5	33.5	11.2	34.0	
Actuated g/C Ratio	0.08	0.16		0.29	0.29		0.09	0.42	0.42	0.14	0.43	
v/c Ratio	0.09	0.63		0.38	0.31		0.30	0.39	0.12	0.13	0.87	

Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
 105: Ellerbe Rd & Flournoy Lucas Rd

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	40.2	38.1		31.4	28.5		43.6	20.1	6.3	32.6	30.0	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	40.2	38.1		31.4	28.5		43.6	20.1	6.3	32.6	30.0	
LOS	D	D		C	C		D	C	A	C	C	
Approach Delay		38.2			29.9			20.0			30.1	
Approach LOS		D			C			C			C	
Queue Length 50th (ft)	7	86		65	71		26	78	0	18	347	
Queue Length 95th (ft)	24	150		#140	147		58	177	27	41	#491	
Internal Link Dist (ft)		768			758			617			816	
Turn Bay Length (ft)	140			150			115		120	150		
Base Capacity (vph)	162	365		396	534		162	1796	854	246	1680	
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	0.08	0.53		0.38	0.31		0.30	0.32	0.10	0.13	0.78	

Intersection Summary	
Area Type:	Other
Cycle Length:	90
Actuated Cycle Length:	79.8
Natural Cycle:	80
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.87
Intersection Signal Delay:	27.9
Intersection LOS:	C
Intersection Capacity Utilization:	65.8%
ICU Level of Service:	C
Analysis Period (min):	15
# 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.	



Lanes, Volumes, Timings

LA 3132 (Inner Loop) Extension - Stage 0 Study

107: LA 1 & Bert Kouns Industrial Loop

	↖	→	↘	↙	←	↖	↙	↘	↙	↘	↙	↘
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↖	↖↖	↖	↖	↖↖	↖	↖↖	↖↖	↖	↖↖	↖↖	↖
Volume (vph)	412	824	107	224	832	89	120	712	178	111	749	322
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	230		230	150			115	220		220	230	230
Storage Lanes	2		1	1			1	2		1	2	1
Taper Length (ft)	50			50				50			50	
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt			0.850				0.850				0.850	
Flt Protected	0.950			0.950			0.950				0.950	
Satd. Flow (prot)	3502	3539	1568	1787	3539	1583	3335	3574	1553	3502	3574	1599
Flt Permitted	0.950			0.336			0.950				0.950	
Satd. Flow (perm)	3502	3539	1568	632	3539	1583	3335	3574	1553	3502	3574	1599
Right Turn on Red			No			Yes			Yes			Yes
Satd. Flow (RTOR)						24			32			102
Link Speed (mph)		50			50			45				45
Link Distance (ft)		1652			1693			1702				1927
Travel Time (s)		22.5			23.1			25.8				29.2
Peak Hour Factor	0.98	0.98	0.98	0.91	0.91	0.91	0.85	0.85	0.85	0.91	0.91	0.91
Heavy Vehicles (%)	0%	2%	3%	1%	2%	2%	5%	1%	4%	0%	1%	1%
Adj. Flow (vph)	420	841	109	246	914	98	141	838	209	122	823	354
Shared Lane Traffic (%)												
Lane Group Flow (vph)	420	841	109	246	914	98	141	838	209	122	823	354
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane					Yes							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Prot	NA	Prot	pm+pt	NA	pt+ov	Prot	NA	pt+ov	Prot	NA	pt+ov
Protected Phases	1	6	6	5	2	2	3	8	5	8	7	4
Permitted Phases				2								1
Detector Phase	1	6	6	5	2	2	3	8	5	8	7	4
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0		5.0	10.0		5.0	10.0	
Minimum Split (s)	11.0	22.0	22.0	11.0	22.0		11.0	22.0		11.0	22.0	
Total Split (s)	21.0	36.0	36.0	21.0	36.0		20.0	40.0		13.0	33.0	
Total Split (%)	19.1%	32.7%	32.7%	19.1%	32.7%		18.2%	36.4%		11.8%	30.0%	
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5		1.5	1.5		1.5	1.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0		6.0	6.0		6.0	6.0	
Lead/Lag	Lead	Lead	Lead	Lag	Lag		Lead	Lead		Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	C-Min	C-Min	None	C-Min		None	None		None	None	
Act Effect Green (s)	15.0	30.7	30.7	31.3	31.3	39.8	10.0	31.2	52.9	8.4	29.7	50.7
Actuated g/C Ratio	0.14	0.28	0.28	0.28	0.28	0.36	0.09	0.28	0.48	0.08	0.27	0.46
v/c Ratio	0.88	0.85	0.25	0.72	0.91	0.17	0.47	0.83	0.27	0.45	0.85	0.45

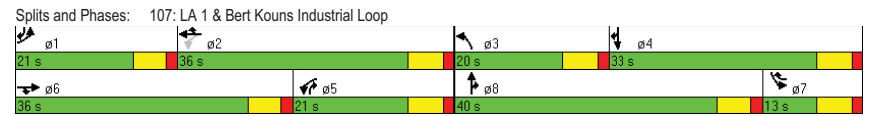
Lanes, Volumes, Timings

LA 3132 (Inner Loop) Extension - Stage 0 Study

107: LA 1 & Bert Kouns Industrial Loop

	↖	→	↘	↙	←	↖	↙	↘	↙	↘	↙	↘
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	67.2	47.5	33.0	53.0	52.2	10.9	52.1	44.3	15.0	54.9	48.1	16.0
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	67.2	47.5	33.0	53.0	52.2	10.9	52.1	44.3	15.0	54.9	48.1	16.0
LOS	E	D	C	D	D	B	D	D	B	D	D	B
Approach Delay		52.4					49.1			40.1		40.0
Approach LOS		D					D			D		D
Queue Length 50th (ft)	152	298	60	147	333	21	49	284	69	43	285	112
Queue Length 95th (ft)	#237	#403	108	#250	#462	45	75	328	108	74	#407	198
Internal Link Dist (ft)		1572			1613			1622			1847	
Turn Bay Length (ft)	230		230	150		115	220		220	230		230
Base Capacity (vph)	480	986	437	344	1008	588	424	1105	802	269	965	793
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.88	0.85	0.25	0.72	0.91	0.17	0.33	0.76	0.26	0.45	0.85	0.45

Intersection Summary	
Area Type:	Other
Cycle Length:	110
Actuated Cycle Length:	110
Offset:	100 (91%), Referenced to phase 2:WBTl and 6:EBT, Start of Green
Natural Cycle:	90
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.91
Intersection Signal Delay:	45.6
Intersection LOS:	D
Intersection Capacity Utilization:	80.1%
ICU Level of Service:	D
Analysis Period (min):	15
#	95th percentile volume exceeds capacity, queue may be longer.
	Queue shown is maximum after two cycles.



Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
108: Bert Kouns Industrial Loop & LA 3132 EB Off Ramp/LA 3132 EB On Ramp

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗	↘					↕	↖	↗	↘	↕
Volume (vph)	712	1	13	0	0	0	0	1058	179	62	1195	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		110	0		0	0		0	295		0
Storage Lanes	1		1	0		0	0		0	1		0
Taper Length (ft)	50			50			50			50		
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Fr			0.850					0.978				
Flt Protected	0.950	0.952								0.950		
Satd. Flow (prot)	1715	1718	1615	0	0	0	0	3501	0	1805	3574	0
Flt Permitted	0.950	0.952								0.083		
Satd. Flow (perm)	1715	1718	1615	0	0	0	0	3501	0	158	3574	0
Right Turn on Red			Yes			Yes		Yes			Yes	
Satd. Flow (RTOR)			9					22				
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1564			1165			530			537	
Travel Time (s)		23.7			17.7			8.0			8.1	
Peak Hour Factor	0.93	0.93	0.93	0.92	0.92	0.92	0.86	0.86	0.86	0.96	0.96	0.96
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	1%	0%
Adj. Flow (vph)	766	1	14	0	0	0	0	1230	208	65	1245	0
Shared Lane Traffic (%)	50%											
Lane Group Flow (vph)	383	384	14	0	0	0	0	1438	0	65	1245	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			27			27	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Split	NA	Perm					NA	custom	NA		
Protected Phases	4	4						6		5	2.5	
Permitted Phases			4							2		
Detector Phase	4	4	4					6		5	2.5	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0					15.0		5.0		
Minimum Split (s)	11.0	11.0	11.0					21.0		10.0		
Total Split (s)	36.0	36.0	36.0					54.0		20.0		
Total Split (%)	32.7%	32.7%	32.7%					49.1%		18.2%		
Yellow Time (s)	5.0	5.0	5.0					5.0		5.0		
All-Red Time (s)	1.0	1.0	1.0					1.0		0.0		
Lost Time Adjust (s)	0.0	0.0	0.0					0.0		0.0		
Total Lost Time (s)	6.0	6.0	6.0					6.0		5.0		
Lead/Lag								Lag		Lead		
Lead-Lag Optimize?								Yes		Yes		
Recall Mode	None	None	None					None		None		
Act Effect Green (s)	27.0	27.0	27.0					48.1		64.1	68.1	
Actuated g/C Ratio	0.25	0.25	0.25					0.45		0.60	0.64	
v/c Ratio	0.88	0.88	0.03					0.91		0.20	0.55	

Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
108: Bert Kouns Industrial Loop & LA 3132 EB Off Ramp/LA 3132 EB On Ramp

Lane Group	ø1	ø2	ø8
Lane Configurations			
Volume (vph)			
Ideal Flow (vphpl)			
Storage Length (ft)			
Storage Lanes			
Taper Length (ft)			
Lane Util. Factor			
Fr			
Flt Protected			
Satd. Flow (prot)			
Flt Permitted			
Satd. Flow (perm)			
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (mph)			
Link Distance (ft)			
Travel Time (s)			
Peak Hour Factor			
Heavy Vehicles (%)			
Adj. Flow (vph)			
Shared Lane Traffic (%)			
Lane Group Flow (vph)			
Enter Blocked Intersection			
Lane Alignment			
Median Width(ft)			
Link Offset(ft)			
Crosswalk Width(ft)			
Two way Left Turn Lane			
Headway Factor			
Turning Speed (mph)			
Turn Type			
Protected Phases	1	2	8
Permitted Phases			
Detector Phase			
Switch Phase			
Minimum Initial (s)	5.0	15.0	12.0
Minimum Split (s)	10.0	21.0	18.0
Total Split (s)	20.0	54.0	36.0
Total Split (%)	18%	49%	33%
Yellow Time (s)	5.0	5.0	5.0
All-Red Time (s)	0.0	1.0	1.0
Lost Time Adjust (s)			
Total Lost Time (s)			
Lead/Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	
Recall Mode	None	None	None
Act Effect Green (s)			
Actuated g/C Ratio			
v/c Ratio			

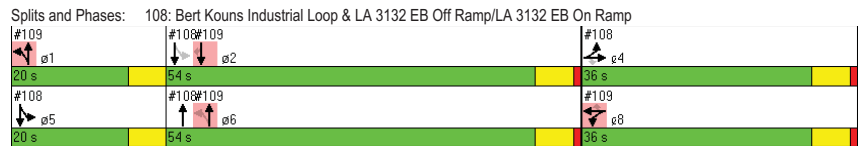
Lanes, Volumes, Timings
 108: Bert Kouns Industrial Loop & LA 3132 EB Off Ramp/LA 3132 EB On Ramp

LA 3132 (Inner Loop) Extension - Stage 0 Study

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	61.4	61.5	19.0					37.4		17.9	5.9	
Queue Delay	0.0	0.0	0.0					0.9		0.0	0.0	
Total Delay	61.4	61.5	19.0					38.3		17.9	6.0	
LOS	E	E	B					D		B	A	
Approach Delay		60.7						38.3			6.6	
Approach LOS		E						D			A	
Queue Length 50th (ft)	267	267	3					491		7	81	
Queue Length 95th (ft)	#428	#429	18					#559		m23	114	
Internal Link Dist (ft)		1484				1085		450			457	
Turn Bay Length (ft)			110							295		
Base Capacity (vph)	481	482	459					1583		326	2271	
Starvation Cap Reductn	0	0	0					0		0	74	
Spillback Cap Reductn	0	0	0					34		0	0	
Storage Cap Reductn	0	0	0					0		0	0	
Reduced v/c Ratio	0.80	0.80	0.03					0.93		0.20	0.57	

Intersection Summary

Area Type: Other
 Cycle Length: 110
 Actuated Cycle Length: 107.2
 Natural Cycle: 80
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.91
 Intersection Signal Delay: 31.5 Intersection LOS: C
 Intersection Capacity Utilization 73.0% ICU Level of Service D
 Analysis Period (min) 15
 # 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.



Lanes, Volumes, Timings
 108: Bert Kouns Industrial Loop & LA 3132 EB Off Ramp/LA 3132 EB On Ramp

LA 3132 (Inner Loop) Extension - Stage 0 Study

Lane Group	ø1	ø2	ø8
Control Delay			
Queue Delay			
Total Delay			
LOS			
Approach Delay			
Approach LOS			
Queue Length 50th (ft)			
Queue Length 95th (ft)			
Internal Link Dist (ft)			
Turn Bay Length (ft)			
Base Capacity (vph)			
Starvation Cap Reductn			
Spillback Cap Reductn			
Storage Cap Reductn			
Reduced v/c Ratio			

Intersection Summary

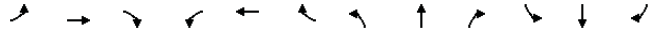
Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
109: Bert Kouns Industrial Loop & LA 3132 WB On Ramp/LA 3132 WB Off Ramp

	↖	→	↗	↙	←	↖	↗	↖	↗	↖	↗	↖
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↕	↕	↕	↕			↕	↕
Volume (vph)	0	0	0	107	0	38	31	1770	0	0	1150	629
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	0	0	0	200	295	0	0	0	0	115
Storage Lanes	0	0	0	0	0	1	1	0	0	0	0	1
Taper Length (ft)	50	0	0	50	0	0	50	0	0	50	0	0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt						0.850					0.850	
Flt Protected					0.950		0.950					
Satd. Flow (prot)	0	0	0	0	1805	1615	1752	3539	0	0	3574	1583
Flt Permitted					0.950		0.105					
Satd. Flow (perm)	0	0	0	0	1805	1615	194	3539	0	0	3574	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						20						338
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		311			1075			537			687	
Travel Time (s)		4.7			16.3			8.1			10.4	
Peak Hour Factor	0.92	0.92	0.92	0.82	0.82	0.82	0.96	0.96	0.96	0.95	0.95	0.95
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	3%	2%	0%	0%	1%	2%
Adj. Flow (vph)	0	0	0	130	0	46	32	1844	0	0	1211	662
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	130	46	32	1844	0	0	1211	662
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)	0	0	0	0	0	0	0	27	0	0	0	0
Link Offset(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Crosswalk Width(ft)	16	0	0	16	0	0	16	0	0	16	0	16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15	15	15	9	15	15	9	15	15	9
Turn Type				Split	NA	Perm	custom	NA			NA	Perm
Protected Phases				8	8	8	1	1	6		2	
Permitted Phases						8	6					2
Detector Phase				8	8	8	1	1	6		2	2
Switch Phase												
Minimum Initial (s)				12.0	12.0	12.0	5.0				15.0	15.0
Minimum Split (s)				18.0	18.0	18.0	10.0				21.0	21.0
Total Split (s)				36.0	36.0	36.0	20.0				54.0	54.0
Total Split (%)				32.7%	32.7%	32.7%	18.2%				49.1%	49.1%
Yellow Time (s)				5.0	5.0	5.0	5.0				5.0	5.0
All-Red Time (s)				1.0	1.0	1.0	0.0				1.0	1.0
Lost Time Adjust (s)				0.0	0.0	0.0	0.0				0.0	0.0
Total Lost Time (s)				6.0	6.0	6.0	5.0				6.0	6.0
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Recall Mode				None	None	None	None				None	None
Act Effect Green (s)				27.0	27.0	27.0	64.1	69.1			48.1	48.1
Actuated g/C Ratio				0.25	0.25	0.25	0.60	0.64			0.45	0.45
v/c Ratio				0.29	0.11	0.10	0.10	0.81			0.75	0.74

Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
109: Bert Kouns Industrial Loop & LA 3132 WB On Ramp/LA 3132 WB Off Ramp

	↖	→	↗
Lane Group	ø4	ø5	ø6
Lane Configurations			
Volume (vph)			
Ideal Flow (vphpl)			
Storage Length (ft)			
Storage Lanes			
Taper Length (ft)			
Lane Util. Factor			
Frt			
Flt Protected			
Satd. Flow (prot)			
Flt Permitted			
Satd. Flow (perm)			
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (mph)			
Link Distance (ft)			
Travel Time (s)			
Peak Hour Factor			
Heavy Vehicles (%)			
Adj. Flow (vph)			
Shared Lane Traffic (%)			
Lane Group Flow (vph)			
Enter Blocked Intersection			
Lane Alignment			
Median Width(ft)			
Link Offset(ft)			
Crosswalk Width(ft)			
Two way Left Turn Lane			
Headway Factor			
Turning Speed (mph)			
Turn Type			
Protected Phases	4	5	6
Permitted Phases			
Detector Phase			
Switch Phase			
Minimum Initial (s)	5.0	5.0	15.0
Minimum Split (s)	11.0	10.0	21.0
Total Split (s)	36.0	20.0	54.0
Total Split (%)	33%	18%	49%
Yellow Time (s)	5.0	5.0	5.0
All-Red Time (s)	1.0	0.0	1.0
Lost Time Adjust (s)			
Total Lost Time (s)			
Lead/Lag		Lead	Lag
Lead-Lag Optimize?		Yes	Yes
Recall Mode	None	None	None
Act Effect Green (s)			
Actuated g/C Ratio			
v/c Ratio			

Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
 109: Bert Kouns Industrial Loop & LA 3132 WB On Ramp/LA 3132 WB Off Ramp

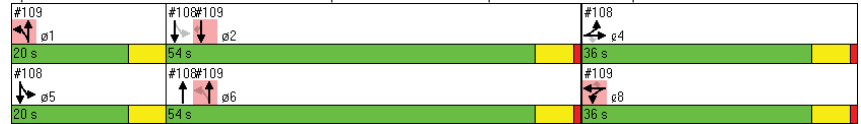


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay					33.8	20.3	8.8	15.2			28.9	17.5
Queue Delay					0.0	0.0	0.0	1.3			0.0	0.0
Total Delay					33.8	20.3	8.8	16.4			28.9	17.5
LOS					C	C	A	B			C	B
Approach Delay					30.3			16.3			24.9	
Approach LOS					C			B			C	
Queue Length 50th (ft)					72	14	10	326			375	193
Queue Length 95th (ft)					112	38	m11	388			462	353
Internal Link Dist (ft)		231			995			457			607	
Turn Bay Length (ft)						200	295					115
Base Capacity (vph)					506	467	334	2282			1604	896
Starvation Cap Reductn					0	0	0	232			0	0
Spillback Cap Reductn					0	0	0	0			0	0
Storage Cap Reductn					0	0	0	0			0	0
Reduced v/c Ratio					0.26	0.10	0.10	0.90			0.75	0.74

Intersection Summary

Area Type: Other
 Cycle Length: 110
 Actuated Cycle Length: 107.2
 Natural Cycle: 80
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.91
 Intersection Signal Delay: 21.0 Intersection LOS: C
 Intersection Capacity Utilization 73.0% ICU Level of Service D
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 109: Bert Kouns Industrial Loop & LA 3132 WB On Ramp/LA 3132 WB Off Ramp



Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
 109: Bert Kouns Industrial Loop & LA 3132 WB On Ramp/LA 3132 WB Off Ramp

Lane Group	ø4	ø5	ø6
Control Delay			
Queue Delay			
Total Delay			
LOS			
Approach Delay			
Approach LOS			
Queue Length 50th (ft)			
Queue Length 95th (ft)			
Internal Link Dist (ft)			
Turn Bay Length (ft)			
Base Capacity (vph)			
Starvation Cap Reductn			
Spillback Cap Reductn			
Storage Cap Reductn			
Reduced v/c Ratio			

Intersection Summary

Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
110: Ashley River Dr SB & Flournoy Lucas Rd

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↕	↔	↔	↕	↔	↔	↕	↔	↔	↕	↔
Volume (vph)	0	255	246	108	619	1	0	0	0	7	0	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	180		0	120		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	50			50			50			50		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.926									0.918	
Frt Protected				0.950							0.981	
Satd. Flow (prot)	1900	3228	0	1805	3406	0	0	0	0	0	1711	0
Frt Permitted				0.950							0.981	
Satd. Flow (perm)	1900	3228	0	1805	3406	0	0	0	0	0	1711	0
Link Speed (mph)		45			45				30			30
Link Distance (ft)		750			127				320			340
Travel Time (s)		11.4			1.9				7.3			7.7
Peak Hour Factor	0.92	0.92	0.92	0.85	0.85	0.85	0.92	0.92	0.92	0.80	0.80	0.80
Heavy Vehicles (%)	0%	6%	1%	0%	6%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	277	267	127	728	1	0	0	0	9	0	14
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	544	0	127	729	0	0	0	0	0	23	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			14				0			0
Link Offset(ft)		0			0				0			0
Crosswalk Width(ft)		16			16				16			16
Two way Left Turn Lane					Yes							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free				Stop			Stop

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	34.3%
Analysis Period (min)	15
ICU Level of Service	A

HCM Unsignalized Intersection Capacity Analysis LA 3132 (Inner Loop) Extension - Stage 0 Study
110: Ashley River Dr SB & Flournoy Lucas Rd

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↕	↔	↔	↕	↔	↔	↕	↔	↔	↕	↔
Volume (veh/h)	0	255	246	108	619	1	0	0	0	7	0	11
Sign Control		Free			Free				Stop			Stop
Grade		0%			0%				0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.85	0.85	0.85	0.92	0.92	0.92	0.80	0.80	0.80
Hourly flow rate (vph)	0	277	267	127	728	1	0	0	0	9	0	14
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)		750										
pX, platoon unblocked					0.92				0.92	0.92	0.92	0.92
vC, conflicting volume	729				545				1043	1394	272	1122
vC1, stage 1 conf vol									411	411		983
vC2, stage 2 conf vol									632	984		139
vCu, unblocked vol	729				332				874	1256	37	959
tC, single (s)	4.1				4.1				7.5	6.5	6.9	7.5
tC, 2 stage (s)									6.5	5.5		6.5
tF (s)	2.2				2.2				3.5	4.0	3.3	3.5
p0 queue free %	100				89				100	100	100	96
cM capacity (veh/h)	884				1140				360	277	952	234

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1
Volume Total	0	185	360	127	485	244	22
Volume Left	0	0	0	127	0	0	9
Volume Right	0	0	267	0	0	1	14
cSH	1700	1700	1700	1140	1700	1700	382
Volume to Capacity	0.00	0.11	0.21	0.11	0.29	0.14	0.06
Queue Length 95th (ft)	0	0	0	9	0	0	5
Control Delay (s)	0.0	0.0	0.0	8.6	0.0	0.0	15.0
Lane LOS				A			C
Approach Delay (s)	0.0			1.3			15.0
Approach LOS							C

Intersection Summary	
Average Delay	1.0
Intersection Capacity Utilization	34.3%
Analysis Period (min)	15
ICU Level of Service	A

Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
111: Ashley River Dr NB & Flournoy Lucas Rd

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑	↘	↗
Volume (vph)	262	0	0	603	125	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt						0.850
Fit Protected					0.950	
Satd. Flow (prot)	3406	0	0	3438	1805	1568
Fit Permitted				0.950		
Satd. Flow (perm)	3406	0	0	3438	1805	1568
Link Speed (mph)	45			45	30	
Link Distance (ft)	127			2333	283	
Travel Time (s)	1.9			35.3	6.4	
Peak Hour Factor	0.88	0.88	0.80	0.80	0.80	0.80
Heavy Vehicles (%)	6%	0%	0%	5%	0%	3%
Adj. Flow (vph)	298	0	0	754	156	81
Shared Lane Traffic (%)						
Lane Group Flow (vph)	298	0	0	754	156	81
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	14			14	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane	Yes			Yes		
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	30.3%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis LA 3132 (Inner Loop) Extension - Stage 0 Study
111: Ashley River Dr NB & Flournoy Lucas Rd

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑	↘	↗
Volume (veh/h)	262	0	0	603	125	65
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.88	0.88	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	298	0	0	754	156	81
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)	877					
pX, platoon unblocked						
vC, conflicting volume			298		675	149
vC1, stage 1 conf vol					298	
vC2, stage 2 conf vol					377	
vCu, unblocked vol			298		675	149
tC, single (s)			4.1		6.8	7.0
tC, 2 stage (s)					5.8	
tF (s)			2.2		3.5	3.3
p0 queue free %			100		73	91
cM capacity (veh/h)			1275		581	868

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2
Volume Total	149	149	377	377	156	81
Volume Left	0	0	0	0	156	0
Volume Right	0	0	0	0	0	81
cSH	1700	1700	1700	1700	581	868
Volume to Capacity	0.09	0.09	0.22	0.22	0.27	0.09
Queue Length 95th (ft)	0	0	0	0	27	8
Control Delay (s)	0.0	0.0	0.0	0.0	13.5	9.6
Lane LOS					B	A
Approach Delay (s)	0.0		0.0		12.1	
Approach LOS					B	

Intersection Summary	
Average Delay	2.2
Intersection Capacity Utilization	30.3%
Analysis Period (min)	15
	ICU Level of Service A

Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
112: Flournoy Lucas Rd & Oaks Retirement Rd

	↖	→	←	↗	↘	↙
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖	↗	↗		↖	↗
Volume (vph)	14	313	575	24	21	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	375			0	0	0
Storage Lanes	1			0	1	1
Taper Length (ft)	50				50	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Frt			0.994			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1805	3471	3424	0	1805	1553
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1805	3471	3424	0	1805	1553
Link Speed (mph)		45	45		30	
Link Distance (ft)		2333	1050		729	
Travel Time (s)		35.3	15.9		16.6	
Peak Hour Factor	0.88	0.88	0.80	0.80	0.80	0.80
Heavy Vehicles (%)	0%	4%	5%	0%	0%	4%
Adj. Flow (vph)	16	356	719	30	26	35
Shared Lane Traffic (%)						
Lane Group Flow (vph)	16	356	749	0	26	35
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		14	14		28	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane		Yes	Yes			
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	26.7%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis LA 3132 (Inner Loop) Extension - Stage 0 Study
112: Flournoy Lucas Rd & Oaks Retirement Rd

	↖	→	←	↗	↘	↙
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖	↗	↗		↖	↗
Volume (veh/h)	14	313	575	24	21	28
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.88	0.88	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	16	356	719	30	26	35
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	749				943	374
vC1, stage 1 conf vol					734	
vC2, stage 2 conf vol					210	
vCu, unblocked vol	749				943	374
tC, single (s)	4.1				6.8	7.0
tC, 2 stage (s)					5.8	
tF (s)	2.2				3.5	3.3
p0 queue free %	98				94	94
cM capacity (veh/h)	869				417	617

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1	SB 2
Volume Total	16	178	178	479	270	26	35
Volume Left	16	0	0	0	0	26	0
Volume Right	0	0	0	0	30	0	35
cSH	869	1700	1700	1700	1700	417	617
Volume to Capacity	0.02	0.10	0.10	0.28	0.16	0.06	0.06
Queue Length 95th (ft)	1	0	0	0	0	5	4
Control Delay (s)	9.2	0.0	0.0	0.0	0.0	14.2	11.2
Lane LOS	A					B	B
Approach Delay (s)	0.4			0.0		12.5	
Approach LOS						B	

Intersection Summary	
Average Delay	0.8
Intersection Capacity Utilization	26.7%
Analysis Period (min)	15
	ICU Level of Service A

Lanes, Volumes, Timings
201: LA 1 & I-69 WB Ramp

LA 3132 (Inner Loop) Extension - Stage 0 Study

	↙	↖	↑	↗	↘	↓
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↙	↖	↑↑	↗	↘	↑↑
Volume (vph)	66	0	155	3	70	614
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300	0		0	275	
Storage Lanes	1	1		1	1	
Taper Length (ft)	50				50	
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt			0.850			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1641	1727	3034	1357	1656	3312
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1641	1727	3034	1357	1656	3312
Link Speed (mph)	40		65		65	
Link Distance (ft)	384		1426		533	
Travel Time (s)	6.5		15.0		5.6	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Heavy Vehicles (%)	10%	10%	19%	19%	9%	9%
Adj. Flow (vph)	83	0	194	4	78	682
Shared Lane Traffic (%)						
Lane Group Flow (vph)	82	0	194	4	78	682
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		76		76	
Link Offset(ft)	0		0		0	
Crosswalk Width(ft)	16		16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free		Free	

Intersection Summary

Area Type: Other
 Control Type: Unsignalized
 Intersection Capacity Utilization 27.3% ICU Level of Service A
 Analysis Period (min) 15

HCM Unsignalized Intersection Capacity Analysis LA 3132 (Inner Loop) Extension - Stage 0 Study
201: LA 1 & I-69 WB Ramp

	↙	↖	↑	↗	↘	↓
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↙	↖	↑↑	↗	↘	↑↑
Volume (veh/h)	66	0	155	3	70	614
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Hourly flow rate (vph)	82	0	194	4	78	682
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			Raised		Raised	
Median storage (veh)			3		3	
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	690	97			194	
vC1, stage 1 conf vol	194					
vC2, stage 2 conf vol	497					
vCu, unblocked vol	690	97			194	
tC, single (s)	7.0	7.1			4.3	
tC, 2 stage (s)	6.0					
tF (s)	3.6	3.4			2.3	
p0 queue free %	84	100			94	
cM capacity (veh/h)	512	915			1327	

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	82	0	97	97	4	78	341	341
Volume Left	82	0	0	0	0	78	0	0
Volume Right	0	0	0	0	4	0	0	0
cSH	512	1700	1700	1700	1700	1327	1700	1700
Volume to Capacity	0.16	0.00	0.06	0.06	0.00	0.06	0.20	0.20
Queue Length 95th (ft)	14	0	0	0	0	5	0	0
Control Delay (s)	13.4	0.0	0.0	0.0	0.0	7.9	0.0	0.0
Lane LOS	B	A				A		
Approach Delay (s)	13.4		0.0			0.8		
Approach LOS	B							

Intersection Summary

Average Delay 1.7
 Intersection Capacity Utilization 27.3% ICU Level of Service A
 Analysis Period (min) 15

Lanes, Volumes, Timings
202: LA 1 & I-69 EB Ramp

LA 3132 (Inner Loop) Extension - Stage 0 Study

	↙	↖	↑	↗	↘	↓
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↙	↖	↑↑	↗	↘	↓↑
Volume (vph)	0	16	141	53	441	239
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300	0		490	260	
Storage Lanes	1	1		1	1	
Taper Length (ft)	50				50	
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt		0.850		0.850		
Flt Protected					0.950	
Satd. Flow (prot)	1727	1468	3034	1357	1656	3312
Flt Permitted					0.950	
Satd. Flow (perm)	1727	1468	3034	1357	1656	3312
Link Speed (mph)	40		65			65
Link Distance (ft)	460		3193			1426
Travel Time (s)	7.8		33.5			15.0
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Heavy Vehicles (%)	10%	10%	19%	19%	9%	9%
Adj. Flow (vph)	0	20	176	66	490	266
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	20	176	66	490	266
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	24		76			76
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free		Free	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	35.0%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis
202: LA 1 & I-69 EB Ramp

	↙	↖	↑	↗	↘	↓
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↙	↖	↑↑	↗	↘	↓↑
Volume (veh/h)	0	16	141	53	441	239
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Hourly flow rate (vph)	0	20	176	66	490	266
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			Raised			Raised
Median storage (veh)			3			3
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1289	88			176	
vC1, stage 1 conf vol	176					
vC2, stage 2 conf vol	1113					
vCu, unblocked vol	1289	88			176	
tC, single (s)	7.0	7.1			4.3	
tC, 2 stage (s)	6.0					
tF (s)	3.6	3.4			2.3	
p0 queue free %	100	98			64	
cM capacity (veh/h)	164	927			1348	

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	0	20	88	88	66	490	133	133
Volume Left	0	0	0	0	0	490	0	0
Volume Right	0	20	0	0	66	0	0	0
cSH	1700	927	1700	1700	1700	1348	1700	1700
Volume to Capacity	0.00	0.02	0.05	0.05	0.04	0.36	0.08	0.08
Queue Length 95th (ft)	0	2	0	0	0	42	0	0
Control Delay (s)	0.0	9.0	0.0	0.0	0.0	9.2	0.0	0.0
Lane LOS	A	A				A		
Approach Delay (s)	9.0		0.0			6.0		
Approach LOS	A							

Intersection Summary	
Average Delay	4.6
Intersection Capacity Utilization	35.0%
Analysis Period (min)	15
	ICU Level of Service A

Lanes, Volumes, Timings
301: LA 1 & Gate A

LA 3132 (Inner Loop) Extension - Stage 0 Study

	↙	↖	↑	↗	↘	↓
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↙		↕		↘	↕
Volume (vph)	13	38	571	0	11	637
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	150	
Storage Lanes	1	0		0	1	
Taper Length (ft)	50				50	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Frt	0.899					
Flt Protected	0.988				0.950	
Satd. Flow (prot)	1493	0	3034	0	1656	3059
Flt Permitted	0.988				0.950	
Satd. Flow (perm)	1493	0	3034	0	1656	3059
Link Speed (mph)	40		65		65	
Link Distance (ft)	496		4385		375	
Travel Time (s)	8.5		46.0		3.9	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Heavy Vehicles (%)	13%	13%	19%	18%	9%	18%
Adj. Flow (vph)	16	48	714	0	12	708
Shared Lane Traffic (%)						
Lane Group Flow (vph)	64	0	714	0	12	708
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		66		66	
Link Offset(ft)	0		0		0	
Crosswalk Width(ft)	16		16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free		Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	27.6%
ICU Level of Service	A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis
301: LA 1 & Gate A

	↙	↖	↑	↗	↘	↓
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↙		↕		↘	↕
Volume (veh/h)	13	38	571	0	11	637
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Hourly flow rate (vph)	16	48	714	0	12	708
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			Raised		Raised	
Median storage (veh)			2		2	
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1092	357			714	
vC1, stage 1 conf vol	714					
vC2, stage 2 conf vol	378					
vCu, unblocked vol	1092	357			714	
tC, single (s)	7.1	7.2			4.3	
tC, 2 stage (s)	6.1					
tF (s)	3.6	3.4			2.3	
p0 queue free %	96	92			99	
cM capacity (veh/h)	374	609			837	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	64	476	238	12	354	354
Volume Left	16	0	0	12	0	0
Volume Right	48	0	0	0	0	0
cSH	525	1700	1700	837	1700	1700
Volume to Capacity	0.12	0.28	0.14	0.01	0.21	0.21
Queue Length 95th (ft)	10	0	0	1	0	0
Control Delay (s)	12.8	0.0	0.0	9.4	0.0	0.0
Lane LOS	B			A		
Approach Delay (s)	12.8	0.0		0.2		
Approach LOS	B					

Intersection Summary

Average Delay	0.6
Intersection Capacity Utilization	27.6%
ICU Level of Service	A
Analysis Period (min)	15

Lanes, Volumes, Timings
302: LA 1 & Gate B

LA 3132 (Inner Loop) Extension - Stage 0 Study

	↙	↖	↗	↑	↘	↙	↓
Lane Group	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Lane Configurations	↙	↖	↗	↑	↘	↙	↑
Volume (vph)	41	81	0	494	13	357	614
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	250		0	250	
Storage Lanes	1	1	1		0	1	
Taper Length (ft)	50		50			50	
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	0.95
Frt		0.850		0.996			
Flt Protected	0.950					0.950	
Satd. Flow (prot)	1517	1357	1597	3002	0	1656	2423
Flt Permitted	0.950					0.950	
Satd. Flow (perm)	1517	1357	1597	3002	0	1656	2423
Link Speed (mph)	40			65			65
Link Distance (ft)	499			1577			4385
Travel Time (s)	8.5			16.5			46.0
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.90	0.90
Heavy Vehicles (%)	19%	19%	19%	19%	49%	9%	49%
Adj. Flow (vph)	51	101	0	618	16	397	682
Shared Lane Traffic (%)							
Lane Group Flow (vph)	51	101	0	634	0	397	682
Enter Blocked Intersection	No	No	No	No	No	No	No
Lane Alignment	Left	Right	R NA	Left	Right	Left	Left
Median Width(ft)	20			66			66
Link Offset(ft)	0			0			0
Crosswalk Width(ft)	16			16			16
Two way Left Turn Lane							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	9		9	15	
Sign Control	Stop			Free			Free

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	47.2%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis
302: LA 1 & Gate B

	↙	↖	↗	↑	↘	↙	↓
Movement	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Lane Configurations	↙	↖	↗	↑	↘	↙	↑
Volume (veh/h)	41	81	0	494	13	357	614
Sign Control	Stop			Free			Free
Grade	0%			0%			0%
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.90	0.90
Hourly flow rate (vph)	51	101	0	618	16	397	682
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type				Raised			Raised
Median storage (veh)				2			2
Upstream signal (ft)							
pX, platoon unblocked				0.00			
vC, conflicting volume	1760	317	0			634	
vC1, stage 1 conf vol	626						
vC2, stage 2 conf vol	1134						
vCu, unblocked vol	1760	317	0			634	
tC, single (s)	7.2	7.3	0.0			4.3	
tC, 2 stage (s)	6.2						
tF (s)	3.7	3.5	0.0			2.3	
p0 queue free %	59	84	0			56	
cM capacity (veh/h)	125	631	0			899	

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	51	101	412	222	0	397	341	341
Volume Left	51	0	0	0	0	397	0	0
Volume Right	0	101	0	16	0	0	0	0
cSH	125	631	1700	1700	1700	899	1700	1700
Volume to Capacity	0.41	0.16	0.24	0.13	0.00	0.44	0.20	0.20
Queue Length 95th (ft)	44	14	0	0	0	57	0	0
Control Delay (s)	52.8	11.8	0.0	0.0	0.0	12.1	0.0	0.0
Lane LOS	F	B				B		
Approach Delay (s)	25.6		0.0			4.5		
Approach LOS	D							

Intersection Summary

Average Delay	4.7
Intersection Capacity Utilization	47.2%
Analysis Period (min)	15
	ICU Level of Service A

Lanes, Volumes, Timings
303: LA 1 & Gate C

LA 3132 (Inner Loop) Extension - Stage 0 Study

	↙	↖	↑	↗	↘	↓
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↕	↗		↕
Volume (vph)	0	47	472	12	0	683
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	250	
Storage Lanes	0	1		1	0	
Taper Length (ft)	50				50	
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt		0.865		0.850		
Flt Protected						
Satd. Flow (prot)	0	1325	3034	1077	0	2407
Flt Permitted						
Satd. Flow (perm)	0	1325	3034	1077	0	2407
Link Speed (mph)	40		65			65
Link Distance (ft)	508		533			1082
Travel Time (s)	8.7		5.6			11.3
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Heavy Vehicles (%)	24%	24%	19%	50%	9%	50%
Adj. Flow (vph)	0	59	590	15	0	759
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	59	590	15	0	759
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	0		76			76
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary

Area Type: Other
 Control Type: Unsignalized
 Intersection Capacity Utilization 23.0% ICU Level of Service A
 Analysis Period (min) 15

HCM Unsignalized Intersection Capacity Analysis LA 3132 (Inner Loop) Extension - Stage 0 Study
303: LA 1 & Gate C

	↙	↖	↑	↗	↘	↓
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↕	↗		↕
Volume (veh/h)	0	47	472	12	0	683
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Hourly flow rate (vph)	0	59	590	15	0	759
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			Raised			Raised
Median storage (veh)			3			3
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	969	295			605	
vC1, stage 1 conf vol	590					
vC2, stage 2 conf vol	379					
vCu, unblocked vol	969	295			605	
tC, single (s)	7.3	7.4			4.3	
tC, 2 stage (s)	6.3					
tF (s)	3.7	3.5			2.3	
p0 queue free %	100	91			100	
cM capacity (veh/h)	430	640			923	

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	59	295	295	15	379	379
Volume Left	0	0	0	0	0	0
Volume Right	59	0	0	15	0	0
cSH	640	1700	1700	1700	1700	1700
Volume to Capacity	0.09	0.17	0.17	0.01	0.22	0.22
Queue Length 95th (ft)	8	0	0	0	0	0
Control Delay (s)	11.2	0.0	0.0	0.0	0.0	0.0
Lane LOS	B					
Approach Delay (s)	11.2	0.0			0.0	
Approach LOS	B					

Intersection Summary

Average Delay 0.5
 Intersection Capacity Utilization 23.0% ICU Level of Service A
 Analysis Period (min) 15

Lanes, Volumes, Timings
304: LA 1 & Gate D

LA 3132 (Inner Loop) Extension - Stage 0 Study

	↙	↖	↑	↗	↘	↓
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↙	↖	↑↑	↗	↘	↑↑
Volume (vph)	1	18	176	0	11	241
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	250		300	280	
Storage Lanes	1	1		1	1	
Taper Length (ft)	50				50	
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt	0.850					
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1337	1196	3034	1195	1656	2270
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1337	1196	3034	1195	1656	2270
Link Speed (mph)	40		65		65	
Link Distance (ft)	501		710		505	
Travel Time (s)	8.5		7.4		5.3	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Heavy Vehicles (%)	35%	35%	19%	59%	9%	59%
Adj. Flow (vph)	1	23	220	0	12	268
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1	22	220	0	12	268
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		76		76	
Link Offset(ft)	0		0		0	
Crosswalk Width(ft)	16		16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free		Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	19.1%
ICU Level of Service	A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis
304: LA 1 & Gate D

	↙	↖	↑	↗	↘	↓
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↙	↖	↑↑	↗	↘	↑↑
Volume (veh/h)	1	18	176	0	11	241
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Hourly flow rate (vph)	1	22	220	0	12	268
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		10				
Median type			Raised		Raised	
Median storage (veh)			3		3	
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	378	110			220	
vC1, stage 1 conf vol	220					
vC2, stage 2 conf vol	158					
vCu, unblocked vol	378	110			220	
tC, single (s)	7.5	7.6			4.3	
tC, 2 stage (s)	6.5					
tF (s)	3.9	3.6			2.3	
p0 queue free %	100	97			99	
cM capacity (veh/h)	668	826			1297	

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	24	110	110	0	12	134	134
Volume Left	1	0	0	0	12	0	0
Volume Right	22	0	0	0	0	0	0
cSH	872	1700	1700	1700	1297	1700	1700
Volume to Capacity	0.03	0.06	0.06	0.00	0.01	0.08	0.08
Queue Length 95th (ft)	2	0	0	0	1	0	0
Control Delay (s)	9.5	0.0	0.0	0.0	7.8	0.0	0.0
Lane LOS	A				A		
Approach Delay (s)	9.5	0.0			0.3		
Approach LOS	A						

Intersection Summary

Average Delay	0.6
Intersection Capacity Utilization	19.1%
ICU Level of Service	A
Analysis Period (min)	15

Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
100: LA3132 NB/LA3132 SB & Flournoy Lucas Rd 2015 Alternative A PM Peak with SPU

	↖	→	↘	↙	←	↗	↘	↙	↖	↗
Lane Group	EBL	EBT	EBR2	WBL	WBT	WBR2	SEL	SER2	NWL	NWR2
Lane Configurations	↖	↖	↖	↖	↖	↖	↖	↖	↖	↖
Volume (vph)	115	149	46	0	321	309	352	261	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	350			250			0		0	
Storage Lanes	2			2			2		2	
Taper Length (ft)	50			50			50		50	
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	1.00	0.97	1.00
Frt			0.850			0.850		0.850		0.850
Flt Protected	0.950						0.950			
Satd. Flow (prot)	3433	3574	1599	3686	3610	1482	3303	1615	3686	1900
Flt Permitted	0.950						0.950			
Satd. Flow (perm)	3433	3574	1599	3686	3610	1482	3303	1615	3686	1900
Right Turn on Red			Yes			Yes		Yes		Yes
Satd. Flow (RTOR)			48			372		290		
Link Speed (mph)		45			45					
Link Distance (ft)		749			713					
Travel Time (s)		11.3			10.8					
Peak Hour Factor	0.94	0.94	0.95	0.83	0.83	0.83	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	1%	1%	0%	0%	9%	6%	0%	0%	0%
Adj. Flow (vph)	122	159	48	0	387	372	391	290	0	0
Shared Lane Traffic (%)										
Lane Group Flow (vph)	122	159	48	0	387	372	391	290	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Right	Left	Right
Median Width(ft)		24			34					
Link Offset(ft)		0			0					
Crosswalk Width(ft)		16			16					
Two way Left Turn Lane										
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15	9	15	9
Turn Type	Prot	NA	Free	Prot	NA	Free	Prot	Free	Prot	Free
Protected Phases	5	2		1	6		4		8	
Permitted Phases			Free			Free		Free		Free
Detector Phase	5	2		1	6		4		8	
Switch Phase										
Minimum Initial (s)	4.0	15.0		4.0	15.0		4.0		4.0	
Minimum Split (s)	10.0	21.0		10.0	21.0		22.0		10.0	
Total Split (s)	19.0	45.0		10.0	36.0		35.0		35.0	
Total Split (%)	21.1%	50.0%		11.1%	40.0%		38.9%		38.9%	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0		5.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0		1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0		0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0		6.0		6.0	
Lead/Lag	Lag	Lag		Lead	Lead					
Lead-Lag Optimize?	Yes	Yes		Yes	Yes					
Recall Mode	None	Min		None	Min		None		None	
Act Effect Green (s)	7.5	26.1	49.9		15.8	49.9	11.4	49.9		
Actuated g/C Ratio	0.15	0.52	1.00		0.32	1.00	0.23	1.00		
v/c Ratio	0.24	0.09	0.03		0.34	0.25	0.52	0.18		

Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
100: LA3132 NB/LA3132 SB & Flournoy Lucas Rd 2015 Alternative A PM Peak with SPU

	↖	→	↘	↙	←	↗	↘	↙	↖	↗
Lane Group	EBL	EBT	EBR2	WBL	WBT	WBR2	SEL	SER2	NWL	NWR2
Control Delay	22.1	6.2	0.0		16.0	0.4	20.4	0.2		
Queue Delay	0.0	0.0	0.0		0.0	0.0	0.0	0.0		
Total Delay	22.1	6.2	0.0		16.0	0.4	20.4	0.2		
LOS	C	A	A		B	A	C	A		
Approach Delay		11.2			8.4					
Approach LOS		B			A					
Queue Length 50th (ft)	17	10	0		48	0	54	0		
Queue Length 95th (ft)	40	24	0		83	0	95	0		
Internal Link Dist (ft)		669			633					
Turn Bay Length (ft)	350		450			350		600		
Base Capacity (vph)	926	2802	1599		2246	1482	1986	1615		
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	0.13	0.06	0.03		0.17	0.25	0.20	0.18		

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 49.9

Natural Cycle: 55

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.52

Intersection Signal Delay: 10.2

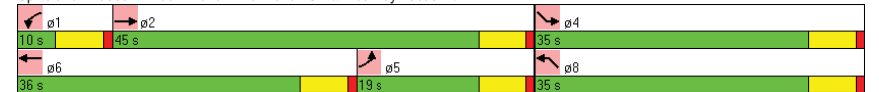
Intersection LOS: B

Intersection Capacity Utilization 39.2%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 100: LA3132 NB/LA3132 SB & Flournoy Lucas Rd



Lanes, Volumes, Timings
101: Flournoy Lucas Rd & LA 3132 SB

LA 3132 (Inner Loop) Extension - Stage 0 Study
2032 Alternative A AM Peak with Improvements



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↑	↑↑					↑↑	↑	↑
Volume (vph)	0	713	54	0	221	0	0	0	0	417	0	139
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		450	200		0	0		0	250		0
Storage Lanes	0		1	1		0	0		0	1		0
Taper Length (ft)	50				50					50		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	0.97	1.00	1.00
Frt			0.850								0.850	
Flt Protected										0.950		
Satd. Flow (prot)	0	3505	1568	1863	3406	0	0	0	0	3072	1553	0
Flt Permitted										0.950		
Satd. Flow (perm)	0	3505	1568	1863	3406	0	0	0	0	3072	1553	0
Right Turn on Red			Yes		Yes		Yes		Yes			Yes
Satd. Flow (RTOR)			63								632	
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		986			649			714			631	
Travel Time (s)		14.9			9.8			10.8			9.6	
Peak Hour Factor	0.86	0.86	0.86	0.81	0.81	0.81	0.92	0.92	0.92	0.80	0.80	0.80
Heavy Vehicles (%)	0%	3%	3%	2%	6%	0%	2%	2%	2%	14%	4%	4%
Adj. Flow (vph)	0	829	63	0	273	0	0	0	0	521	0	174
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	829	63	0	273	0	0	0	0	521	174	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		34			34			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type		NA	Perm	Perm	NA					Split	NA	
Protected Phases		2 11 14			6 11 14					4	4	
Permitted Phases			2 11 14	6 11 14								
Detector Phase		2 11 14	2 11 14	6 11 14	6 11 14					4	4	
Switch Phase												
Minimum Initial (s)										7.0	7.0	
Minimum Split (s)										13.0	13.0	
Total Split (s)										21.0	21.0	
Total Split (%)										28.0%	28.0%	
Yellow Time (s)										3.5	3.5	
All-Red Time (s)										1.5	1.5	
Lost Time Adjust (s)										0.0	0.0	
Total Lost Time (s)										5.0	5.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode										None	None	
Act Effect Green (s)		48.0	48.0		48.0					16.0	16.0	
Actuated g/C Ratio		0.64	0.64		0.64					0.21	0.21	
v/c Ratio		0.37	0.06		0.13					0.80	0.21	

Lanes, Volumes, Timings
101: Flournoy Lucas Rd & LA 3132 SB

LA 3132 (Inner Loop) Extension - Stage 0 Study
2032 Alternative A AM Peak with Improvements

Lane Group	ø1	ø2	ø6	ø8	ø11	ø12	ø14
Lane Configurations							
Volume (vph)							
Ideal Flow (vphpl)							
Storage Length (ft)							
Storage Lanes							
Taper Length (ft)							
Lane Util. Factor							
Frt							
Flt Protected							
Satd. Flow (prot)							
Flt Permitted							
Satd. Flow (perm)							
Right Turn on Red							
Satd. Flow (RTOR)							
Link Speed (mph)							
Link Distance (ft)							
Travel Time (s)							
Peak Hour Factor							
Heavy Vehicles (%)							
Adj. Flow (vph)							
Shared Lane Traffic (%)							
Lane Group Flow (vph)							
Enter Blocked Intersection							
Lane Alignment							
Median Width(ft)							
Link Offset(ft)							
Crosswalk Width(ft)							
Two way Left Turn Lane							
Headway Factor							
Turning Speed (mph)							
Turn Type							
Protected Phases	1	2	6	8	11	12	14
Permitted Phases							
Detector Phase							
Switch Phase							
Minimum Initial (s)	4.0	15.0	15.0	15.0	5.0	15.0	4.0
Minimum Split (s)	10.0	21.0	21.0	21.0	11.0	21.0	20.0
Total Split (s)	12.0	21.0	21.0	21.0	12.0	21.0	21.0
Total Split (%)	16%	28%	28%	28%	16%	28%	28%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	0.5
Lost Time Adjust (s)							
Total Lost Time (s)							
Lead/Lag							
Lead-Lag Optimize?							
Recall Mode	None	Min	Min	Min	None	None	None
Act Effect Green (s)							
Actuated g/C Ratio							
v/c Ratio							

Lanes, Volumes, Timings
101: Flournoy Lucas Rd & LA 3132 SB

LA 3132 (Inner Loop) Extension - Stage 0 Study
2032 Alternative A AM Peak with Improvements



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	6.9	1.7			7.4					38.7	0.6	
Queue Delay	0.0	0.0			0.0					0.0	0.0	
Total Delay	6.9	1.7			7.4					38.7	0.6	
LOS	A	A			A					D	A	
Approach Delay	6.6				7.4						29.1	
Approach LOS	A				A						C	
Queue Length 50th (ft)	83	0			47					119	0	
Queue Length 95th (ft)	106	11			67					148	0	
Internal Link Dist (ft)	906				569			634			551	
Turn Bay Length (ft)			450							250		
Base Capacity (vph)	2243	1026			2180					655	828	
Starvation Cap Reductn	0	0			0					0	0	
Spillback Cap Reductn	0	0			0					0	0	
Storage Cap Reductn	0	0			0					0	0	
Reduced v/c Ratio	0.37	0.06			0.13					0.80	0.21	

Intersection Summary

Area Type: Other
 Cycle Length: 75
 Actuated Cycle Length: 75
 Natural Cycle: 75
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.80
 Intersection Signal Delay: 15.1
 Intersection Capacity Utilization 72.0%
 Analysis Period (min) 15

Intersection LOS: B
 ICU Level of Service C

Splits and Phases: 101: Flournoy Lucas Rd & LA 3132 SB

#101 #102 →	#102 ↗	#102 ↘	#101 ↖
21 s	12 s	21 s	21 s
#101 #102 ←	#101 ↙	#101 ↘	#102 ↗
21 s	12 s	21 s	21 s

Lanes, Volumes, Timings
101: Flournoy Lucas Rd & LA 3132 SB

LA 3132 (Inner Loop) Extension - Stage 0 Study
2032 Alternative A AM Peak with Improvements

Lane Group	ø1	ø2	ø6	ø8	ø11	ø12	ø14
Control Delay							
Queue Delay							
Total Delay							
LOS							
Approach Delay							
Approach LOS							
Queue Length 50th (ft)							
Queue Length 95th (ft)							
Internal Link Dist (ft)							
Turn Bay Length (ft)							
Base Capacity (vph)							
Starvation Cap Reductn							
Spillback Cap Reductn							
Storage Cap Reductn							
Reduced v/c Ratio							

Intersection Summary

Area Type: Other
 Cycle Length: 75
 Actuated Cycle Length: 75
 Natural Cycle: 75
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.80
 Intersection Signal Delay: 15.1
 Intersection Capacity Utilization 72.0%
 Analysis Period (min) 15

Intersection LOS: B
 ICU Level of Service C

Lanes, Volumes, Timings
102: Flournoy Lucas Rd & LA3132 NB

LA 3132 (Inner Loop) Extension - Stage 0 Study
2032 Alternative A AM Peak with Improvements

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	357	773	0	0	221	400	0	0	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	0		85			650		0	0
Storage Lanes	1		0	0		1	1		0	0		0
Taper Length (ft)	50			50			50			50		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00
Frnt						0.850						
Fit Protected	0.950											
Satd. Flow (prot)	1787	3312	0	0	3343	1538	1770	1770	0	0	0	0
Fit Permitted	0.584											
Satd. Flow (perm)	1099	3312	0	0	3343	1538	1770	1770	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						494						
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		649			750			719			607	
Travel Time (s)		9.8			11.4			10.9			9.2	
Peak Hour Factor	0.86	0.86	0.92	0.92	0.81	0.81	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	1%	9%	2%	2%	8%	5%	2%	2%	2%	0%	2%	0%
Adj. Flow (vph)	415	899	0	0	273	494	0	0	0	0	0	0
Shared Lane Traffic (%)							0%					
Lane Group Flow (vph)	415	899	0	0	273	494	0	0	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			34			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA			NA	Perm	Split					
Protected Phases	1	6 12			2 12		8	8				
Permitted Phases	6 12					2 12						
Detector Phase	1	6 12			2 12	2 12	8	8				
Switch Phase												
Minimum Initial (s)	4.0						15.0	15.0				
Minimum Split (s)	10.0						21.0	21.0				
Total Split (s)	12.0						21.0	21.0				
Total Split (%)	16.0%						28.0%	28.0%				
Yellow Time (s)	5.0						5.0	5.0				
All-Red Time (s)	1.0						1.0	1.0				
Lost Time Adjust (s)	0.0						0.0	0.0				
Total Lost Time (s)	6.0						6.0	6.0				
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None						Min	Min				
Act Effct Green (s)	42.0	36.0			36.0	36.0						
Actuated g/C Ratio	0.56	0.48			0.48	0.48						
v/c Ratio	0.62	0.57			0.17	0.50						

Lanes, Volumes, Timings
102: Flournoy Lucas Rd & LA3132 NB

LA 3132 (Inner Loop) Extension - Stage 0 Study
2032 Alternative A AM Peak with Improvements

	ø2	ø4	ø6	ø11	ø12	ø14
Lane Configurations						
Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Frnt						
Fit Protected						
Satd. Flow (prot)						
Fit Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Heavy Vehicles (%)						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Enter Blocked Intersection						
Lane Alignment						
Median Width(ft)						
Link Offset(ft)						
Crosswalk Width(ft)						
Two way Left Turn Lane						
Headway Factor						
Turning Speed (mph)						
Turn Type						
Protected Phases	2	4	6	11	12	14
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	15.0	7.0	15.0	5.0	15.0	4.0
Minimum Split (s)	21.0	13.0	21.0	11.0	21.0	20.0
Total Split (s)	21.0	21.0	21.0	12.0	21.0	21.0
Total Split (%)	28%	28%	28%	16%	28%	28%
Yellow Time (s)	5.0	3.5	5.0	5.0	5.0	3.5
All-Red Time (s)	1.0	1.5	1.0	1.0	1.0	0.5
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	Min	None	Min	None	None	None
Act Effct Green (s)						
Actuated g/C Ratio						
v/c Ratio						

Lanes, Volumes, Timings
102: Flournoy Lucas Rd & LA3132 NB

LA 3132 (Inner Loop) Extension - Stage 0 Study
2032 Alternative A AM Peak with Improvements

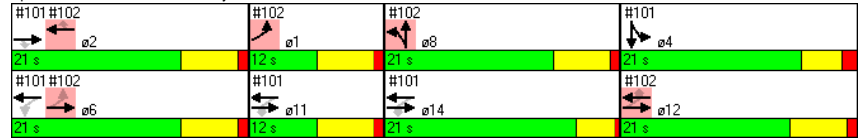


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	19.1	8.9			11.4	3.1						
Queue Delay	0.0	0.0			0.0	0.0						
Total Delay	19.1	8.9			11.4	3.1						
LOS	B	A			B	A						
Approach Delay		12.1			6.1							
Approach LOS		B			A							
Queue Length 50th (ft)	93	71			35	0						
Queue Length 95th (ft)	172	97			50	28						
Internal Link Dist (ft)		569			670			639			527	
Turn Bay Length (ft)	200					85						
Base Capacity (vph)	670	1590			1605	995						
Starvation Cap Reductn	0	0			0	0						
Spillback Cap Reductn	0	0			0	0						
Storage Cap Reductn	0	0			0	0						
Reduced v/c Ratio	0.62	0.57			0.17	0.50						

Intersection Summary

Area Type: Other
 Cycle Length: 75
 Actuated Cycle Length: 75
 Natural Cycle: 75
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.80
 Intersection Signal Delay: 9.9
 Intersection Capacity Utilization 72.0%
 Analysis Period (min) 15
 Intersection LOS: A
 ICU Level of Service C

Splits and Phases: 102: Flournoy Lucas Rd & LA3132 NB



Lanes, Volumes, Timings
102: Flournoy Lucas Rd & LA3132 NB

LA 3132 (Inner Loop) Extension - Stage 0 Study
2032 Alternative A AM Peak with Improvements

Lane Group	ø2	ø4	ø6	ø11	ø12	ø14
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						
Queue Length 50th (ft)						
Queue Length 95th (ft)						
Internal Link Dist (ft)						
Turn Bay Length (ft)						
Base Capacity (vph)						
Starvation Cap Reductn						
Spillback Cap Reductn						
Storage Cap Reductn						
Reduced v/c Ratio						

Intersection Summary

Area Type: Other
 Cycle Length: 75
 Actuated Cycle Length: 75
 Natural Cycle: 75
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.80
 Intersection Signal Delay: 9.9
 Intersection Capacity Utilization 72.0%
 Analysis Period (min) 15
 Intersection LOS: A
 ICU Level of Service C

Lanes, Volumes, Timings
103: LA 1 & Flournoy Lucas Rd

LA 3132 (Inner Loop) Extension - Stage 0 Study
2032 Alternative A AM Peak with Improvements

	←		→		↙		↘		↖		↗	
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖			↖	↖	↖	↖		↖	↖	↖
Volume (vph)	760	12	129	36	4	9	63	483	53	0	279	599
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	0	0	0	0	125	0	165	0	165	165
Storage Lanes	1	0	0	0	0	0	1	0	1	0	1	1
Taper Length (ft)	50			50			50		50			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt		0.863			0.976		0.985				0.850	
Flt Protected	0.950				0.964		0.950					
Satd. Flow (prot)	1752	1294	0	0	1752	0	1347	3262	0	1900	3406	1553
Flt Permitted	0.735				0.674		0.360					
Satd. Flow (perm)	1356	1294	0	0	1225	0	510	3262	0	1900	3406	1553
Right Turn on Red			Yes			Yes			Yes			No
Satd. Flow (RTOR)		161			9			12				
Link Speed (mph)		50			50			55				55
Link Distance (ft)		784			651			1092				934
Travel Time (s)		10.7			8.9			13.5				11.6
Peak Hour Factor	0.80	0.80	0.80	0.86	0.86	0.86	0.86	0.86	0.86	0.80	0.80	0.80
Heavy Vehicles (%)	3%	2%	29%	0%	1%	11%	34%	10%	0%	0%	6%	4%
Adj. Flow (vph)	950	15	161	42	5	10	73	562	62	0	349	749
Shared Lane Traffic (%)												
Lane Group Flow (vph)	950	176	0	0	57	0	73	624	0	0	349	749
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA		Perm	NA		pm+pt	NA		pm+pt	NA	pt+ov
Protected Phases	3	8			4		1	6		5	2	2 3
Permitted Phases	8			4			6			2		
Detector Phase	3	8		4	4		1	6		5	2	2 3
Switch Phase												
Minimum Initial (s)	5.0	10.0		7.0	7.0		7.0	15.0		5.0	15.0	
Minimum Split (s)	11.5	16.5		13.5	13.5		15.0	23.0		13.0	23.0	
Total Split (s)	38.1	51.6		13.5	13.5		15.0	25.4		13.0	23.4	
Total Split (%)	42.3%	57.3%		15.0%	15.0%		16.7%	28.2%		14.4%	26.0%	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.5	5.5		5.5	5.5	
All-Red Time (s)	1.5	1.5		1.5	1.5		2.5	2.5		2.5	2.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.5	6.5		6.5	6.5		8.0	8.0		8.0	8.0	
Lead/Lag	Lead			Lag	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes			Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None		None	Min		None	Min	
Act Effct Green (s)	42.4	42.4		7.1	27.5		27.5	27.5		16.2	57.2	
Actuated g/C Ratio	0.50	0.50		0.08	0.32		0.32	0.32		0.19	0.68	
v/c Ratio	1.14	0.24		0.51	0.31		0.58	0.58		0.53	0.71	

Lanes, Volumes, Timings
103: LA 1 & Flournoy Lucas Rd

LA 3132 (Inner Loop) Extension - Stage 0 Study
2032 Alternative A AM Peak with Improvements

	←		→		↙		↘		↖		↗	
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	102.5	3.6			52.2		24.8	26.1			36.5	18.3
Queue Delay	0.0	0.0			0.0		0.0	0.0			0.0	0.0
Total Delay	102.5	3.6			52.2		24.8	26.1			36.5	18.3
LOS	F	A			D		C	C			D	B
Approach Delay		87.1			52.2			26.0			24.1	
Approach LOS		F			D			C			C	
Queue Length 50th (ft)	~646	4			27		29	147			97	307
Queue Length 95th (ft)	#726	26			#73		58	191			124	375
Internal Link Dist (ft)		704			571			1012			854	
Turn Bay Length (ft)							125					165
Base Capacity (vph)	830	776			112		236	1069			653	1049
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	1.14	0.23			0.51		0.31	0.58			0.53	0.71
Intersection Summary												
Area Type: Other												
Cycle Length: 90												
Actuated Cycle Length: 84.7												
Natural Cycle: 110												
Control Type: Actuated-Uncoordinated												
Maximum v/c Ratio: 1.14												
Intersection Signal Delay: 48.9												
Intersection Capacity Utilization 86.7%												
Intersection LOS: D												
ICU Level of Service E												
Analysis Period (min) 15												
~ Volume exceeds capacity, queue is theoretically infinite.												
Queue shown is maximum after two cycles.												
# 95th percentile volume exceeds capacity, queue may be longer.												
Queue shown is maximum after two cycles.												
Splits and Phases: 103: LA 1 & Flournoy Lucas Rd												

Lanes, Volumes, Timings
105: Ellerbe Rd & Flournoy Lucas Rd

LA 3132 (Inner Loop) Extension - Stage 0 Study
2032 Alternative A AM Peak with Improvements

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Volume (vph)	12	217	100	75	165	44	96	1741	147	26	411	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	140		150	150			0	115	120	150		
Storage Lanes	1		1	1			1	1	1	1		
Taper Length (ft)	50			50				50		50		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Frt			0.850				0.850		0.850		0.999	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1671	1827	1468	1656	1727	1468	1736	3406	1615	1770	3570	0
Flt Permitted	0.206			0.286			0.409			0.048		
Satd. Flow (perm)	362	1827	1468	499	1727	1468	747	3406	1615	89	3570	0
Right Turn on Red			Yes			Yes		Yes		Yes		Yes
Satd. Flow (RTOR)			91			54		56		1		
Link Speed (mph)		45			45			45		45		
Link Distance (ft)		848			838			697		896		
Travel Time (s)		12.8			12.7			10.6		13.6		
Peak Hour Factor	0.80	0.80	0.80	0.82	0.82	0.82	0.81	0.81	0.81	0.80	0.80	0.80
Heavy Vehicles (%)	8%	4%	10%	9%	10%	10%	4%	6%	0%	2%	1%	3%
Adj. Flow (vph)	15	271	125	91	201	54	119	2149	181	32	514	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	15	271	125	91	201	54	119	2149	181	32	514	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12		12		
Link Offset(ft)		0			0			0		0		
Crosswalk Width(ft)		16			16			16		16		
Two way Left Turn Lane					Yes			Yes		Yes		
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8		8	4		4	6		6	2		
Detector Phase	3	8	8	7	4	4	1	6	6	5	2	
Switch Phase												
Minimum Initial (s)	7.0	15.0	15.0	7.0	15.0	15.0	7.0	10.0	10.0	7.0	10.0	
Minimum Split (s)	12.0	20.0	20.0	14.0	22.0	22.0	12.0	15.0	15.0	14.0	17.0	
Total Split (s)	12.0	27.0	27.0	14.0	29.0	29.0	12.0	95.0	95.0	14.0	97.0	
Total Split (%)	8.0%	18.0%	18.0%	9.3%	19.3%	19.3%	8.0%	63.3%	63.3%	9.3%	64.7%	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	0.0	0.0	0.0	2.0	2.0	2.0	0.0	0.0	0.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0	5.0	5.0	7.0	7.0	7.0	5.0	5.0	5.0	7.0	7.0	
Lead/Lag	Lead	Lead	Lead	Lag	Lag	Lag	Lead	Lead	Lead	Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	Min	Min	None	Min	Min	None	None	None	None	None	
Act Effect Green (s)	22.1	22.1	22.1	29.5	29.5	29.5	90.2	90.2	90.2	87.2	84.3	
Actuated g/C Ratio	0.15	0.15	0.15	0.20	0.20	0.20	0.62	0.62	0.62	0.60	0.58	
v/c Ratio	0.13	0.97	0.42	0.58	0.57	0.16	0.23	1.01	0.18	0.24	0.25	

Lanes, Volumes, Timings
105: Ellerbe Rd & Flournoy Lucas Rd

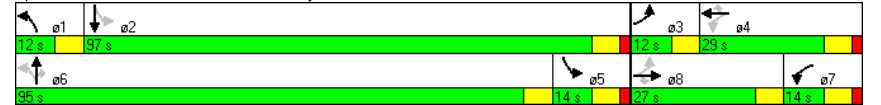
LA 3132 (Inner Loop) Extension - Stage 0 Study
2032 Alternative A AM Peak with Improvements

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	57.3	107.4	23.3	73.6	61.5	14.6	13.1	49.4	8.9	31.8	14.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	57.3	107.4	23.3	73.6	61.5	14.6	13.1	49.4	8.9	31.8	14.8	
LOS	E	F	C	E	E	B	B	D	A	C	B	
Approach Delay		80.0			57.4			44.7			15.8	
Approach LOS		E			E			D			B	
Queue Length 50th (ft)	13	~273	30	74	174	0	48	~1203	51	12	119	
Queue Length 95th (ft)	32	#383	74	#139	#266	34	70	#1010	75	24	131	
Internal Link Dist (ft)		768			758			617			816	
Turn Bay Length (ft)	140		150	150			115		120	150		
Base Capacity (vph)	119	279	301	158	352	343	514	2128	1030	136	2230	
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.13	0.97	0.42	0.58	0.57	0.16	0.23	1.01	0.18	0.24	0.25	

Intersection Summary

Area Type:	Other
Cycle Length:	150
Actuated Cycle Length:	144.4
Natural Cycle:	150
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	1.01
Intersection Signal Delay:	45.5
Intersection Capacity Utilization:	92.3%
ICU Level of Service F	
Analysis Period (min):	15
~ Volume exceeds capacity, queue is theoretically infinite.	
Queue shown is maximum after two cycles.	
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 105: Ellerbe Rd & Flournoy Lucas Rd



Lanes, Volumes, Timings
107: LA 1 & Bert Kouns Industrial Loop

LA 3132 (Inner Loop) Extension - Stage 0 Study
2032 Alternative A AM Peak with Improvements

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗	↘	↖	↗	↘	↖	↗	↘	↖	↗	↘
Volume (vph)	313	975	106	257	920	50	134	1026	224	131	524	157
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	230		230	150		115	220		220	230		230
Storage Lanes	2		1	1		1	2		1	2		1
Taper Length (ft)	50			50			50			50		
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3303	3471	1482	1770	3539	1615	3433	3471	1568	3303	3505	1495
Flt Permitted	0.950			0.128			0.950			0.950		
Satd. Flow (perm)	3303	3471	1482	238	3539	1615	3433	3471	1568	3303	3505	1495
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			75			11			30			29
Link Speed (mph)		50			50			45				45
Link Distance (ft)		1652			1693			1702				1927
Travel Time (s)		22.5			23.1			25.8				29.2
Peak Hour Factor	0.89	0.89	0.89	0.92	0.92	0.92	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	6%	4%	9%	2%	2%	0%	2%	4%	3%	6%	3%	8%
Adj. Flow (vph)	352	1096	119	279	1000	54	147	1127	246	144	576	173
Shared Lane Traffic (%)												
Lane Group Flow (vph)	352	1096	119	279	1000	54	147	1127	246	144	576	173
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24				24
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane					Yes							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Prot	NA	Prot	pm+pt	NA	pt+ov	Prot	NA	pt+ov	Prot	NA	pt+ov
Protected Phases	1	6	6	5	2	2.7	3	8	5.8	7	4	1.4
Permitted Phases				2								
Detector Phase	1	6	6	5	2	2.7	3	8	5.8	7	4	1.4
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0		5.0	10.0		12.0	10.0	
Minimum Split (s)	11.0	16.0	16.0	11.0	16.0		11.0	16.0		18.0	16.0	
Total Split (s)	24.0	55.0	55.0	24.0	55.0		17.0	53.0		18.0	54.0	
Total Split (%)	16.0%	36.7%	36.7%	16.0%	36.7%		11.3%	35.3%		12.0%	36.0%	
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5		1.5	1.5		1.5	1.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0		6.0	6.0		6.0	6.0	
Lead/Lag	Lead	Lead	Lead	Lag	Lag		Lead	Lead		Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	C-Min	C-Min	None	C-Min		None	None		None	None	
Act Effect Green (s)	17.8	49.0	49.0	49.2	49.2	61.2	10.4	47.0	71.0	12.0	48.6	72.4
Actuated g/C Ratio	0.12	0.33	0.33	0.33	0.33	0.41	0.07	0.31	0.47	0.08	0.32	0.48
v/c Ratio	0.90	0.97	0.22	1.06	0.86	0.08	0.62	1.04	0.32	0.55	0.51	0.23

Lanes, Volumes, Timings
107: LA 1 & Bert Kouns Industrial Loop

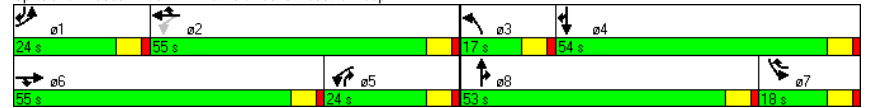
LA 3132 (Inner Loop) Extension - Stage 0 Study
2032 Alternative A AM Peak with Improvements

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	90.6	69.3	15.8	130.2	56.1	12.5	79.5	86.6	22.8	74.6	43.0	19.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	90.6	69.3	15.8	130.2	56.1	12.5	79.5	86.6	22.8	74.6	43.0	19.7
LOS	F	E	B	F	E	B	E	F	C	E	D	B
Approach Delay			70.0					69.9		75.6		43.6
Approach LOS			E					E		D		D
Queue Length 50th (ft)	177	556	30	~250	484	16	73	~622	129	71	241	80
Queue Length 95th (ft)	#261	#690	79	#443	576	36	112	#762	195	109	302	132
Internal Link Dist (ft)		1572			1613			1622			1847	
Turn Bay Length (ft)	230		230	150		115	220		220	230		230
Base Capacity (vph)	396	1134	535	262	1160	665	252	1088	758	264	1136	739
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	0.89	0.97	0.22	1.06	0.86	0.08	0.58	1.04	0.32	0.55	0.51	0.23

Intersection Summary

Area Type:	Other
Cycle Length:	150
Actuated Cycle Length:	150
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBT, Start of Green	
Natural Cycle:	150
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	1.06
Intersection Signal Delay:	67.1
Intersection Capacity Utilization:	99.6%
Analysis Period (min):	15
~ Volume exceeds capacity, queue is theoretically infinite.	
Queue shown is maximum after two cycles.	
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 107: LA 1 & Bert Kouns Industrial Loop



Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
 108: Bert Kouns Industrial Loop & LA 3132 EB Off Ramp/LA 3132 EB On Ramp with Improvements



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔				↕	↕	↕	↔	↔	↔
Volume (vph)	558	4	7	0	0	0	0	1432	93	36	895	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		110	0		0	0	0	0	295	0	0
Storage Lanes	1		1	0		0	0	0	0	1	0	0
Taper Length (ft)	50			50			50			50		
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt			0.850					0.991				
Flt Protected	0.950	0.953								0.950		
Satd. Flow (prot)	1681	1687	1615	0	0	0	0	3484	0	1736	3574	0
Flt Permitted	0.950	0.953								0.129		
Satd. Flow (perm)	1681	1687	1615	0	0	0	0	3484	0	236	3574	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			6					12				
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1564			1165			530			537	
Travel Time (s)		23.7			17.7			8.0			8.1	
Peak Hour Factor	0.83	0.83	0.83	0.92	0.92	0.92	0.87	0.87	0.87	0.82	0.82	0.82
Heavy Vehicles (%)	2%	0%	0%	0%	0%	0%	0%	2%	13%	4%	1%	0%
Adj. Flow (vph)	672	5	8	0	0	0	0	1646	107	44	1091	0
Shared Lane Traffic (%)	50%											
Lane Group Flow (vph)	336	341	8	0	0	0	0	1753	0	44	1091	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			27			27	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Split	NA	Perm					NA	custom	NA		
Protected Phases	4	4						6		5	2.5	
Permitted Phases			4							2		
Detector Phase	4	4	4					6		5	2.5	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0					15.0		5.0		
Minimum Split (s)	11.0	11.0	11.0					21.0		10.0		
Total Split (s)	23.0	23.0	23.0					57.0		10.0		
Total Split (%)	25.6%	25.6%	25.6%					63.3%		11.1%		
Yellow Time (s)	5.0	5.0	5.0					5.0		5.0		
All-Red Time (s)	1.0	1.0	1.0					1.0		0.0		
Lost Time Adjust (s)	0.0	0.0	0.0					0.0		0.0		
Total Lost Time (s)	6.0	6.0	6.0					6.0		5.0		
Lead/Lag								Lag		Lead		
Lead-Lag Optimize?								Yes		Yes		
Recall Mode	None	None	None					None		None		
Act Effct Green (s)	17.0	17.0	17.0					51.0		37.0	35.0	
Actuated g/C Ratio	0.19	0.19	0.19					0.57		0.41	0.39	
v/c Ratio	1.06	1.07	0.03					0.89		0.24	0.78	

Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
 108: Bert Kouns Industrial Loop & LA 3132 EB Off Ramp/LA 3132 EB On Ramp with Improvements

Lane Group	ø1	ø2	ø8
Lane Configurations			
Volume (vph)			
Ideal Flow (vphpl)			
Storage Length (ft)			
Storage Lanes			
Taper Length (ft)			
Lane Util. Factor			
Frt			
Flt Protected			
Satd. Flow (prot)			
Flt Permitted			
Satd. Flow (perm)			
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (mph)			
Link Distance (ft)			
Travel Time (s)			
Peak Hour Factor			
Heavy Vehicles (%)			
Adj. Flow (vph)			
Shared Lane Traffic (%)			
Lane Group Flow (vph)			
Enter Blocked Intersection			
Lane Alignment			
Median Width(ft)			
Link Offset(ft)			
Crosswalk Width(ft)			
Two way Left Turn Lane			
Headway Factor			
Turning Speed (mph)			
Turn Type			
Protected Phases	1	2	8
Permitted Phases			
Detector Phase			
Switch Phase			
Minimum Initial (s)	5.0	15.0	12.0
Minimum Split (s)	10.0	21.0	18.0
Total Split (s)	30.0	37.0	23.0
Total Split (%)	33%	41%	26%
Yellow Time (s)	5.0	5.0	5.0
All-Red Time (s)	0.0	1.0	1.0
Lost Time Adjust (s)			
Total Lost Time (s)			
Lead/Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	
Recall Mode	None	None	None
Act Effct Green (s)			
Actuated g/C Ratio			
v/c Ratio			

Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
 108: Bert Kouns Industrial Loop & LA 3132 EB Off Ramp/LA 3132 EB On Ramp with Improvements



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	103.7	107.1	20.4					23.9	7.7	11.1		
Queue Delay	0.0	0.0	0.0					2.5	0.0	0.0		
Total Delay	103.7	107.1	20.4					26.4	7.7	11.1		
LOS	F	F	C					C	A	B		
Approach Delay		104.4						26.4		11.0		
Approach LOS		F						C		B		
Queue Length 50th (ft)	~223	~228	1					422	4	64		
Queue Length 95th (ft)	#350	#355	12					503	m11	126		
Internal Link Dist (ft)		1484				1085		450		457		
Turn Bay Length (ft)			110						295			
Base Capacity (vph)	318	319	310					1979	180	1390		
Starvation Cap Reductn	0	0	0					0	0	0		
Spillback Cap Reductn	0	0	0					131	0	0		
Storage Cap Reductn	0	0	0					0	0	0		
Reduced v/c Ratio	1.06	1.07	0.03					0.95	0.24	0.78		

Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 90
 Natural Cycle: 80
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.11
 Intersection Signal Delay: 36.4 Intersection LOS: D
 Intersection Capacity Utilization 87.8% ICU Level of Service E
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 108: Bert Kouns Industrial Loop & LA 3132 EB Off Ramp/LA 3132 EB On Ramp



Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
 108: Bert Kouns Industrial Loop & LA 3132 EB Off Ramp/LA 3132 EB On Ramp with Improvements

Lane Group	ø1	ø2	ø8
Control Delay			
Queue Delay			
Total Delay			
LOS			
Approach Delay			
Approach LOS			
Queue Length 50th (ft)			
Queue Length 95th (ft)			
Internal Link Dist (ft)			
Turn Bay Length (ft)			
Base Capacity (vph)			
Starvation Cap Reductn			
Spillback Cap Reductn			
Storage Cap Reductn			
Reduced v/c Ratio			

Intersection Summary

Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
 109: Bert Kouns Industrial Loop & LA 3132 WB On Ramp/LA 3132 WB On Ramp with Improvements



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	77	0	96	14	1990	0	0	853	961
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	0	0	0	200	295	0	0	0	0	100
Storage Lanes	0	0	0	0	0	1	1	0	0	0	0	1
Taper Length (ft)	50			50			50			50		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frnt						0.850					0.850	
Fit Protected					0.950		0.950					
Satd. Flow (prot)	0	0	0	0	1805	1599	1805	3539	0	0	3539	1568
Fit Permitted					0.950		0.117					
Satd. Flow (perm)	0	0	0	0	1805	1599	222	3539	0	0	3539	1568
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						11						654
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		276			1075			537			687	
Travel Time (s)		4.2			16.3			8.1			10.4	
Peak Hour Factor	0.92	0.92	0.92	0.81	0.81	0.81	0.86	0.86	0.86	0.89	0.89	0.89
Heavy Vehicles (%)	0%	0%	0%	0%	0%	1%	0%	2%	0%	0%	2%	3%
Adj. Flow (vph)	0	0	0	95	0	119	16	2314	0	0	958	1080
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	95	119	16	2314	0	0	958	1080
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)	0			0			27			27		
Link Offset(ft)	0			0			0			0		
Crosswalk Width(ft)	16			16			16			16		
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type				Split	NA	Perm	custom	NA			NA	Perm
Protected Phases				8	8		1	16			2	
Permitted Phases						8	6					2
Detector Phase				8	8	8	1	16			2	2
Switch Phase												
Minimum Initial (s)				12.0	12.0	12.0	5.0				15.0	15.0
Minimum Split (s)				18.0	18.0	18.0	10.0				21.0	21.0
Total Split (s)				23.0	23.0	23.0	30.0				37.0	37.0
Total Split (%)				25.6%	25.6%	25.6%	33.3%				41.1%	41.1%
Yellow Time (s)				5.0	5.0	5.0	5.0				5.0	5.0
All-Red Time (s)				1.0	1.0	1.0	0.0				1.0	1.0
Lost Time Adjust (s)				0.0	0.0	0.0	0.0				0.0	0.0
Total Lost Time (s)				6.0	6.0	6.0	5.0				6.0	6.0
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Recall Mode				None	None	None	None				None	None
Act Effect Green (s)				17.0	17.0	17.0	62.0	62.0			31.0	31.0
Actuated g/C Ratio				0.19	0.19	0.19	0.69	0.69			0.34	0.34
v/c Ratio				0.28	0.38	0.03	0.95				0.79	1.11

Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
 109: Bert Kouns Industrial Loop & LA 3132 WB On Ramp/LA 3132 WB On Ramp with Improvements

Lane Group	ø4	ø5	ø6
Lane Configurations			
Volume (vph)			
Ideal Flow (vphpl)			
Storage Length (ft)			
Storage Lanes			
Taper Length (ft)			
Lane Util. Factor			
Frnt			
Fit Protected			
Satd. Flow (prot)			
Fit Permitted			
Satd. Flow (perm)			
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (mph)			
Link Distance (ft)			
Travel Time (s)			
Peak Hour Factor			
Heavy Vehicles (%)			
Adj. Flow (vph)			
Shared Lane Traffic (%)			
Lane Group Flow (vph)			
Enter Blocked Intersection			
Lane Alignment			
Median Width(ft)			
Link Offset(ft)			
Crosswalk Width(ft)			
Two way Left Turn Lane			
Headway Factor			
Turning Speed (mph)			
Turn Type			
Protected Phases	4	5	6
Permitted Phases			
Detector Phase			
Switch Phase			
Minimum Initial (s)	5.0	5.0	15.0
Minimum Split (s)	11.0	10.0	21.0
Total Split (s)	23.0	10.0	57.0
Total Split (%)	26%	11%	63%
Yellow Time (s)	5.0	5.0	5.0
All-Red Time (s)	1.0	0.0	1.0
Lost Time Adjust (s)			
Total Lost Time (s)			
Lead/Lag		Lead	Lag
Lead-Lag Optimize?		Yes	Yes
Recall Mode	None	None	None
Act Effect Green (s)			
Actuated g/C Ratio			
v/c Ratio			

Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
 109: Bert Kouns Industrial Loop & LA 3132 WB On Ramp/LA 3132 WB Off Ramp with Improvements



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay					33.8	33.1	4.0	13.9			32.1	79.6
Queue Delay					0.0	0.0	0.0	3.4			0.0	0.0
Total Delay					33.8	33.1	4.0	17.3			32.1	79.6
LOS					C	C	A	B			C	E
Approach Delay					33.4			17.2			57.3	
Approach LOS					C			B			E	
Queue Length 50th (ft)					47	54	2	265			254	~447
Queue Length 95th (ft)					81	93	m3	m301			325	#674
Internal Link Dist (ft)		196			995			457			607	
Turn Bay Length (ft)						200	295					100
Base Capacity (vph)					341	311	593	2438			1219	969
Starvation Cap Reductn					0	0	0	85			0	0
Spillback Cap Reductn					0	0	0	0			0	0
Storage Cap Reductn					0	0	0	0			0	0
Reduced v/c Ratio					0.28	0.38	0.03	0.98			0.79	1.11

Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 90
 Natural Cycle: 80
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.11
 Intersection Signal Delay: 35.8 Intersection LOS: D
 Intersection Capacity Utilization 87.8% ICU Level of Service E
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 109: Bert Kouns Industrial Loop & LA 3132 WB On Ramp/LA 3132 WB Off Ramp



Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
 109: Bert Kouns Industrial Loop & LA 3132 WB On Ramp/LA 3132 WB Off Ramp with Improvements

Lane Group	ø4	ø5	ø6
Control Delay			
Queue Delay			
Total Delay			
LOS			
Approach Delay			
Approach LOS			
Queue Length 50th (ft)			
Queue Length 95th (ft)			
Internal Link Dist (ft)			
Turn Bay Length (ft)			
Base Capacity (vph)			
Starvation Cap Reductn			
Spillback Cap Reductn			
Storage Cap Reductn			
Reduced v/c Ratio			

Intersection Summary

Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
 110: Ashley River Dr SB & Flournoy Lucas Rd 2032 Alternative A AM Peak with Improvements

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↕	↔	↔	↕	↔	↔	↔	↔	↔	↕	↔
Volume (vph)	0	675	98	26	618	8	0	0	0	4	0	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	180	0	120	0	0	0	0	0	0	0	0	0
Storage Lanes	1	0	1	0	0	0	0	0	0	0	0	0
Taper Length (ft)	50		50		50					50		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.981			0.998							0.961
Flt Protected				0.950								0.966
Satd. Flow (prot)	1900	3209	0	1703	3401	0	0	0	0	0	1764	0
Flt Permitted				0.950								0.966
Satd. Flow (perm)	1900	3209	0	1703	3401	0	0	0	0	0	1764	0
Link Speed (mph)	45			45					30			30
Link Distance (ft)	750			127					320			340
Travel Time (s)	11.4			1.9					7.3			7.7
Peak Hour Factor	0.87	0.87	0.87	0.89	0.89	0.89	0.92	0.92	0.92	0.80	0.80	0.80
Heavy Vehicles (%)	0%	11%	6%	6%	6%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	776	113	29	694	9	0	0	0	5	0	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	889	0	29	703	0	0	0	0	0	7	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			14							0
Link Offset(ft)		0			0							0
Crosswalk Width(ft)		16			16				16			16
Two way Left Turn Lane					Yes							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop				Stop

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	31.8% ICU Level of Service A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis LA 3132 (Inner Loop) Extension - Stage 0 Study
 110: Ashley River Dr SB & Flournoy Lucas Rd 2032 Alternative A AM Peak with Improvements

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↕	↔	↔	↕	↔	↔	↔	↔	↔	↕	↔
Volume (veh/h)	0	675	98	26	618	8	0	0	0	4	0	2
Sign Control		Free			Free			Stop				Stop
Grade		0%			0%			0%				0%
Peak Hour Factor	0.87	0.87	0.87	0.89	0.89	0.89	0.92	0.92	0.92	0.80	0.80	0.80
Hourly flow rate (vph)	0	776	113	29	694	9	0	0	0	5	0	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)		750										
pX, platoon unblocked				0.82			0.82	0.82	0.82	0.82	0.82	0.82
vC, conflicting volume	703			889			1240	1594	444	1145	1646	352
vC1, stage 1 conf vol							832	832	757	757		
vC2, stage 2 conf vol							408	762	388	889		
vCu, unblocked vol	703			410			842	1276	0	725	1339	352
tC, single (s)	4.1			4.2			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			2.3			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			97			100	100	100	99	100	100
cM capacity (veh/h)	904			911			426	335	889	347	319	650

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1
Volume Total	0	517	371	29	463	240	8
Volume Left	0	0	0	29	0	0	5
Volume Right	0	0	113	0	0	9	2
cSH	1700	1700	1700	911	1700	1700	411
Volume to Capacity	0.00	0.30	0.22	0.03	0.27	0.14	0.02
Queue Length 95th (ft)	0	0	0	2	0	0	1
Control Delay (s)	0.0	0.0	0.0	9.1	0.0	0.0	13.9
Lane LOS				A			B
Approach Delay (s)	0.0			0.4			13.9
Approach LOS				B			B

Intersection Summary	
Average Delay	0.2
Intersection Capacity Utilization	31.8% ICU Level of Service A
Analysis Period (min)	15

Lanes, Volumes, Timings

LA 3132 (Inner Loop) Extension - Stage 0 Study

111: Ashley River Dr NB & Flournoy Lucas Rd

2032 Alternative A AM Peak with Improvements

	→	↖	↗	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑	↖	↗
Volume (vph)	679	0	0	363	289	103
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt						0.850
Fit Protected					0.950	
Satd. Flow (prot)	3282	0	0	3374	1805	1568
Fit Permitted				0.950		
Satd. Flow (perm)	3282	0	0	3374	1805	1568
Link Speed (mph)	45			45	30	
Link Distance (ft)	127			2333	283	
Travel Time (s)	1.9			35.3	6.4	
Peak Hour Factor	0.80	0.80	0.84	0.84	0.81	0.81
Heavy Vehicles (%)	10%	0%	0%	7%	0%	3%
Adj. Flow (vph)	849	0	0	432	357	127
Shared Lane Traffic (%)						
Lane Group Flow (vph)	849	0	0	432	357	127
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	14			14	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane	Yes			Yes		
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	41.4%
ICU Level of Service	A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis LA 3132 (Inner Loop) Extension - Stage 0 Study

111: Ashley River Dr NB & Flournoy Lucas Rd

2032 Alternative A AM Peak with Improvements

	→	↖	↗	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑	↖	↗
Volume (veh/h)	679	0	0	363	289	103
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.80	0.80	0.84	0.84	0.81	0.81
Hourly flow rate (vph)	849	0	0	432	357	127
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLT			TWLT		
Median storage (veh)	2			2		
Upstream signal (ft)	877					
pX, platoon unblocked			0.84		0.84	0.84
vC, conflicting volume			849		1065	424
vC1, stage 1 conf vol					849	
vC2, stage 2 conf vol					216	
vCu, unblocked vol			449		705	0
tC, single (s)			4.1		6.8	7.0
tC, 2 stage (s)					5.8	
tF (s)			2.2		3.5	3.3
p0 queue free %			100		27	86
cM capacity (veh/h)			946		486	912

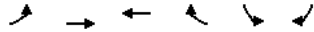
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2
Volume Total	424	424	216	216	357	127
Volume Left	0	0	0	0	357	0
Volume Right	0	0	0	0	0	127
cSH	1700	1700	1700	1700	486	912
Volume to Capacity	0.25	0.25	0.13	0.13	0.73	0.14
Queue Length 95th (ft)	0	0	0	0	151	12
Control Delay (s)	0.0	0.0	0.0	0.0	30.3	9.6
Lane LOS					D	A
Approach Delay (s)	0.0		0.0		24.9	
Approach LOS					C	

Intersection Summary

Average Delay	6.8
Intersection Capacity Utilization	41.4%
ICU Level of Service	A
Analysis Period (min)	15

Lanes, Volumes, Timings
 112: Flournoy Lucas Rd & Oaks Retirement Rd

LA 3132 (Inner Loop) Extension - Stage 0 Study
 2032 Alternative A AM Peak with Improvements

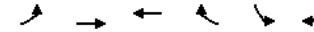


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↘	↗↗	↗↗		↘	↗
Volume (vph)	38	744	347	27	6	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	375			0	0	0
Storage Lanes	1			0	1	1
Taper Length (ft)	50				50	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Frt			0.989			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1687	3610	3403	0	1805	1524
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1687	3610	3403	0	1805	1524
Link Speed (mph)		45	45		30	
Link Distance (ft)		2333	1050		729	
Travel Time (s)		35.3	15.9		16.6	
Peak Hour Factor	0.80	0.80	0.81	0.81	0.80	0.80
Heavy Vehicles (%)	7%	0%	5%	4%	0%	6%
Adj. Flow (vph)	48	930	428	33	8	20
Shared Lane Traffic (%)						
Lane Group Flow (vph)	48	930	461	0	8	20
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		14	14		28	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane		Yes	Yes			
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	30.6%		ICU Level of Service A			
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis
 112: Flournoy Lucas Rd & Oaks Retirement Rd

LA 3132 (Inner Loop) Extension - Stage 0 Study
 2032 Alternative A AM Peak with Improvements



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↘	↗↗	↗↗		↘	↗
Volume (veh/h)	38	744	347	27	6	16
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.80	0.80	0.81	0.81	0.80	0.80
Hourly flow rate (vph)	48	930	428	33	8	20
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		TWLT	TWLT			
Median storage (veh)		2	2			
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	462				1005	231
vC1, stage 1 conf vol					445	
vC2, stage 2 conf vol					560	
vCu, unblocked vol	462				1005	231
tC, single (s)	4.2				6.8	7.0
tC, 2 stage (s)					5.8	
tF (s)	2.3				3.5	3.4
p0 queue free %	96				98	97
cM capacity (veh/h)	1061				438	759

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1	SB 2
Volume Total	48	465	465	286	176	8	20
Volume Left	48	0	0	0	0	8	0
Volume Right	0	0	0	0	33	0	20
cSH	1061	1700	1700	1700	1700	438	759
Volume to Capacity	0.04	0.27	0.27	0.17	0.10	0.02	0.03
Queue Length 95th (ft)	4	0	0	0	0	1	2
Control Delay (s)	8.6	0.0	0.0	0.0	0.0	13.4	9.9
Lane LOS	A					B	A
Approach Delay (s)	0.4			0.0		10.8	
Approach LOS						B	

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	30.6%	ICU Level of Service A	
Analysis Period (min)	15		

Lanes, Volumes, Timings
201: LA 1 & I-69 WB Ramp

LA 3132 (Inner Loop) Extension - Stage 0 Study
2032 Alternative A AM Peak with Improvements

	↖	↗	↑	↘	↙	↓
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↘	↑↑	↘	↘	↑↑
Volume (vph)	51	0	317	4	98	519
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300	0	0	0	275	
Storage Lanes	1	1		1		
Taper Length (ft)	50				50	
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt			0.850			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1641	1727	3195	1429	1656	3312
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1641	1727	3195	1429	1656	3312
Link Speed (mph)	40		65		65	
Link Distance (ft)	381		1423		531	
Travel Time (s)	6.5		14.9		5.6	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Heavy Vehicles (%)	10%	10%	13%	13%	9%	9%
Adj. Flow (vph)	64	0	396	5	109	577
Shared Lane Traffic (%)						
Lane Group Flow (vph)	64	0	396	5	109	577
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		76		76	
Link Offset(ft)	0		0		0	
Crosswalk Width(ft)	16		16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	27.5%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis LA 3132 (Inner Loop) Extension - Stage 0 Study
201: LA 1 & I-69 WB Ramp

2032 Alternative A AM Peak with Improvements

	↖	↗	↑	↘	↙	↓
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↘	↑↑	↘	↘	↑↑
Volume (veh/h)	51	0	317	4	98	519
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Hourly flow rate (vph)	64	0	396	5	109	577
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			Raised			Raised
Median storage (veh)			3			3
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	902	198			396	
vC1, stage 1 conf vol	396					
vC2, stage 2 conf vol	506					
vCu, unblocked vol	902	198			396	
tC, single (s)	7.0	7.1			4.3	
tC, 2 stage (s)	6.0					
tF (s)	3.6	3.4			2.3	
p0 queue free %	86	100			90	
cM capacity (veh/h)	460	785			1110	

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	64	0	198	198	5	109	288	288
Volume Left	64	0	0	0	0	109	0	0
Volume Right	0	0	0	0	5	0	0	0
cSH	460	1700	1700	1700	1700	1110	1700	1700
Volume to Capacity	0.14	0.00	0.12	0.12	0.00	0.10	0.17	0.17
Queue Length 95th (ft)	12	0	0	0	0	8	0	0
Control Delay (s)	14.1	0.0	0.0	0.0	0.0	8.6	0.0	0.0
Lane LOS	B	A				A		
Approach Delay (s)	14.1		0.0			1.4		
Approach LOS	B							

Intersection Summary	
Average Delay	1.6
Intersection Capacity Utilization	27.5%
Analysis Period (min)	15
	ICU Level of Service A

Lanes, Volumes, Timings
202: LA 1 & I-69 EB Ramp

LA 3132 (Inner Loop) Extension - Stage 0 Study
2032 Alternative A AM Peak with Improvements

	↖	↗	↑	↘	↙	↓
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↘	↕	↘	↘	↕
Volume (vph)	4	120	200	71	373	197
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300	0		490	260	
Storage Lanes	1	1		1	1	
Taper Length (ft)	50				50	
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt		0.850		0.850		
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1641	1468	3195	1429	1656	3312
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1641	1468	3195	1429	1656	3312
Link Speed (mph)	40		65		65	
Link Distance (ft)	452		3194		1423	
Travel Time (s)	7.7		33.5		14.9	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Heavy Vehicles (%)	10%	10%	13%	13%	9%	9%
Adj. Flow (vph)	5	150	250	89	414	219
Shared Lane Traffic (%)						
Lane Group Flow (vph)	5	150	250	89	414	219
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	24		76		76	
Link Offset(ft)	0		0		0	
Crosswalk Width(ft)	16		16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	39.5%		ICU Level of Service A			
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis LA 3132 (Inner Loop) Extension - Stage 0 Study
202: LA 1 & I-69 EB Ramp

2032 Alternative A AM Peak with Improvements

	↖	↗	↑	↘	↙	↓		
Movement	WBL	WBR	NBT	NBR	SBL	SBT		
Lane Configurations	↘	↘	↕	↘	↘	↕		
Volume (veh/h)	4	120	200	71	373	197		
Sign Control	Stop		Free			Free		
Grade	0%		0%			0%		
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90		
Hourly flow rate (vph)	5	150	250	89	414	219		
Pedestrians								
Lane Width (ft)								
Walking Speed (ft/s)								
Percent Blockage								
Right turn flare (veh)								
Median type			Raised			Raised		
Median storage (veh)			3			3		
Upstream signal (ft)								
pX, platoon unblocked								
vC, conflicting volume	1188	125			250			
vC1, stage 1 conf vol	250							
vC2, stage 2 conf vol	938							
vCu, unblocked vol	1188	125			250			
tC, single (s)	7.0	7.1			4.3			
tC, 2 stage (s)	6.0							
tF (s)	3.6	3.4			2.3			
p0 queue free %	98	83			67			
cM capacity (veh/h)	215	877			1263			
Direction, Lane #	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	5	150	125	125	89	414	109	109
Volume Left	5	0	0	0	0	414	0	0
Volume Right	0	150	0	0	89	0	0	0
cSH	215	877	1700	1700	1700	1263	1700	1700
Volume to Capacity	0.02	0.17	0.07	0.07	0.05	0.33	0.06	0.06
Queue Length 95th (ft)	2	15	0	0	0	36	0	0
Control Delay (s)	22.1	9.9	0.0	0.0	0.0	9.2	0.0	0.0
Lane LOS	C	A				A		
Approach Delay (s)	10.3		0.0			6.0		
Approach LOS	B							
Intersection Summary								
Average Delay	4.8							
Intersection Capacity Utilization	39.5%		ICU Level of Service				A	
Analysis Period (min)	15							

Lanes, Volumes, Timings
301: LA 1 & Gate A

LA 3132 (Inner Loop) Extension - Stage 0 Study
2032 Alternative A AM Peak with Improvements

	←		↑		→	
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↕		↔	↕
Volume (vph)	5	14	1086	8	21	635
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	0	0	250	
Storage Lanes	1	0		0	1	
Taper Length (ft)	50				50	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Frt	0.899		0.999			
Flt Protected	0.988				0.950	
Satd. Flow (prot)	1259	0	3186	0	1280	3312
Flt Permitted	0.988				0.950	
Satd. Flow (perm)	1259	0	3186	0	1280	3312
Link Speed (mph)	40		65		65	
Link Distance (ft)	496		4383		376	
Travel Time (s)	8.5		46.0		3.9	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Heavy Vehicles (%)	34%	34%	13%	41%	41%	9%
Adj. Flow (vph)	6	18	1358	10	23	706
Shared Lane Traffic (%)						
Lane Group Flow (vph)	24	0	1368	0	23	706
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		66		66	
Link Offset(ft)	0		0		0	
Crosswalk Width(ft)	16		16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free		Free	

Intersection Summary

Area Type: Other
 Control Type: Unsignalized
 Intersection Capacity Utilization 40.3% ICU Level of Service A
 Analysis Period (min) 15

HCM Unsignalized Intersection Capacity Analysis LA 3132 (Inner Loop) Extension - Stage 0 Study
301: LA 1 & Gate A

2032 Alternative A AM Peak with Improvements

	←		↑		→	
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↕		↔	↕
Volume (veh/h)	5	14	1086	8	21	635
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Hourly flow rate (vph)	6	18	1358	10	23	706
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			Raised		Raised	
Median storage (veh)			2		2	
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1762	684			1368	
vC1, stage 1 conf vol	1362					
vC2, stage 2 conf vol	399					
vCu, unblocked vol	1762	684			1368	
tC, single (s)	7.5	7.6			4.9	
tC, 2 stage (s)	6.5					
tF (s)	3.8	3.6			2.6	
p0 queue free %	96	95			93	
cM capacity (veh/h)	146	325			335	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	24	905	462	23	353	353
Volume Left	6	0	0	23	0	0
Volume Right	18	0	10	0	0	0
cSH	245	1700	1700	335	1700	1700
Volume to Capacity	0.10	0.53	0.27	0.07	0.21	0.21
Queue Length 95th (ft)	8	0	0	6	0	0
Control Delay (s)	21.2	0.0	0.0	16.5	0.0	0.0
Lane LOS	C			C		
Approach Delay (s)	21.2	0.0		0.5		
Approach LOS	C					

Intersection Summary

Average Delay 0.4
 Intersection Capacity Utilization 40.3% ICU Level of Service A
 Analysis Period (min) 15

Lanes, Volumes, Timings
302: LA 1 & Gate B

LA 3132 (Inner Loop) Extension - Stage 0 Study
2032 Alternative A AM Peak with Improvements

Lane Group	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Lane Configurations							
Volume (vph)	20	40	0	1054	51	94	545
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	250		0	250	
Storage Lanes	1	1	1		0	1	
Taper Length (ft)	50		50			50	
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	0.95
Frt		0.850		0.993			
Flt Protected	0.950				0.950		
Satd. Flow (prot)	1271	1137	1681	3156	0	1433	3312
Flt Permitted	0.950				0.950		
Satd. Flow (perm)	1271	1137	1681	3156	0	1433	3312
Link Speed (mph)	40			65			65
Link Distance (ft)	464			1578			4383
Travel Time (s)	7.9			16.6			46.0
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.90	0.90
Heavy Vehicles (%)	42%	42%	13%	13%	26%	26%	9%
Adj. Flow (vph)	25	50	0	1318	64	104	606
Shared Lane Traffic (%)							
Lane Group Flow (vph)	25	50	0	1382	0	104	606
Enter Blocked Intersection	No	No	No	No	No	No	No
Lane Alignment	Left	Right	R NA	Left	Right	Left	Left
Median Width(ft)	20			66			66
Link Offset(ft)	0			0			0
Crosswalk Width(ft)	16			16			16
Two way Left Turn Lane							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	9		9	15	
Sign Control	Stop			Free			Free

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 49.3%
ICU Level of Service A
Analysis Period (min) 15

HCM Unsignalized Intersection Capacity Analysis LA 3132 (Inner Loop) Extension - Stage 0 Study
302: LA 1 & Gate B

2032 Alternative A AM Peak with Improvements

Movement	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Lane Configurations							
Volume (veh/h)	20	40	0	1054	51	94	545
Sign Control	Stop			Free			Free
Grade	0%			0%			0%
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.90	0.90
Hourly flow rate (vph)	25	50	0	1318	64	104	606
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type				Raised			Raised
Median storage (veh)				2			2
Upstream signal (ft)							
pX, platoon unblocked			0.00				
vC, conflicting volume	1861	691	0			1381	
vC1, stage 1 conf vol	1349						
vC2, stage 2 conf vol	512						
vCu, unblocked vol	1861	691	0			1381	
tC, single (s)	7.6	7.7	0.0			4.6	
tC, 2 stage (s)	6.6						
tF (s)	3.9	3.7	0.0			2.5	
p0 queue free %	81	84	0			73	
cM capacity (veh/h)	132	307	0			384	

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	25	50	878	503	0	104	303	303
Volume Left	25	0	0	0	0	104	0	0
Volume Right	0	50	0	64	0	0	0	0
cSH	132	307	1700	1700	1700	384	1700	1700
Volume to Capacity	0.19	0.16	0.52	0.30	0.00	0.27	0.18	0.18
Queue Length 95th (ft)	17	14	0	0	0	27	0	0
Control Delay (s)	38.6	19.0	0.0	0.0	0.0	17.8	0.0	0.0
Lane LOS	E	C				C		
Approach Delay (s)	25.6		0.0			2.6		
Approach LOS	D							

Intersection Summary

Average Delay 1.7
Intersection Capacity Utilization 49.3%
ICU Level of Service A
Analysis Period (min) 15

Lanes, Volumes, Timings
303: LA 1 & Gate C

LA 3132 (Inner Loop) Extension - Stage 0 Study
2032 Alternative A AM Peak with Improvements

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↑	↑↑	↑		↑↑
Volume (vph)	0	24	1088	34	0	617
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	0	0	250	
Storage Lanes	0	1		1	0	
Taper Length (ft)	50				50	
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt		0.865		0.850		
Fit Protected						
Satd. Flow (prot)	0	1166	3195	1214	0	3312
Fit Permitted						
Satd. Flow (perm)	0	1166	3195	1214	0	3312
Link Speed (mph)	40		65			65
Link Distance (ft)	508		531			1081
Travel Time (s)	8.7		5.6			11.3
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Heavy Vehicles (%)	41%	41%	13%	33%	33%	9%
Adj. Flow (vph)	0	30	1360	43	0	686
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	30	1360	42	0	686
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	0		76			76
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	40.1%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis LA 3132 (Inner Loop) Extension - Stage 0 Study
303: LA 1 & Gate C

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↑	↑↑	↑		↑↑
Volume (veh/h)	0	24	1088	34	0	617
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Hourly flow rate (vph)	0	30	1360	42	0	686
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			Raised			Raised
Median storage (veh)			3			3
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1703	680			1402	
vC1, stage 1 conf vol	1360					
vC2, stage 2 conf vol	343					
vCu, unblocked vol	1703	680			1402	
tC, single (s)	7.6	7.7			4.8	
tC, 2 stage (s)	6.6					
tF (s)	3.9	3.7			2.5	
p0 queue free %	100	90			100	
cM capacity (veh/h)	143	314			350	

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	30	680	680	42	343	343
Volume Left	0	0	0	0	0	0
Volume Right	30	0	0	42	0	0
cSH	314	1700	1700	1700	1700	1700
Volume to Capacity	0.10	0.40	0.40	0.03	0.20	0.20
Queue Length 95th (ft)	8	0	0	0	0	0
Control Delay (s)	17.7	0.0	0.0	0.0	0.0	0.0
Lane LOS	C					
Approach Delay (s)	17.7	0.0			0.0	
Approach LOS	C					

Intersection Summary	
Average Delay	0.3
Intersection Capacity Utilization	40.1%
Analysis Period (min)	15
	ICU Level of Service A

Lanes, Volumes, Timings
304: LA 1 & Gate D

LA 3132 (Inner Loop) Extension - Stage 0 Study
2032 Alternative A AM Peak with Improvements

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	1	21	255	0	22	180
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	250		300	280	
Storage Lanes	1	1		1	1	
Taper Length (ft)	50				50	
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt	0.850					
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1068	956	3195	1118	1062	3312
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1068	956	3195	1118	1062	3312
Link Speed (mph)	40		65		65	
Link Distance (ft)	420		716		503	
Travel Time (s)	7.2		7.5		5.3	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Heavy Vehicles (%)	69%	69%	13%	70%	70%	9%
Adj. Flow (vph)	1	26	319	0	24	200
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1	26	319	0	24	200
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		76		76	
Link Offset(ft)	0		0		0	
Crosswalk Width(ft)	16		16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	23.7%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis LA 3132 (Inner Loop) Extension - Stage 0 Study
304: LA 1 & Gate D

2032 Alternative A AM Peak with Improvements

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	1	21	255	0	22	180
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Hourly flow rate (vph)	1	26	319	0	24	200
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		10				
Median type			Raised			Raised
Median storage (veh)			3			3
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	468	159			319	
vC1, stage 1 conf vol	319					
vC2, stage 2 conf vol	149					
vCu, unblocked vol	468	159			319	
tC, single (s)	8.2	8.3			5.5	
tC, 2 stage (s)	7.2					
tF (s)	4.2	4.0			2.9	
p0 queue free %	100	96			97	
cM capacity (veh/h)	526	682			865	

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	28	159	159	0	24	100	100
Volume Left	1	0	0	0	24	0	0
Volume Right	26	0	0	0	0	0	0
cSH	715	1700	1700	1700	865	1700	1700
Volume to Capacity	0.04	0.09	0.09	0.00	0.03	0.06	0.06
Queue Length 95th (ft)	3	0	0	0	2	0	0
Control Delay (s)	10.6	0.0	0.0	0.0	9.3	0.0	0.0
Lane LOS	B				A		
Approach Delay (s)	10.6	0.0			1.0		
Approach LOS	B						

Intersection Summary

Average Delay	0.9
Intersection Capacity Utilization	23.7%
Analysis Period (min)	15
	ICU Level of Service A

Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
 100: LA3132 NB/LA3132 SB & Flournoy Lucas Rd 2032 Alternative A AM Peak with SPU

Lane Group	EBL	EBT	EBR2	WBL	WBT	WBR2	SEL	SER2	NWL	NWR2
Lane Configurations	↖ ↗	↖ ↗	↖ ↗	↖ ↗	↖ ↗	↖ ↗	↖ ↗	↖ ↗	↖ ↗	↖ ↗
Volume (vph)	357	356	54	0	221	400	417	139	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	350			250			0		0	
Storage Lanes	2			2			2		2	
Taper Length (ft)	50			50			50		50	
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	1.00	0.97	1.00
Frt			0.850			0.850		0.850		0.850
Flt Protected	0.950						0.950			
Satd. Flow (prot)	3467	3505	1615	3686	3406	1538	3367	1553	3686	1900
Flt Permitted	0.950						0.950			
Satd. Flow (perm)	3467	3505	1615	3686	3406	1538	3367	1553	3686	1900
Right Turn on Red			Yes			Yes		Yes		Yes
Satd. Flow (RTOR)			63			494		174		
Link Speed (mph)		45			45					
Link Distance (ft)		749			713					
Travel Time (s)		11.3			10.8					
Peak Hour Factor	0.86	0.86	0.86	0.81	0.81	0.81	0.80	0.80	0.90	0.90
Heavy Vehicles (%)	1%	3%	0%	0%	6%	5%	4%	4%	0%	0%
Adj. Flow (vph)	415	414	63	0	273	494	521	174	0	0
Shared Lane Traffic (%)										
Lane Group Flow (vph)	415	414	63	0	273	494	521	174	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Right	Left	Right
Median Width(ft)		24			34					
Link Offset(ft)		0			0					
Crosswalk Width(ft)		16			16					
Two way Left Turn Lane										
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15	9	15	9
Turn Type	Prot	NA	Free	Prot	NA	Free	Prot	Free	Prot	Free
Protected Phases	5	2		1	6		4		8	
Permitted Phases			Free			Free		Free		Free
Detector Phase	5	2		1	6		4		8	
Switch Phase										
Minimum Initial (s)	4.0	15.0		4.0	15.0		4.0		4.0	
Minimum Split (s)	10.0	21.0		10.0	21.0		22.0		10.0	
Total Split (s)	12.0	23.0		10.0	21.0		22.0		22.0	
Total Split (%)	21.8%	41.8%		18.2%	38.2%		40.0%		40.0%	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0		5.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0		1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0		0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0		6.0		6.0	
Lead/Lag	Lag	Lag		Lead	Lead					
Lead-Lag Optimize?	Yes	Yes		Yes	Yes					
Recall Mode	None	Min		None	Min		None		None	
Act Effct Green (s)	6.0	27.1	51.9		15.0	51.9	12.8	51.9		
Actuated g/C Ratio	0.12	0.52	1.00		0.29	1.00	0.25	1.00		
v/c Ratio	1.03	0.23	0.04		0.28	0.32	0.63	0.11		

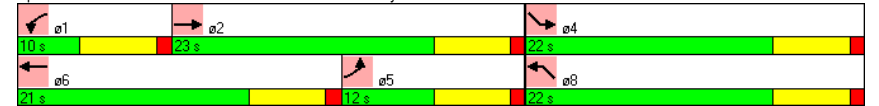
Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
 100: LA3132 NB/LA3132 SB & Flournoy Lucas Rd 2032 Alternative A AM Peak with SPU

Lane Group	EBL	EBT	EBR2	WBL	WBT	WBR2	SEL	SER2	NWL	NWR2
Control Delay	82.4	7.6	0.0		15.8	0.6	21.0	0.1		
Queue Delay	0.0	0.0	0.0		0.0	0.0	0.0	0.0		
Total Delay	82.4	7.6	0.0		15.8	0.6	21.0	0.1		
LOS	F	A	A		B	A	C	A		
Approach Delay		41.8			6.0					
Approach LOS		D			A					
Queue Length 50th (ft)	~70	32	0		33	0	72	0		
Queue Length 95th (ft)	#146	56	0		56	0	96	0		
Internal Link Dist (ft)		669			633					
Turn Bay Length (ft)	350		450		350		600			
Base Capacity (vph)	402	1827	1615		987	1538	1040	1553		
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	1.03	0.23	0.04		0.28	0.32	0.50	0.11		

Intersection Summary

Area Type:	Other
Cycle Length:	55
Actuated Cycle Length:	51.9
Natural Cycle:	55
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	1.03
Intersection Signal Delay:	22.5
Intersection Capacity Utilization:	47.9%
Intersection LOS:	C
ICU Level of Service:	A
Analysis Period (min):	15
~ Volume exceeds capacity, queue is theoretically infinite.	
Queue shown is maximum after two cycles.	
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 100: LA3132 NB/LA3132 SB & Flournoy Lucas Rd



Lanes, Volumes, Timings
101: Flournoy Lucas Rd & LA 3132 SB

LA 3132 (Inner Loop) Extension - Stage 0 Study
2032 Alternative A PM Peak with Improvements



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↓	↑↑					↓	↓	
Volume (vph)	0	327	46	0	423	0	0	0	0	443	0	345
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		450	200		0	0		0	250		0
Storage Lanes	0		1	1		0	0		0	1		0
Taper Length (ft)	50				50					50		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	0.97	1.00	1.00
Frt			0.850								0.850	
Fit Protected										0.950		
Satd. Flow (prot)	0	3574	1615	1900	3610	0	0	0	0	3303	1615	0
Fit Permitted										0.950		
Satd. Flow (perm)	0	3574	1615	1900	3610	0	0	0	0	3303	1615	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			48								394	
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		986			649			714			631	
Travel Time (s)		14.9			9.8			10.8			9.6	
Peak Hour Factor	0.95	0.95	0.95	0.84	0.84	0.84	0.92	0.92	0.92	0.90	0.90	0.90
Heavy Vehicles (%)	0%	1%	0%	0%	0%	0%	2%	2%	2%	6%	0%	0%
Adj. Flow (vph)	0	344	48	0	504	0	0	0	0	492	0	383
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	344	48	0	504	0	0	0	0	492	383	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		34			34			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type		NA	Perm	Perm	NA					Split	NA	
Protected Phases		2 11 14			6 11 14					4	4	
Permitted Phases			2 11 14	6 11 14								
Detector Phase		2 11 14	2 11 14	6 11 14	6 11 14					4	4	
Switch Phase												
Minimum Initial (s)										7.0	7.0	
Minimum Split (s)										13.0	13.0	
Total Split (s)										21.0	21.0	
Total Split (%)										28.0%	28.0%	
Yellow Time (s)										3.5	3.5	
All-Red Time (s)										1.5	1.5	
Lost Time Adjust (s)										0.0	0.0	
Total Lost Time (s)										5.0	5.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode										None	None	
Act Effect Green (s)		48.0	48.0		48.0					16.0	16.0	
Actuated g/C Ratio		0.64	0.64		0.64					0.21	0.21	
v/c Ratio		0.15	0.05		0.22					0.70	0.59	

Lanes, Volumes, Timings
101: Flournoy Lucas Rd & LA 3132 SB

LA 3132 (Inner Loop) Extension - Stage 0 Study
2032 Alternative A PM Peak with Improvements

Lane Group	ø1	ø2	ø6	ø8	ø11	ø12	ø14
Lane Configurations							
Volume (vph)							
Ideal Flow (vphpl)							
Storage Length (ft)							
Storage Lanes							
Taper Length (ft)							
Lane Util. Factor							
Frt							
Fit Protected							
Satd. Flow (prot)							
Fit Permitted							
Satd. Flow (perm)							
Right Turn on Red							
Satd. Flow (RTOR)							
Link Speed (mph)							
Link Distance (ft)							
Travel Time (s)							
Peak Hour Factor							
Heavy Vehicles (%)							
Adj. Flow (vph)							
Shared Lane Traffic (%)							
Lane Group Flow (vph)							
Enter Blocked Intersection							
Lane Alignment							
Median Width(ft)							
Link Offset(ft)							
Crosswalk Width(ft)							
Two way Left Turn Lane							
Headway Factor							
Turning Speed (mph)							
Turn Type							
Protected Phases	1	2	6	8	11	12	14
Permitted Phases							
Detector Phase							
Switch Phase							
Minimum Initial (s)	4.0	15.0	15.0	15.0	5.0	15.0	4.0
Minimum Split (s)	10.0	21.0	21.0	21.0	11.0	21.0	20.0
Total Split (s)	12.0	21.0	21.0	21.0	12.0	21.0	21.0
Total Split (%)	16%	28%	28%	28%	16%	28%	28%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	0.5
Lost Time Adjust (s)							
Total Lost Time (s)							
Lead/Lag							
Lead-Lag Optimize?							
Recall Mode	None	Min	Min	Min	None	None	None
Act Effect Green (s)							
Actuated g/C Ratio							
v/c Ratio							

Lanes, Volumes, Timings
101: Flournoy Lucas Rd & LA 3132 SB

LA 3132 (Inner Loop) Extension - Stage 0 Study
2032 Alternative A PM Peak with Improvements



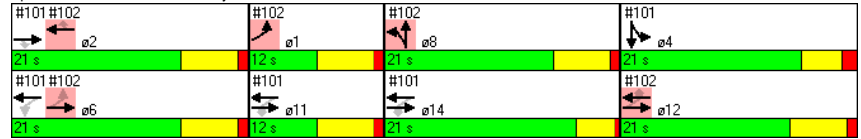
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	5.6	1.8			8.0					33.3	6.9	
Queue Delay	0.0	0.0			0.0					0.0	0.0	
Total Delay	5.6	1.8			8.0					33.3	6.9	
LOS	A	A			A					C	A	
Approach Delay	5.1				8.0						21.7	
Approach LOS	A				A						C	
Queue Length 50th (ft)	29	0			94					109	0	
Queue Length 95th (ft)	44	10			124					159	61	
Internal Link Dist (ft)	906				569			634			551	
Turn Bay Length (ft)			450							250		
Base Capacity (vph)	2287	1051			2310					705	654	
Starvation Cap Reductn	0	0			0					0	0	
Spillback Cap Reductn	0	0			0					0	0	
Storage Cap Reductn	0	0			0					0	0	
Reduced v/c Ratio	0.15	0.05			0.22					0.70	0.59	

Intersection Summary

Area Type: Other
 Cycle Length: 75
 Actuated Cycle Length: 75
 Natural Cycle: 75
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.70
 Intersection Signal Delay: 14.1
 Intersection Capacity Utilization 60.5%
 Analysis Period (min) 15

Intersection LOS: B
 ICU Level of Service B

Splits and Phases: 101: Flournoy Lucas Rd & LA 3132 SB



Lanes, Volumes, Timings
101: Flournoy Lucas Rd & LA 3132 SB

LA 3132 (Inner Loop) Extension - Stage 0 Study
2032 Alternative A PM Peak with Improvements

Lane Group	ø1	ø2	ø6	ø8	ø11	ø12	ø14
Control Delay							
Queue Delay							
Total Delay							
LOS							
Approach Delay							
Approach LOS							
Queue Length 50th (ft)							
Queue Length 95th (ft)							
Internal Link Dist (ft)							
Turn Bay Length (ft)							
Base Capacity (vph)							
Starvation Cap Reductn							
Spillback Cap Reductn							
Storage Cap Reductn							
Reduced v/c Ratio							

Intersection Summary

Area Type: Other
 Cycle Length: 75
 Actuated Cycle Length: 75
 Natural Cycle: 75
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.70
 Intersection Signal Delay: 14.1
 Intersection Capacity Utilization 60.5%
 Analysis Period (min) 15

Intersection LOS: B
 ICU Level of Service B

Lanes, Volumes, Timings
102: Flournoy Lucas Rd & LA3132 NB

LA 3132 (Inner Loop) Extension - Stage 0 Study
2032 Alternative A PM Peak with Improvements



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗			↖	↗	↖	↗				
Volume (vph)	153	617	0	0	423	393	0	0	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	0		85	0		650	0		0
Storage Lanes	1		0	0		1	1		0	0		0
Taper Length (ft)	50			50			50			50		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00
Fr						0.850						
Fit Protected	0.950											
Satd. Flow (prot)	1770	3438	0	0	3574	1482	1805	1805	0	0	0	0
Fit Permitted	0.453											
Satd. Flow (perm)	844	3438	0	0	3574	1482	1805	1805	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						473						
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		649			750			719			607	
Travel Time (s)		9.8			11.4			10.9			9.2	
Peak Hour Factor	0.94	0.94	0.94	0.83	0.83	0.83	0.80	0.80	0.80	0.92	0.92	0.92
Heavy Vehicles (%)	2%	5%	0%	0%	1%	9%	0%	0%	0%	0%	2%	0%
Adj. Flow (vph)	163	656	0	0	510	473	0	0	0	0	0	0
Shared Lane Traffic (%)							0%					
Lane Group Flow (vph)	163	656	0	0	510	473	0	0	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			34			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA			NA	Perm	Split					
Protected Phases	1	6 12			2 12		8	8				
Permitted Phases	6 12					2 12						
Detector Phase	1	6 12			2 12	2 12	8	8				
Switch Phase												
Minimum Initial (s)	4.0						15.0	15.0				
Minimum Split (s)	10.0						21.0	21.0				
Total Split (s)	12.0						21.0	21.0				
Total Split (%)	16.0%						28.0%	28.0%				
Yellow Time (s)	5.0						5.0	5.0				
All-Red Time (s)	1.0						1.0	1.0				
Lost Time Adjust (s)	0.0						0.0	0.0				
Total Lost Time (s)	6.0						6.0	6.0				
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None						Min	Min				
Act Effct Green (s)	42.0	36.0			36.0	36.0						
Actuated g/C Ratio	0.56	0.48			0.48	0.48						
v/c Ratio	0.30	0.40			0.30	0.49						

Lanes, Volumes, Timings
102: Flournoy Lucas Rd & LA3132 NB

LA 3132 (Inner Loop) Extension - Stage 0 Study
2032 Alternative A PM Peak with Improvements

Lane Group	ø2	ø4	ø6	ø11	ø12	ø14
Lane Configurations						
Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Fr						
Fit Protected						
Satd. Flow (prot)						
Fit Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Heavy Vehicles (%)						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Enter Blocked Intersection						
Lane Alignment						
Median Width(ft)						
Link Offset(ft)						
Crosswalk Width(ft)						
Two way Left Turn Lane						
Headway Factor						
Turning Speed (mph)						
Turn Type						
Protected Phases	2	4	6	11	12	14
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	15.0	7.0	15.0	5.0	15.0	4.0
Minimum Split (s)	21.0	13.0	21.0	11.0	21.0	20.0
Total Split (s)	21.0	21.0	21.0	12.0	21.0	21.0
Total Split (%)	28%	28%	28%	16%	28%	28%
Yellow Time (s)	5.0	3.5	5.0	5.0	5.0	3.5
All-Red Time (s)	1.0	1.5	1.0	1.0	1.0	0.5
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	Min	None	Min	None	None	None
Act Effct Green (s)						
Actuated g/C Ratio						
v/c Ratio						

Lanes, Volumes, Timings
102: Flournoy Lucas Rd & LA3132 NB

LA 3132 (Inner Loop) Extension - Stage 0 Study
2032 Alternative A PM Peak with Improvements



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	9.5	3.5			12.4	3.2						
Queue Delay	0.0	0.0			0.0	0.0						
Total Delay	9.5	3.5			12.4	3.2						
LOS	A	A			B	A						
Approach Delay		4.7			8.0							
Approach LOS		A			A							
Queue Length 50th (ft)	26	22			71	0						
Queue Length 95th (ft)	48	30			93	31						
Internal Link Dist (ft)		569			670			639			527	
Turn Bay Length (ft)	200					85						
Base Capacity (vph)	547	1650			1716	957						
Starvation Cap Reductn	0	0			0	0						
Spillback Cap Reductn	0	0			0	0						
Storage Cap Reductn	0	0			0	0						
Reduced v/c Ratio	0.30	0.40			0.30	0.49						

Intersection Summary

Area Type:	Other
Cycle Length:	75
Actuated Cycle Length:	75
Natural Cycle:	75
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.70
Intersection Signal Delay:	6.5
Intersection Capacity Utilization:	60.5%
Analysis Period (min):	15
Intersection LOS:	A
ICU Level of Service:	B

Splits and Phases: 102: Flournoy Lucas Rd & LA3132 NB

#101 #102 → ø2	#102 ↖ ø1	#102 ↗ ø8	#101 ↘ ø4
21 s	12 s	21 s	21 s
#101 #102 ← ø6	#101 ↔ ø11	#101 ↔ ø14	#102 ↔ ø12
21 s	12 s	21 s	21 s

Lanes, Volumes, Timings
102: Flournoy Lucas Rd & LA3132 NB

LA 3132 (Inner Loop) Extension - Stage 0 Study
2032 Alternative A PM Peak with Improvements

Lane Group	ø2	ø4	ø6	ø11	ø12	ø14
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						
Queue Length 50th (ft)						
Queue Length 95th (ft)						
Internal Link Dist (ft)						
Turn Bay Length (ft)						
Base Capacity (vph)						
Starvation Cap Reductn						
Spillback Cap Reductn						
Storage Cap Reductn						
Reduced v/c Ratio						

Intersection Summary

Area Type:	Other
Cycle Length:	75
Actuated Cycle Length:	75
Natural Cycle:	75
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.70
Intersection Signal Delay:	6.5
Intersection Capacity Utilization:	60.5%
Analysis Period (min):	15
Intersection LOS:	A
ICU Level of Service:	B

Lanes, Volumes, Timings
103: LA 1 & Flournoy Lucas Rd

LA 3132 (Inner Loop) Extension - Stage 0 Study
2032 Alternative A PM Peak with Improvements

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Volume (vph)	617	0	57	62	24	9	54	309	23	0	366	769
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	0	0	0	0	125	0	165	0	165	165
Storage Lanes	1	0	0	0	0	0	1	0	1	0	1	1
Taper Length (ft)	50			50			50		50			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt		0.850			0.988			0.989				0.850
Frt Protected	0.950				0.968		0.950					
Satd. Flow (prot)	1787	1214	0	0	1808	0	1570	3352	0	1900	3438	1599
Frt Permitted	0.663				0.763		0.352					
Satd. Flow (perm)	1247	1214	0	0	1425	0	582	3352	0	1900	3438	1599
Right Turn on Red			Yes		Yes		Yes		Yes			No
Satd. Flow (RTOR)		281			4		8					
Link Speed (mph)		50			50		55					55
Link Distance (ft)		784			651		1092					934
Travel Time (s)		10.7			8.9		13.5					11.6
Peak Hour Factor	0.89	0.89	0.89	0.80	0.80	0.80	0.83	0.83	0.83	0.81	0.81	0.81
Heavy Vehicles (%)	1%	2%	33%	0%	2%	0%	15%	7%	0%	0%	5%	1%
Adj. Flow (vph)	693	0	64	78	30	11	65	372	28	0	452	949
Shared Lane Traffic (%)												
Lane Group Flow (vph)	693	64	0	0	119	0	65	400	0	0	452	949
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			0		12				12	
Link Offset(ft)		0			0		0				0	
Crosswalk Width(ft)		16			16		16				16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA		Perm	NA		pm+pt	NA		pm+pt	NA	pt+ov
Protected Phases	3	8			4		1	6		5	2	2,3
Permitted Phases	8			4			6			2		
Detector Phase	3	8		4	4		1	6		5	2	2,3
Switch Phase												
Minimum Initial (s)	5.0	10.0		7.0	7.0		7.0	15.0		5.0	15.0	
Minimum Split (s)	11.5	16.5		13.5	13.5		15.0	23.0		13.0	23.0	
Total Split (s)	32.9	47.8		14.9	14.9		15.0	39.2		13.0	37.2	
Total Split (%)	32.9%	47.8%		14.9%	14.9%		15.0%	39.2%		13.0%	37.2%	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.5	5.5		5.5	5.5	
All-Red Time (s)	1.5	1.5		1.5	1.5		2.5	2.5		2.5	2.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.5	6.5		6.5	6.5		8.0	8.0		8.0	8.0	
Lead/Lag	Lead			Lag	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes			Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None		None	Min		None	Min	
Act Effect Green (s)	41.5	41.5		8.4	8.4		41.0	41.0		29.3	62.4	
Actuated g/C Ratio	0.43	0.43		0.09	0.09		0.42	0.42		0.30	0.64	
v/c Ratio	1.02	0.09		0.94	0.94		0.21	0.28		0.44	0.92	

Lanes, Volumes, Timings
103: LA 1 & Flournoy Lucas Rd

LA 3132 (Inner Loop) Extension - Stage 0 Study
2032 Alternative A PM Peak with Improvements

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	67.8	0.3			110.3		18.0	18.3			29.6	32.9
Queue Delay	0.0	0.0			0.0		0.0	0.0			0.0	0.0
Total Delay	67.8	0.3			110.3		18.0	18.3			29.6	32.9
LOS	E	A			F		B	B			C	C
Approach Delay		62.1			110.3			18.2			31.9	
Approach LOS		E			F			B			C	
Queue Length 50th (ft)	~451	0			74		23	81			123	518
Queue Length 95th (ft)	#693	0			#160		45	104			150	#692
Internal Link Dist (ft)		704			571			1012			854	
Turn Bay Length (ft)							125					165
Base Capacity (vph)	681	680			127		317	1436			1039	1028
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	1.02	0.09			0.94		0.21	0.28			0.44	0.92

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 97

Natural Cycle: 100

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.02

Intersection Signal Delay: 41.3

Intersection Capacity Utilization 78.0%

Analysis Period (min) 15

Intersection LOS: D

ICU Level of Service D

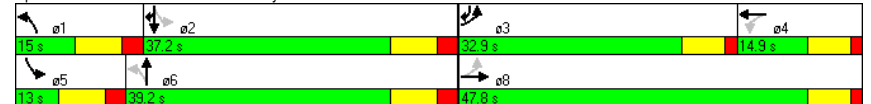
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 103: LA 1 & Flournoy Lucas Rd



Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
105: Ellerbe Rd & Flournoy Lucas Rd 2032 Alternative A PM Peak with Improvements

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Volume (vph)	11	131	219	168	214	0	56	628	87	29	1303	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	140		150	150		0	115		120	150		0
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (ft)	50			50			50			50		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Frt			0.850						0.850			0.998
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1805	1863	1615	1787	1863	1900	1805	3539	1599	1752	3533	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1805	1863	1615	1787	1863	1900	1805	3539	1599	1752	3533	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			187						100			2
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		848			838			697			896	
Travel Time (s)		12.8			12.7			10.6			13.6	
Peak Hour Factor	0.87	0.87	0.87	0.89	0.89	0.89	0.84	0.84	0.84	0.89	0.89	0.89
Heavy Vehicles (%)	0%	2%	0%	1%	2%	0%	0%	2%	1%	3%	2%	0%
Adj. Flow (vph)	13	151	252	189	240	0	67	748	104	33	1464	24
Shared Lane Traffic (%)												
Lane Group Flow (vph)	13	151	252	189	240	0	67	748	104	33	1488	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane					Yes						Yes	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases			8			4			6			
Detector Phase	3	8	8	7	4	4	1	6	6	5	2	
Switch Phase												
Minimum Initial (s)	7.0	15.0	15.0	7.0	15.0	15.0	7.0	10.0	10.0	7.0	10.0	
Minimum Split (s)	12.0	20.0	20.0	14.0	22.0	22.0	12.0	15.0	15.0	14.0	17.0	
Total Split (s)	12.0	20.0	20.0	16.0	24.0	24.0	12.0	40.0	40.0	14.0	42.0	
Total Split (%)	13.3%	22.2%	22.2%	17.8%	26.7%	26.7%	13.3%	44.4%	44.4%	15.6%	46.7%	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	0.0	0.0	0.0	2.0	2.0	2.0	0.0	0.0	0.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0	5.0	5.0	7.0	7.0	7.0	5.0	5.0	5.0	7.0	7.0	
Lead/Lag	Lead	Lead	Lead	Lag	Lag	Lag	Lead	Lead	Lead	Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	Min	Min	None	Min	Min	None	None	None	None	None	
Act Effect Green (s)	7.0	15.0	15.0	9.0	26.8	26.8	7.0	39.4	39.4	8.7	35.1	
Actuated g/C Ratio	0.08	0.17	0.17	0.10	0.31	0.31	0.08	0.45	0.45	0.10	0.40	
v/c Ratio	0.09	0.47	0.58	1.03	0.42	0.42	0.47	0.47	0.13	0.19	1.05	

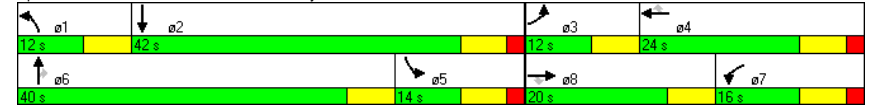
Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
105: Ellerbe Rd & Flournoy Lucas Rd 2032 Alternative A PM Peak with Improvements

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	40.2	39.2	16.5	115.5	29.6		50.8	19.8	5.3	39.4	66.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	40.2	39.2	16.5	115.5	29.6		50.8	19.8	5.3	39.4	66.1	
LOS	D	D	B	F	C		D	B	A	D	E	
Approach Delay		25.5			67.5				20.4		65.5	
Approach LOS		C			E				C		E	
Queue Length 50th (ft)	7	79	32	~119	105		37	121	1	18	~504	
Queue Length 95th (ft)	24	134	99	#246	#209		74	216	28	45	#628	
Internal Link Dist (ft)		768			758		617				816	
Turn Bay Length (ft)	140		150	150		115		120	150			
Base Capacity (vph)	144	320	432	184	569		144	1657	802	173	1417	
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	0.09	0.47	0.58	1.03	0.42		0.47	0.45	0.13	0.19	1.05	

Intersection Summary

Area Type:	Other
Cycle Length:	90
Actuated Cycle Length:	87.6
Natural Cycle:	90
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	1.05
Intersection Signal Delay:	48.1
Intersection Capacity Utilization:	82.5%
ICU Level of Service:	E
Analysis Period (min):	15
~ Volume exceeds capacity, queue is theoretically infinite.	
Queue shown is maximum after two cycles.	
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 105: Ellerbe Rd & Flournoy Lucas Rd



Lanes, Volumes, Timings

LA 3132 (Inner Loop) Extension - Stage 0 Study

107: LA 1 & Bert Kouns Industrial Loop

2032 Alternative A PM Peak with Improvements

	←		→		↙		↘		↖		↗		↕	
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		
Lane Configurations	↑↑	↑↑	↑	↓	↑↑	↑	↑↑	↑↑	↑	↑↑	↑↑	↑	↑	↓
Volume (vph)	316	880	116	234	801	89	124	858	220	111	458	266		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900		
Storage Length (ft)	230		230	150		115	220		220	230		230		
Storage Lanes	2		1	1		1	2		1	2		1		
Taper Length (ft)	50					50				50				
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00		
Frt			0.850			0.850			0.850			0.850		
Flt Protected	0.950			0.950			0.950			0.950				
Satd. Flow (prot)	3502	3539	1568	1787	3539	1583	3335	3574	1553	3502	3574	1599		
Flt Permitted	0.950			0.276			0.950			0.950				
Satd. Flow (perm)	3502	3539	1568	519	3539	1583	3335	3574	1553	3502	3574	1599		
Right Turn on Red			No				Yes				Yes			
Satd. Flow (RTOR)						24			29			98		
Link Speed (mph)		50				50			45			45		
Link Distance (ft)		1652				1693			1702			1927		
Travel Time (s)		22.5				23.1			25.8			29.2		
Peak Hour Factor	0.98	0.98	0.98	0.91	0.91	0.91	0.85	0.85	0.85	0.91	0.91	0.91		
Heavy Vehicles (%)	0%	2%	3%	1%	2%	2%	5%	1%	4%	0%	1%	1%		
Adj. Flow (vph)	322	898	118	257	880	98	146	1009	259	122	503	292		
Shared Lane Traffic (%)														
Lane Group Flow (vph)	322	898	118	257	880	98	146	1009	259	122	503	292		
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No		
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right		
Median Width(ft)		24			24			24			24			
Link Offset(ft)		0				0				0				
Crosswalk Width(ft)		16			16			16			16			
Two way Left Turn Lane					Yes									
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Turning Speed (mph)	15		9		15		9		15		9		15	
Turn Type	Prot	NA	Prot	pm+pt	NA	pt+ov	Prot	NA	pt+ov	Prot	NA	pt+ov		
Protected Phases	1	6	6	5	2	2.7	3	8	5.8	7	4	1.4		
Permitted Phases				2										
Detector Phase	1	6	6	5	2	2.7	3	8	5.8	7	4	1.4		
Switch Phase														
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0		5.0	10.0		5.0	10.0			
Minimum Split (s)	11.0	22.0	22.0	11.0	22.0		11.0	22.0		11.0	22.0			
Total Split (s)	21.0	36.0	36.0	21.0	36.0		20.0	40.0		13.0	33.0			
Total Split (%)	19.1%	32.7%	32.7%	19.1%	32.7%		18.2%	36.4%		11.8%	30.0%			
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5			
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5		1.5	1.5		1.5	1.5			
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0			
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0		6.0	6.0		6.0	6.0			
Lead/Lag	Lead	Lead	Lead	Lag	Lag		Lead	Lead		Lag	Lag			
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes			
Recall Mode	None	C-Min	C-Min	None	C-Min		None	None		None	None			
Act Effect Green (s)	14.0	30.8	30.8	31.5	31.5	38.4	10.1	33.6	54.2	6.9	30.4	50.4		
Actuated g/C Ratio	0.13	0.28	0.28	0.29	0.29	0.35	0.09	0.31	0.49	0.06	0.28	0.46		
v/c Ratio	0.72	0.91	0.27	0.81	0.87	0.17	0.48	0.92	0.33	0.55	0.51	0.37		

Lanes, Volumes, Timings

LA 3132 (Inner Loop) Extension - Stage 0 Study

107: LA 1 & Bert Kouns Industrial Loop

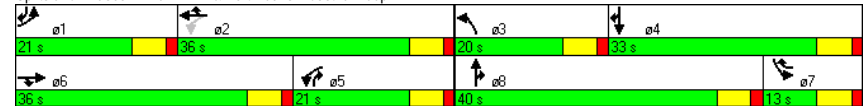
2032 Alternative A PM Peak with Improvements

	←		→		↙		↘		↖		↗		↕	
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		
Control Delay	55.9	52.2	33.3	62.2	48.2	11.1	52.2	51.7	16.1	59.9	36.0	14.1		
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Total Delay	55.9	52.2	33.3	62.2	48.2	11.1	52.2	51.7	16.1	59.9	36.0	14.1		
LOS	E	D	C	E	D	B	D	D	B	E	D	B		
Approach Delay		51.4			48.2			45.2			32.2			
Approach LOS		D			D			D			C			
Queue Length 50th (ft)	112	325	66	154	316	22	51	360	92	43	156	81		
Queue Length 95th (ft)	161	#448	116	#284	#434	45	77	#416	139	74	217	154		
Internal Link Dist (ft)		1572			1613			1622			1847			
Turn Bay Length (ft)	230		230		150		115		220		220		230	230
Base Capacity (vph)	478	992	440	323	1013	569	424	1105	774	223	987	799		
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	0.67	0.91	0.27	0.80	0.87	0.17	0.34	0.91	0.33	0.55	0.51	0.37		

Intersection Summary

Area Type: Other
 Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 100 (91%), Referenced to phase 2:WBT and 6:EBT, Start of Green
 Natural Cycle: 90
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.92
 Intersection Signal Delay: 45.2
 Intersection Capacity Utilization 85.2%
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 107: LA 1 & Bert Kouns Industrial Loop



Lanes, Volumes, Timings
108: Bert Kouns Industrial Loop & LA 3132 EB Off Ramp/LA 3132 EB On Ramp with Improvements

LA 3132 (Inner Loop) Extension - Stage 0 Study



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	807	1	13	0	0	0	0	1066	158	67	1027	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		110	0		0	0		0	295		0
Storage Lanes	1		1	0		0	0		0	1		0
Taper Length (ft)	50			50			50			50		
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Fr't			0.850					0.981				
Flt Protected	0.950	0.952								0.950		
Satd. Flow (prot)	1715	1718	1615	0	0	0	0	3511	0	1805	3574	0
Flt Permitted	0.950	0.952								0.083		
Satd. Flow (perm)	1715	1718	1615	0	0	0	0	3511	0	158	3574	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			8					19				
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1564			1165			530			537	
Travel Time (s)		23.7			17.7			8.0			8.1	
Peak Hour Factor	0.93	0.93	0.93	0.92	0.92	0.92	0.86	0.86	0.86	0.96	0.96	0.96
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	1%	0%
Adj. Flow (vph)	868	1	14	0	0	0	0	1240	184	70	1070	0
Shared Lane Traffic (%)	50%											
Lane Group Flow (vph)	434	435	14	0	0	0	0	1424	0	70	1070	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			27			27	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Split	NA	Perm					NA	custom		NA	
Protected Phases	4	4						6		5	2.5	
Permitted Phases			4							2		
Detector Phase	4	4	4					6		5	2.5	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0					15.0		5.0		
Minimum Split (s)	11.0	11.0	11.0					21.0		10.0		
Total Split (s)	36.0	36.0	36.0					54.0		20.0		
Total Split (%)	32.7%	32.7%	32.7%					49.1%		18.2%		
Yellow Time (s)	5.0	5.0	5.0					5.0		5.0		
All-Red Time (s)	1.0	1.0	1.0					1.0		0.0		
Lost Time Adjust (s)	0.0	0.0	0.0					0.0		0.0		
Total Lost Time (s)	6.0	6.0	6.0					6.0		5.0		
Lead/Lag								Lag		Lead		
Lead-Lag Optimize?								Yes		Yes		
Recall Mode	None	None	None					None		None		
Act Effct Green (s)	29.1	29.1	29.1					48.0		64.0	68.0	
Actuated g/C Ratio	0.27	0.27	0.27					0.44		0.59	0.62	
v/c Ratio	0.95	0.95	0.03					0.92		0.22	0.48	

Lanes, Volumes, Timings
108: Bert Kouns Industrial Loop & LA 3132 EB Off Ramp/LA 3132 EB On Ramp with Improvements

LA 3132 (Inner Loop) Extension - Stage 0 Study

Lane Group	ø1	ø2	ø8
Lane Configurations			
Volume (vph)			
Ideal Flow (vphpl)			
Storage Length (ft)			
Storage Lanes			
Taper Length (ft)			
Lane Util. Factor			
Fr't			
Flt Protected			
Satd. Flow (prot)			
Flt Permitted			
Satd. Flow (perm)			
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (mph)			
Link Distance (ft)			
Travel Time (s)			
Peak Hour Factor			
Heavy Vehicles (%)			
Adj. Flow (vph)			
Shared Lane Traffic (%)			
Lane Group Flow (vph)			
Enter Blocked Intersection			
Lane Alignment			
Median Width(ft)			
Link Offset(ft)			
Crosswalk Width(ft)			
Two way Left Turn Lane			
Headway Factor			
Turning Speed (mph)			
Turn Type			
Protected Phases	1	2	8
Permitted Phases			
Detector Phase			
Switch Phase			
Minimum Initial (s)	5.0	15.0	12.0
Minimum Split (s)	10.0	21.0	18.0
Total Split (s)	20.0	54.0	36.0
Total Split (%)	18%	49%	33%
Yellow Time (s)	5.0	5.0	5.0
All-Red Time (s)	0.0	1.0	1.0
Lost Time Adjust (s)			
Total Lost Time (s)			
Lead/Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	
Recall Mode	None	None	None
Act Effct Green (s)			
Actuated g/C Ratio			
v/c Ratio			

Lanes, Volumes, Timings
 108: Bert Kouns Industrial Loop & LA 3132 EB Off Ramp/LA 3132 EB On Ramp with Improvements

LA 3132 (Inner Loop) Extension - Stage 0 Study



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	71.2	71.3	20.1					38.9	21.7	5.0		
Queue Delay	0.0	0.0	0.0					3.2	0.0	0.0		
Total Delay	71.2	71.3	20.1					42.2	21.7	5.0		
LOS	E	E	C					D	C	A		
Approach Delay		70.5						42.2		6.1		
Approach LOS		E						D		A		
Queue Length 50th (ft)	314	315	3					483	9	58		
Queue Length 95th (ft)	#516	#517	19					547	m35	68		
Internal Link Dist (ft)		1484			1085			450		457		
Turn Bay Length (ft)			110						295			
Base Capacity (vph)	472	473	450					1556	320	2228		
Starvation Cap Reductn	0	0	0					0	0	82		
Spillback Cap Reductn	0	0	0					76	0	0		
Storage Cap Reductn	0	0	0					0	0	0		
Reduced v/c Ratio	0.92	0.92	0.03					0.96	0.22	0.50		

Intersection Summary

Area Type: Other
 Cycle Length: 110
 Actuated Cycle Length: 109.1
 Natural Cycle: 80
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.95
 Intersection Signal Delay: 37.5 Intersection LOS: D
 Intersection Capacity Utilization 78.2% ICU Level of Service D
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 108: Bert Kouns Industrial Loop & LA 3132 EB Off Ramp/LA 3132 EB On Ramp



Lanes, Volumes, Timings
 108: Bert Kouns Industrial Loop & LA 3132 EB Off Ramp/LA 3132 EB On Ramp with Improvements

LA 3132 (Inner Loop) Extension - Stage 0 Study

Lane Group	ø1	ø2	ø8
Control Delay			
Queue Delay			
Total Delay			
LOS			
Approach Delay			
Approach LOS			
Queue Length 50th (ft)			
Queue Length 95th (ft)			
Internal Link Dist (ft)			
Turn Bay Length (ft)			
Base Capacity (vph)			
Starvation Cap Reductn			
Spillback Cap Reductn			
Storage Cap Reductn			
Reduced v/c Ratio			

Intersection Summary

Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
 109: Bert Kouns Industrial Loop & LA 3132 WB On Ramp/LA 3132 WB On Ramp with Improvements



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	68	0	46	31	1873	0	0	1026	805
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	0	0	0	200	295	0	0	0	0	115
Storage Lanes	0	0	0	0	0	1	1	0	0	0	0	1
Taper Length (ft)	50			50			50			50		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frnt						0.850					0.850	
Fit Protected					0.950		0.950					
Satd. Flow (prot)	0	0	0	0	1805	1615	1752	3539	0	0	3574	1583
Fit Permitted					0.950		0.142					
Satd. Flow (perm)	0	0	0	0	1805	1615	262	3539	0	0	3574	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						16						485
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		311			1075			537			687	
Travel Time (s)		4.7			16.3			8.1			10.4	
Peak Hour Factor	0.92	0.92	0.92	0.82	0.82	0.82	0.96	0.96	0.96	0.95	0.95	0.95
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	3%	2%	0%	0%	1%	2%
Adj. Flow (vph)	0	0	0	83	0	56	32	1951	0	0	1080	847
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	83	56	32	1951	0	0	1080	847
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)	0			0			27			27		
Link Offset(ft)	0			0			0			0		
Crosswalk Width(ft)	16			16			16			16		
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type				Split	NA	Perm	custom	NA			NA	Perm
Protected Phases				8	8		1	1 6			2	
Permitted Phases						8	6					2
Detector Phase				8	8	8	1	1 6			2	2
Switch Phase												
Minimum Initial (s)				12.0	12.0	12.0	5.0				15.0	15.0
Minimum Split (s)				18.0	18.0	18.0	10.0				21.0	21.0
Total Split (s)				36.0	36.0	36.0	20.0				54.0	54.0
Total Split (%)				32.7%	32.7%	32.7%	18.2%				49.1%	49.1%
Yellow Time (s)				5.0	5.0	5.0	5.0				5.0	5.0
All-Red Time (s)				1.0	1.0	1.0	0.0				1.0	1.0
Lost Time Adjust (s)				0.0	0.0	0.0	0.0				0.0	0.0
Total Lost Time (s)				6.0	6.0	6.0	5.0				6.0	6.0
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Recall Mode				None	None	None	None				None	None
Act Effect Green (s)				29.1	29.1	29.1	64.0	69.0			48.0	48.0
Actuated g/C Ratio				0.27	0.27	0.27	0.59	0.63			0.44	0.44
v/c Ratio				0.17	0.13	0.13	0.09	0.87			0.69	0.88

Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
 109: Bert Kouns Industrial Loop & LA 3132 WB On Ramp/LA 3132 WB On Ramp with Improvements

Lane Group	ø4	ø5	ø6
Lane Configurations			
Volume (vph)			
Ideal Flow (vphpl)			
Storage Length (ft)			
Storage Lanes			
Taper Length (ft)			
Lane Util. Factor			
Frnt			
Fit Protected			
Satd. Flow (prot)			
Fit Permitted			
Satd. Flow (perm)			
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (mph)			
Link Distance (ft)			
Travel Time (s)			
Peak Hour Factor			
Heavy Vehicles (%)			
Adj. Flow (vph)			
Shared Lane Traffic (%)			
Lane Group Flow (vph)			
Enter Blocked Intersection			
Lane Alignment			
Median Width(ft)			
Link Offset(ft)			
Crosswalk Width(ft)			
Two way Left Turn Lane			
Headway Factor			
Turning Speed (mph)			
Turn Type			
Protected Phases	4	5	6
Permitted Phases			
Detector Phase			
Switch Phase			
Minimum Initial (s)	5.0	5.0	15.0
Minimum Split (s)	11.0	10.0	21.0
Total Split (s)	36.0	20.0	54.0
Total Split (%)	33%	18%	49%
Yellow Time (s)	5.0	5.0	5.0
All-Red Time (s)	1.0	0.0	1.0
Lost Time Adjust (s)			
Total Lost Time (s)			
Lead/Lag		Lead	Lag
Lead-Lag Optimize?		Yes	Yes
Recall Mode	None	None	None
Act Effect Green (s)			
Actuated g/C Ratio			
v/c Ratio			

Lanes, Volumes, Timings
 109: Bert Kouns Industrial Loop & LA 3132 WB On Ramp/LA 3132 WB Off Ramp with Improvements

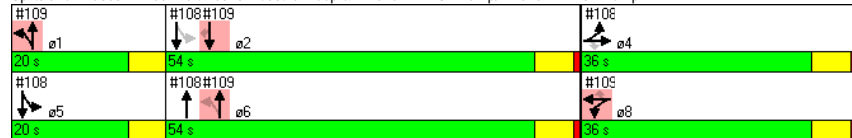


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay					31.8	24.0	8.9	17.7			27.5	23.2
Queue Delay					0.0	0.0	0.0	3.8			0.0	0.0
Total Delay					31.8	24.0	8.9	21.5			27.5	23.2
LOS					C	C	A	C			C	C
Approach Delay					28.6			21.3			25.6	
Approach LOS					C			C			C	
Queue Length 50th (ft)					45	21	9	360			316	260
Queue Length 95th (ft)					77	47	m11	m428			393	#569
Internal Link Dist (ft)		231			995			457			607	
Turn Bay Length (ft)						200	295					115
Base Capacity (vph)					496	456	359	2239			1573	968
Starvation Cap Reductn					0	0	0	215			0	0
Spillback Cap Reductn					0	0	0	0			0	0
Storage Cap Reductn					0	0	0	0			0	0
Reduced v/c Ratio					0.17	0.12	0.09	0.96			0.69	0.88

Intersection Summary

Area Type: Other
 Cycle Length: 110
 Actuated Cycle Length: 109.1
 Natural Cycle: 80
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.95
 Intersection Signal Delay: 23.6
 Intersection Capacity Utilization 78.2%
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 109: Bert Kouns Industrial Loop & LA 3132 WB On Ramp/LA 3132 WB Off Ramp

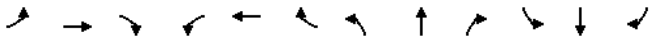


Lanes, Volumes, Timings
 109: Bert Kouns Industrial Loop & LA 3132 WB On Ramp/LA 3132 WB Off Ramp with Improvements

Lane Group	ø4	ø5	ø6
Control Delay			
Queue Delay			
Total Delay			
LOS			
Approach Delay			
Approach LOS			
Queue Length 50th (ft)			
Queue Length 95th (ft)			
Internal Link Dist (ft)			
Turn Bay Length (ft)			
Base Capacity (vph)			
Starvation Cap Reductn			
Spillback Cap Reductn			
Storage Cap Reductn			
Reduced v/c Ratio			

Intersection Summary


Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
 110: Ashley River Dr SB & Flournoy Lucas Rd 2032 Alternative A PM Peak with Improvements



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↕	↔	↔	↕	↔	↔	↔	↔	↔	↕	↔
Volume (vph)	0	371	246	108	805	1	0	0	0	7	0	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	180	0	120	0	0	0	0	0	0	0	0	0
Storage Lanes	1	0	1	0	0	0	0	0	0	0	0	0
Taper Length (ft)	50	0	50	0	0	50	0	0	0	50	0	0
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.940											
Frt Protected	0.950											
Satd. Flow (prot)	1900	3263	0	1805	3406	0	0	0	0	0	1711	0
Frt Permitted	0.950											
Satd. Flow (perm)	1900	3263	0	1805	3406	0	0	0	0	0	1711	0
Link Speed (mph)	45		45		30		30		30		30	
Link Distance (ft)	750		127		320		340		340		340	
Travel Time (s)	11.4		1.9		7.3		7.7		7.7		7.7	
Peak Hour Factor	0.92	0.92	0.92	0.85	0.85	0.85	0.92	0.92	0.92	0.80	0.80	0.80
Heavy Vehicles (%)	0%	6%	1%	0%	6%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	403	267	127	947	1	0	0	0	9	0	14
Shared Lane Traffic (%)	0											
Lane Group Flow (vph)	0	670	0	127	948	0	0	0	0	0	23	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)	12		14		0		0		0		0	
Link Offset(ft)	0		0		0		0		0		0	
Crosswalk Width(ft)	16		16		16		16		16		16	
Two way Left Turn Lane	Yes											
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	0	9	15	0	9	15	0	9	15	0	9
Sign Control	Free		Free		Stop		Stop		Stop		Stop	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	39.0% ICU Level of Service A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis LA 3132 (Inner Loop) Extension - Stage 0 Study
 110: Ashley River Dr SB & Flournoy Lucas Rd 2032 Alternative A PM Peak with Improvements



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↕	↔	↔	↕	↔	↔	↔	↔	↔	↕	↔
Volume (veh/h)	0	371	246	108	805	1	0	0	0	7	0	11
Sign Control	Free		Free		Stop		Stop		Stop		Stop	
Grade	0%											
Peak Hour Factor	0.92	0.92	0.92	0.85	0.85	0.85	0.92	0.92	0.92	0.80	0.80	0.80
Hourly flow rate (vph)	0	403	267	127	947	1	0	0	0	9	0	14
Pedestrians	0											
Lane Width (ft)	12											
Walking Speed (ft/s)	3.5											
Percent Blockage	0%											
Right turn flare (veh)	0											
Median type	None		TWLTL		TWLTL		TWLTL		TWLTL		TWLTL	
Median storage (veh)	2											
Upstream signal (ft)	750											
pX, platoon unblocked	0.89		0.89		0.89		0.89		0.89		0.89	
vC, conflicting volume	948		671		1278		1739		335		1403	
vC1, stage 1 conf vol	0		0		537		537		1202		1202	
vC2, stage 2 conf vol	0		0		741		1202		202		671	
vCu, unblocked vol	948		377		1061		1580		0		1202	
tC, single (s)	4.1		4.1		7.5		6.5		6.9		7.5	
tC, 2 stage (s)	2.2		2.2		6.5		5.5		6.5		5.5	
tF (s)	2.2		2.2		3.5		4.0		3.3		4.0	
p0 queue free %	100		88		100		100		100		97	
cM capacity (veh/h)	732		1059		303		216		969		171	

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1	
Volume Total	0	269	402	127	631	317	22	
Volume Left	0	0	0	127	0	0	9	
Volume Right	0	0	267	0	0	1	14	
cSH	1700	1700	1700	1059	1700	1700	294	
Volume to Capacity	0.00	0.16	0.24	0.12	0.37	0.19	0.08	
Queue Length 95th (ft)	0	0	0	10	0	0	6	
Control Delay (s)	0.0	0.0	0.0	8.9	0.0	0.0	18.3	
Lane LOS	A			C		C		
Approach Delay (s)	0.0		1.0		18.3		C	
Approach LOS	C		C		C		C	

Intersection Summary	
Average Delay	0.9
Intersection Capacity Utilization	39.0% ICU Level of Service A
Analysis Period (min)	15

Lanes, Volumes, Timings

LA 3132 (Inner Loop) Extension - Stage 0 Study

111: Ashley River Dr NB & Flournoy Lucas Rd

2032 Alternative A PM Peak with Improvements

	→	↖	↗	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑	↖	↗
Volume (vph)	378	0	0	789	125	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt						0.850
Flt Protected						0.950
Satd. Flow (prot)	3406	0	0	3438	1805	1568
Flt Permitted						0.950
Satd. Flow (perm)	3406	0	0	3438	1805	1568
Link Speed (mph)	45			45	30	
Link Distance (ft)	127			2333	283	
Travel Time (s)	1.9			35.3	6.4	
Peak Hour Factor	0.88	0.88	0.80	0.80	0.80	0.80
Heavy Vehicles (%)	6%	0%	0%	5%	0%	3%
Adj. Flow (vph)	430	0	0	986	156	81
Shared Lane Traffic (%)						
Lane Group Flow (vph)	430	0	0	986	156	81
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	14			14	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane	Yes			Yes		
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	35.4%
ICU Level of Service	A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis LA 3132 (Inner Loop) Extension - Stage 0 Study

111: Ashley River Dr NB & Flournoy Lucas Rd

2032 Alternative A PM Peak with Improvements

	→	↖	↗	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑	↖	↗
Volume (veh/h)	378	0	0	789	125	65
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.88	0.88	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	430	0	0	986	156	81
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)	877					
pX, platoon unblocked						
vC, conflicting volume			430		923	215
vC1, stage 1 conf vol					430	
vC2, stage 2 conf vol					493	
vCu, unblocked vol			430		923	215
tC, single (s)			4.1		6.8	7.0
tC, 2 stage (s)					5.8	
tF (s)			2.2		3.5	3.3
p0 queue free %			100		68	90
cM capacity (veh/h)			1141		483	787

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2
Volume Total	215	215	493	493	156	81
Volume Left	0	0	0	0	156	0
Volume Right	0	0	0	0	0	81
cSH	1700	1700	1700	1700	483	787
Volume to Capacity	0.13	0.13	0.29	0.29	0.32	0.10
Queue Length 95th (ft)	0	0	0	0	35	9
Control Delay (s)	0.0	0.0	0.0	0.0	16.0	10.1
Lane LOS					C	B
Approach Delay (s)	0.0		0.0		14.0	
Approach LOS					B	

Intersection Summary

Average Delay	2.0
Intersection Capacity Utilization	35.4%
ICU Level of Service	A
Analysis Period (min)	15

Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
 112: Flournoy Lucas Rd & Oaks Retirement Rd 2032 Alternative A PM Peak with Improvements

	↖	→	←	↙	↘	
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖	↖↖	↖↖		↖	↖
Volume (vph)	14	429	761	24	21	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	375			0	0	0
Storage Lanes	1			0	1	1
Taper Length (ft)	50				50	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Frt			0.995			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1805	3471	3426	0	1805	1553
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1805	3471	3426	0	1805	1553
Link Speed (mph)		45	45		30	
Link Distance (ft)		2333	1050		729	
Travel Time (s)		35.3	15.9		16.6	
Peak Hour Factor	0.88	0.88	0.80	0.80	0.80	0.80
Heavy Vehicles (%)	0%	4%	5%	0%	0%	4%
Adj. Flow (vph)	16	488	951	30	26	35
Shared Lane Traffic (%)						
Lane Group Flow (vph)	16	488	981	0	26	35
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		14	14		28	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane		Yes	Yes			
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	31.8%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis LA 3132 (Inner Loop) Extension - Stage 0 Study
 112: Flournoy Lucas Rd & Oaks Retirement Rd 2032 Alternative A PM Peak with Improvements

	↖	→	←	↙	↘	
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖	↖↖	↖↖		↖	↖
Volume (veh/h)	14	429	761	24	21	28
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.88	0.88	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	16	488	951	30	26	35
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		TWLT	TWLT			
Median storage (veh)		2	2			
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	981				1242	491
vC1, stage 1 conf vol					966	
vC2, stage 2 conf vol					276	
vCu, unblocked vol	981				1242	491
tC, single (s)	4.1				6.8	7.0
tC, 2 stage (s)					5.8	
tF (s)	2.2				3.5	3.3
p0 queue free %	98				92	93
cM capacity (veh/h)	712				316	518

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1	SB 2
Volume Total	16	244	244	634	347	26	35
Volume Left	16	0	0	0	0	26	0
Volume Right	0	0	0	0	30	0	35
cSH	712	1700	1700	1700	1700	316	518
Volume to Capacity	0.02	0.14	0.14	0.37	0.20	0.08	0.07
Queue Length 95th (ft)	2	0	0	0	0	7	5
Control Delay (s)	10.2	0.0	0.0	0.0	0.0	17.4	12.4
Lane LOS	B					C	B
Approach Delay (s)	0.3			0.0		14.6	
Approach LOS						B	

Intersection Summary	
Average Delay	0.7
Intersection Capacity Utilization	31.8%
Analysis Period (min)	15
	ICU Level of Service A

Lanes, Volumes, Timings
201: LA 1 & I-69 WB Ramp

LA 3132 (Inner Loop) Extension - Stage 0 Study
2032 Alternative A PM Peak with Improvements

	↖	↗	↕	↙	↘	↓
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↘	↕	↘	↘	↕
Volume (vph)	55	0	146	48	123	748
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300	0	0	0	275	
Storage Lanes	1	1		1		
Taper Length (ft)	50				50	
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt			0.850			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1641	1727	3034	1357	1656	3312
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1641	1727	3034	1357	1656	3312
Link Speed (mph)	40		65		65	
Link Distance (ft)	384		1426		533	
Travel Time (s)	6.5		15.0		5.6	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Heavy Vehicles (%)	10%	10%	19%	19%	9%	9%
Adj. Flow (vph)	69	0	183	60	137	831
Shared Lane Traffic (%)						
Lane Group Flow (vph)	69	0	182	60	137	831
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		76		76	
Link Offset(ft)	0		0		0	
Crosswalk Width(ft)	16		16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free		Free	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	30.7%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis LA 3132 (Inner Loop) Extension - Stage 0 Study
201: LA 1 & I-69 WB Ramp

2032 Alternative A PM Peak with Improvements

	↖	↗	↕	↙	↘	↓
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↘	↕	↘	↘	↕
Volume (veh/h)	55	0	146	48	123	748
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Hourly flow rate (vph)	69	0	182	60	137	831
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			Raised		Raised	
Median storage (veh)			3		3	
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	871	91			182	
vC1, stage 1 conf vol	182					
vC2, stage 2 conf vol	689					
vCu, unblocked vol	871	91			182	
tC, single (s)	7.0	7.1			4.3	
tC, 2 stage (s)	6.0					
tF (s)	3.6	3.4			2.3	
p0 queue free %	82	100			90	
cM capacity (veh/h)	390	923			1340	

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	69	0	91	91	60	137	416	416
Volume Left	69	0	0	0	0	137	0	0
Volume Right	0	0	0	0	60	0	0	0
cSH	390	1700	1700	1700	1700	1340	1700	1700
Volume to Capacity	0.18	0.00	0.05	0.05	0.04	0.10	0.24	0.24
Queue Length 95th (ft)	16	0	0	0	0	8	0	0
Control Delay (s)	16.2	0.0	0.0	0.0	0.0	8.0	0.0	0.0
Lane LOS	C	A				A		
Approach Delay (s)	16.2		0.0			1.1		
Approach LOS	C							

Intersection Summary	
Average Delay	1.7
Intersection Capacity Utilization	30.7%
Analysis Period (min)	15
	ICU Level of Service A

Lanes, Volumes, Timings
202: LA 1 & I-69 EB Ramp

LA 3132 (Inner Loop) Extension - Stage 0 Study
2032 Alternative A PM Peak with Improvements

	↖	↗	↑	↘	↙	↓
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↘	↕	↘	↘	↕
Volume (vph)	0	409	164	3	566	237
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300	0		490	260	
Storage Lanes	1	1		1	1	
Taper Length (ft)	50				50	
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt		0.850		0.850		
Flt Protected					0.950	
Satd. Flow (prot)	1727	1468	3034	1357	1656	3312
Flt Permitted					0.950	
Satd. Flow (perm)	1727	1468	3034	1357	1656	3312
Link Speed (mph)	40		65			65
Link Distance (ft)	460		3193			1426
Travel Time (s)	7.8		33.5			15.0
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Heavy Vehicles (%)	10%	10%	19%	19%	9%	9%
Adj. Flow (vph)	0	511	205	4	629	263
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	511	205	4	629	263
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	24		76			76
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	42.6%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis LA 3132 (Inner Loop) Extension - Stage 0 Study
202: LA 1 & I-69 EB Ramp

2032 Alternative A PM Peak with Improvements

	↖	↗	↑	↘	↙	↓
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↘	↕	↘	↘	↕
Volume (veh/h)	0	409	164	3	566	237
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Hourly flow rate (vph)	0	511	205	4	629	263
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			Raised			Raised
Median storage (veh)			3			3
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1594	102			205	
vC1, stage 1 conf vol	205					
vC2, stage 2 conf vol	1389					
vCu, unblocked vol	1594	102			205	
tC, single (s)	7.0	7.1			4.3	
tC, 2 stage (s)	6.0					
tF (s)	3.6	3.4			2.3	
p0 queue free %	100	44			52	
cM capacity (veh/h)	95	908			1314	

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	0	511	102	102	4	629	132	132
Volume Left	0	0	0	0	0	629	0	0
Volume Right	0	511	0	0	4	0	0	0
cSH	1700	908	1700	1700	1700	1314	1700	1700
Volume to Capacity	0.00	0.56	0.06	0.06	0.00	0.48	0.08	0.08
Queue Length 95th (ft)	0	90	0	0	0	67	0	0
Control Delay (s)	0.0	14.0	0.0	0.0	0.0	10.2	0.0	0.0
Lane LOS	A	B				B		
Approach Delay (s)	14.0		0.0			7.2		
Approach LOS	B							

Intersection Summary	
Average Delay	8.4
Intersection Capacity Utilization	42.6%
Analysis Period (min)	15
	ICU Level of Service A

Lanes, Volumes, Timings
301: LA 1 & Gate A

LA 3132 (Inner Loop) Extension - Stage 0 Study
2032 Alternative A PM Peak with Improvements

	←		↑		→	
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↕		↔	↕
Volume (vph)	14	38	665	0	11	786
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	0	0	150	
Storage Lanes	1	0		0	1	
Taper Length (ft)	50				50	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Frt	0.902					
Flt Protected	0.987				0.950	
Satd. Flow (prot)	1497	0	3034	0	1656	3059
Flt Permitted	0.987				0.950	
Satd. Flow (perm)	1497	0	3034	0	1656	3059
Link Speed (mph)	40		65		65	
Link Distance (ft)	496		4385		375	
Travel Time (s)	8.5		46.0		3.9	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Heavy Vehicles (%)	13%	13%	19%	18%	9%	18%
Adj. Flow (vph)	18	48	831	0	12	873
Shared Lane Traffic (%)						
Lane Group Flow (vph)	66	0	831	0	12	873
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		66		66	
Link Offset(ft)	0		0		0	
Crosswalk Width(ft)	16		16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free		Free	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	31.7%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis LA 3132 (Inner Loop) Extension - Stage 0 Study
301: LA 1 & Gate A

2032 Alternative A PM Peak with Improvements

	←		↑		→	
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↕		↔	↕
Volume (veh/h)	14	38	665	0	11	786
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Hourly flow rate (vph)	18	48	831	0	12	873
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			Raised		Raised	
Median storage (veh)			2		2	
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1292	416			831	
vC1, stage 1 conf vol	831					
vC2, stage 2 conf vol	461					
vCu, unblocked vol	1292	416			831	
tC, single (s)	7.1	7.2			4.3	
tC, 2 stage (s)	6.1					
tF (s)	3.6	3.4			2.3	
p0 queue free %	95	91			98	
cM capacity (veh/h)	319	556			753	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	65	554	277	12	437	437
Volume Left	18	0	0	12	0	0
Volume Right	48	0	0	0	0	0
cSH	464	1700	1700	753	1700	1700
Volume to Capacity	0.14	0.33	0.16	0.02	0.26	0.26
Queue Length 95th (ft)	12	0	0	1	0	0
Control Delay (s)	14.0	0.0	0.0	9.9	0.0	0.0
Lane LOS	B			A		
Approach Delay (s)	14.0	0.0		0.1		
Approach LOS	B					

Intersection Summary	
Average Delay	0.6
Intersection Capacity Utilization	31.7%
Analysis Period (min)	15
	ICU Level of Service A

Lanes, Volumes, Timings
302: LA 1 & Gate B

LA 3132 (Inner Loop) Extension - Stage 0 Study
2032 Alternative A PM Peak with Improvements

Lane Group	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Lane Configurations							
Volume (vph)	43	79	0	590	13	35	764
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	250		0	250	
Storage Lanes	1	1	1		0	1	
Taper Length (ft)	50		50			50	
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	0.95
Frt		0.850		0.997			
Flt Protected	0.950				0.950		
Satd. Flow (prot)	1517	1357	1597	3008	0	1656	2423
Flt Permitted	0.950				0.950		
Satd. Flow (perm)	1517	1357	1597	3008	0	1656	2423
Link Speed (mph)	40			65			65
Link Distance (ft)	499			1577			4385
Travel Time (s)	8.5			16.5			46.0
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.90	0.90
Heavy Vehicles (%)	19%	19%	19%	19%	49%	9%	49%
Adj. Flow (vph)	54	99	0	738	16	39	849
Shared Lane Traffic (%)							
Lane Group Flow (vph)	54	99	0	754	0	39	849
Enter Blocked Intersection	No	No	No	No	No	No	No
Lane Alignment	Left	Right	R NA	Left	Right	Left	Left
Median Width(ft)	20			66			66
Link Offset(ft)	0			0			0
Crosswalk Width(ft)	16			16			16
Two way Left Turn Lane							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	9		9	15	
Sign Control	Stop			Free			Free

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	37.8%
ICU Level of Service	A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis LA 3132 (Inner Loop) Extension - Stage 0 Study
302: LA 1 & Gate B

2032 Alternative A PM Peak with Improvements

Movement	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Lane Configurations							
Volume (veh/h)	43	79	0	590	13	35	764
Sign Control	Stop			Free			Free
Grade	0%			0%			0%
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.90	0.90
Hourly flow rate (vph)	54	99	0	738	16	39	849
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type				Raised			Raised
Median storage (veh)				2			2
Upstream signal (ft)							
pX, platoon unblocked			0.00				
vC, conflicting volume	1248	377	0			754	
vC1, stage 1 conf vol	746						
vC2, stage 2 conf vol	502						
vCu, unblocked vol	1248	377	0			754	
tC, single (s)	7.2	7.3	0.0			4.3	
tC, 2 stage (s)	6.2						
tF (s)	3.7	3.5	0.0			2.3	
p0 queue free %	83	83	0			95	
cM capacity (veh/h)	325	575	0			808	

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	54	99	492	262	0	39	424	424
Volume Left	54	0	0	0	0	39	0	0
Volume Right	0	99	0	16	0	0	0	0
cSH	325	575	1700	1700	1700	808	1700	1700
Volume to Capacity	0.17	0.17	0.29	0.15	0.00	0.05	0.25	0.25
Queue Length 95th (ft)	15	15	0	0	0	4	0	0
Control Delay (s)	18.3	12.6	0.0	0.0	0.0	9.7	0.0	0.0
Lane LOS	C	B				A		
Approach Delay (s)	14.6		0.0			0.4		
Approach LOS	B							

Intersection Summary	
Average Delay	1.4
Intersection Capacity Utilization	37.8%
ICU Level of Service	A
Analysis Period (min)	15

Lanes, Volumes, Timings
303: LA 1 & Gate C

LA 3132 (Inner Loop) Extension - Stage 0 Study
2032 Alternative A PM Peak with Improvements

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↑	↑↑	↑		↑↑
Volume (vph)	0	47	569	12	0	871
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	0	0	250	
Storage Lanes	0	1		1	0	
Taper Length (ft)	50				50	
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt		0.865		0.850		
Flt Protected						
Satd. Flow (prot)	0	1325	3034	1077	0	2407
Flt Permitted						
Satd. Flow (perm)	0	1325	3034	1077	0	2407
Link Speed (mph)	40		65			65
Link Distance (ft)	508		533			1082
Travel Time (s)	8.7		5.6			11.3
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Heavy Vehicles (%)	24%	24%	19%	50%	9%	50%
Adj. Flow (vph)	0	59	711	15	0	968
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	59	711	15	0	968
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	0		76			76
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary

Area Type: Other
 Control Type: Unsignalized
 Intersection Capacity Utilization 27.4% ICU Level of Service A
 Analysis Period (min) 15

HCM Unsignalized Intersection Capacity Analysis LA 3132 (Inner Loop) Extension - Stage 0 Study
303: LA 1 & Gate C

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↑	↑↑	↑		↑↑
Volume (veh/h)	0	47	569	12	0	871
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Hourly flow rate (vph)	0	59	711	15	0	968
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			Raised			Raised
Median storage (veh)			3			3
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1195	356			726	
vC1, stage 1 conf vol	711					
vC2, stage 2 conf vol	484					
vCu, unblocked vol	1195	356			726	
tC, single (s)	7.3	7.4			4.3	
tC, 2 stage (s)	6.3					
tF (s)	3.7	3.5			2.3	
p0 queue free %	100	90			100	
cM capacity (veh/h)	363	581			828	

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	59	356	356	15	484	484
Volume Left	0	0	0	0	0	0
Volume Right	59	0	0	15	0	0
cSH	581	1700	1700	1700	1700	1700
Volume to Capacity	0.10	0.21	0.21	0.01	0.28	0.28
Queue Length 95th (ft)	8	0	0	0	0	0
Control Delay (s)	11.9	0.0	0.0	0.0	0.0	0.0
Lane LOS	B					
Approach Delay (s)	11.9	0.0			0.0	
Approach LOS	B					

Intersection Summary

Average Delay 0.4
 Intersection Capacity Utilization 27.4% ICU Level of Service A
 Analysis Period (min) 15

Lanes, Volumes, Timings
304: LA 1 & Gate D

LA 3132 (Inner Loop) Extension - Stage 0 Study
2032 Alternative A PM Peak with Improvements

	↙	↖	↑	↗	↘	↓
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↙	↖	↑↑	↗	↘	↘↘
Volume (vph)	1	18	177	0	11	228
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	250		300	280	
Storage Lanes	1	1		1	1	
Taper Length (ft)	50				50	
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt	0.850					
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1337	1196	3034	1195	1656	2270
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1337	1196	3034	1195	1656	2270
Link Speed (mph)	40		65		65	
Link Distance (ft)	501		710		505	
Travel Time (s)	8.5		7.4		5.3	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Heavy Vehicles (%)	35%	35%	19%	59%	9%	59%
Adj. Flow (vph)	1	23	221	0	12	253
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1	22	221	0	12	253
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		76		76	
Link Offset(ft)	0		0		0	
Crosswalk Width(ft)	16		16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	19.1%
ICU Level of Service	A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis LA 3132 (Inner Loop) Extension - Stage 0 Study
304: LA 1 & Gate D

2032 Alternative A PM Peak with Improvements

	↙	↖	↑	↗	↘	↓
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↙	↖	↑↑	↗	↘	↘↘
Volume (veh/h)	1	18	177	0	11	228
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Hourly flow rate (vph)	1	22	221	0	12	253
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		10				
Median type			Raised			Raised
Median storage (veh)			3			3
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	372	111			221	
vC1, stage 1 conf vol	221					
vC2, stage 2 conf vol	151					
vCu, unblocked vol	372	111			221	
tC, single (s)	7.5	7.6			4.3	
tC, 2 stage (s)	6.5					
tF (s)	3.8	3.6			2.3	
p0 queue free %	100	97			99	
cM capacity (veh/h)	670	825			1295	

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	24	111	111	0	12	127	127
Volume Left	1	0	0	0	12	0	0
Volume Right	22	0	0	0	0	0	0
cSH	871	1700	1700	1700	1295	1700	1700
Volume to Capacity	0.03	0.07	0.07	0.00	0.01	0.07	0.07
Queue Length 95th (ft)	2	0	0	0	1	0	0
Control Delay (s)	9.5	0.0	0.0	0.0	7.8	0.0	0.0
Lane LOS	A				A		
Approach Delay (s)	9.5	0.0			0.4		
Approach LOS	A						

Intersection Summary	
Average Delay	0.6
Intersection Capacity Utilization	19.1%
ICU Level of Service	A
Analysis Period (min)	15

Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
 100: LA3132 NB/LA3132 SB & Flournoy Lucas Rd 2032 Alternative A PM Peak with SPU

Lane Group	EBL	EBT	EBR2	WBL	WBT	WBR2	SEL	SER2	NWL	NWR2
Lane Configurations	↖↗	↖↗	↖↗	↖↗	↖↗	↖↗	↖↗	↖↗	↖↗	↖↗
Volume (vph)	153	327	46	0	423	393	443	345	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	350			250			0		0	
Storage Lanes	2			2			2		2	
Taper Length (ft)	50			50			50		50	
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	1.00	0.97	1.00
Frt	0.850			0.850			0.850		0.850	
Flt Protected	0.950			0.950			0.950		0.950	
Satd. Flow (prot)	3433	3574	1599	3686	3610	1482	3303	1615	3686	1900
Flt Permitted	0.950			0.950			0.950		0.950	
Satd. Flow (perm)	3433	3574	1599	3686	3610	1482	3303	1615	3686	1900
Right Turn on Red	Yes			Yes			Yes		Yes	
Satd. Flow (RTOR)	48			473			383		383	
Link Speed (mph)	45			45			45		45	
Link Distance (ft)	749			713			713		713	
Travel Time (s)	11.3			10.8			10.8		10.8	
Peak Hour Factor	0.94	0.94	0.95	0.83	0.83	0.83	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	1%	1%	0%	0%	9%	6%	0%	0%	0%
Adj. Flow (vph)	163	348	48	0	510	473	492	383	0	0
Shared Lane Traffic (%)	0			0			0		0	
Lane Group Flow (vph)	163	348	48	0	510	473	492	383	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Right	Left	Right
Median Width(ft)	24			34			34		34	
Link Offset(ft)	0			0			0		0	
Crosswalk Width(ft)	16			16			16		16	
Two way Left Turn Lane	No									
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	NA	9	15	NA	9	15	9	15	9
Turn Type	Prot	NA	Free	Prot	NA	Free	Prot	Free	Prot	Free
Protected Phases	5	2		1	6		4		8	
Permitted Phases			Free			Free		Free		Free
Detector Phase	5	2		1	6		4		8	
Switch Phase	None									
Minimum Initial (s)	4.0	15.0		4.0	15.0		4.0		4.0	
Minimum Split (s)	10.0	21.0		10.0	21.0		22.0		10.0	
Total Split (s)	12.0	23.0		10.0	21.0		22.0		22.0	
Total Split (%)	21.8%	41.8%		18.2%	38.2%		40.0%		40.0%	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0		5.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0		1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0		0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0		6.0		6.0	
Lead/Lag	Lag	Lag		Lead	Lead		Lag		Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes		Yes	
Recall Mode	None	Min		None	Min		None		None	
Act Effect Green (s)	6.1	24.4	49.0		15.4	49.0	12.3		49.0	
Actuated g/C Ratio	0.12	0.50	1.00		0.31	1.00	0.25		1.00	
v/c Ratio	0.38	0.20	0.03		0.45	0.32	0.59		0.24	

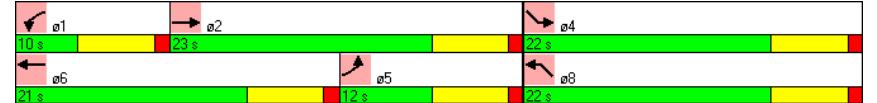
Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
 100: LA3132 NB/LA3132 SB & Flournoy Lucas Rd 2032 Alternative A PM Peak with SPU

Lane Group	EBL	EBT	EBR2	WBL	WBT	WBR2	SEL	SER2	NWL	NWR2
Control Delay	24.9	7.4	0.0		16.7	0.6	19.9	0.3		
Queue Delay	0.0	0.0	0.0		0.0	0.0	0.0	0.0		
Total Delay	24.9	7.4	0.0		16.7	0.6	19.9	0.3		
LOS	C	A	A		B	A	B	A		
Approach Delay	11.9			8.9			8.9		8.9	
Approach LOS	B			A			A		A	
Queue Length 50th (ft)	24	26	0		66	0	68	0		
Queue Length 95th (ft)	50	51	0		103	0	106	0		
Internal Link Dist (ft)	669			633			633		633	
Turn Bay Length (ft)	350			450			350		600	
Base Capacity (vph)	432	1818	1599		1135	1482	1108	1615		
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	0.38	0.19	0.03		0.45	0.32	0.44	0.24		

Intersection Summary

Area Type:	Other
Cycle Length:	55
Actuated Cycle Length:	49
Natural Cycle:	55
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.59
Intersection Signal Delay:	10.5
Intersection LOS:	B
Intersection Capacity Utilization:	42.8%
ICU Level of Service:	A
Analysis Period (min):	15

Splits and Phases: 100: LA3132 NB/LA3132 SB & Flournoy Lucas Rd





APPENDIX E | Intersection Analysis of Build Alternative B (2015 & 2032)

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Lanes, Volumes, Timings
101: Flournoy Lucas Rd & LA 3132 SB

LA 3132 (Inner Loop) Extension - Stage 0 Study
2015 Alternative B AM Peak with Improvements



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↑	↑↑					↑↑	↑	↑
Volume (vph)	0	578	0	0	178	0	0	0	0	537	0	105
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		450	200		0	0	0	0	250		0
Storage Lanes	0		1	1		0	0	0	0	1		0
Taper Length (ft)	50				50					50		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	0.97	1.00	1.00
Frnt											0.850	
Fit Protected										0.950		
Satd. Flow (prot)	0	3505	1845	1863	3406	0	0	0	0	3072	1553	0
Fit Permitted										0.950		
Satd. Flow (perm)	0	3505	1845	1863	3406	0	0	0	0	3072	1553	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)											697	
Link Speed (mph)		45			45			30			45	
Link Distance (ft)		986			649			714			631	
Travel Time (s)		14.9			9.8			16.2			9.6	
Peak Hour Factor	0.86	0.86	0.86	0.81	0.81	0.81	0.92	0.92	0.92	0.80	0.80	0.80
Heavy Vehicles (%)	0%	3%	3%	2%	6%	0%	2%	2%	2%	14%	4%	4%
Adj. Flow (vph)	0	672	0	0	220	0	0	0	0	671	0	131
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	672	0	0	220	0	0	0	0	671	131	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		34			34			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type		NA	Perm	Perm	NA					Split	NA	
Protected Phases	2 11 14				6 11 14					4	4	
Permitted Phases		2 11 14	6 11 14									
Detector Phase	2 11 14	2 11 14	6 11 14	6 11 14						4	4	
Switch Phase												
Minimum Initial (s)										7.0	7.0	
Minimum Split (s)										13.0	13.0	
Total Split (s)										22.0	22.0	
Total Split (%)										29.3%	29.3%	
Yellow Time (s)										3.5	3.5	
All-Red Time (s)										1.5	1.5	
Lost Time Adjust (s)										0.0	0.0	
Total Lost Time (s)										5.0	5.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode										None	None	
Act Effect Green (s)		47.0			47.0					17.0	17.0	
Actuated g/C Ratio		0.63			0.63					0.23	0.23	
v/c Ratio		0.31			0.10					0.96	0.15	

Lanes, Volumes, Timings
101: Flournoy Lucas Rd & LA 3132 SB

LA 3132 (Inner Loop) Extension - Stage 0 Study
2015 Alternative B AM Peak with Improvements

Lane Group	ø1	ø2	ø6	ø8	ø11	ø12	ø14
Lane Configurations							
Volume (vph)							
Ideal Flow (vphpl)							
Storage Length (ft)							
Storage Lanes							
Taper Length (ft)							
Lane Util. Factor							
Frnt							
Fit Protected							
Satd. Flow (prot)							
Fit Permitted							
Satd. Flow (perm)							
Right Turn on Red							
Satd. Flow (RTOR)							
Link Speed (mph)							
Link Distance (ft)							
Travel Time (s)							
Peak Hour Factor							
Heavy Vehicles (%)							
Adj. Flow (vph)							
Shared Lane Traffic (%)							
Lane Group Flow (vph)							
Enter Blocked Intersection							
Lane Alignment							
Median Width(ft)							
Link Offset(ft)							
Crosswalk Width(ft)							
Two way Left Turn Lane							
Headway Factor							
Turning Speed (mph)							
Turn Type							
Protected Phases	1	2	6	8	11	12	14
Permitted Phases							
Detector Phase							
Switch Phase							
Minimum Initial (s)	4.0	15.0	15.0	15.0	5.0	15.0	4.0
Minimum Split (s)	10.0	21.0	21.0	21.0	11.0	21.0	20.0
Total Split (s)	11.0	21.0	21.0	21.0	11.0	22.0	21.0
Total Split (%)	15%	28%	28%	28%	15%	29%	28%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	0.5
Lost Time Adjust (s)							
Total Lost Time (s)							
Lead/Lag							
Lead-Lag Optimize?							
Recall Mode	None	Min	Min	Min	None	None	None
Act Effect Green (s)							
Actuated g/C Ratio							
v/c Ratio							

Lanes, Volumes, Timings
101: Flournoy Lucas Rd & LA 3132 SB

LA 3132 (Inner Loop) Extension - Stage 0 Study
2015 Alternative B AM Peak with Improvements

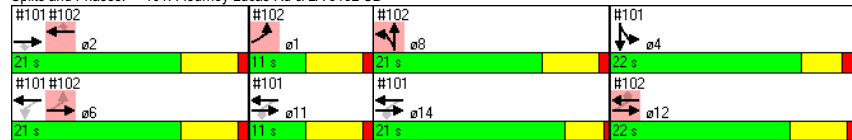


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	6.9				7.8					57.2	0.4	
Queue Delay	0.0				0.0					0.0	0.0	
Total Delay	6.9				7.8					57.2	0.4	
LOS	A				A					E	A	
Approach Delay	6.9				7.8						47.9	
Approach LOS	A				A						D	
Queue Length 50th (ft)	66				37					159	0	
Queue Length 95th (ft)	87				55					#215	0	
Internal Link Dist (ft)	906				569			634			551	
Turn Bay Length (ft)										250		
Base Capacity (vph)	2196				2134					696	891	
Starvation Cap Reductn	0				0					0	0	
Spillback Cap Reductn	0				0					0	0	
Storage Cap Reductn	0				0					0	0	
Reduced v/c Ratio	0.31				0.10					0.96	0.15	

Intersection Summary

Area Type: Other
 Cycle Length: 75
 Actuated Cycle Length: 75
 Natural Cycle: 75
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.96
 Intersection Signal Delay: 26.4 Intersection LOS: C
 Intersection Capacity Utilization 82.3% ICU Level of Service E
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 101: Flournoy Lucas Rd & LA 3132 SB



Lanes, Volumes, Timings
101: Flournoy Lucas Rd & LA 3132 SB

LA 3132 (Inner Loop) Extension - Stage 0 Study
2015 Alternative B AM Peak with Improvements

Lane Group	ø1	ø2	ø6	ø8	ø11	ø12	ø14
Control Delay							
Queue Delay							
Total Delay							
LOS							
Approach Delay							
Approach LOS							
Queue Length 50th (ft)							
Queue Length 95th (ft)							
Internal Link Dist (ft)							
Turn Bay Length (ft)							
Base Capacity (vph)							
Starvation Cap Reductn							
Spillback Cap Reductn							
Storage Cap Reductn							
Reduced v/c Ratio							

Intersection Summary

Lanes, Volumes, Timings
102: Flournoy Lucas Rd & LA3132 NB

LA 3132 (Inner Loop) Extension - Stage 0 Study
2015 Alternative B AM Peak with Improvements



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↕	↔	↔	↕	↕	↔	↕	↔	↔	↕	↔
Volume (vph)	270	845	0	0	178	644	0	0	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	0		85			650		0	0
Storage Lanes	1		0	0		1	1		0	0		0
Taper Length (ft)	50			50			50			50		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00
Friction	0.850											
Fit Protected	0.950											
Satd. Flow (prot)	1787	3312	0	0	3343	1538	1770	1770	0	0	0	0
Fit Permitted	0.614											
Satd. Flow (perm)	1155	3312	0	0	3343	1538	1770	1770	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)	795											
Link Speed (mph)	45			45			45			45		
Link Distance (ft)	649			750			719			607		
Travel Time (s)	9.8			11.4			10.9			9.2		
Peak Hour Factor	0.86	0.86	0.92	0.92	0.81	0.81	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	1%	9%	2%	2%	8%	5%	2%	2%	2%	0%	2%	0%
Adj. Flow (vph)	314	983	0	0	220	795	0	0	0	0	0	0
Shared Lane Traffic (%)	0%											
Lane Group Flow (vph)	314	983	0	0	220	795	0	0	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)	24		34		12		12		16		16	
Link Offset(ft)	0											
Crosswalk Width(ft)	16			16			16			16		
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9		15		9		15		9	
Turn Type	pm+pt	NA	NA		Perm	Split						
Protected Phases	1	6 12	2 12		8		8					
Permitted Phases	6 12		2 12		2 12							
Detector Phase	1	6 12	2 12		8		8					
Switch Phase												
Minimum Initial (s)	4.0						15.0			15.0		
Minimum Split (s)	10.0						21.0			21.0		
Total Split (s)	11.0						21.0			21.0		
Total Split (%)	14.7%						28.0%			28.0%		
Yellow Time (s)	5.0						5.0			5.0		
All-Red Time (s)	1.0						1.0			1.0		
Lost Time Adjust (s)	0.0						0.0			0.0		
Total Lost Time (s)	6.0						6.0			6.0		
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None						Min			Min		
Act Effect Green (s)	42.0		37.0		37.0		37.0					
Actuated g/C Ratio	0.56	0.49	0.49		0.49							
v/c Ratio	0.46	0.60	0.13		0.68							

Lanes, Volumes, Timings
102: Flournoy Lucas Rd & LA3132 NB

LA 3132 (Inner Loop) Extension - Stage 0 Study
2015 Alternative B AM Peak with Improvements

Lane Group	ø2	ø4	ø6	ø11	ø12	ø14
Lane Configurations						
Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Friction						
Fit Protected						
Satd. Flow (prot)						
Fit Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Heavy Vehicles (%)						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Enter Blocked Intersection						
Lane Alignment						
Median Width(ft)						
Link Offset(ft)						
Crosswalk Width(ft)						
Two way Left Turn Lane						
Headway Factor						
Turning Speed (mph)						
Turn Type						
Protected Phases	2	4	6	11	12	14
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	15.0	7.0	15.0	5.0	15.0	4.0
Minimum Split (s)	21.0	13.0	21.0	11.0	21.0	20.0
Total Split (s)	21.0	22.0	21.0	11.0	22.0	21.0
Total Split (%)	28%	29%	28%	15%	29%	28%
Yellow Time (s)	5.0	3.5	5.0	5.0	5.0	3.5
All-Red Time (s)	1.0	1.5	1.0	1.0	1.0	0.5
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	Min	None	Min	None	None	None
Act Effect Green (s)						
Actuated g/C Ratio						
v/c Ratio						

Lanes, Volumes, Timings
102: Flournoy Lucas Rd & LA3132 NB

LA 3132 (Inner Loop) Extension - Stage 0 Study
2015 Alternative B AM Peak with Improvements



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	13.6	6.3			10.6	4.5						
Queue Delay	0.0	0.0			0.0	0.0						
Total Delay	13.6	6.3			10.6	4.5						
LOS	B	A			B	A						
Approach Delay	8.1			5.8								
Approach LOS	A			A								
Queue Length 50th (ft)	55	53			27	0						
Queue Length 95th (ft)	124	m68			40	26						
Internal Link Dist (ft)	569			670			639			527		
Turn Bay Length (ft)	200					85						
Base Capacity (vph)	689	1634		1649		1162						
Starvation Cap Reductn	0	0		0		0						
Spillback Cap Reductn	0	0		0		0						
Storage Cap Reductn	0	0		0		0						
Reduced v/c Ratio	0.46	0.60		0.13		0.68						

Intersection Summary

Area Type: Other
 Cycle Length: 75
 Actuated Cycle Length: 75
 Natural Cycle: 75
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.96
 Intersection Signal Delay: 7.1 Intersection LOS: A
 Intersection Capacity Utilization 82.3% ICU Level of Service E
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 102: Flournoy Lucas Rd & LA3132 NB

#101 #102 → ø2 21 s	#102 ↗ ø1 11 s	#102 ↖ ø8 21 s	#101 ↘ ø4 22 s
#101 #102 ← ø6 21 s	#101 ↙ ø11 11 s	#101 ↗ ø14 21 s	#102 ↖ ø12 22 s

Lanes, Volumes, Timings
102: Flournoy Lucas Rd & LA3132 NB

LA 3132 (Inner Loop) Extension - Stage 0 Study
2015 Alternative B AM Peak with Improvements

Lane Group	ø2	ø4	ø6	ø11	ø12	ø14
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						
Queue Length 50th (ft)						
Queue Length 95th (ft)						
Internal Link Dist (ft)						
Turn Bay Length (ft)						
Base Capacity (vph)						
Starvation Cap Reductn						
Spillback Cap Reductn						
Storage Cap Reductn						
Reduced v/c Ratio						

Intersection Summary

Lanes, Volumes, Timings
103: LA 1 & Flournoy Lucas Rd

LA 3132 (Inner Loop) Extension - Stage 0 Study
2015 Alternative B AM Peak with Improvements

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑↑	↑		←	←	←	←	←	←	←	↓	↓
Volume (vph)	609	23	236	10	10	9	392	354	8	0	308	431
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	0		0	125		0	165		165
Storage Lanes	1		0	0		0	1		0	1		1
Taper Length (ft)	50			50			50			50		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt		0.863			0.960			0.997				0.850
Frt Protected	0.950				0.983		0.950					
Satd. Flow (prot)	3400	1295	0	0	1731	0	1347	3278	0	1900	3406	1553
Frt Permitted	0.950				0.753		0.323					
Satd. Flow (perm)	3400	1295	0	0	1326	0	458	3278	0	1900	3406	1553
Right Turn on Red			Yes			Yes			Yes			No
Satd. Flow (RTOR)		295			10			3				
Link Speed (mph)		50			50			55				55
Link Distance (ft)		784			651			1092				934
Travel Time (s)		10.7			8.9			13.5				11.6
Peak Hour Factor	0.80	0.80	0.80	0.86	0.86	0.86	0.86	0.86	0.86	0.80	0.80	0.80
Heavy Vehicles (%)	3%	2%	29%	0%	1%	11%	34%	10%	0%	0%	6%	4%
Adj. Flow (vph)	761	29	295	12	12	10	456	412	9	0	385	539
Shared Lane Traffic (%)												
Lane Group Flow (vph)	761	324	0	0	34	0	456	421	0	0	385	539
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			0			12				12
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Prot	NA		Perm	NA		pm+pt	NA		pm+pt	NA	pt+ov
Protected Phases	3	8			4		1	6		5	2	2 3
Permitted Phases				4			6			2		
Detector Phase	3	8		4	4		1	6		5	2	2 3
Switch Phase												
Minimum Initial (s)	5.0	10.0		7.0	7.0		7.0	15.0		5.0	15.0	
Minimum Split (s)	11.5	16.5		13.5	13.5		15.0	23.0		13.0	23.0	
Total Split (s)	26.0	39.5		13.5	13.5		27.0	37.5		13.0	23.5	
Total Split (%)	28.9%	43.9%		15.0%	15.0%		30.0%	41.7%		14.4%	26.1%	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.5	5.5		5.5	5.5	
All-Red Time (s)	1.5	1.5		1.5	1.5		2.5	2.5		2.5	2.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.5	6.5		6.5	6.5		8.0	8.0		8.0	8.0	
Lead/Lag	Lead			Lag	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes			Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None		None	Min		None	Min	
Act Effect Green (s)	19.6	27.2		7.0	42.8		42.8			15.6	41.8	
Actuated g/C Ratio	0.23	0.32		0.08	0.51		0.51			0.18	0.49	
v/c Ratio	0.96	0.53		0.29	1.06		0.25			0.61	0.70	

Lanes, Volumes, Timings
103: LA 1 & Flournoy Lucas Rd

LA 3132 (Inner Loop) Extension - Stage 0 Study
2015 Alternative B AM Peak with Improvements

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	59.3	7.0			36.9		80.5	13.3			37.6	24.3
Queue Delay	0.0	0.0			0.0		0.0	0.0			0.0	0.0
Total Delay	59.3	7.0			36.9		80.5	13.3			37.6	24.3
LOS	E	A			D		F	B			D	C
Approach Delay		43.7			36.9		48.2				29.8	
Approach LOS		D			D		D				C	
Queue Length 50th (ft)	~241	11			13		~228	72			108	244
Queue Length 95th (ft)	#289	44			41		#386	98			136	309
Internal Link Dist (ft)		704			571		1012				854	
Turn Bay Length (ft)	200						125					165
Base Capacity (vph)	789	688			119		432	1659			628	766
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	0.96	0.47			0.29		1.06	0.25			0.61	0.70

Intersection Summary

Area Type:	Other
Cycle Length:	90
Actuated Cycle Length:	84.6
Natural Cycle:	90
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	1.06
Intersection Signal Delay:	40.6
Intersection Capacity Utilization:	77.0%
ICU Level of Service:	D
Analysis Period (min):	15
~ Volume exceeds capacity, queue is theoretically infinite.	
Queue shown is maximum after two cycles.	
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 103: LA 1 & Flournoy Lucas Rd



Lanes, Volumes, Timings
105: Ellerbe Rd & Flournoy Lucas Rd

LA 3132 (Inner Loop) Extension - Stage 0 Study
2015 Alternative B AM Peak with Improvements

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Volume (vph)	12	132	61	57	123	33	75	1331	130	26	323	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	140		0	150		0	115		120	150		0
Storage Lanes	1		0	1		1	1		1	1		0
Taper Length (ft)	50			50			50			50		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95		1.00	1.00	0.95	0.95
Frt		0.953				0.850			0.850		0.999	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1671	1710	0	1656	1727	1468	1770	3574	1568	1736	3404	0
Flt Permitted	0.433			0.608			0.431			0.123		
Satd. Flow (perm)	762	1710	0	1060	1727	1468	803	3574	1568	225	3404	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		22				40			73			1
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		848			838			697			896	
Travel Time (s)		12.8			12.7			10.6			13.6	
Peak Hour Factor	0.80	0.80	0.80	0.82	0.82	0.82	0.81	0.81	0.81	0.80	0.80	0.80
Heavy Vehicles (%)	8%	4%	10%	9%	10%	10%	2%	1%	3%	4%	6%	0%
Adj. Flow (vph)	15	165	76	70	150	40	93	1643	160	32	404	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	15	241	0	70	150	40	93	1643	160	32	408	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)	12			12			12			12		
Link Offset(ft)	0			0			0			0		
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane					Yes						Yes	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8			4		4	6		6	2		
Detector Phase	3	8		7	4	4	1	6	6	5	2	
Switch Phase												
Minimum Initial (s)	7.0	15.0		7.0	15.0	15.0	7.0	10.0	10.0	7.0	10.0	
Minimum Split (s)	12.0	20.0		14.0	22.0	22.0	12.0	15.0	15.0	14.0	17.0	
Total Split (s)	12.0	20.0		14.0	22.0	22.0	12.0	42.0	42.0	14.0	44.0	
Total Split (%)	13.3%	22.2%		15.6%	24.4%	24.4%	13.3%	46.7%	46.7%	15.6%	48.9%	
Yellow Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	0.0	0.0		2.0	2.0	2.0	0.0	0.0	0.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0	5.0		7.0	7.0	7.0	5.0	5.0	5.0	7.0	7.0	
Lead/Lag	Lead	Lead		Lag	Lag	Lag	Lead	Lead	Lead	Lag	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	Min		None	Min	Min	None	None	None	None	None	
Act Effect Green (s)	15.8	15.8		24.0	22.2	22.2	37.7	37.7	37.7	37.5	34.2	
Actuated g/C Ratio	0.19	0.19		0.29	0.27	0.27	0.46	0.46	0.46	0.46	0.42	
v/c Ratio	0.07	0.69		0.19	0.32	0.09	0.21	1.00	0.21	0.14	0.29	

Lanes, Volumes, Timings
105: Ellerbe Rd & Flournoy Lucas Rd

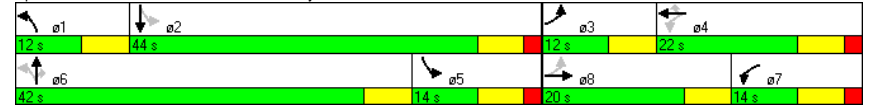
LA 3132 (Inner Loop) Extension - Stage 0 Study
2015 Alternative B AM Peak with Improvements

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	32.4	43.2		29.0	29.0	10.6	17.1	48.4	10.2	22.0	17.9	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	32.4	43.2		29.0	29.0	10.6	17.1	48.4	10.2	22.0	17.9	
LOS	C	D		C	C	B	B	D	B	C	B	
Approach Delay		42.6			26.2			43.6			18.2	
Approach LOS		D			C			D			B	
Queue Length 50th (ft)	7	121		29	65	0	32	~571	30	11	79	
Queue Length 95th (ft)	22	#193		67	125	23	56	#590	60	25	98	
Internal Link Dist (ft)		768			758			617			816	
Turn Bay Length (ft)	140			150			115		120	150		
Base Capacity (vph)	226	347		362	469	427	453	1643	760	234	1565	
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.07	0.69		0.19	0.32	0.09	0.21	1.00	0.21	0.14	0.26	

Intersection Summary

Area Type:	Other
Cycle Length:	90
Actuated Cycle Length:	82
Natural Cycle:	90
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	1.00
Intersection Signal Delay:	38.0
Intersection Capacity Utilization:	81.0%
ICU Level of Service:	D
Analysis Period (min):	15
~ Volume exceeds capacity, queue is theoretically infinite.	
Queue shown is maximum after two cycles.	
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 105: Ellerbe Rd & Flournoy Lucas Rd



Lanes, Volumes, Timings
106: LA 1 & Leonard Rd

LA 3132 (Inner Loop) Extension - Stage 0 Study
2015 Alternative B AM Peak with Improvements

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	64	71	44	735	525	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	145			0
Storage Lanes	1	0	1			0
Taper Length (ft)	50		50			
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95
Frt	0.929			0.992		
Flt Protected	0.977		0.950			
Satd. Flow (prot)	1700	0	1444	3034	3010	0
Flt Permitted	0.977		0.950			
Satd. Flow (perm)	1700	0	1444	3034	3010	0
Link Speed (mph)	50			65	65	
Link Distance (ft)	2733			1584	2639	
Travel Time (s)	37.3			16.6	27.7	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.89	0.89
Heavy Vehicles (%)	3%	0%	25%	19%	20%	2%
Adj. Flow (vph)	80	89	55	919	590	35
Shared Lane Traffic (%)						
Lane Group Flow (vph)	169	0	55	919	625	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			66	78	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type: Other
 Control Type: Unsignalized
 Intersection Capacity Utilization 36.7% ICU Level of Service A
 Analysis Period (min) 15

HCM Unsignalized Intersection Capacity Analysis LA 3132 (Inner Loop) Extension - Stage 0 Study
106: LA 1 & Leonard Rd

2015 Alternative B AM Peak with Improvements

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	64	71	44	735	525	31
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.89	0.89
Hourly flow rate (vph)	80	89	55	919	590	35
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				Raised	Raised	
Median storage (veh)				2	3	
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1177	312	625			
vC1, stage 1 conf vol	607					
vC2, stage 2 conf vol	569					
vCu, unblocked vol	1177	312	625			
tC, single (s)	6.9	6.9	4.6			
tC, 2 stage (s)	5.9					
tF (s)	3.5	3.3	2.4			
p0 queue free %	81	87	93			
cM capacity (veh/h)	413	689	812			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	169	55	459	459	393	231
Volume Left	80	55	0	0	0	0
Volume Right	89	0	0	0	0	35
cSH	523	812	1700	1700	1700	1700
Volume to Capacity	0.32	0.07	0.27	0.27	0.23	0.14
Queue Length 95th (ft)	35	5	0	0	0	0
Control Delay (s)	15.1	9.8	0.0	0.0	0.0	0.0
Lane LOS	C	A				
Approach Delay (s)	15.1	0.6			0.0	
Approach LOS	C					

Intersection Summary

Average Delay 1.7
 Intersection Capacity Utilization 36.7% ICU Level of Service A
 Analysis Period (min) 15

Lanes, Volumes, Timings
107: LA 1 & Bert Kouns Industrial Loop

LA 3132 (Inner Loop) Extension - Stage 0 Study
2015 Alternative B AM Peak with Improvements

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	443	863	103	185	812	50	148	793	170	131	570	273
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	230		230	150		115	220		220	230		230
Storage Lanes	2		1	1		1	2		1	2		1
Taper Length (ft)	50						50			50		
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3303	3471	1482	1770	3539	1615	3303	3505	1495	3433	3471	1568
Flt Permitted	0.950			0.295			0.950			0.950		
Satd. Flow (perm)	3303	3471	1482	550	3539	1615	3303	3505	1495	3433	3471	1568
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			116			9			84			37
Link Speed (mph)		50			50			45				45
Link Distance (ft)		1652			1693			1702				1927
Travel Time (s)		22.5			23.1			25.8				29.2
Peak Hour Factor	0.89	0.89	0.89	0.92	0.92	0.92	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	6%	4%	9%	2%	2%	0%	6%	3%	8%	2%	4%	3%
Adj. Flow (vph)	498	970	116	201	883	54	163	871	187	144	626	300
Shared Lane Traffic (%)												
Lane Group Flow (vph)	498	970	116	201	883	54	163	871	187	144	626	300
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24				24
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane					Yes							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Prot	NA	Prot	pm+pt	NA	pt+ov	Prot	NA	pt+ov	Prot	NA	pt+ov
Protected Phases	1	6	6	5	2	2.7	3	8	5.8	7	4	1.4
Permitted Phases				2								
Detector Phase	1	6	6	5	2	2.7	3	8	5.8	7	4	1.4
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0		5.0	10.0		12.0	10.0	
Minimum Split (s)	11.0	16.0	16.0	11.0	16.0		11.0	16.0		18.0	16.0	
Total Split (s)	21.0	39.0	39.0	13.0	31.0		15.0	30.0		18.0	33.0	
Total Split (%)	21.0%	39.0%	39.0%	13.0%	31.0%		15.0%	30.0%		18.0%	33.0%	
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5		1.5	1.5		1.5	1.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0		6.0	6.0		6.0	6.0	
Lead/Lag	Lead	Lead	Lead	Lag	Lag		Lead	Lead		Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	C-Min	C-Min	None	C-Min		None	None		None	None	
Act Effect Green (s)	15.0	32.6	32.6	25.0	25.0	37.0	8.7	24.0	37.4	12.0	27.3	48.3
Actuated g/C Ratio	0.15	0.33	0.33	0.25	0.25	0.37	0.09	0.24	0.37	0.12	0.27	0.48
v/c Ratio	1.01	0.86	0.21	0.89	1.00	0.09	0.57	1.04	0.31	0.35	0.66	0.39

Lanes, Volumes, Timings
107: LA 1 & Bert Kouns Industrial Loop

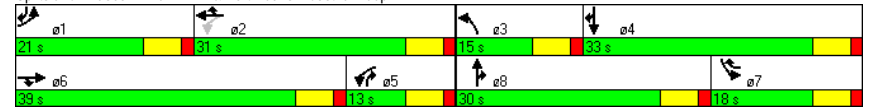
LA 3132 (Inner Loop) Extension - Stage 0 Study
2015 Alternative B AM Peak with Improvements

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	85.4	40.3	5.6	77.5	68.2	9.5	52.0	78.8	13.6	43.1	36.3	16.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	85.4	40.3	5.6	77.5	68.2	9.5	52.0	78.8	13.6	43.1	36.3	16.1
LOS	F	D	A	E	E	A	D	E	B	D	D	B
Approach Delay			52.0			67.0			65.2			31.6
Approach LOS			D			E			E			C
Queue Length 50th (ft)	~167	300	0	109	296	10	52	~316	44	44	186	102
Queue Length 95th (ft)	#269	377	37	#243	#432	24	86	#438	97	74	248	167
Internal Link Dist (ft)		1572			1613			1622			1847	
Turn Bay Length (ft)	230		230	150		115	220		220	230		230
Base Capacity (vph)	495	1145	567	227	885	603	297	841	611	412	948	777
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.01	0.85	0.20	0.89	1.00	0.09	0.55	1.04	0.31	0.35	0.66	0.39

Intersection Summary

Area Type:	Other
Cycle Length:	100
Actuated Cycle Length:	100
Offset:	0 (0%), Referenced to phase 2:WBT and 6:EBT, Start of Green
Natural Cycle:	100
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	1.04
Intersection Signal Delay:	54.3
Intersection Capacity Utilization:	87.0%
Analysis Period (min):	15
~	Volume exceeds capacity, queue is theoretically infinite.
	Queue shown is maximum after two cycles.
#	95th percentile volume exceeds capacity, queue may be longer.
	Queue shown is maximum after two cycles.

Splits and Phases: 107: LA 1 & Bert Kouns Industrial Loop



Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
 108: Bert Kouns Industrial Loop & LA 3132 EB Off Ramp/LA 3132 EB On Ramp with Improvements



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔				↕	↕	↕	↔	↔	↔
Volume (vph)	520	4	7	0	0	0	0	1262	101	25	790	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		110	0		0	0	0	0	295	0	0
Storage Lanes	1		1	0		0	0	0	0	1	0	0
Taper Length (ft)	50			50			50			50		
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Fr't			0.850				0.989					
Flt Protected	0.950	0.953								0.950		
Satd. Flow (prot)	1681	1687	1615	0	0	0	0	3473	0	1736	3574	0
Flt Permitted	0.950	0.953								0.083		
Satd. Flow (perm)	1681	1687	1615	0	0	0	0	3473	0	152	3574	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			6					9				
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1564			1165			530			537	
Travel Time (s)		23.7			17.7			8.0			8.1	
Peak Hour Factor	0.83	0.83	0.83	0.92	0.92	0.92	0.87	0.87	0.87	0.82	0.82	0.82
Heavy Vehicles (%)	2%	0%	0%	0%	0%	0%	0%	2%	13%	4%	1%	0%
Adj. Flow (vph)	627	5	8	0	0	0	0	1451	116	30	963	0
Shared Lane Traffic (%)	50%											
Lane Group Flow (vph)	313	319	8	0	0	0	0	1567	0	30	963	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			27			27	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Split	NA	Perm					NA	custom		NA	
Protected Phases	4	4						6		5	2.5	
Permitted Phases			4							2		
Detector Phase	4	4	4					6		5	2.5	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0					15.0		5.0		
Minimum Split (s)	11.0	11.0	11.0					21.0		10.0		
Total Split (s)	36.0	36.0	36.0					54.0		20.0		
Total Split (%)	32.7%	32.7%	32.7%					49.1%		18.2%		
Yellow Time (s)	5.0	5.0	5.0					5.0		5.0		
All-Red Time (s)	1.0	1.0	1.0					1.0		0.0		
Lost Time Adjust (s)	0.0	0.0	0.0					0.0		0.0		
Total Lost Time (s)	6.0	6.0	6.0					6.0		5.0		
Lead/Lag								Lag		Lead		
Lead-Lag Optimize?								Yes		Yes		
Recall Mode	None	None	None					None		None		
Act Effct Green (s)	23.8	23.8	23.8					48.2		63.9	66.6	
Actuated g/C Ratio	0.23	0.23	0.23					0.46		0.62	0.64	
v/c Ratio	0.81	0.83	0.02					0.97		0.09	0.42	

Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
 108: Bert Kouns Industrial Loop & LA 3132 EB Off Ramp/LA 3132 EB On Ramp with Improvements

Lane Group	ø1	ø2	ø8
Lane Configurations			
Volume (vph)			
Ideal Flow (vphpl)			
Storage Length (ft)			
Storage Lanes			
Taper Length (ft)			
Lane Util. Factor			
Fr't			
Flt Protected			
Satd. Flow (prot)			
Flt Permitted			
Satd. Flow (perm)			
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (mph)			
Link Distance (ft)			
Travel Time (s)			
Peak Hour Factor			
Heavy Vehicles (%)			
Adj. Flow (vph)			
Shared Lane Traffic (%)			
Lane Group Flow (vph)			
Enter Blocked Intersection			
Lane Alignment			
Median Width(ft)			
Link Offset(ft)			
Crosswalk Width(ft)			
Two way Left Turn Lane			
Headway Factor			
Turning Speed (mph)			
Turn Type			
Protected Phases	1	2	8
Permitted Phases			
Detector Phase			
Switch Phase			
Minimum Initial (s)	5.0	15.0	12.0
Minimum Split (s)	10.0	21.0	18.0
Total Split (s)	20.0	54.0	36.0
Total Split (%)	18%	49%	33%
Yellow Time (s)	5.0	5.0	5.0
All-Red Time (s)	0.0	1.0	1.0
Lost Time Adjust (s)			
Total Lost Time (s)			
Lead/Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	
Recall Mode	None	None	None
Act Effct Green (s)			
Actuated g/C Ratio			
v/c Ratio			

Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
 108: Bert Kouns Industrial Loop & LA 3132 EB Off Ramp/LA 3132 EB On Ramp with Improvements



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	54.9	56.1	19.9					44.9		6.6	4.9	
Queue Delay	0.0	0.0	0.0					0.0		0.0	0.0	
Total Delay	54.9	56.1	19.9					44.9		6.6	4.9	
LOS	D	E	B					D		A	A	
Approach Delay		55.1						44.9			5.0	
Approach LOS		E						D			A	
Queue Length 50th (ft)	208	212	1					531		3	60	
Queue Length 95th (ft)	282	287	12					#719		m7	67	
Internal Link Dist (ft)		1484				1085		450			457	
Turn Bay Length (ft)			110							295		
Base Capacity (vph)	487	489	472					1615		323	2346	
Starvation Cap Reductn	0	0	0					0		0	24	
Spillback Cap Reductn	0	0	0					0		0	0	
Storage Cap Reductn	0	0	0					0		0	0	
Reduced v/c Ratio	0.64	0.65	0.02					0.97		0.09	0.41	

Intersection Summary

Area Type: Other
 Cycle Length: 110
 Actuated Cycle Length: 103.9
 Natural Cycle: 90
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.97
 Intersection Signal Delay: 34.6 Intersection LOS: C
 Intersection Capacity Utilization 82.7% ICU Level of Service E
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 108: Bert Kouns Industrial Loop & LA 3132 EB Off Ramp/LA 3132 EB On Ramp



Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
 108: Bert Kouns Industrial Loop & LA 3132 EB Off Ramp/LA 3132 EB On Ramp with Improvements

Lane Group	ø1	ø2	ø8
Control Delay			
Queue Delay			
Total Delay			
LOS			
Approach Delay			
Approach LOS			
Queue Length 50th (ft)			
Queue Length 95th (ft)			
Internal Link Dist (ft)			
Turn Bay Length (ft)			
Base Capacity (vph)			
Starvation Cap Reductn			
Spillback Cap Reductn			
Storage Cap Reductn			
Reduced v/c Ratio			

Intersection Summary

Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
 109: Bert Kouns Industrial Loop & LA 3132 WB On Ramp/LA 3132 WB On Ramp with Improvements



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	60	0	71	14	1783	0	0	755	878
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	0	0	0	200	295	0	0	0	0	100
Storage Lanes	0	0	0	0	0	1	1	0	0	0	0	1
Taper Length (ft)	50			50			50			50		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frnt						0.850					0.850	
Fit Protected					0.950		0.950					
Satd. Flow (prot)	0	0	0	0	1805	1599	1805	3539	0	0	3539	1568
Fit Permitted					0.950		0.247					
Satd. Flow (perm)	0	0	0	0	1805	1599	469	3539	0	0	3539	1568
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						12						642
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		276			1075			537			687	
Travel Time (s)		4.2			16.3			8.1			10.4	
Peak Hour Factor	0.92	0.92	0.92	0.81	0.81	0.81	0.86	0.86	0.86	0.89	0.89	0.89
Heavy Vehicles (%)	0%	0%	0%	0%	0%	1%	0%	2%	0%	0%	2%	3%
Adj. Flow (vph)	0	0	0	74	0	88	16	2073	0	0	848	987
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	74	88	16	2073	0	0	848	987
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)				0				27			27	
Link Offset(ft)				0		0		0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type				Split	NA	Perm	custom	NA			NA	Perm
Protected Phases				8	8		1	1	6		2	
Permitted Phases						8	6					2
Detector Phase				8	8	8	1	1	6		2	2
Switch Phase												
Minimum Initial (s)				12.0	12.0	12.0	5.0				15.0	15.0
Minimum Split (s)				18.0	18.0	18.0	10.0				21.0	21.0
Total Split (s)				36.0	36.0	36.0	20.0				54.0	54.0
Total Split (%)				32.7%	32.7%	32.7%	18.2%				49.1%	49.1%
Yellow Time (s)				5.0	5.0	5.0	5.0				5.0	5.0
All-Red Time (s)				1.0	1.0	1.0	0.0				1.0	1.0
Lost Time Adjust (s)					0.0	0.0	0.0				0.0	0.0
Total Lost Time (s)					6.0	6.0	5.0				6.0	6.0
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Recall Mode				None	None	None	None				None	None
Act Effect Green (s)				23.8	23.8	23.8	64.2	68.1			48.0	48.0
Actuated g/C Ratio				0.23	0.23	0.23	0.62	0.66			0.46	0.46
v/c Ratio				0.18	0.23	0.03	0.89				0.52	0.92

Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
 109: Bert Kouns Industrial Loop & LA 3132 WB On Ramp/LA 3132 WB On Ramp with Improvements

Lane Group	ø4	ø5	ø6
Lane Configurations			
Volume (vph)			
Ideal Flow (vphpl)			
Storage Length (ft)			
Storage Lanes			
Taper Length (ft)			
Lane Util. Factor			
Frnt			
Fit Protected			
Satd. Flow (prot)			
Fit Permitted			
Satd. Flow (perm)			
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (mph)			
Link Distance (ft)			
Travel Time (s)			
Peak Hour Factor			
Heavy Vehicles (%)			
Adj. Flow (vph)			
Shared Lane Traffic (%)			
Lane Group Flow (vph)			
Enter Blocked Intersection			
Lane Alignment			
Median Width(ft)			
Link Offset(ft)			
Crosswalk Width(ft)			
Two way Left Turn Lane			
Headway Factor			
Turning Speed (mph)			
Turn Type			
Protected Phases	4	5	6
Permitted Phases			
Detector Phase			
Switch Phase			
Minimum Initial (s)	5.0	5.0	15.0
Minimum Split (s)	11.0	10.0	21.0
Total Split (s)	36.0	20.0	54.0
Total Split (%)	33%	18%	49%
Yellow Time (s)	5.0	5.0	5.0
All-Red Time (s)	1.0	0.0	1.0
Lost Time Adjust (s)			
Total Lost Time (s)			
Lead/Lag		Lead	Lag
Lead-Lag Optimize?		Yes	Yes
Recall Mode	None	None	None
Act Effect Green (s)			
Actuated g/C Ratio			
v/c Ratio			

Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
 109: Bert Kouns Industrial Loop & LA 3132 WB On Ramp/LA 3132 WB Off Ramp with Improvements



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay					32.5	28.9	7.9	14.8			22.0	24.8
Queue Delay					0.0	0.0	0.0	1.4			0.0	0.0
Total Delay					32.5	28.9	7.9	16.2			22.0	24.8
LOS					C	C	A	B			C	C
Approach Delay					30.6			16.1			23.5	
Approach LOS					C			B			C	
Queue Length 50th (ft)					40	41	4	317			208	259
Queue Length 95th (ft)					70	73	m5	m349			284	#638
Internal Link Dist (ft)		196			995			457			607	
Turn Bay Length (ft)						200	295					100
Base Capacity (vph)					523	472	483	2320			1640	1071
Starvation Cap Reductn					0	0	0	108			0	0
Spillback Cap Reductn					0	0	0	0			0	0
Storage Cap Reductn					0	0	0	0			0	0
Reduced v/c Ratio					0.14	0.19	0.03	0.94			0.52	0.92

Intersection Summary

Area Type: Other
 Cycle Length: 110
 Actuated Cycle Length: 103.9
 Natural Cycle: 90
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.97
 Intersection Signal Delay: 20.0 Intersection LOS: C
 Intersection Capacity Utilization 82.7% ICU Level of Service E
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 109: Bert Kouns Industrial Loop & LA 3132 WB On Ramp/LA 3132 WB Off Ramp

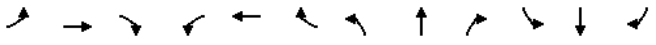


Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
 109: Bert Kouns Industrial Loop & LA 3132 WB On Ramp/LA 3132 WB Off Ramp with Improvements

Lane Group	ø4	ø5	ø6
Control Delay			
Queue Delay			
Total Delay			
LOS			
Approach Delay			
Approach LOS			
Queue Length 50th (ft)			
Queue Length 95th (ft)			
Internal Link Dist (ft)			
Turn Bay Length (ft)			
Base Capacity (vph)			
Starvation Cap Reductn			
Spillback Cap Reductn			
Storage Cap Reductn			
Reduced v/c Ratio			

Intersection Summary


Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
 110: Ashley River Dr SB & Flournoy Lucas Rd 2015 Alternative B AM Peak with Improvements



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↕	↔	↔	↕	↔	↔	↔	↔	↔	↕	↔
Volume (vph)	0	747	98	26	821	8	0	0	0	4	0	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	180	0	120	0	0	0	0	0	0	0	0	0
Storage Lanes	1	0	1	0	0	0	0	0	0	0	0	0
Taper Length (ft)	50	0	50	0	0	50	0	0	0	50	0	0
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.983			0.999						0.961	
Fit Protected				0.950							0.966	
Satd. Flow (prot)	1900	3214	0	1703	3404	0	0	0	0	0	1764	0
Fit Permitted				0.950							0.966	
Satd. Flow (perm)	1900	3214	0	1703	3404	0	0	0	0	0	1764	0
Link Speed (mph)		45		45				30			30	
Link Distance (ft)		750		127				320			340	
Travel Time (s)		11.4		1.9				7.3			7.7	
Peak Hour Factor	0.87	0.87	0.87	0.89	0.89	0.89	0.92	0.92	0.92	0.80	0.80	0.80
Heavy Vehicles (%)	0%	11%	6%	6%	6%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	859	113	29	922	9	0	0	0	5	0	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	972	0	29	931	0	0	0	0	0	7	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			14			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane					Yes							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	33.8%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis LA 3132 (Inner Loop) Extension - Stage 0 Study
 110: Ashley River Dr SB & Flournoy Lucas Rd 2015 Alternative B AM Peak with Improvements



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↕	↔	↔	↕	↔	↔	↔	↔	↔	↕	↔
Volume (veh/h)	0	747	98	26	821	8	0	0	0	4	0	2
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.87	0.87	0.87	0.89	0.89	0.89	0.92	0.92	0.92	0.80	0.80	0.80
Hourly flow rate (vph)	0	859	113	29	922	9	0	0	0	5	0	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)		750										
pX, platoon unblocked				0.79			0.79	0.79	0.79	0.79	0.79	0.79
vC, conflicting volume	931			971			1437	1905	486	1415	1957	466
vC1, stage 1 conf vol							915	915		985	985	
vC2, stage 2 conf vol							522	990		429	971	
vCu, unblocked vol	931			442			1029	1619	0	1001	1684	466
tC, single (s)	4.1			4.2			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			2.3			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			97			100	100	100	98	100	100
cM capacity (veh/h)	743			862			369	269	865	252	258	549

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1
Volume Total	0	572	399	29	615	316	8
Volume Left	0	0	0	29	0	0	5
Volume Right	0	0	113	0	0	9	2
cSH	1700	1700	1700	862	1700	1700	307
Volume to Capacity	0.00	0.34	0.23	0.03	0.36	0.19	0.02
Queue Length 95th (ft)	0	0	0	3	0	0	2
Control Delay (s)	0.0	0.0	0.0	9.3	0.0	0.0	17.0
Lane LOS				A			C
Approach Delay (s)	0.0			0.3			17.0
Approach LOS				C			

Intersection Summary	
Average Delay	0.2
Intersection Capacity Utilization	33.8%
Analysis Period (min)	15
	ICU Level of Service A

Lanes, Volumes, Timings
 111: Ashley River Dr NB & Flournoy Lucas Rd

LA 3132 (Inner Loop) Extension - Stage 0 Study
 2015 Alternative B AM Peak with Improvements

	→	↖	↗	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑	↖	↗
Volume (vph)	751	0	0	566	289	103
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt						0.850
Fit Protected					0.950	
Satd. Flow (prot)	3282	0	0	3374	1805	1568
Fit Permitted				0.950		
Satd. Flow (perm)	3282	0	0	3374	1805	1568
Link Speed (mph)	45			45	30	
Link Distance (ft)	127			2333	283	
Travel Time (s)	1.9			35.3	6.4	
Peak Hour Factor	0.80	0.80	0.84	0.84	0.81	0.81
Heavy Vehicles (%)	10%	0%	0%	7%	0%	3%
Adj. Flow (vph)	939	0	0	674	357	127
Shared Lane Traffic (%)						
Lane Group Flow (vph)	939	0	0	674	357	127
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	14			14	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane	Yes			Yes		
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	43.4%
ICU Level of Service	A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis
 111: Ashley River Dr NB & Flournoy Lucas Rd

LA 3132 (Inner Loop) Extension - Stage 0 Study
 2015 Alternative B AM Peak with Improvements

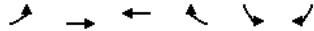
	→	↖	↗	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑	↖	↗
Volume (veh/h)	751	0	0	566	289	103
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.80	0.80	0.84	0.84	0.81	0.81
Hourly flow rate (vph)	939	0	0	674	357	127
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWTL			TWTL		
Median storage (veh)	2			2		
Upstream signal (ft)	877					
pX, platoon unblocked			0.82		0.82	0.82
vC, conflicting volume			939		1276	469
vC1, stage 1 conf vol					939	
vC2, stage 2 conf vol					337	
vCu, unblocked vol			482		894	0
tC, single (s)			4.1		6.8	7.0
tC, 2 stage (s)					5.8	
tF (s)			2.2		3.5	3.3
p0 queue free %			100		18	86
cM capacity (veh/h)			893		435	885

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2
Volume Total	469	469	337	337	357	127
Volume Left	0	0	0	0	357	0
Volume Right	0	0	0	0	0	127
cSH	1700	1700	1700	1700	435	885
Volume to Capacity	0.28	0.28	0.20	0.20	0.82	0.14
Queue Length 95th (ft)	0	0	0	0	192	13
Control Delay (s)	0.0	0.0	0.0	0.0	41.5	9.7
Lane LOS					E	A
Approach Delay (s)	0.0		0.0		33.1	
Approach LOS					D	

Intersection Summary	
Average Delay	7.6
Intersection Capacity Utilization	43.4%
ICU Level of Service	A
Analysis Period (min)	15

Lanes, Volumes, Timings
 112: Flournoy Lucas Rd & Oaks Retirement Rd

LA 3132 (Inner Loop) Extension - Stage 0 Study
 2015 Alternative B AM Peak with Improvements

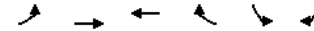


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↔	↕↕	↕↕		↔	↕↕
Volume (vph)	38	816	550	27	6	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	375			0	0	0
Storage Lanes	1			0	1	1
Taper Length (ft)	50				50	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Frt			0.993			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1687	3610	3416	0	1805	1524
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1687	3610	3416	0	1805	1524
Link Speed (mph)		45	45		30	
Link Distance (ft)		2333	1050		729	
Travel Time (s)		35.3	15.9		16.6	
Peak Hour Factor	0.80	0.80	0.81	0.81	0.80	0.80
Heavy Vehicles (%)	7%	0%	5%	4%	0%	6%
Adj. Flow (vph)	48	1020	679	33	8	20
Shared Lane Traffic (%)						
Lane Group Flow (vph)	48	1020	712	0	8	20
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		14	14		28	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane		Yes	Yes			
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	32.7%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis
 112: Flournoy Lucas Rd & Oaks Retirement Rd

LA 3132 (Inner Loop) Extension - Stage 0 Study
 2015 Alternative B AM Peak with Improvements



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↔	↕↕	↕↕		↔	↕↕
Volume (veh/h)	38	816	550	27	6	16
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.80	0.80	0.81	0.81	0.80	0.80
Hourly flow rate (vph)	48	1020	679	33	8	20
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		TWLT	TWLT			
Median storage (veh)		2	2			
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	712				1301	356
vC1, stage 1 conf vol					696	
vC2, stage 2 conf vol					605	
vCu, unblocked vol	712				1301	356
tC, single (s)	4.2				6.8	7.0
tC, 2 stage (s)					5.8	
tF (s)	2.3				3.5	3.4
p0 queue free %	94				98	97
cM capacity (veh/h)	851				355	629

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1	SB 2
Volume Total	48	510	510	453	260	8	20
Volume Left	48	0	0	0	0	8	0
Volume Right	0	0	0	0	33	0	20
cSH	851	1700	1700	1700	1700	355	629
Volume to Capacity	0.06	0.30	0.30	0.27	0.15	0.02	0.03
Queue Length 95th (ft)	4	0	0	0	0	2	2
Control Delay (s)	9.5	0.0	0.0	0.0	0.0	15.4	10.9
Lane LOS	A					C	B
Approach Delay (s)	0.4			0.0		12.1	
Approach LOS						B	

Intersection Summary	
Average Delay	0.4
Intersection Capacity Utilization	32.7%
Analysis Period (min)	15
	ICU Level of Service A

Lanes, Volumes, Timings
201: LA 1 & I-69 WB Ramp

LA 3132 (Inner Loop) Extension - Stage 0 Study
2015 Alternative B AM Peak with Improvements

	←		↑		→	
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔	↔	↕	↕	↔	↕
Volume (vph)	80	0	214	3	61	437
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300	0	0	0	275	
Storage Lanes	1	1		1	1	
Taper Length (ft)	50				50	
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt			0.850			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1641	1727	3195	1429	1656	3312
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1641	1727	3195	1429	1656	3312
Link Speed (mph)	40		65		65	
Link Distance (ft)	381		1423		531	
Travel Time (s)	6.5		14.9		5.6	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Heavy Vehicles (%)	10%	10%	13%	13%	9%	9%
Adj. Flow (vph)	100	0	268	4	68	486
Shared Lane Traffic (%)						
Lane Group Flow (vph)	100	0	268	4	68	486
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		76		76	
Link Offset(ft)	0		0		0	
Crosswalk Width(ft)	16		16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free		Free	

Intersection Summary

Area Type: Other
 Control Type: Unsignalized
 Intersection Capacity Utilization 23.7% ICU Level of Service A
 Analysis Period (min) 15

HCM Unsignalized Intersection Capacity Analysis LA 3132 (Inner Loop) Extension - Stage 0 Study
201: LA 1 & I-69 WB Ramp

2015 Alternative B AM Peak with Improvements

	←		↑		→	
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔	↔	↕	↕	↔	↕
Volume (veh/h)	80	0	214	3	61	437
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Hourly flow rate (vph)	100	0	268	4	68	486
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			Raised		Raised	
Median storage (veh)			3		3	
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	646	134			268	
vC1, stage 1 conf vol	268					
vC2, stage 2 conf vol	378					
vCu, unblocked vol	646	134			268	
tC, single (s)	7.0	7.1			4.3	
tC, 2 stage (s)	6.0					
tF (s)	3.6	3.4			2.3	
p0 queue free %	83	100			95	
cM capacity (veh/h)	572	866			1244	

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	100	0	134	134	4	68	243	243
Volume Left	100	0	0	0	0	68	0	0
Volume Right	0	0	0	0	4	0	0	0
cSH	572	1700	1700	1700	1700	1244	1700	1700
Volume to Capacity	0.17	0.00	0.08	0.08	0.00	0.05	0.14	0.14
Queue Length 95th (ft)	16	0	0	0	0	4	0	0
Control Delay (s)	12.6	0.0	0.0	0.0	0.0	8.1	0.0	0.0
Lane LOS	B	A				A		
Approach Delay (s)	12.6		0.0			1.0		
Approach LOS	B							

Intersection Summary

Average Delay 2.0
 Intersection Capacity Utilization 23.7% ICU Level of Service A
 Analysis Period (min) 15

Lanes, Volumes, Timings
202: LA 1 & I-69 EB Ramp

LA 3132 (Inner Loop) Extension - Stage 0 Study
2015 Alternative B AM Peak with Improvements

	←		↑		→	
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↘	↗	↗	↘	↘
Volume (vph)	4	40	177	59	282	236
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300	0		490	260	
Storage Lanes	1	1		1	1	
Taper Length (ft)	50			50		
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt		0.850		0.850		
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1641	1468	3195	1429	1656	3312
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1641	1468	3195	1429	1656	3312
Link Speed (mph)	40		65		65	
Link Distance (ft)	452		3194		1423	
Travel Time (s)	7.7		33.5		14.9	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Heavy Vehicles (%)	10%	10%	13%	13%	9%	9%
Adj. Flow (vph)	5	50	221	74	313	262
Shared Lane Traffic (%)						
Lane Group Flow (vph)	5	50	221	74	313	262
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	24		76		76	
Link Offset(ft)	0		0		0	
Crosswalk Width(ft)	16		16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free		Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	33.8%		ICU Level of Service A			
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis LA 3132 (Inner Loop) Extension - Stage 0 Study
202: LA 1 & I-69 EB Ramp

2015 Alternative B AM Peak with Improvements

	←		↑		→			
Movement	WBL	WBR	NBT	NBR	SBL	SBT		
Lane Configurations	↘	↘	↗	↗	↘	↘		
Volume (veh/h)	4	40	177	59	282	236		
Sign Control	Stop		Free		Free			
Grade	0%		0%		0%			
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90		
Hourly flow rate (vph)	5	50	221	74	313	262		
Pedestrians								
Lane Width (ft)								
Walking Speed (ft/s)								
Percent Blockage								
Right turn flare (veh)								
Median type			Raised		Raised			
Median storage (veh)			3		3			
Upstream signal (ft)								
pX, platoon unblocked								
vC, conflicting volume	979	111			221			
vC1, stage 1 conf vol	221							
vC2, stage 2 conf vol	758							
vCu, unblocked vol	979	111			221			
tC, single (s)	7.0	7.1			4.3			
tC, 2 stage (s)	6.0							
tF (s)	3.6	3.4			2.3			
p0 queue free %	98	94			76			
cM capacity (veh/h)	303	897			1295			
Direction, Lane #	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	5	50	111	111	74	313	131	131
Volume Left	5	0	0	0	0	313	0	0
Volume Right	0	50	0	0	74	0	0	0
cSH	303	897	1700	1700	1700	1295	1700	1700
Volume to Capacity	0.02	0.06	0.07	0.07	0.04	0.24	0.08	0.08
Queue Length 95th (ft)	1	4	0	0	0	24	0	0
Control Delay (s)	17.1	9.3	0.0	0.0	0.0	8.7	0.0	0.0
Lane LOS	C	A				A		
Approach Delay (s)	10.0		0.0			4.7		
Approach LOS	A							
Intersection Summary								
Average Delay	3.5							
Intersection Capacity Utilization	33.8%		ICU Level of Service				A	
Analysis Period (min)	15							

Lanes, Volumes, Timings
301: LA 1 & Gate A

LA 3132 (Inner Loop) Extension - Stage 0 Study
2015 Alternative B AM Peak with Improvements

	↙ ↘		↑		↗ ↖	
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↕		↔	↕
Volume (vph)	5	14	721	8	21	575
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	0	0	150	
Storage Lanes	1	0		0	1	
Taper Length (ft)	50				50	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Frt	0.899		0.998			
Flt Protected	0.988				0.950	
Satd. Flow (prot)	1259	0	3180	0	1656	2560
Flt Permitted	0.988				0.950	
Satd. Flow (perm)	1259	0	3180	0	1656	2560
Link Speed (mph)	40		65		65	
Link Distance (ft)	496		4383		1584	
Travel Time (s)	8.5		46.0		16.6	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Heavy Vehicles (%)	34%	34%	13%	41%	9%	41%
Adj. Flow (vph)	6	18	901	10	23	639
Shared Lane Traffic (%)						
Lane Group Flow (vph)	24	0	911	0	23	639
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		66		66	
Link Offset(ft)	0		0		0	
Crosswalk Width(ft)	16		16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free		Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	30.2%
ICU Level of Service A	
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis LA 3132 (Inner Loop) Extension - Stage 0 Study
301: LA 1 & Gate A

2015 Alternative B AM Peak with Improvements

	↙ ↘		↑		↗ ↖	
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↕		↔	↕
Volume (veh/h)	5	14	721	8	21	575
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Hourly flow rate (vph)	6	18	901	10	23	639
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			Raised		Raised	
Median storage (veh)			2		2	
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1272	456			911	
vC1, stage 1 conf vol	906					
vC2, stage 2 conf vol	366					
vCu, unblocked vol	1272	456			911	
tC, single (s)	7.5	7.6			4.3	
tC, 2 stage (s)	6.5					
tF (s)	3.8	3.6			2.3	
p0 queue free %	98	96			97	
cM capacity (veh/h)	264	473			701	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	24	601	310	23	319	319
Volume Left	6	0	0	23	0	0
Volume Right	18	0	10	0	0	0
cSH	391	1700	1700	701	1700	1700
Volume to Capacity	0.06	0.35	0.18	0.03	0.19	0.19
Queue Length 95th (ft)	5	0	0	3	0	0
Control Delay (s)	14.8	0.0	0.0	10.3	0.0	0.0
Lane LOS	B			B		
Approach Delay (s)	14.8	0.0		0.4		
Approach LOS	B					

Intersection Summary

Average Delay	0.4
Intersection Capacity Utilization	30.2%
ICU Level of Service A	
Analysis Period (min)	15

Lanes, Volumes, Timings
302: LA 1 & Gate B

LA 3132 (Inner Loop) Extension - Stage 0 Study
2015 Alternative B AM Peak with Improvements

Lane Group	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Lane Configurations							
Volume (vph)	20	40	0	690	43	102	478
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	250		0	250	
Storage Lanes	1	1	1		0	1	
Taper Length (ft)	50		50			50	
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	0.95
Frt		0.850		0.991			
Flt Protected	0.950					0.950	
Satd. Flow (prot)	1271	1137	1681	3145	0	1656	2865
Flt Permitted	0.950					0.950	
Satd. Flow (perm)	1271	1137	1681	3145	0	1656	2865
Link Speed (mph)	40			65			65
Link Distance (ft)	464			1578			4383
Travel Time (s)	7.9			16.6			46.0
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.90	0.90
Heavy Vehicles (%)	42%	42%	13%	13%	26%	9%	26%
Adj. Flow (vph)	25	50	0	863	54	113	531
Shared Lane Traffic (%)							
Lane Group Flow (vph)	25	50	0	916	0	113	531
Enter Blocked Intersection	No	No	No	No	No	No	No
Lane Alignment	Left	Right	R NA	Left	Right	Left	Left
Median Width(ft)	20			66			66
Link Offset(ft)	0			0			0
Crosswalk Width(ft)	16			16			16
Two way Left Turn Lane							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	9		9	15	
Sign Control	Stop			Free			Free

Intersection Summary

Area Type: Other
 Control Type: Unsignalized
 Intersection Capacity Utilization 39.4% ICU Level of Service A
 Analysis Period (min) 15

HCM Unsignalized Intersection Capacity Analysis LA 3132 (Inner Loop) Extension - Stage 0 Study
302: LA 1 & Gate B

2015 Alternative B AM Peak with Improvements

Movement	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Lane Configurations							
Volume (veh/h)	20	40	0	690	43	102	478
Sign Control	Stop			Free			Free
Grade	0%			0%			0%
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.90	0.90
Hourly flow rate (vph)	25	50	0	862	54	113	531
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type				Raised			Raised
Median storage (veh)				2			2
Upstream signal (ft)							
pX, platoon unblocked			0.00				
vC, conflicting volume	1382	458	0			916	
vC1, stage 1 conf vol	889						
vC2, stage 2 conf vol	492						
vCu, unblocked vol	1382	458	0			916	
tC, single (s)	7.6	7.7	0.0			4.3	
tC, 2 stage (s)	6.6						
tF (s)	3.9	3.7	0.0			2.3	
p0 queue free %	89	89	0			84	
cM capacity (veh/h)	234	454	0			698	

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	25	50	575	341	0	113	266	266
Volume Left	25	0	0	0	0	113	0	0
Volume Right	0	50	0	54	0	0	0	0
cSH	234	454	1700	1700	1700	698	1700	1700
Volume to Capacity	0.11	0.11	0.34	0.20	0.00	0.16	0.16	0.16
Queue Length 95th (ft)	9	9	0	0	0	14	0	0
Control Delay (s)	22.2	13.9	0.0	0.0	0.0	11.2	0.0	0.0
Lane LOS	C	B				B		
Approach Delay (s)	16.7		0.0			2.0		
Approach LOS	C							

Intersection Summary

Average Delay 1.5
 Intersection Capacity Utilization 39.4% ICU Level of Service A
 Analysis Period (min) 15

Lanes, Volumes, Timings
303: LA 1 & Gate C

LA 3132 (Inner Loop) Extension - Stage 0 Study
2015 Alternative B AM Peak with Improvements

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↑	↑↑	↑		↑↑
Volume (vph)	0	23	716	33	0	498
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	0	0	250	
Storage Lanes	0	1		1	0	
Taper Length (ft)	50				50	
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt		0.865		0.850		
Fit Protected						
Satd. Flow (prot)	0	1166	3195	1214	0	2714
Fit Permitted						
Satd. Flow (perm)	0	1166	3195	1214	0	2714
Link Speed (mph)	40		65			65
Link Distance (ft)	508		531			1081
Travel Time (s)	8.7		5.6			11.3
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Heavy Vehicles (%)	41%	41%	13%	33%	9%	33%
Adj. Flow (vph)	0	29	895	41	0	553
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	29	895	41	0	553
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	0		76			76
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	29.8%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis LA 3132 (Inner Loop) Extension - Stage 0 Study
303: LA 1 & Gate C

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↑	↑↑	↑		↑↑
Volume (veh/h)	0	23	716	33	0	498
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Hourly flow rate (vph)	0	29	895	41	0	553
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			Raised			Raised
Median storage (veh)			3			3
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1172	448			936	
vC1, stage 1 conf vol	895					
vC2, stage 2 conf vol	277					
vCu, unblocked vol	1172	448			936	
tC, single (s)	7.6	7.7			4.3	
tC, 2 stage (s)	6.6					
tF (s)	3.9	3.7			2.3	
p0 queue free %	100	94			100	
cM capacity (veh/h)	274	464			685	

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	29	448	448	41	277	277
Volume Left	0	0	0	0	0	0
Volume Right	29	0	0	41	0	0
cSH	464	1700	1700	1700	1700	1700
Volume to Capacity	0.06	0.26	0.26	0.02	0.16	0.16
Queue Length 95th (ft)	5	0	0	0	0	0
Control Delay (s)	13.3	0.0	0.0	0.0	0.0	0.0
Lane LOS	B					
Approach Delay (s)	13.3	0.0			0.0	
Approach LOS	B					

Intersection Summary

Average Delay	0.3
Intersection Capacity Utilization	29.8%
Analysis Period (min)	15
	ICU Level of Service A

Lanes, Volumes, Timings
304: LA 1 & Gate D

LA 3132 (Inner Loop) Extension - Stage 0 Study
2015 Alternative B AM Peak with Improvements

	↖	↗	↑	↘	↙	↓
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↖	↗	↑↑	↘	↙	↕
Volume (vph)	1	21	215	1	21	218
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	250		300	280	
Storage Lanes	1	1		1	1	
Taper Length (ft)	50				50	
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt		0.850		0.850		
Frt Protected	0.950				0.950	
Satd. Flow (prot)	1068	956	3195	950	1656	2124
Frt Permitted	0.950				0.950	
Satd. Flow (perm)	1068	956	3195	950	1656	2124
Link Speed (mph)	40		65		65	
Link Distance (ft)	420		716		503	
Travel Time (s)	7.2		7.5		5.3	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Heavy Vehicles (%)	69%	69%	13%	70%	9%	70%
Adj. Flow (vph)	1	26	269	1	23	242
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1	26	269	1	23	242
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		76		76	
Link Offset(ft)	0		0		0	
Crosswalk Width(ft)	16		16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	22.6%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis 3132 (Inner Loop) Extension - Stage 0 Study
304: LA 1 & Gate D

2015 Alternative B AM Peak with Improvements

	↖	↗	↑	↘	↙	↓
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↖	↗	↑↑	↘	↙	↕
Volume (veh/h)	1	21	215	1	21	218
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Hourly flow rate (vph)	1	26	269	1	23	242
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		10				
Median type			Raised			Raised
Median storage (veh)			3			3
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	437	134			270	
vC1, stage 1 conf vol	269					
vC2, stage 2 conf vol	168					
vCu, unblocked vol	437	134			270	
tC, single (s)	8.2	8.3			4.3	
tC, 2 stage (s)	7.2					
tF (s)	4.2	4.0			2.3	
p0 queue free %	100	96			98	
cM capacity (veh/h)	556	713			1241	

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	28	134	134	1	23	121	121
Volume Left	1	0	0	0	23	0	0
Volume Right	26	0	0	1	0	0	0
cSH	747	1700	1700	1700	1241	1700	1700
Volume to Capacity	0.04	0.08	0.08	0.00	0.02	0.07	0.07
Queue Length 95th (ft)	3	0	0	0	1	0	0
Control Delay (s)	10.3	0.0	0.0	0.0	8.0	0.0	0.0
Lane LOS	B				A		
Approach Delay (s)	10.3	0.0			0.7		
Approach LOS	B						

Intersection Summary

Average Delay	0.8
Intersection Capacity Utilization	22.6%
Analysis Period (min)	15
	ICU Level of Service A

Lanes, Volumes, Timings
401: LA 3132 SB Ramp & Leonard Rd

LA 3132 (Inner Loop) Extension - Stage 0 Study
2015 Alternative B AM Peak with Improvements

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔						↔	
Volume (vph)	0	135	26	0	100	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.979										
Fit Protected												
Satd. Flow (prot)	0	1691	0	0	1727	0	0	0	0	0	1727	0
Fit Permitted												
Satd. Flow (perm)	0	1691	0	0	1727	0	0	0	0	0	1727	0
Link Speed (mph)		50			50			45			45	
Link Distance (ft)		559			469			669			381	
Travel Time (s)		7.6			6.4			10.1			5.8	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Heavy Vehicles (%)	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
Adj. Flow (vph)	0	169	33	0	125	0	0	0	0	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	201	0	0	125	0	0	0	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

Intersection Summary
 Area Type: Other
 Control Type: Unsignalized
 Intersection Capacity Utilization 18.7% ICU Level of Service A
 Analysis Period (min) 15

HCM Unsignalized Intersection Capacity Analysis 401: LA 3132 SB Ramp & Leonard Rd

LA 3132 (Inner Loop) Extension - Stage 0 Study
2015 Alternative B AM Peak with Improvements

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement		↔			↔						↔	
Lane Configurations		↔			↔						↔	
Volume (veh/h)	0	135	26	0	100	0	0	0	0	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	0	169	32	0	125	0	0	0	0	0	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)												
pX, platoon unblocked												
vC, conflicting volume	125			201			310	310	185	310	326	125
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	125			201			310	310	185	310	326	125
tC, single (s)	4.2			4.2			7.2	6.6	6.3	7.2	6.6	6.3
tC, 2 stage (s)												
tF (s)	2.3			2.3			3.6	4.1	3.4	3.6	4.1	3.4
p0 queue free %	100			100			100	100	100	100	100	100
cM capacity (veh/h)	1413			1324			627	592	837	627	579	905

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	201	125	0
Volume Left	0	0	0
Volume Right	32	0	0
cSH	1700	1324	1700
Volume to Capacity	0.12	0.00	0.00
Queue Length 95th (ft)	0	0	0
Control Delay (s)	0.0	0.0	0.0
Lane LOS			A
Approach Delay (s)	0.0	0.0	0.0
Approach LOS			A

Intersection Summary
 Average Delay 0.0
 Intersection Capacity Utilization 18.7% ICU Level of Service A
 Analysis Period (min) 15

Lanes, Volumes, Timings
402: LA 3132 NB Ramp & Leonard Rd

LA 3132 (Inner Loop) Extension - Stage 0 Study
2015 Alternative B AM Peak with Improvements

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕				
Volume (vph)	0	135	0	0	74	0	26	0	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fit Protected								0.950				
Satd. Flow (prot)	0	1727	0	0	1727	0	0	1641	0	0	0	0
Fit Permitted								0.950				
Satd. Flow (perm)	0	1727	0	0	1727	0	0	1641	0	0	0	0
Link Speed (mph)		50			50			45			45	
Link Distance (ft)		469			2733			461			532	
Travel Time (s)		6.4			37.3			7.0			8.1	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Heavy Vehicles (%)	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
Adj. Flow (vph)	0	169	0	0	93	0	33	0	0	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	169	0	0	92	0	0	32	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	18.7%
ICU Level of Service	A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis LA 3132 (Inner Loop) Extension - Stage 0 Study
402: LA 3132 NB Ramp & Leonard Rd

2015 Alternative B AM Peak with Improvements

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕				
Volume (veh/h)	0	135	0	0	74	0	26	0	0	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	0	169	0	0	92	0	32	0	0	0	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)												
pX, platoon unblocked												
vC, conflicting volume	92			169			261	261	169	261	261	92
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	92			169			261	261	169	261	261	92
tC, single (s)	4.2			4.2			7.2	6.6	6.3	7.2	6.6	6.3
tC, 2 stage (s)												
tF (s)	2.3			2.3			3.6	4.1	3.4	3.6	4.1	3.4
p0 queue free %	100			100			95	100	100	100	100	100
cM capacity (veh/h)	1453			1362			676	630	855	676	630	943

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	169	92	32
Volume Left	0	0	32
Volume Right	0	0	0
cSH	1453	1700	676
Volume to Capacity	0.00	0.05	0.05
Queue Length 95th (ft)	0	0	4
Control Delay (s)	0.0	0.0	10.6
Lane LOS			B
Approach Delay (s)	0.0	0.0	10.6
Approach LOS			B

Intersection Summary

Average Delay	1.2
Intersection Capacity Utilization	18.7%
ICU Level of Service	A
Analysis Period (min)	15

Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
 100: LA3132 NB/LA3132 SB & Flournoy Lucas Rd 2015 Alternative B AM Peak with SPU

Lane Group	EBL	EBT	EBR2	WBL	WBT	WBR2	SEL	SER2	NWL	NWR2
Lane Configurations	↑↑	↑↑	↔	↔	↑↑	↑↑	↔	↔	↔	↔
Volume (vph)	270	308	0	0	178	644	537	105	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	350			250			0		0	
Storage Lanes	2			2			2		2	
Taper Length (ft)	50			50			50		50	
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	1.00	0.97	1.00
Frt						0.850	0.850			
Flt Protected	0.950						0.950			
Satd. Flow (prot)	3467	3505	1900	3686	3406	1538	3367	1553	3686	1900
Flt Permitted	0.950						0.950			
Satd. Flow (perm)	3467	3505	1900	3686	3406	1538	3367	1553	3686	1900
Right Turn on Red			Yes			Yes	Yes	Yes	Yes	
Satd. Flow (RTOR)						753	131			
Link Speed (mph)		45			45					
Link Distance (ft)		749			713					
Travel Time (s)		11.3			10.8					
Peak Hour Factor	0.86	0.86	0.86	0.81	0.81	0.81	0.80	0.80	0.90	0.90
Heavy Vehicles (%)	1%	3%	0%	0%	6%	5%	4%	4%	0%	0%
Adj. Flow (vph)	314	358	0	0	220	795	671	131	0	0
Shared Lane Traffic (%)										
Lane Group Flow (vph)	314	358	0	0	220	795	671	131	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Right	Left	Right
Median Width(ft)		24			34					
Link Offset(ft)		0			0					
Crosswalk Width(ft)		16			16					
Two way Left Turn Lane										
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15	9	15	9
Turn Type	Prot	NA	Free	Prot	NA	Free	Prot	Free	Prot	Free
Protected Phases	5	2		1	6		4		8	
Permitted Phases			Free			Free		Free		Free
Detector Phase	5	2		1	6		4		8	
Switch Phase										
Minimum Initial (s)	4.0	15.0		4.0	15.0		4.0		4.0	
Minimum Split (s)	10.0	21.0		10.0	21.0		22.0		10.0	
Total Split (s)	34.0	56.0		12.0	34.0		22.0		22.0	
Total Split (%)	37.8%	62.2%		13.3%	37.8%		24.4%		24.4%	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0		5.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0		1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0		0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0		6.0		6.0	
Lead/Lag	Lag	Lag		Lead	Lead					
Lead-Lag Optimize?	Yes	Yes		Yes	Yes					
Recall Mode	None	Min		None	Min		None		None	
Act Effect Green (s)	10.6	31.6		15.0	59.6		16.0		59.6	
Actuated g/C Ratio	0.18	0.53		0.25	1.00		0.27		1.00	
v/c Ratio	0.51	0.19		0.26	0.52		0.74		0.08	

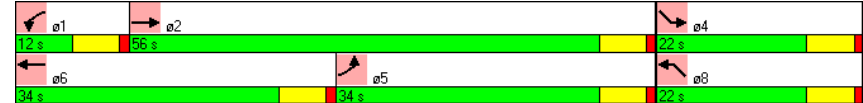
Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
 100: LA3132 NB/LA3132 SB & Flournoy Lucas Rd 2015 Alternative B AM Peak with SPU

Lane Group	EBL	EBT	EBR2	WBL	WBT	WBR2	SEL	SER2	NWL	NWR2
Control Delay	25.2	7.6			19.3	1.2	26.6	0.1		
Queue Delay	0.0	0.0			0.0	0.0	0.0	0.0		
Total Delay	25.2	7.6			19.3	1.2	26.6	0.1		
LOS	C	A			B	A	C	A		
Approach Delay		15.8			5.2					
Approach LOS		B			A					
Queue Length 50th (ft)	53	32			33	0	112	0		
Queue Length 95th (ft)	81	48			54	0	150	0		
Internal Link Dist (ft)		669			633					
Turn Bay Length (ft)	350				350		600			
Base Capacity (vph)	1629	2941			1600	1538	904	1553		
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	0.19	0.12			0.14	0.52	0.74	0.08		

Intersection Summary

Area Type:	Other
Cycle Length:	90
Actuated Cycle Length:	59.6
Natural Cycle:	55
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.74
Intersection Signal Delay:	13.6
Intersection Capacity Utilization:	48.9%
Intersection LOS:	B
ICU Level of Service:	A
Analysis Period (min):	15

Splits and Phases: 100: LA3132 NB/LA3132 SB & Flournoy Lucas Rd



Lanes, Volumes, Timings
101: Flournoy Lucas Rd & LA 3132 SB

LA 3132 (Inner Loop) Extension - Stage 0 Study

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↙	↑↑					↘	↓	↘
Volume (vph)	0	312	0	0	299	0	0	0	0	593	0	266
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		450	200		0	0			250		0
Storage Lanes	0		1	1		0	0			1		0
Taper Length (ft)	50			50			50			50		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	0.97	1.00	1.00
Frt										0.850		
Flt Protected										0.950		
Satd. Flow (prot)	0	3574	1900	1900	3610	0	0	0	0	3303	1615	0
Flt Permitted										0.950		
Satd. Flow (perm)	0	3574	1900	1900	3610	0	0	0	0	3303	1615	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)											534	
Link Speed (mph)		45			45			30			45	
Link Distance (ft)		986			649			714			631	
Travel Time (s)		14.9			9.8			16.2			9.6	
Peak Hour Factor	0.95	0.95	0.95	0.84	0.84	0.84	0.92	0.92	0.92	0.90	0.90	0.90
Heavy Vehicles (%)	0%	1%	0%	0%	0%	0%	2%	2%	2%	6%	0%	0%
Adj. Flow (vph)	0	328	0	0	356	0	0	0	0	659	0	296
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	328	0	0	356	0	0	0	0	659	296	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		34			34			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type		NA	Perm	Perm	NA					Split	NA	
Protected Phases		2 11 14			6 11 14					4	4	
Permitted Phases			2 11 14	6 11 14								
Detector Phase		2 11 14	2 11 14	6 11 14	6 11 14					4	4	
Switch Phase												
Minimum Initial (s)										7.0	7.0	
Minimum Split (s)										13.0	13.0	
Total Split (s)										21.0	21.0	
Total Split (%)										28.0%	28.0%	
Yellow Time (s)										3.5	3.5	
All-Red Time (s)										1.5	1.5	
Lost Time Adjust (s)										0.0	0.0	
Total Lost Time (s)										5.0	5.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode										None	None	
Act Effect Green (s)		48.0			48.0					16.0	16.0	
Actuated g/C Ratio		0.64			0.64					0.21	0.21	
v/c Ratio		0.14			0.15					0.93	0.39	

Lanes, Volumes, Timings
101: Flournoy Lucas Rd & LA 3132 SB

LA 3132 (Inner Loop) Extension - Stage 0 Study

Lane Group	ø1	ø2	ø6	ø8	ø11	ø12	ø14
Lane Configurations							
Volume (vph)							
Ideal Flow (vphpl)							
Storage Length (ft)							
Storage Lanes							
Taper Length (ft)							
Lane Util. Factor							
Frt							
Flt Protected							
Satd. Flow (prot)							
Flt Permitted							
Satd. Flow (perm)							
Right Turn on Red							
Satd. Flow (RTOR)							
Link Speed (mph)							
Link Distance (ft)							
Travel Time (s)							
Peak Hour Factor							
Heavy Vehicles (%)							
Adj. Flow (vph)							
Shared Lane Traffic (%)							
Lane Group Flow (vph)							
Enter Blocked Intersection							
Lane Alignment							
Median Width(ft)							
Link Offset(ft)							
Crosswalk Width(ft)							
Two way Left Turn Lane							
Headway Factor							
Turning Speed (mph)							
Turn Type							
Protected Phases	1	2	6	8	11	12	14
Permitted Phases							
Detector Phase							
Switch Phase							
Minimum Initial (s)	4.0	15.0	15.0	15.0	5.0	15.0	4.0
Minimum Split (s)	10.0	21.0	21.0	21.0	11.0	21.0	20.0
Total Split (s)	12.0	21.0	21.0	21.0	12.0	21.0	21.0
Total Split (%)	16%	28%	28%	28%	16%	28%	28%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	0.5
Lost Time Adjust (s)							
Total Lost Time (s)							
Lead/Lag							
Lead-Lag Optimize?							
Recall Mode	None	Min	Min	Min	None	None	None
Act Effect Green (s)							
Actuated g/C Ratio							
v/c Ratio							

Lanes, Volumes, Timings
101: Flournoy Lucas Rd & LA 3132 SB

LA 3132 (Inner Loop) Extension - Stage 0 Study

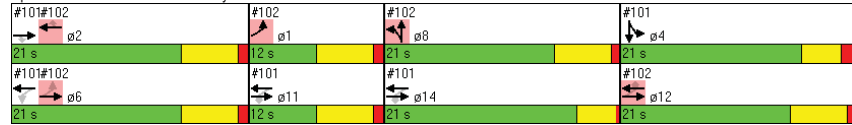


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay		5.5			7.6					52.1	1.5	
Queue Delay		0.0			0.0					0.0	0.0	
Total Delay		5.5			7.6					52.1	1.5	
LOS		A			A					D	A	
Approach Delay		5.5			7.6						36.4	
Approach LOS		A			A						D	
Queue Length 50th (ft)		27			63					156	0	
Queue Length 95th (ft)		42			88					#256	0	
Internal Link Dist (ft)		906			569			634			551	
Turn Bay Length (ft)										250		
Base Capacity (vph)		2287			2310					705	765	
Starvation Cap Reductn		0			0					0	0	
Spillback Cap Reductn		0			0					0	0	
Storage Cap Reductn		0			0					0	0	
Reduced v/c Ratio		0.14			0.15					0.93	0.39	

Intersection Summary

Area Type: Other
 Cycle Length: 75
 Actuated Cycle Length: 75
 Natural Cycle: 75
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.93
 Intersection Signal Delay: 24.0 Intersection LOS: C
 Intersection Capacity Utilization 66.7% ICU Level of Service C
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 101: Flournoy Lucas Rd & LA 3132 SB



Lanes, Volumes, Timings
101: Flournoy Lucas Rd & LA 3132 SB

LA 3132 (Inner Loop) Extension - Stage 0 Study

Lane Group	ø1	ø2	ø6	ø8	ø11	ø12	ø14
Control Delay							
Queue Delay							
Total Delay							
LOS							
Approach Delay							
Approach LOS							
Queue Length 50th (ft)							
Queue Length 95th (ft)							
Internal Link Dist (ft)							
Turn Bay Length (ft)							
Base Capacity (vph)							
Starvation Cap Reductn							
Spillback Cap Reductn							
Storage Cap Reductn							
Reduced v/c Ratio							

Intersection Summary

Lanes, Volumes, Timings
102: Flournoy Lucas Rd & LA3132 NB

LA 3132 (Inner Loop) Extension - Stage 0 Study

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔↔			↔↔	↔	↔	↔↔				
Volume (vph)	115	790	0	0	299	530	0	0	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	0		85	0		650	0		0
Storage Lanes	1		0	0		1	1		0	0		0
Taper Length (ft)	50			50			50			50		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00
Frt						0.850						
Flt Protected	0.950											
Satd. Flow (prot)	1770	3438	0	0	3574	1482	1805	1805	0	0	0	0
Flt Permitted	0.537											
Satd. Flow (perm)	1000	3438	0	0	3574	1482	1805	1805	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						639						
Link Speed (mph)		45			45			30			45	
Link Distance (ft)		649			750			719			607	
Travel Time (s)		9.8			11.4			16.3			9.2	
Peak Hour Factor	0.94	0.94	0.94	0.83	0.83	0.83	0.80	0.80	0.80	0.92	0.92	0.92
Heavy Vehicles (%)	2%	5%	0%	0%	1%	9%	0%	0%	0%	0%	2%	0%
Adj. Flow (vph)	122	840	0	0	360	639	0	0	0	0	0	0
Shared Lane Traffic (%)							0%					
Lane Group Flow (vph)	122	840	0	0	360	639	0	0	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			34			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA			NA	Perm	Split					
Protected Phases	1	6 12			2 12		8	8				
Permitted Phases	6 12					2 12						
Detector Phase	1	6 12			2 12	2 12	8	8				
Switch Phase												
Minimum Initial (s)	4.0						15.0	15.0				
Minimum Split (s)	10.0						21.0	21.0				
Total Split (s)	12.0						21.0	21.0				
Total Split (%)	16.0%						28.0%	28.0%				
Yellow Time (s)	5.0						5.0	5.0				
All-Red Time (s)	1.0						1.0	1.0				
Lost Time Adjust (s)	0.0						0.0	0.0				
Total Lost Time (s)	6.0						6.0	6.0				
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None						Min	Min				
Act Effect Green (s)	41.9	36.0			36.0	36.0						
Actuated g/C Ratio	0.56	0.48			0.48	0.48						
v/c Ratio	0.20	0.51			0.21	0.61						

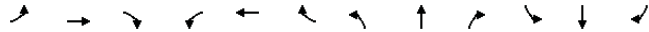
Lanes, Volumes, Timings
102: Flournoy Lucas Rd & LA3132 NB

LA 3132 (Inner Loop) Extension - Stage 0 Study

Lane Group	ø2	ø4	ø6	ø11	ø12	ø14
Lane Configurations						
Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Heavy Vehicles (%)						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Enter Blocked Intersection						
Lane Alignment						
Median Width(ft)						
Link Offset(ft)						
Crosswalk Width(ft)						
Two way Left Turn Lane						
Headway Factor						
Turning Speed (mph)						
Turn Type						
Protected Phases	2	4	6	11	12	14
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	15.0	7.0	15.0	5.0	15.0	4.0
Minimum Split (s)	21.0	13.0	21.0	11.0	21.0	20.0
Total Split (s)	21.0	21.0	21.0	12.0	21.0	21.0
Total Split (%)	28%	28%	28%	16%	28%	28%
Yellow Time (s)	5.0	3.5	5.0	5.0	5.0	3.5
All-Red Time (s)	1.0	1.5	1.0	1.0	1.0	0.5
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	Min	None	Min	None	None	None
Act Effect Green (s)						
Actuated g/C Ratio						
v/c Ratio						

Lanes, Volumes, Timings
102: Flournoy Lucas Rd & LA3132 NB

LA 3132 (Inner Loop) Extension - Stage 0 Study

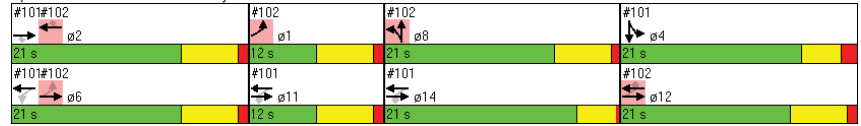


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	7.3	3.6			11.7	4.0						
Queue Delay	0.0	0.0			0.0	0.0						
Total Delay	7.3	3.6			11.7	4.0						
LOS	A	A			B	A						
Approach Delay		4.0			6.8							
Approach LOS		A			A							
Queue Length 50th (ft)	19	25			48	0						
Queue Length 95th (ft)	36	m29			66	33						
Internal Link Dist (ft)		569			670			639			527	
Turn Bay Length (ft)	200					85						
Base Capacity (vph)	622	1650			1716	1044						
Starvation Cap Reductn	0	0			0	0						
Spillback Cap Reductn	0	0			0	0						
Storage Cap Reductn	0	0			0	0						
Reduced v/c Ratio	0.20	0.51			0.21	0.61						

Intersection Summary

Area Type: Other
 Cycle Length: 75
 Actuated Cycle Length: 75
 Natural Cycle: 75
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.93
 Intersection Signal Delay: 5.4 Intersection LOS: A
 Intersection Capacity Utilization 66.7% ICU Level of Service C
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 102: Flournoy Lucas Rd & LA3132 NB



Lanes, Volumes, Timings
102: Flournoy Lucas Rd & LA3132 NB

LA 3132 (Inner Loop) Extension - Stage 0 Study

Lane Group	ø2	ø4	ø6	ø11	ø12	ø14
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						
Queue Length 50th (ft)						
Queue Length 95th (ft)						
Internal Link Dist (ft)						
Turn Bay Length (ft)						
Base Capacity (vph)						
Starvation Cap Reductn						
Spillback Cap Reductn						
Storage Cap Reductn						
Reduced v/c Ratio						

Intersection Summary

Lanes, Volumes, Timings
103: LA 1 & Flournoy Lucas Rd

LA 3132 (Inner Loop) Extension - Stage 0 Study

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	501	167	289	28	10	9	264	292	0	0	334	565
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	0		0	125		0	165		165
Storage Lanes	1		0	0		0	1		0	1		1
Taper Length (ft)	50			50			50			50		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt	0.905				0.974							0.850
Flt Protected	0.950				0.971		0.950					
Satd. Flow (prot)	3467	1414	0	0	1790	0	1570	3374	0	1900	3438	1599
Flt Permitted	0.950				0.555		0.381					
Satd. Flow (perm)	3467	1414	0	0	1023	0	629	3374	0	1900	3438	1599
Right Turn on Red			Yes			Yes			Yes			No
Satd. Flow (RTOR)		108			10							
Link Speed (mph)		50			50			55				55
Link Distance (ft)		784			651			1092				934
Travel Time (s)		10.7			8.9			13.5				11.6
Peak Hour Factor	0.89	0.89	0.89	0.80	0.80	0.80	0.83	0.83	0.83	0.81	0.81	0.81
Heavy Vehicles (%)	1%	2%	33%	0%	2%	0%	15%	7%	0%	0%	5%	1%
Adj. Flow (vph)	563	188	325	35	12	11	318	352	0	0	412	698
Shared Lane Traffic (%)												
Lane Group Flow (vph)	563	513	0	0	58	0	318	352	0	0	412	698
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			0			12				12
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Prot	NA		Perm	NA		pm+pt	NA		pm+pt	NA	pt+ov
Protected Phases	3	8			4		1	6		5	2	2 3
Permitted Phases				4			6			2		
Detector Phase	3	8		4	4		1	6		5	2	2 3
Switch Phase												
Minimum Initial (s)	5.0	10.0		7.0	7.0		7.0	15.0		5.0	15.0	
Minimum Split (s)	11.5	16.5		13.5	13.5		15.0	23.0		13.0	23.0	
Total Split (s)	23.7	39.0		15.3	15.3		16.0	38.0		13.0	35.0	
Total Split (%)	26.3%	43.3%		17.0%	17.0%		17.8%	42.2%		14.4%	38.9%	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.5	5.5		5.5	5.5	
All-Red Time (s)	1.5	1.5		1.5	1.5		2.5	2.5		2.5	2.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.5	6.5		6.5	6.5		8.0	8.0		8.0	8.0	
Lead/Lag	Lead			Lag			Lag			Lag		Lag
Lead-Lag Optimize?	Yes			Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None		None	Min		None	Min	
Act Effect Green (s)	18.9	30.7			8.8		41.8	41.8			25.8	51.2
Actuated g/C Ratio	0.22	0.35			0.10		0.48	0.48			0.30	0.59
v/c Ratio	0.75	0.90			0.52		0.82	0.22			0.41	0.74

Lanes, Volumes, Timings
103: LA 1 & Flournoy Lucas Rd

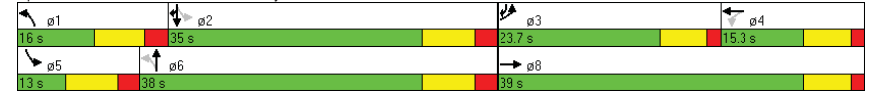
LA 3132 (Inner Loop) Extension - Stage 0 Study

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	41.1	42.7			50.8		36.4	13.9			26.2	20.6
Queue Delay	0.0	0.0			0.0		0.0	0.0			0.0	0.0
Total Delay	41.1	42.7			50.8		36.4	13.9			26.2	20.6
LOS	D	D			D		D	B			C	C
Approach Delay		41.9			50.8			24.6				22.7
Approach LOS		D			D			C				C
Queue Length 50th (ft)	160	220			26		114	58			97	287
Queue Length 95th (ft)	#240	#410			#59		#187	78			123	360
Internal Link Dist (ft)		704			571			1012				854
Turn Bay Length (ft)	200						125					165
Base Capacity (vph)	751	598			113		389	1620			1070	930
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	0.75	0.86			0.51		0.82	0.22			0.39	0.75

Intersection Summary

Area Type:	Other
Cycle Length:	90
Actuated Cycle Length:	87.1
Natural Cycle Length:	90
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.90
Intersection Signal Delay:	30.8
Intersection LOS:	C
Intersection Capacity Utilization:	74.2%
ICU Level of Service:	D
Analysis Period (min):	15
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 103: LA 1 & Flournoy Lucas Rd



Lanes, Volumes, Timings
105: Ellerbe Rd & Flournoy Lucas Rd

LA 3132 (Inner Loop) Extension - Stage 0 Study

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↩	→	↘	↩	↗	↘	↩	↗	↘	↩	↗	↘
Volume (vph)	11	112	70	122	143	13	42	469	74	29	1108	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	140		0	150		0	115		120	150		0
Storage Lanes	1		0	1		1	1		1	1		0
Taper Length (ft)	50			50			50		50			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Frt		0.943				0.850			0.850		0.997	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1805	1770	0	1787	1863	1615	1805	3539	1599	1752	3530	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1805	1770	0	1787	1863	1615	1805	3539	1599	1752	3530	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		30				15			88			2
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		848			838			697			896	
Travel Time (s)		12.8			12.7			10.6			13.6	
Peak Hour Factor	0.87	0.87	0.87	0.89	0.89	0.89	0.84	0.84	0.84	0.89	0.89	0.89
Heavy Vehicles (%)	0%	2%	0%	1%	2%	0%	0%	2%	1%	3%	2%	0%
Adj. Flow (vph)	13	129	80	137	161	15	50	558	88	33	1245	24
Shared Lane Traffic (%)												
Lane Group Flow (vph)	13	209	0	137	161	15	50	558	88	33	1269	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane					Yes						Yes	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases						4			6			
Detector Phase	3	8		7	4	4	1	6	6	5	2	
Switch Phase												
Minimum Initial (s)	7.0	15.0		7.0	15.0	15.0	7.0	10.0	10.0	7.0	10.0	
Minimum Split (s)	12.0	20.0		14.0	22.0	22.0	12.0	15.0	15.0	14.0	17.0	
Total Split (s)	12.0	20.0		16.0	24.0	24.0	12.0	40.0	40.0	14.0	42.0	
Total Split (%)	13.3%	22.2%		17.8%	26.7%	26.7%	13.3%	44.4%	44.4%	15.6%	46.7%	
Yellow Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	0.0	0.0		2.0	2.0	2.0	0.0	0.0	0.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0	5.0		7.0	7.0	7.0	5.0	5.0	5.0	7.0	7.0	
Lead/Lag	Lead	Lead		Lag	Lag	Lag	Lead	Lead	Lead	Lag	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	Min		None	Min	Min	None	None	None	None	None	
Act Effect Green (s)	7.1	15.2		8.9	26.9	26.9	7.1	33.2	33.2	10.9	33.5	
Actuated g/C Ratio	0.09	0.18		0.11	0.32	0.32	0.09	0.40	0.40	0.13	0.40	
v/c Ratio	0.08	0.60		0.72	0.27	0.03	0.33	0.40	0.13	0.14	0.89	

Lanes, Volumes, Timings
105: Ellerbe Rd & Flournoy Lucas Rd

LA 3132 (Inner Loop) Extension - Stage 0 Study

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	40.0	36.9		60.9	26.3	13.5	45.0	21.5	6.4	33.8	34.0	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	40.0	36.9		60.9	26.3	13.5	45.0	21.5	6.4	33.8	34.0	
LOS	D	D		E	C	B	D	C	A	C	C	
Approach Delay		37.1			40.8			21.3			34.0	
Approach LOS		D			D			C			C	
Queue Length 50th (ft)	7	96		77	67	0	28	84	0	18	354	
Queue Length 95th (ft)	24	163		#169	141	16	59	176	29	41	#486	
Internal Link Dist (ft)		768			758			617			816	
Turn Bay Length (ft)	140			150			115		120	150		
Base Capacity (vph)	153	346		195	600	531	153	1621	780	228	1500	
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	0.08	0.60		0.70	0.27	0.03	0.33	0.34	0.11	0.14	0.85	
Intersection Summary												
Area Type:		Other										
Cycle Length:		90										
Actuated Cycle Length:		83.4										
Natural Cycle:		80										
Control Type:		Actuated-Uncoordinated										
Maximum v/c Ratio:		0.89										
Intersection Signal Delay:		31.6										
Intersection Capacity Utilization:		68.3%										
		ICU Level of Service C										
Analysis Period (min)		15										
#		95th percentile volume exceeds capacity, queue may be longer.										
		Queue shown is maximum after two cycles.										
Splits and Phases: 105: Ellerbe Rd & Flournoy Lucas Rd												
↩	↘	↗	↩	↘	↗	↩	↘	↗	↩	↘	↗	↩
12 s	22 s	12 s	24 s	14 s	20 s	14 s	20 s	14 s	20 s	16 s		

Lanes, Volumes, Timings
106: LA 1 & Leonard Rd

LA 3132 (Inner Loop) Extension - Stage 0 Study

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	29	43	71	527	605	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	145			0
Storage Lanes	1	0	1			0
Taper Length (ft)	50		50			
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95
Frt	0.919			0.989		
Flt Protected	0.980		0.950			
Satd. Flow (prot)	1704	0	1703	3223	3031	0
Flt Permitted	0.980		0.950			
Satd. Flow (perm)	1704	0	1703	3223	3031	0
Link Speed (mph)	50			65	65	
Link Distance (ft)	2733			1583	2639	
Travel Time (s)	37.3			16.6	27.7	
Peak Hour Factor	0.88	0.88	0.87	0.87	0.89	0.89
Heavy Vehicles (%)	1%	0%	6%	12%	19%	2%
Adj. Flow (vph)	33	49	82	606	680	52
Shared Lane Traffic (%)						
Lane Group Flow (vph)	82	0	82	606	732	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			66	78	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	36.4%
ICU Level of Service	A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis LA 3132 (Inner Loop) Extension - Stage 0 Study
106: LA 1 & Leonard Rd

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	29	43	71	527	605	46
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.88	0.88	0.87	0.87	0.89	0.89
Hourly flow rate (vph)	33	49	82	606	680	52
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				Raised	Raised	
Median storage (veh)				2	3	
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1172	366	731			
vC1, stage 1 conf vol	706					
vC2, stage 2 conf vol	466					
vCu, unblocked vol	1172	366	731			
tC, single (s)	6.8	6.9	4.2			
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3	2.3			
p0 queue free %	92	92	90			
cM capacity (veh/h)	406	637	843			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	82	82	303	303	453	278
Volume Left	33	82	0	0	0	0
Volume Right	49	0	0	0	0	52
cSH	518	843	1700	1700	1700	1700
Volume to Capacity	0.16	0.10	0.18	0.18	0.27	0.16
Queue Length 95th (ft)	14	8	0	0	0	0
Control Delay (s)	13.2	9.7	0.0	0.0	0.0	0.0
Lane LOS	B	A				
Approach Delay (s)	13.2	1.2			0.0	
Approach LOS	B					

Intersection Summary

Average Delay	1.3
Intersection Capacity Utilization	36.4%
ICU Level of Service	A
Analysis Period (min)	15

Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
107: LA 1 & Bert Kouns Industrial Loop

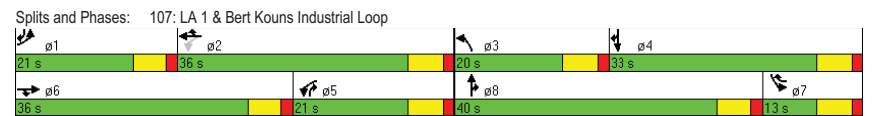
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	223	692	124	224	641	89	109	760	251	111	891	256
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	230		230	150		115	220		220	230		230
Storage Lanes	2		1	1		1	2		1	2		1
Taper Length (ft)	50			50			50			50		
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt		0.850			0.850		0.850		0.850		0.850	
Flt Protected	0.950		0.950		0.950		0.950		0.950		0.950	
Satd. Flow (prot)	3502	3539	1568	1787	3539	1583	3335	3574	1553	3502	3574	1599
Flt Permitted	0.950			0.383			0.950			0.950		
Satd. Flow (perm)	3502	3539	1568	720	3539	1583	3335	3574	1553	3502	3574	1599
Right Turn on Red			No			Yes			Yes			Yes
Satd. Flow (RTOR)						56			45			130
Link Speed (mph)		50			50			45				45
Link Distance (ft)		1652			1693			1702				1927
Travel Time (s)		22.5			23.1			25.8				29.2
Peak Hour Factor	0.98	0.98	0.98	0.91	0.91	0.91	0.85	0.85	0.85	0.91	0.91	0.91
Heavy Vehicles (%)	0%	2%	3%	1%	2%	2%	5%	1%	4%	0%	1%	1%
Adj. Flow (vph)	228	706	127	246	704	98	128	894	295	122	979	281
Shared Lane Traffic (%)												
Lane Group Flow (vph)	228	706	127	246	704	98	128	894	295	122	979	281
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24				24
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane					Yes							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Prot	NA	Prot	pm+pt	NA	pt+ov	Prot	NA	pt+ov	Prot	NA	pt+ov
Protected Phases	1	6	6	5	2	2.7	3	8	5.8	7	4	1.4
Permitted Phases				2								
Detector Phase	1	6	6	5	2	2.7	3	8	5.8	7	4	1.4
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0		5.0	10.0		5.0	10.0	
Minimum Split (s)	11.0	22.0	22.0	11.0	22.0		11.0	22.0		11.0	22.0	
Total Split (s)	21.0	36.0	36.0	21.0	36.0		20.0	40.0		13.0	33.0	
Total Split (%)	19.1%	32.7%	32.7%	19.1%	32.7%		18.2%	36.4%		11.8%	30.0%	
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5		1.5	1.5		1.5	1.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0		6.0	6.0		6.0	6.0	
Lead/Lag	Lead	Lead	Lead	Lag	Lag		Lead	Lead		Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	C-Min	C-Min	None	C-Min		None	None		None	None	
Act Effect Green (s)	12.3	27.0	27.0	29.6	29.6	41.3	9.6	32.4	53.3	11.7	34.5	52.8
Actuated g/C Ratio	0.11	0.25	0.25	0.27	0.27	0.38	0.09	0.29	0.48	0.11	0.31	0.48
v/c Ratio	0.58	0.81	0.33	0.73	0.74	0.16	0.44	0.85	0.38	0.33	0.87	0.34

Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
107: LA 1 & Bert Kouns Industrial Loop

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	52.4	47.1	35.8	53.5	41.9	7.1	52.1	45.0	16.2	50.8	46.8	11.0
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	52.4	47.1	35.8	53.5	41.9	7.1	52.1	45.0	16.2	50.8	46.8	11.0
LOS	D	D	D	D	D	A	D	D	B	D	D	B
Approach Delay		46.9			41.4					39.2		39.9
Approach LOS		D			D					D		D
Queue Length 50th (ft)	79	243	73	142	230	12	44	303	100	43	356	62
Queue Length 95th (ft)	117	307	125	#239	306	35	69	354	153	74	#525	125
Internal Link Dist (ft)		1572			1613			1622			1847	
Turn Bay Length (ft)	230		230	150		115	220		220	230		230
Base Capacity (vph)	478	965	428	344	987	644	424	1108	770	371	1122	871
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	0.73	0.30	0.72	0.71	0.15	0.30	0.81	0.38	0.33	0.87	0.32

Intersection Summary

Area Type: Other
 Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 100 (91%), Referenced to phase 2:WBT and 6:EBT, Start of Green
 Natural Cycle: 80
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.87
 Intersection Signal Delay: 41.6
 Intersection LOS: D
 Intersection Capacity Utilization 80.3%
 ICU Level of Service D
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.



Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
108: Bert Kouns Industrial Loop & LA 3132 EB Off Ramp/LA 3132 EB On Ramp

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔					↕	↕	↔	↕	↕
Volume (vph)	679	1	13	0	0	0	0	920	107	67	964	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		110	0		0	0		0	295		0
Storage Lanes	1		1	0		0	0		0	1		0
Taper Length (ft)	50			50			50			50		
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt			0.850					0.984				
Flt Protected	0.950	0.953								0.950		
Satd. Flow (prot)	1715	1720	1615	0	0	0	0	3521	0	1805	3574	0
Flt Permitted	0.950	0.953								0.115		
Satd. Flow (perm)	1715	1720	1615	0	0	0	0	3521	0	218	3574	0
Right Turn on Red			Yes			Yes		Yes				Yes
Satd. Flow (RTOR)			9					14				
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1564			1165			530			537	
Travel Time (s)		23.7			17.7			8.0			8.1	
Peak Hour Factor	0.93	0.93	0.93	0.92	0.92	0.92	0.86	0.86	0.86	0.96	0.96	0.96
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	1%	0%
Adj. Flow (vph)	730	1	14	0	0	0	0	1070	124	70	1004	0
Shared Lane Traffic (%)	50%											
Lane Group Flow (vph)	365	366	14	0	0	0	0	1194	0	70	1004	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			27			27	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Split	NA	Perm					NA	custom	NA		
Protected Phases	4	4						6		5	2.5	
Permitted Phases			4							2		
Detector Phase	4	4	4					6		5	2.5	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0					15.0		5.0		
Minimum Split (s)	11.0	11.0	11.0					21.0		10.0		
Total Split (s)	36.0	36.0	36.0					54.0		20.0		
Total Split (%)	32.7%	32.7%	32.7%					49.1%		18.2%		
Yellow Time (s)	5.0	5.0	5.0					5.0		5.0		
All-Red Time (s)	1.0	1.0	1.0					1.0		0.0		
Lost Time Adjust (s)	0.0	0.0	0.0					0.0		0.0		
Total Lost Time (s)	6.0	6.0	6.0					6.0		5.0		
Lead/Lag								Lag		Lead		
Lead-Lag Optimize?								Yes		Yes		
Recall Mode	None	None	None					None		None		
Act Effect Green (s)	26.0	26.0	26.0					48.4		63.9	66.6	
Actuated g/C Ratio	0.24	0.24	0.24					0.46		0.60	0.63	
v/c Ratio	0.87	0.87	0.03					0.74		0.20	0.45	

Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
108: Bert Kouns Industrial Loop & LA 3132 EB Off Ramp/LA 3132 EB On Ramp

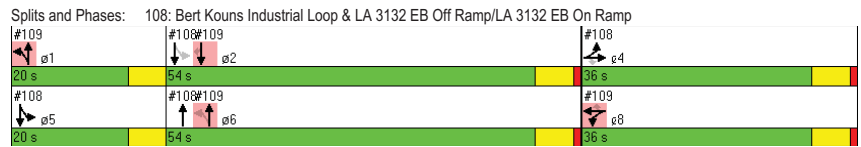
Lane Group	ø1	ø2	ø8
Lane Configurations			
Volume (vph)			
Ideal Flow (vphpl)			
Storage Length (ft)			
Storage Lanes			
Taper Length (ft)			
Lane Util. Factor			
Frt			
Flt Protected			
Satd. Flow (prot)			
Flt Permitted			
Satd. Flow (perm)			
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (mph)			
Link Distance (ft)			
Travel Time (s)			
Peak Hour Factor			
Heavy Vehicles (%)			
Adj. Flow (vph)			
Shared Lane Traffic (%)			
Lane Group Flow (vph)			
Enter Blocked Intersection			
Lane Alignment			
Median Width(ft)			
Link Offset(ft)			
Crosswalk Width(ft)			
Two way Left Turn Lane			
Headway Factor			
Turning Speed (mph)			
Turn Type			
Protected Phases	1	2	8
Permitted Phases			
Detector Phase			
Switch Phase			
Minimum Initial (s)	5.0	15.0	12.0
Minimum Split (s)	10.0	21.0	18.0
Total Split (s)	20.0	54.0	36.0
Total Split (%)	18%	49%	33%
Yellow Time (s)	5.0	5.0	5.0
All-Red Time (s)	0.0	1.0	1.0
Lost Time Adjust (s)			
Total Lost Time (s)			
Lead/Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	
Recall Mode	None	None	None
Act Effect Green (s)			
Actuated g/C Ratio			
v/c Ratio			

Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
 108: Bert Kouns Industrial Loop & LA 3132 EB Off Ramp/LA 3132 EB On Ramp

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	59.8	59.7	19.3					27.7		12.7	4.8	
Queue Delay	0.0	0.0	0.0					0.0		0.0	0.0	
Total Delay	59.8	59.7	19.3					27.7		12.7	4.8	
LOS	E	E	B					C		B	A	
Approach Delay		59.0						27.7			5.3	
Approach LOS		E						C			A	
Queue Length 50th (ft)	250	251	3					358		7	56	
Queue Length 95th (ft)	#398	#397	18					420		m24	66	
Internal Link Dist (ft)		1484				1085		450			457	
Turn Bay Length (ft)			110							295		
Base Capacity (vph)	486	487	464					1612		356	2294	
Starvation Cap Reductn	0	0	0					0		0	86	
Spillback Cap Reductn	0	0	0					0		0	0	
Storage Cap Reductn	0	0	0					0		0	0	
Reduced v/c Ratio	0.75	0.75	0.03					0.74		0.20	0.45	

Intersection Summary

Area Type: Other
 Cycle Length: 110
 Actuated Cycle Length: 106.2
 Natural Cycle: 65
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.87
 Intersection Signal Delay: 27.4 Intersection LOS: C
 Intersection Capacity Utilization 75.3% ICU Level of Service D
 Analysis Period (min) 15
 # 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.



Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
 108: Bert Kouns Industrial Loop & LA 3132 EB Off Ramp/LA 3132 EB On Ramp

Lane Group	ø1	ø2	ø8
Control Delay			
Queue Delay			
Total Delay			
LOS			
Approach Delay			
Approach LOS			
Queue Length 50th (ft)			
Queue Length 95th (ft)			
Internal Link Dist (ft)			
Turn Bay Length (ft)			
Base Capacity (vph)			
Starvation Cap Reductn			
Spillback Cap Reductn			
Storage Cap Reductn			
Reduced v/c Ratio			

Intersection Summary

Lanes, Volumes, Timings
 LA 3132 (Inner Loop) Extension - Stage 0 Study
 109: Bert Kouns Industrial Loop & LA 3132 WB On Ramp/LA 3132 WB Off Ramp

	↖	→	↗	↙	←	↖	↗	↘	↙	↘	↙	↘
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↕	↕	↕	↕			↕	↕
Volume (vph)	0	0	0	68	0	41	31	1599	0	0	962	758
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	0	0	0	200	295	0	0	0	0	115
Storage Lanes	0	0	0	0	0	1	1	0	0	0	0	1
Taper Length (ft)	50	0	0	50	0	0	50	0	0	50	0	0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt						0.850					0.850	
Flt Protected					0.950		0.950					
Satd. Flow (prot)	0	0	0	0	1805	1615	1752	3539	0	0	3574	1583
Flt Permitted					0.950		0.174					
Satd. Flow (perm)	0	0	0	0	1805	1615	321	3539	0	0	3574	1583
Right Turn on Red			Yes			Yes		Yes				Yes
Satd. Flow (RTOR)						30						487
Link Speed (mph)		45			45			45				45
Link Distance (ft)		311			1075			537				687
Travel Time (s)		4.7			16.3			8.1				10.4
Peak Hour Factor	0.92	0.92	0.92	0.82	0.82	0.82	0.96	0.96	0.96	0.95	0.95	0.95
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	3%	2%	0%	0%	1%	2%
Adj. Flow (vph)	0	0	0	83	0	50	32	1666	0	0	1013	798
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	83	50	32	1666	0	0	1013	798
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)	0	0	0	0	0	0	0	27	0	0	0	0
Link Offset(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Crosswalk Width(ft)	16	16	16	16	16	16	16	16	16	16	16	16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	9	15	15	9	15	15	9	15	15	9
Turn Type				Split	NA	Perm	custom	NA			NA	Perm
Protected Phases				8	8		1	1	6		2	
Permitted Phases						8	6					2
Detector Phase				8	8	8	1	1	6		2	2
Switch Phase												
Minimum Initial (s)				12.0	12.0	12.0	5.0				15.0	15.0
Minimum Split (s)				18.0	18.0	18.0	10.0				21.0	21.0
Total Split (s)				36.0	36.0	36.0	20.0				54.0	54.0
Total Split (%)				32.7%	32.7%	32.7%	18.2%				49.1%	49.1%
Yellow Time (s)				5.0	5.0	5.0	5.0				5.0	5.0
All-Red Time (s)				1.0	1.0	1.0	0.0				1.0	1.0
Lost Time Adjust (s)				0.0	0.0	0.0	0.0				0.0	0.0
Total Lost Time (s)				6.0	6.0	6.0	5.0				6.0	6.0
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Recall Mode				None	None	None	None				None	None
Act Effect Green (s)					26.0	26.0	64.4	68.4			48.1	48.1
Actuated g/C Ratio					0.24	0.24	0.61	0.64			0.45	0.45
v/c Ratio					0.19	0.12	0.08	0.73			0.63	0.81

Lanes, Volumes, Timings
 LA 3132 (Inner Loop) Extension - Stage 0 Study
 109: Bert Kouns Industrial Loop & LA 3132 WB On Ramp/LA 3132 WB Off Ramp

	↖	→	↗
Lane Group	ø4	ø5	ø6
Lane Configurations			
Volume (vph)			
Ideal Flow (vphpl)			
Storage Length (ft)			
Storage Lanes			
Taper Length (ft)			
Lane Util. Factor			
Frt			
Flt Protected			
Satd. Flow (prot)			
Flt Permitted			
Satd. Flow (perm)			
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (mph)			
Link Distance (ft)			
Travel Time (s)			
Peak Hour Factor			
Heavy Vehicles (%)			
Adj. Flow (vph)			
Shared Lane Traffic (%)			
Lane Group Flow (vph)			
Enter Blocked Intersection			
Lane Alignment			
Median Width(ft)			
Link Offset(ft)			
Crosswalk Width(ft)			
Two way Left Turn Lane			
Headway Factor			
Turning Speed (mph)			
Turn Type			
Protected Phases	4	5	6
Permitted Phases			
Detector Phase			
Switch Phase			
Minimum Initial (s)	5.0	5.0	15.0
Minimum Split (s)	11.0	10.0	21.0
Total Split (s)	36.0	20.0	54.0
Total Split (%)	33%	18%	49%
Yellow Time (s)	5.0	5.0	5.0
All-Red Time (s)	1.0	0.0	1.0
Lost Time Adjust (s)			
Total Lost Time (s)			
Lead/Lag		Lead	Lag
Lead-Lag Optimize?		Yes	Yes
Recall Mode	None	None	None
Act Effect Green (s)			
Actuated g/C Ratio			
v/c Ratio			

Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
 109: Bert Kouns Industrial Loop & LA 3132 WB On Ramp/LA 3132 WB Off Ramp

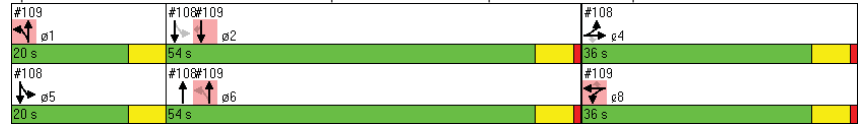


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay					32.3	16.6	7.8	13.4			24.9	17.6
Queue Delay					0.0	0.0	0.0	0.4			0.0	0.0
Total Delay					32.3	16.6	7.8	13.8			24.9	17.6
LOS					C	B	A	B			C	B
Approach Delay					26.4			13.7			21.7	
Approach LOS					C			B			C	
Queue Length 50th (ft)					45	10	10	296			284	199
Queue Length 95th (ft)					77	35	m12	342			361	413
Internal Link Dist (ft)		231			995			457			607	
Turn Bay Length (ft)						200	295					115
Base Capacity (vph)					511	479	397	2278			1619	983
Starvation Cap Reductn					0	0	0	191			0	0
Spillback Cap Reductn					0	0	0	0			0	0
Storage Cap Reductn					0	0	0	0			0	0
Reduced v/c Ratio					0.16	0.10	0.08	0.80			0.63	0.81

Intersection Summary

Area Type: Other
 Cycle Length: 110
 Actuated Cycle Length: 106.2
 Natural Cycle: 65
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.87
 Intersection Signal Delay: 18.1 Intersection LOS: B
 Intersection Capacity Utilization 75.3% ICU Level of Service D
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 109: Bert Kouns Industrial Loop & LA 3132 WB On Ramp/LA 3132 WB Off Ramp



Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
 109: Bert Kouns Industrial Loop & LA 3132 WB On Ramp/LA 3132 WB Off Ramp

Lane Group	ø4	ø5	ø6
Control Delay			
Queue Delay			
Total Delay			
LOS			
Approach Delay			
Approach LOS			
Queue Length 50th (ft)			
Queue Length 95th (ft)			
Internal Link Dist (ft)			
Turn Bay Length (ft)			
Base Capacity (vph)			
Starvation Cap Reductn			
Spillback Cap Reductn			
Storage Cap Reductn			
Reduced v/c Ratio			

Intersection Summary

Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
110: Ashley River Dr SB & Flournoy Lucas Rd

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↕	↔	↔	↕	↔	↔	↕	↔	↔	↕	↔
Volume (vph)	0	544	246	108	817	1	0	0	0	7	0	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	180		0	120		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	50			50			50			50		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.953									0.918	
Flt Protected				0.950							0.981	
Satd. Flow (prot)	1900	3294	0	1805	3406	0	0	0	0	0	1711	0
Flt Permitted				0.950							0.981	
Satd. Flow (perm)	1900	3294	0	1805	3406	0	0	0	0	0	1711	0
Link Speed (mph)		45			45				30			30
Link Distance (ft)		750			127				320			340
Travel Time (s)		11.4			1.9				7.3			7.7
Peak Hour Factor	0.92	0.92	0.92	0.85	0.85	0.85	0.92	0.92	0.92	0.80	0.80	0.80
Heavy Vehicles (%)	0%	6%	1%	0%	6%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	591	267	127	961	1	0	0	0	9	0	14
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	858	0	127	962	0	0	0	0	0	23	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			14				0			0
Link Offset(ft)		0			0				0			0
Crosswalk Width(ft)		16			16				16			16
Two way Left Turn Lane					Yes							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free				Stop			Stop

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	42.2%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis LA 3132 (Inner Loop) Extension - Stage 0 Study
110: Ashley River Dr SB & Flournoy Lucas Rd

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↕	↔	↔	↕	↔	↔	↕	↔	↔	↕	↔
Volume (veh/h)	0	544	246	108	817	1	0	0	0	7	0	11
Sign Control		Free			Free				Stop			Stop
Grade		0%			0%				0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.85	0.85	0.85	0.92	0.92	0.92	0.80	0.80	0.80
Hourly flow rate (vph)	0	591	267	127	961	1	0	0	0	9	0	14
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)		750										
pX, platoon unblocked					0.84		0.84	0.84	0.84	0.84	0.84	
vC, conflicting volume	962				859		1473	1941	429	1512	2075	481
vC1, stage 1 conf vol							725	725		1216	1216	
vC2, stage 2 conf vol							748	1216		296	859	
vCu, unblocked vol	962				440		1175	1734	0	1220	1894	481
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 %	100				87		100	100	100	95	100	97
cM capacity (veh/h)	723				946		286	206	912	164	189	536

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1
Volume Total	0	394	464	127	641	322	22
Volume Left	0	0	0	127	0	0	9
Volume Right	0	0	267	0	0	1	14
cSH	1700	1700	1700	946	1700	1700	285
Volume to Capacity	0.00	0.23	0.27	0.13	0.38	0.19	0.08
Queue Length 95th (ft)	0	0	0	12	0	0	6
Control Delay (s)	0.0	0.0	0.0	9.4	0.0	0.0	18.7
Lane LOS				A			C
Approach Delay (s)	0.0			1.1			18.7
Approach LOS							C

Intersection Summary	
Average Delay	0.8
Intersection Capacity Utilization	42.2%
Analysis Period (min)	15
	ICU Level of Service A

Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
111: Ashley River Dr NB & Flournoy Lucas Rd

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑	↘	↗
Volume (vph)	551	0	0	801	125	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt						0.850
Fit Protected					0.950	
Satd. Flow (prot)	3406	0	0	3438	1805	1568
Fit Permitted					0.950	
Satd. Flow (perm)	3406	0	0	3438	1805	1568
Link Speed (mph)	45			45	30	
Link Distance (ft)	127			2333	283	
Travel Time (s)	1.9			35.3	6.4	
Peak Hour Factor	0.88	0.88	0.80	0.80	0.80	0.80
Heavy Vehicles (%)	6%	0%	0%	5%	0%	3%
Adj. Flow (vph)	626	0	0	1001	156	81
Shared Lane Traffic (%)						
Lane Group Flow (vph)	626	0	0	1001	156	81
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	14			14	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane	Yes			Yes		
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	35.7%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis LA 3132 (Inner Loop) Extension - Stage 0 Study
111: Ashley River Dr NB & Flournoy Lucas Rd

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑	↘	↗
Volume (veh/h)	551	0	0	801	125	65
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.88	0.88	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	626	0	0	1001	156	81
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)	877					
pX, platoon unblocked			0.92		0.92	0.92
vC, conflicting volume			626		1127	313
vC1, stage 1 conf vol					626	
vC2, stage 2 conf vol					501	
vCu, unblocked vol			420		964	80
tC, single (s)			4.1		6.8	7.0
tC, 2 stage (s)					5.8	
tF (s)			2.2		3.5	3.3
p0 queue free %			100		66	91
cM capacity (veh/h)			1058		456	884

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2
Volume Total	313	313	501	501	156	81
Volume Left	0	0	0	0	156	0
Volume Right	0	0	0	0	0	81
cSH	1700	1700	1700	1700	456	884
Volume to Capacity	0.18	0.18	0.29	0.29	0.34	0.09
Queue Length 95th (ft)	0	0	0	0	38	8
Control Delay (s)	0.0	0.0	0.0	0.0	16.9	9.5
Lane LOS					C	A
Approach Delay (s)	0.0		0.0		14.4	
Approach LOS					B	

Intersection Summary	
Average Delay	1.8
Intersection Capacity Utilization	35.7%
Analysis Period (min)	15
	ICU Level of Service A

Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
112: Flournoy Lucas Rd & Oaks Retirement Rd

	↖	→	←	↗	↘	↙
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖	↗	↗		↖	↗
Volume (vph)	14	602	773	24	21	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	375			0	0	0
Storage Lanes	1			0	1	1
Taper Length (ft)	50				50	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Frt			0.995			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1805	3471	3426	0	1805	1553
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1805	3471	3426	0	1805	1553
Link Speed (mph)		45	45		30	
Link Distance (ft)		2333	1050		729	
Travel Time (s)		35.3	15.9		16.6	
Peak Hour Factor	0.88	0.88	0.80	0.80	0.80	0.80
Heavy Vehicles (%)	0%	4%	5%	0%	0%	4%
Adj. Flow (vph)	16	684	966	30	26	35
Shared Lane Traffic (%)						
Lane Group Flow (vph)	16	684	996	0	26	35
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		14	14		28	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane		Yes	Yes			
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	32.1%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis LA 3132 (Inner Loop) Extension - Stage 0 Study
112: Flournoy Lucas Rd & Oaks Retirement Rd


	↖	→	←	↗	↘	↙
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖	↗	↗		↖	↗
Volume (veh/h)	14	602	773	24	21	28
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.88	0.88	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	16	684	966	30	26	35
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	996				1355	498
vC1, stage 1 conf vol					981	
vC2, stage 2 conf vol					374	
vCu, unblocked vol	996				1355	498
tC, single (s)	4.1				6.8	7.0
tC, 2 stage (s)					5.8	
tF (s)	2.2				3.5	3.3
p0 queue free %	98				91	93
cM capacity (veh/h)	702				304	512

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1	SB 2
Volume Total	16	342	342	644	352	26	35
Volume Left	16	0	0	0	0	26	0
Volume Right	0	0	0	0	30	0	35
cSH	702	1700	1700	1700	1700	304	512
Volume to Capacity	0.02	0.20	0.20	0.38	0.21	0.09	0.07
Queue Length 95th (ft)	2	0	0	0	0	7	5
Control Delay (s)	10.2	0.0	0.0	0.0	0.0	17.9	12.5
Lane LOS	B					C	B
Approach Delay (s)	0.2			0.0		14.9	
Approach LOS						B	

Intersection Summary	
Average Delay	0.6
Intersection Capacity Utilization	32.1%
Analysis Period (min)	15
	ICU Level of Service A

Lanes, Volumes, Timings
201: LA 1 & I-69 WB Ramp


LA 3132 (Inner Loop) Extension - Stage 0 Study

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↵	↶	↕	↶	↵	↶
Volume (vph)	67	0	156	3	68	590
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300	0		0	275	
Storage Lanes	1	1		1	1	
Taper Length (ft)	50				50	
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt			0.850			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1641	1727	3034	1357	1656	3312
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1641	1727	3034	1357	1656	3312
Link Speed (mph)	40		65		65	
Link Distance (ft)	384		1426		533	
Travel Time (s)	6.5		15.0		5.6	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Heavy Vehicles (%)	10%	10%	19%	19%	9%	9%
Adj. Flow (vph)	84	0	195	4	76	656
Shared Lane Traffic (%)						
Lane Group Flow (vph)	84	0	195	4	76	656
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		76		76	
Link Offset(ft)	0		0		0	
Crosswalk Width(ft)	16		16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free		Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	26.7%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis LA 3132 (Inner Loop) Extension - Stage 0 Study
201: LA 1 & I-69 WB Ramp

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↵	↶	↕	↶	↵	↶
Volume (veh/h)	67	0	156	3	68	590
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Hourly flow rate (vph)	84	0	195	4	76	656
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			Raised		Raised	
Median storage (veh)			3		3	
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	674	98			195	
vC1, stage 1 conf vol	195					
vC2, stage 2 conf vol	479					
vCu, unblocked vol	674	98			195	
tC, single (s)	7.0	7.1			4.3	
tC, 2 stage (s)	6.0					
tF (s)	3.6	3.4			2.3	
p0 queue free %	84	100			94	
cM capacity (veh/h)	523	914			1326	

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	84	0	98	98	4	76	328	328
Volume Left	84	0	0	0	0	76	0	0
Volume Right	0	0	0	0	4	0	0	0
cSH	523	1700	1700	1700	1700	1326	1700	1700
Volume to Capacity	0.16	0.00	0.06	0.06	0.00	0.06	0.19	0.19
Queue Length 95th (ft)	14	0	0	0	0	5	0	0
Control Delay (s)	13.2	0.0	0.0	0.0	0.0	7.9	0.0	0.0
Lane LOS	B	A				A		
Approach Delay (s)	13.2		0.0			0.8		
Approach LOS	B							

Intersection Summary

Average Delay	1.7
Intersection Capacity Utilization	26.7%
Analysis Period (min)	15
	ICU Level of Service A

Lanes, Volumes, Timings
202: LA 1 & I-69 EB Ramp

LA 3132 (Inner Loop) Extension - Stage 0 Study

	↙	↖	↑	↗	↘	↓
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↗	↑↑	↗	↘	↑↑
Volume (vph)	0	15	143	55	414	243
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300	0		490	260	
Storage Lanes	1	1		1	1	
Taper Length (ft)	50				50	
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt		0.850		0.850		
Flt Protected					0.950	
Satd. Flow (prot)	1727	1468	3034	1357	1656	3312
Flt Permitted					0.950	
Satd. Flow (perm)	1727	1468	3034	1357	1656	3312
Link Speed (mph)	40		65			65
Link Distance (ft)	460		3193			1426
Travel Time (s)	7.8		33.5			15.0
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Heavy Vehicles (%)	10%	10%	19%	19%	9%	9%
Adj. Flow (vph)	0	19	179	69	460	270
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	19	179	69	460	270
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	24		76			76
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary

Area Type: Other
 Control Type: Unsignalized
 Intersection Capacity Utilization 33.6% ICU Level of Service A
 Analysis Period (min) 15

HCM Unsignalized Intersection Capacity Analysis LA 3132 (Inner Loop) Extension - Stage 0 Study
202: LA 1 & I-69 EB Ramp

	↙	↖	↑	↗	↘	↓
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↗	↑↑	↗	↘	↑↑
Volume (veh/h)	0	15	143	55	414	243
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Hourly flow rate (vph)	0	19	179	69	460	270
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			Raised			Raised
Median storage (veh)			3			3
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1234	89			179	
vC1, stage 1 conf vol	179					
vC2, stage 2 conf vol	1055					
vCu, unblocked vol	1234	89			179	
tC, single (s)	7.0	7.1			4.3	
tC, 2 stage (s)	6.0					
tF (s)	3.6	3.4			2.3	
p0 queue free %	100	98			66	
cM capacity (veh/h)	182	926			1345	

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	0	19	89	89	69	460	135	135
Volume Left	0	0	0	0	0	460	0	0
Volume Right	0	19	0	0	69	0	0	0
cSH	1700	926	1700	1700	1700	1345	1700	1700
Volume to Capacity	0.00	0.02	0.05	0.05	0.04	0.34	0.08	0.08
Queue Length 95th (ft)	0	2	0	0	0	38	0	0
Control Delay (s)	0.0	9.0	0.0	0.0	0.0	9.1	0.0	0.0
Lane LOS	A	A				A		
Approach Delay (s)	9.0		0.0			5.7		
Approach LOS	A							

Intersection Summary

Average Delay 4.4
 Intersection Capacity Utilization 33.6% ICU Level of Service A
 Analysis Period (min) 15

Lanes, Volumes, Timings
301: LA 1 & Gate A

LA 3132 (Inner Loop) Extension - Stage 0 Study

	↙	↖	↑	↗	↘	↓
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↙		↗		↘	↘
Volume (vph)	14	37	560	4	11	637
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	150	
Storage Lanes	1	0		0	1	
Taper Length (ft)	50				50	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Frt	0.903		0.999			
Flt Protected	0.986				0.950	
Satd. Flow (prot)	1497	0	3031	0	1656	3059
Flt Permitted	0.986				0.950	
Satd. Flow (perm)	1497	0	3031	0	1656	3059
Link Speed (mph)	40		65		65	
Link Distance (ft)	496		4385		1583	
Travel Time (s)	8.5		46.0		16.6	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Heavy Vehicles (%)	13%	13%	19%	18%	9%	18%
Adj. Flow (vph)	18	46	700	5	12	708
Shared Lane Traffic (%)						
Lane Group Flow (vph)	64	0	705	0	12	708
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		66		66	
Link Offset(ft)	0		0		0	
Crosswalk Width(ft)	16		16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free		Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	27.6%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis
301: LA 1 & Gate A

	↙	↖	↑	↗	↘	↓
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↙		↗		↘	↘
Volume (veh/h)	14	37	560	4	11	637
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Hourly flow rate (vph)	18	46	700	5	12	708
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			Raised		Raised	
Median storage (veh)			2		2	
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1081	352			705	
vC1, stage 1 conf vol	702					
vC2, stage 2 conf vol	378					
vCu, unblocked vol	1081	352			705	
tC, single (s)	7.1	7.2			4.3	
tC, 2 stage (s)	6.1					
tF (s)	3.6	3.4			2.3	
p0 queue free %	95	92			99	
cM capacity (veh/h)	378	613			844	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	64	467	238	12	354	354
Volume Left	18	0	0	12	0	0
Volume Right	46	0	5	0	0	0
cSH	524	1700	1700	844	1700	1700
Volume to Capacity	0.12	0.27	0.14	0.01	0.21	0.21
Queue Length 95th (ft)	10	0	0	1	0	0
Control Delay (s)	12.8	0.0	0.0	9.3	0.0	0.0
Lane LOS	B			A		
Approach Delay (s)	12.8	0.0		0.2		
Approach LOS	B					

Intersection Summary

Average Delay	0.6
Intersection Capacity Utilization	27.6%
Analysis Period (min)	15
	ICU Level of Service A

Lanes, Volumes, Timings
302: LA 1 & Gate B

LA 3132 (Inner Loop) Extension - Stage 0 Study

Lane Group	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Lane Configurations							
Volume (vph)	42	79	0	485	13	35	616
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	250		0	250	
Storage Lanes	1	1	1		0	1	
Taper Length (ft)	50		50			50	
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	0.95
Frt		0.850		0.996			
Flt Protected	0.950					0.950	
Satd. Flow (prot)	1517	1357	1597	3002	0	1656	2423
Flt Permitted	0.950					0.950	
Satd. Flow (perm)	1517	1357	1597	3002	0	1656	2423
Link Speed (mph)	40			65			65
Link Distance (ft)	499			1577			4385
Travel Time (s)	8.5			16.5			46.0
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.90	0.90
Heavy Vehicles (%)	19%	19%	19%	19%	49%	9%	49%
Adj. Flow (vph)	53	99	0	606	16	39	684
Shared Lane Traffic (%)							
Lane Group Flow (vph)	52	99	0	622	0	39	684
Enter Blocked Intersection	No	No	No	No	No	No	No
Lane Alignment	Left	Right	R NA	Left	Right	Left	Left
Median Width(ft)	20			66			66
Link Offset(ft)	0			0			0
Crosswalk Width(ft)	16			16			16
Two way Left Turn Lane							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	9		9	15	
Sign Control	Stop			Free			Free

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	33.7%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis 302: LA 1 & Gate B

LA 3132 (Inner Loop) Extension - Stage 0 Study

Movement	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Lane Configurations							
Volume (veh/h)	42	79	0	485	13	35	616
Sign Control	Stop			Free			Free
Grade	0%			0%			0%
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.90	0.90
Hourly flow rate (vph)	52	99	0	606	16	39	684
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type				Raised			Raised
Median storage (veh)				2			2
Upstream signal (ft)							
pX, platoon unblocked				0.00			
vC, conflicting volume	1034	311	0			622	
vC1, stage 1 conf vol	614						
vC2, stage 2 conf vol	420						
vCu, unblocked vol	1034	311	0			622	
tC, single (s)	7.2	7.3	0.0			4.3	
tC, 2 stage (s)	6.2						
tF (s)	3.7	3.5	0.0			2.3	
p0 queue free %	86	84	0			96	
cM capacity (veh/h)	387	637	0			908	

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	52	99	404	218	0	39	342	342
Volume Left	52	0	0	0	0	39	0	0
Volume Right	0	99	0	16	0	0	0	0
cSH	387	637	1700	1700	1700	908	1700	1700
Volume to Capacity	0.14	0.16	0.24	0.13	0.00	0.04	0.20	0.20
Queue Length 95th (ft)	12	14	0	0	0	3	0	0
Control Delay (s)	15.8	11.7	0.0	0.0	0.0	9.1	0.0	0.0
Lane LOS	C	B				A		
Approach Delay (s)	13.1		0.0			0.5		
Approach LOS	B							

Intersection Summary

Average Delay	1.6
Intersection Capacity Utilization	33.7%
Analysis Period (min)	15
	ICU Level of Service A

Lanes, Volumes, Timings
303: LA 1 & Gate C

LA 3132 (Inner Loop) Extension - Stage 0 Study

	↙	↖	↑	↗	↘	↓
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↕	↗		↕
Volume (vph)	0	47	464	12	0	658
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	250	
Storage Lanes	0	1		1	0	
Taper Length (ft)	50				50	
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt		0.865		0.850		
Flt Protected						
Satd. Flow (prot)	0	1325	3034	1077	0	2407
Flt Permitted						
Satd. Flow (perm)	0	1325	3034	1077	0	2407
Link Speed (mph)	40		65			65
Link Distance (ft)	508		533			1082
Travel Time (s)	8.7		5.6			11.3
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Heavy Vehicles (%)	24%	24%	19%	50%	9%	50%
Adj. Flow (vph)	0	59	580	15	0	731
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	59	580	15	0	731
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	0		76			76
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	22.8%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis
303: LA 1 & Gate C

	↙	↖	↑	↗	↘	↓
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↕	↗		↕
Volume (veh/h)	0	47	464	12	0	658
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Hourly flow rate (vph)	0	59	580	15	0	731
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			Raised			Raised
Median storage (veh)			3			3
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	946	290			595	
vC1, stage 1 conf vol	580					
vC2, stage 2 conf vol	366					
vCu, unblocked vol	946	290			595	
tC, single (s)	7.3	7.4			4.3	
tC, 2 stage (s)	6.3					
tF (s)	3.7	3.5			2.3	
p0 queue free %	100	91			100	
cM capacity (veh/h)	437	645			931	

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	59	290	290	15	366	366
Volume Left	0	0	0	0	0	0
Volume Right	59	0	0	15	0	0
cSH	645	1700	1700	1700	1700	1700
Volume to Capacity	0.09	0.17	0.17	0.01	0.22	0.22
Queue Length 95th (ft)	7	0	0	0	0	0
Control Delay (s)	11.1	0.0	0.0	0.0	0.0	0.0
Lane LOS	B					
Approach Delay (s)	11.1	0.0			0.0	
Approach LOS	B					

Intersection Summary

Average Delay	0.5
Intersection Capacity Utilization	22.8%
Analysis Period (min)	15
	ICU Level of Service A

Lanes, Volumes, Timings
304: LA 1 & Gate D

LA 3132 (Inner Loop) Extension - Stage 0 Study

	↙	↖	↑	↗	↘	↓
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↖	↗	↑↑	↗	↖	↑↑
Volume (vph)	1	19	181	0	11	234
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	250		300	280	
Storage Lanes	1	1		1	1	
Taper Length (ft)	50				50	
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt	0.850					
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1337	1196	3034	1195	1656	2270
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1337	1196	3034	1195	1656	2270
Link Speed (mph)	40		65		65	
Link Distance (ft)	501		710		505	
Travel Time (s)	8.5		7.4		5.3	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Heavy Vehicles (%)	35%	35%	19%	59%	9%	59%
Adj. Flow (vph)	1	24	226	0	12	260
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1	24	226	0	12	260
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		76		76	
Link Offset(ft)	0		0		0	
Crosswalk Width(ft)	16		16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free		Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	19.1%
ICU Level of Service	A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis
304: LA 1 & Gate D

	↙	↖	↑	↗	↘	↓
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↖	↗	↑↑	↗	↖	↑↑
Volume (veh/h)	1	19	181	0	11	234
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Hourly flow rate (vph)	1	24	226	0	12	260
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		10				
Median type			Raised		Raised	
Median storage (veh)			3		3	
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	381	113			226	
vC1, stage 1 conf vol	226					
vC2, stage 2 conf vol	154					
vCu, unblocked vol	381	113			226	
tC, single (s)	7.5	7.6			4.3	
tC, 2 stage (s)	6.5					
tF (s)	3.9	3.6			2.3	
p0 queue free %	100	97			99	
cM capacity (veh/h)	666	822			1290	

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	25	113	113	0	12	130	130
Volume Left	1	0	0	0	12	0	0
Volume Right	24	0	0	0	0	0	0
cSH	865	1700	1700	1700	1290	1700	1700
Volume to Capacity	0.03	0.07	0.07	0.00	0.01	0.08	0.08
Queue Length 95th (ft)	2	0	0	0	1	0	0
Control Delay (s)	9.6	0.0	0.0	0.0	7.8	0.0	0.0
Lane LOS	A				A		
Approach Delay (s)	9.6	0.0			0.4		
Approach LOS	A						

Intersection Summary

Average Delay	0.6
Intersection Capacity Utilization	19.1%
ICU Level of Service	A
Analysis Period (min)	15

Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
401: LA 3132 SB Ramp & Leonard Rd

	↖	→	↘	↙	←	↖	↙	↘	↙	↘	↙	↘
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖			↖						↖	
Volume (vph)	0	72	27	0	143	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.963											
Fit Protected												
Satd. Flow (prot)	0	1663	0	0	1727	0	0	0	0	0	1727	0
Fit Permitted												
Satd. Flow (perm)	0	1663	0	0	1727	0	0	0	0	0	1727	0
Link Speed (mph)	50			50			45			45		
Link Distance (ft)	559			469			669			381		
Travel Time (s)	7.6			6.4			10.1			5.8		
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Heavy Vehicles (%)	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
Adj. Flow (vph)	0	90	34	0	179	0	0	0	0	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	124	0	0	179	0	0	0	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)	0			0			0			0		
Link Offset(ft)	0			0			0			0		
Crosswalk Width(ft)	16			16			16			16		
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9		15		9		15		9	
Sign Control	Free		Free		Stop		Stop		Stop		Stop	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	18.7%
Analysis Period (min)	15
ICU Level of Service	A

HCM Unsignalized Intersection Capacity Analysis LA 3132 (Inner Loop) Extension - Stage 0 Study
401: LA 3132 SB Ramp & Leonard Rd

	↖	→	↘	↙	←	↖	↙	↘	↙	↘	↙	↘
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖			↖						↖	
Volume (veh/h)	0	72	27	0	143	0	0	0	0	0	0	0
Sign Control	Free			Free			Stop			Stop		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	0	90	34	0	179	0	0	0	0	0	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)												
pX, platoon unblocked												
vC, conflicting volume	179			124			286			286		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	179			124			286			286		
tC, single (s)	4.2			4.2			7.2			6.6		
tC, 2 stage (s)												
tF (s)	2.3			2.3			3.6			4.1		
p0 queue free %	100			100			100			100		
cM capacity (veh/h)	1350			1415			651			611		

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	124	179	0
Volume Left	0	0	0
Volume Right	34	0	0
cSH	1700	1415	1700
Volume to Capacity	0.07	0.00	0.00
Queue Length 95th (ft)	0	0	0
Control Delay (s)	0.0	0.0	0.0
Lane LOS	A		
Approach Delay (s)	0.0	0.0	0.0
Approach LOS	A		

Intersection Summary	
Average Delay	0.0
Intersection Capacity Utilization	18.7%
Analysis Period (min)	15
ICU Level of Service	A

Lanes, Volumes, Timings
402: LA 3132 NB Ramp & Leonard Rd

LA 3132 (Inner Loop) Extension - Stage 0 Study

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕				
Volume (vph)	0	72	0	0	166	0	26	0	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt												
Flt Protected								0.950				
Satd. Flow (prot)	0	1727	0	0	1727	0	0	1641	0	0	0	0
Flt Permitted								0.950				
Satd. Flow (perm)	0	1727	0	0	1727	0	0	1641	0	0	0	0
Link Speed (mph)		50			50			45				45
Link Distance (ft)		469			2733			461				532
Travel Time (s)		6.4			37.3			7.0				8.1
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Heavy Vehicles (%)	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
Adj. Flow (vph)	0	90	0	0	208	0	33	0	0	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	90	0	0	208	0	0	32	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0				0
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop				Stop

Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	18.7%			ICU Level of Service A								
Analysis Period (min)	15											

HCM Unsignalized Intersection Capacity Analysis
402: LA 3132 NB Ramp & Leonard Rd

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕				
Volume (veh/h)	0	72	0	0	166	0	26	0	0	0	0	0
Sign Control		Free			Free			Stop				Stop
Grade		0%			0%			0%				0%
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	0	90	0	0	208	0	32	0	0	0	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)												
pX, platoon unblocked												
vC, conflicting volume	208			90			298	298	90	298	298	208
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	208			90			298	298	90	298	298	208
tC, single (s)	4.2			4.2			7.2	6.6	6.3	7.2	6.6	6.3
tC, 2 stage (s)												
tF (s)	2.3			2.3			3.6	4.1	3.4	3.6	4.1	3.4
p0 queue free %	100			100			95	100	100	100	100	100
cM capacity (veh/h)	1317			1456			639	601	946	639	601	813

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	90	208	32
Volume Left	0	0	32
Volume Right	0	0	0
cSH	1317	1700	639
Volume to Capacity	0.00	0.12	0.05
Queue Length 95th (ft)	0	0	4
Control Delay (s)	0.0	0.0	10.9
Lane LOS			B
Approach Delay (s)	0.0	0.0	10.9
Approach LOS			B

Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	18.7%	ICU Level of Service A	
Analysis Period (min)	15		

Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
 100: LA3132 NB/LA3132 SB & Flournoy Lucas Rd 2015 Alternative B PM Peak with SPU

Lane Group	EBL	EBT	EBR2	WBL	WBT	WBR2	SEL	SER2	NWL	NWR2
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Volume (vph)	115	197	0	0	299	530	593	266	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	350			250			0		0	
Storage Lanes	2			2			2		2	
Taper Length (ft)	50			50			50		50	
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	1.00	0.97	1.00
Frt						0.850		0.850		
Flt Protected	0.950						0.950			
Satd. Flow (prot)	3433	3574	1881	3686	3610	1482	3303	1615	3686	1900
Flt Permitted	0.950						0.950			
Satd. Flow (perm)	3433	3574	1881	3686	3610	1482	3303	1615	3686	1900
Right Turn on Red			Yes			Yes	Yes	Yes	Yes	
Satd. Flow (RTOR)						639		296		
Link Speed (mph)		45			45					
Link Distance (ft)		749			713					
Travel Time (s)		11.3			10.8					
Peak Hour Factor	0.94	0.94	0.95	0.83	0.83	0.83	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	1%	1%	0%	0%	9%	6%	0%	0%	0%
Adj. Flow (vph)	122	210	0	0	360	639	659	296	0	0
Shared Lane Traffic (%)										
Lane Group Flow (vph)	122	210	0	0	360	639	659	296	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Right	Left	Right
Median Width(ft)		24			34					
Link Offset(ft)		0			0					
Crosswalk Width(ft)		16			16					
Two way Left Turn Lane										
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15	9	15	9
Turn Type	Prot	NA	Free	Prot	NA	Free	Prot	Free	Prot	Free
Protected Phases	5	2		1	6		4		8	
Permitted Phases			Free			Free		Free		Free
Detector Phase	5	2		1	6		4		8	
Switch Phase										
Minimum Initial (s)	4.0	15.0		4.0	15.0		4.0		4.0	
Minimum Split (s)	10.0	21.0		10.0	21.0		22.0		10.0	
Total Split (s)	19.0	45.0		10.0	36.0		35.0		35.0	
Total Split (%)	21.1%	50.0%		11.1%	40.0%		38.9%		38.9%	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0		5.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0		1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0		0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0		6.0		6.0	
Lead/Lag	Lag	Lag		Lead	Lead					
Lead-Lag Optimize?	Yes	Yes		Yes	Yes					
Recall Mode	None	Min		None	Min		None		None	
Act Effect Green (s)	7.7	26.5		16.1	55.5		16.4		55.5	
Actuated g/C Ratio	0.14	0.48		0.29	1.00		0.30		1.00	
v/c Ratio	0.26	0.12		0.34	0.43		0.67		0.18	

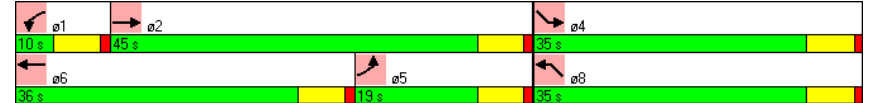
Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
 100: LA3132 NB/LA3132 SB & Flournoy Lucas Rd 2015 Alternative B PM Peak with SPU

Lane Group	EBL	EBT	EBR2	WBL	WBT	WBR2	SEL	SER2	NWL	NWR2
Control Delay	25.7	8.7			19.2	0.9	21.7	0.2		
Queue Delay	0.0	0.0			0.0	0.0	0.0	0.0		
Total Delay	25.7	8.7			19.2	0.9	21.7	0.2		
LOS	C	A			B	A	C	A		
Approach Delay		14.9			7.5					
Approach LOS		B			A					
Queue Length 50th (ft)	19	18			52	0	101	0		
Queue Length 95th (ft)	46	41			94	0	167	0		
Internal Link Dist (ft)		669			633					
Turn Bay Length (ft)	350				350		600			
Base Capacity (vph)	839	2585			2037	1482	1801	1615		
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	0.15	0.08			0.18	0.43	0.37	0.18		

Intersection Summary

Area Type:	Other
Cycle Length:	90
Actuated Cycle Length:	55.5
Natural Cycle:	55
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.67
Intersection Signal Delay:	11.7
Intersection LOS:	B
Intersection Capacity Utilization:	46.1%
ICU Level of Service:	A
Analysis Period (min):	15

Splits and Phases: 100: LA3132 NB/LA3132 SB & Flournoy Lucas Rd



Lanes, Volumes, Timings
101: Flournoy Lucas Rd & LA 3132 SB

LA 3132 (Inner Loop) Extension - Stage 0 Study
2032 Alternative B AM Peak with Improvements



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↑	↑↑					↑↑	↑	↑
Volume (vph)	0	753	0	0	226	0	0	0	0	651	0	136
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		450	200		0	0		0	250		0
Storage Lanes	0		1	1		0	0		0	1		0
Taper Length (ft)	50				50					50		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	0.97	1.00	1.00
Frnt											0.850	
Fit Protected										0.950		
Satd. Flow (prot)	0	3505	1845	1863	3406	0	0	0	0	3072	1553	0
Fit Permitted										0.950		
Satd. Flow (perm)	0	3505	1845	1863	3406	0	0	0	0	3072	1553	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)											602	
Link Speed (mph)		45			45			30			45	
Link Distance (ft)		986			649			714			631	
Travel Time (s)		14.9			9.8			16.2			9.6	
Peak Hour Factor	0.86	0.86	0.86	0.81	0.81	0.81	0.92	0.92	0.92	0.80	0.80	0.80
Heavy Vehicles (%)	0%	3%	3%	2%	6%	0%	2%	2%	2%	14%	4%	4%
Adj. Flow (vph)	0	876	0	0	279	0	0	0	0	814	0	170
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	876	0	0	279	0	0	0	0	814	170	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		34			34			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type		NA	Perm	Perm	NA					Split	NA	
Protected Phases		2 11 14			6 11 14					4	4	
Permitted Phases			2 11 14	6 11 14								
Detector Phase		2 11 14	2 11 14	6 11 14	6 11 14					4	4	
Switch Phase												
Minimum Initial (s)										7.0	7.0	
Minimum Split (s)										13.0	13.0	
Total Split (s)										30.0	30.0	
Total Split (%)										33.3%	33.3%	
Yellow Time (s)										3.5	3.5	
All-Red Time (s)										1.5	1.5	
Lost Time Adjust (s)										0.0	0.0	
Total Lost Time (s)										5.0	5.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode										None	None	
Act Effct Green (s)					54.0					25.0	25.0	
Actuated g/C Ratio					0.60					0.28	0.28	
v/c Ratio					0.42					0.95	0.20	

Lanes, Volumes, Timings
101: Flournoy Lucas Rd & LA 3132 SB

LA 3132 (Inner Loop) Extension - Stage 0 Study
2032 Alternative B AM Peak with Improvements

Lane Group	ø1	ø2	ø6	ø8	ø11	ø12	ø14
Lane Configurations							
Volume (vph)							
Ideal Flow (vphpl)							
Storage Length (ft)							
Storage Lanes							
Taper Length (ft)							
Lane Util. Factor							
Frnt							
Fit Protected							
Satd. Flow (prot)							
Fit Permitted							
Satd. Flow (perm)							
Right Turn on Red							
Satd. Flow (RTOR)							
Link Speed (mph)							
Link Distance (ft)							
Travel Time (s)							
Peak Hour Factor							
Heavy Vehicles (%)							
Adj. Flow (vph)							
Shared Lane Traffic (%)							
Lane Group Flow (vph)							
Enter Blocked Intersection							
Lane Alignment							
Median Width(ft)							
Link Offset(ft)							
Crosswalk Width(ft)							
Two way Left Turn Lane							
Headway Factor							
Turning Speed (mph)							
Turn Type							
Protected Phases	1	2	6	8	11	12	14
Permitted Phases							
Detector Phase							
Switch Phase							
Minimum Initial (s)	4.0	15.0	15.0	15.0	5.0	15.0	4.0
Minimum Split (s)	10.0	21.0	21.0	21.0	11.0	21.0	20.0
Total Split (s)	11.0	28.0	28.0	21.0	11.0	30.0	21.0
Total Split (%)	12%	31%	31%	23%	12%	33%	23%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	0.5
Lost Time Adjust (s)							
Total Lost Time (s)							
Lead/Lag							
Lead-Lag Optimize?							
Recall Mode	None	Min	Min	Min	None	None	None
Act Effct Green (s)							
Actuated g/C Ratio							
v/c Ratio							

Lanes, Volumes, Timings
101: Flournoy Lucas Rd & LA 3132 SB

LA 3132 (Inner Loop) Extension - Stage 0 Study
2032 Alternative B AM Peak with Improvements



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay		10.3			11.9					54.7	0.5	
Queue Delay		0.0			0.0					0.0	0.0	
Total Delay		10.3			11.9					54.7	0.5	
LOS		B			B					D	A	
Approach Delay		10.3			11.9						45.4	
Approach LOS		B			B						D	
Queue Length 50th (ft)		127			57					234	0	
Queue Length 95th (ft)		157			78					#285	0	
Internal Link Dist (ft)		906			569			634			551	
Turn Bay Length (ft)										250		
Base Capacity (vph)		2103			2044					853	866	
Starvation Cap Reductn		0			0					0	0	
Spillback Cap Reductn		0			0					0	0	
Storage Cap Reductn		0			0					0	0	
Reduced v/c Ratio		0.42			0.14					0.95	0.20	

Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 90
 Natural Cycle: 90
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.95
 Intersection Signal Delay: 26.7
 Intersection Capacity Utilization 96.3%
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 101: Flournoy Lucas Rd & LA 3132 SB

#101 #102 ← a2 28 s	#102 ↖ a1 11 s	#102 ↗ a8 21 s	#101 ↘ a4 30 s
#101 #102 ↙ a6 28 s	#101 ↔ a11 11 s	#101 ↔ a14 21 s	#102 ↔ a12 30 s

Lanes, Volumes, Timings
101: Flournoy Lucas Rd & LA 3132 SB

LA 3132 (Inner Loop) Extension - Stage 0 Study
2032 Alternative B AM Peak with Improvements

Lane Group	ø1	ø2	ø6	ø8	ø11	ø12	ø14
Control Delay							
Queue Delay							
Total Delay							
LOS							
Approach Delay							
Approach LOS							
Queue Length 50th (ft)							
Queue Length 95th (ft)							
Internal Link Dist (ft)							
Turn Bay Length (ft)							
Base Capacity (vph)							
Starvation Cap Reductn							
Spillback Cap Reductn							
Storage Cap Reductn							
Reduced v/c Ratio							

Intersection Summary

Lanes, Volumes, Timings
102: Flournoy Lucas Rd & LA3132 NB

LA 3132 (Inner Loop) Extension - Stage 0 Study
2032 Alternative B AM Peak with Improvements



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↕	↔	↔	↕	↕	↔	↕	↔	↔	↕	↔
Volume (vph)	348	1055	0	0	226	800	0	0	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	0		85	0		650	0		0
Storage Lanes	1		0	0		1	1		0	0		0
Taper Length (ft)	50			50			50			50		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00
Frnt						0.850						
Flt Protected	0.950											
Satd. Flow (prot)	1787	3312	0	0	3343	1538	1770	1770	0	0	0	0
Flt Permitted	0.580											
Satd. Flow (perm)	1091	3312	0	0	3343	1538	1770	1770	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						894						
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		649			750			719			607	
Travel Time (s)		9.8			11.4			10.9			9.2	
Peak Hour Factor	0.86	0.86	0.92	0.92	0.81	0.81	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	1%	9%	2%	2%	8%	5%	2%	2%	2%	0%	2%	0%
Adj. Flow (vph)	405	1227	0	0	279	988	0	0	0	0	0	0
Shared Lane Traffic (%)							0%					
Lane Group Flow (vph)	405	1227	0	0	279	988	0	0	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			34			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA			NA	Perm	Split					
Protected Phases	1	6 12			2 12		8	8				
Permitted Phases	6 12					2 12						
Detector Phase	1	6 12			2 12	2 12	8	8				
Switch Phase												
Minimum Initial (s)	4.0						15.0	15.0				
Minimum Split (s)	10.0						21.0	21.0				
Total Split (s)	11.0						21.0	21.0				
Total Split (%)	12.2%						23.3%	23.3%				
Yellow Time (s)	5.0						5.0	5.0				
All-Red Time (s)	1.0						1.0	1.0				
Lost Time Adjust (s)	0.0						0.0	0.0				
Total Lost Time (s)	6.0						6.0	6.0				
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None						Min	Min				
Act Effect Green (s)	57.0	52.0			52.0	52.0						
Actuated g/C Ratio	0.63	0.58			0.58	0.58						
v/c Ratio	0.55	0.64			0.14	0.78						

Lanes, Volumes, Timings
102: Flournoy Lucas Rd & LA3132 NB

LA 3132 (Inner Loop) Extension - Stage 0 Study
2032 Alternative B AM Peak with Improvements

Lane Group	ø2	ø4	ø6	ø11	ø12	ø14
Lane Configurations						
Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Frnt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Heavy Vehicles (%)						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Enter Blocked Intersection						
Lane Alignment						
Median Width(ft)						
Link Offset(ft)						
Crosswalk Width(ft)						
Two way Left Turn Lane						
Headway Factor						
Turning Speed (mph)						
Turn Type						
Protected Phases	2	4	6	11	12	14
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	15.0	7.0	15.0	5.0	15.0	4.0
Minimum Split (s)	21.0	13.0	21.0	11.0	21.0	20.0
Total Split (s)	28.0	30.0	28.0	11.0	30.0	21.0
Total Split (%)	31%	33%	31%	12%	33%	23%
Yellow Time (s)	5.0	3.5	5.0	5.0	5.0	3.5
All-Red Time (s)	1.0	1.5	1.0	1.0	1.0	0.5
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	Min	None	Min	None	None	None
Act Effect Green (s)						
Actuated g/C Ratio						
v/c Ratio						

Lanes, Volumes, Timings
102: Flournoy Lucas Rd & LA3132 NB

LA 3132 (Inner Loop) Extension - Stage 0 Study
2032 Alternative B AM Peak with Improvements



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	16.5	5.2				9.0	6.7					
Queue Delay	0.0	0.0				0.0	0.0					
Total Delay	16.5	5.2				9.0	6.7					
LOS	B	A				A	A					
Approach Delay	8.0			7.2								
Approach LOS	A			A								
Queue Length 50th (ft)	89	61				35	22					
Queue Length 95th (ft)	172	m86				48	43					
Internal Link Dist (ft)	569				670		639		527			
Turn Bay Length (ft)	200						85					
Base Capacity (vph)	730		1914				1932		1266			
Starvation Cap Reductn	0		0				0		0			
Spillback Cap Reductn	0		0				0		0			
Storage Cap Reductn	0		0				0		0			
Reduced v/c Ratio	0.55	0.64				0.14	0.78					

Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 90
 Natural Cycle: 90
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.95
 Intersection Signal Delay: 7.6
 Intersection Capacity Utilization 96.3%
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 102: Flournoy Lucas Rd & LA3132 NB

#101 #102	#102	#102	#101
→ ø2	↖ ø1	↖ ø8	↖ ø4
28 s	11 s	21 s	30 s
#101 #102	#101	#101	#102
← ø6	← ø11	← ø14	← ø12
28 s	11 s	21 s	30 s

Lanes, Volumes, Timings
102: Flournoy Lucas Rd & LA3132 NB

LA 3132 (Inner Loop) Extension - Stage 0 Study
2032 Alternative B AM Peak with Improvements

Lane Group	ø2	ø4	ø6	ø11	ø12	ø14
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						
Queue Length 50th (ft)						
Queue Length 95th (ft)						
Internal Link Dist (ft)						
Turn Bay Length (ft)						
Base Capacity (vph)						
Starvation Cap Reductn						
Spillback Cap Reductn						
Storage Cap Reductn						
Reduced v/c Ratio						

Intersection Summary

Lanes, Volumes, Timings
103: LA 1 & Flournoy Lucas Rd

LA 3132 (Inner Loop) Extension - Stage 0 Study
2032 Alternative B AM Peak with Improvements

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑↑	↑			↔		↑↑	↑↑		↓	↑↑	↑
Volume (vph)	759	12	284	45	7	0	443	491	50	0	313	575
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	0		0	125		0	165		165
Storage Lanes	1		0	0		0	2		0	1		1
Taper Length (ft)	50			50			50			50		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	0.97	0.95	0.95	1.00	0.95	1.00
Frt		0.856						0.986				0.850
Flt Protected	0.950				0.958		0.950					
Satd. Flow (prot)	3400	1272	0	0	1818	0	2613	3263	0	1900	3406	1553
Flt Permitted	0.950				0.531		0.950					
Satd. Flow (perm)	3400	1272	0	0	1008	0	2613	3263	0	1900	3406	1553
Right Turn on Red			Yes			Yes			Yes			No
Satd. Flow (RTOR)		355						11				
Link Speed (mph)		50			50			55				55
Link Distance (ft)		784			651			1092				934
Travel Time (s)		10.7			8.9			13.5				11.6
Peak Hour Factor	0.80	0.80	0.80	0.86	0.86	0.86	0.86	0.86	0.86	0.80	0.80	0.80
Heavy Vehicles (%)	3%	2%	29%	0%	1%	11%	34%	10%	0%	0%	6%	4%
Adj. Flow (vph)	949	15	355	52	8	0	515	571	58	0	391	719
Shared Lane Traffic (%)												
Lane Group Flow (vph)	949	370	0	0	60	0	515	629	0	0	391	719
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			0			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Prot	NA		Perm	NA		Prot	NA		pm+pt	NA	pt+ov
Protected Phases	3	8			4		1	6		5	2	2 3
Permitted Phases					4					2		
Detector Phase	3	8		4	4		1	6		5	2	2 3
Switch Phase												
Minimum Initial (s)	5.0	10.0		7.0	7.0		7.0	15.0		5.0	15.0	
Minimum Split (s)	11.5	16.5		13.5	13.5		15.0	23.0		13.0	23.0	
Total Split (s)	37.0	50.6		13.6	13.6		28.0	46.4		13.0	31.4	
Total Split (%)	33.6%	46.0%		12.4%	12.4%		25.5%	42.2%		11.8%	28.5%	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.5	5.5		5.5	5.5	
All-Red Time (s)	1.5	1.5		1.5	1.5		2.5	2.5		2.5	2.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.5	6.5		6.5	6.5		8.0	8.0		8.0	8.0	
Lead/Lag	Lead			Lag	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes			Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None		None	Min		None	Min	
Act Effect Green (s)	30.5	44.1			7.1		20.0	51.4		23.4	60.4	
Actuated g/C Ratio	0.28	0.40			0.06		0.18	0.47		0.21	0.55	
v/c Ratio	1.01	0.51			0.92		1.08	0.41		0.54	0.84	

Lanes, Volumes, Timings
103: LA 1 & Flournoy Lucas Rd

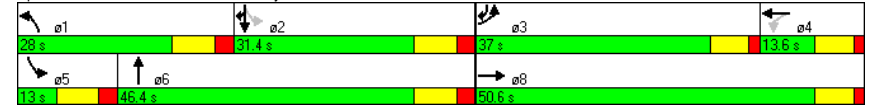
LA 3132 (Inner Loop) Extension - Stage 0 Study
2032 Alternative B AM Peak with Improvements

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	71.1	5.6			144.5		108.9	20.0			41.7	32.0
Queue Delay	0.0	0.0			0.0		0.0	0.0			0.0	0.0
Total Delay	71.1	5.6			144.5		108.9	20.0			41.7	32.0
LOS	E	A			F		F	B			D	C
Approach Delay		52.7			144.5		60.0				35.4	
Approach LOS		D			F		E				D	
Queue Length 50th (ft)	~349	6			43		~210	146			130	406
Queue Length 95th (ft)	#394	38			#120		#295	182			157	471
Internal Link Dist (ft)		704			571		1012				854	
Turn Bay Length (ft)	200						125					165
Base Capacity (vph)	943	723			65		475	1531			725	853
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	1.01	0.51			0.92		1.08	0.41			0.54	0.84

Intersection Summary

Area Type:	Other
Cycle Length:	110
Actuated Cycle Length:	110
Natural Cycle:	110
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	1.08
Intersection Signal Delay:	51.2
Intersection Capacity Utilization:	76.8%
Analysis Period (min):	15
Intersection LOS:	D
ICU Level of Service:	D
~ Volume exceeds capacity, queue is theoretically infinite.	
Queue shown is maximum after two cycles.	
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 103: LA 1 & Flournoy Lucas Rd



Lanes, Volumes, Timings
105: Ellerbe Rd & Flournoy Lucas Rd

LA 3132 (Inner Loop) Extension - Stage 0 Study
2032 Alternative B AM Peak with Improvements

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Volume (vph)	12	209	96	75	162	45	94	1719	137	26	381	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	140		150	150			0	115	120	150		
Storage Lanes	1		1	1			1	1	1	1		0
Taper Length (ft)	50			50				50		50		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Frt			0.850				0.850		0.850		0.999	
Frt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1671	1827	1468	1656	1727	1468	1770	3574	1568	1736	3404	0
Frt Permitted	0.230			0.333			0.427			0.053		
Satd. Flow (perm)	405	1827	1468	580	1727	1468	795	3574	1568	97	3404	0
Right Turn on Red			Yes			Yes		Yes			Yes	
Satd. Flow (RTOR)			97			55		54			1	
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		848			838			697			896	
Travel Time (s)		12.8			12.7			10.6			13.6	
Peak Hour Factor	0.80	0.80	0.80	0.82	0.82	0.82	0.81	0.81	0.81	0.80	0.80	0.80
Heavy Vehicles (%)	8%	4%	10%	9%	10%	10%	2%	1%	3%	4%	6%	0%
Adj. Flow (vph)	15	261	120	91	198	55	116	2122	169	32	476	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	15	261	120	91	198	55	116	2122	169	32	480	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)	12			12			12			12		
Link Offset(ft)	0			0			0			0		
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane				Yes							Yes	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15			9	15		9	15	9
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8		8	4		4	6		6	2		
Detector Phase	3	8	8	7	4	4	1	6	6	5	2	
Switch Phase												
Minimum Initial (s)	7.0	15.0	15.0	7.0	15.0	15.0	7.0	10.0	10.0	7.0	10.0	
Minimum Split (s)	12.0	20.0	20.0	14.0	22.0	22.0	12.0	15.0	15.0	14.0	17.0	
Total Split (s)	12.0	25.0	25.0	14.0	27.0	27.0	12.0	87.0	87.0	14.0	89.0	
Total Split (%)	8.6%	17.9%	17.9%	10.0%	19.3%	19.3%	8.6%	62.1%	62.1%	10.0%	63.6%	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	0.0	0.0	0.0	2.0	2.0	2.0	0.0	0.0	0.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0	5.0	5.0	7.0	7.0	7.0	5.0	5.0	5.0	7.0	7.0	
Lead/Lag	Lead	Lead	Lead	Lag	Lag	Lag	Lead	Lead	Lead	Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	Min	Min	None	Min	Min	None	None	None	None	None	
Act Effect Green (s)	20.1	20.1	20.1	27.5	27.5	27.5	82.2	82.2	82.2	79.2	76.2	
Actuated g/C Ratio	0.15	0.15	0.15	0.20	0.20	0.20	0.61	0.61	0.61	0.59	0.57	
v/c Ratio	0.12	0.96	0.40	0.52	0.56	0.16	0.22	0.97	0.17	0.22	0.25	

Lanes, Volumes, Timings
105: Ellerbe Rd & Flournoy Lucas Rd

LA 3132 (Inner Loop) Extension - Stage 0 Study
2032 Alternative B AM Peak with Improvements

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	53.9	101.7	19.3	65.4	57.7	14.3	12.9	39.5	8.8	29.4	14.8	
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	53.9	101.7	19.3	65.4	57.7	14.3	12.9	39.5	8.8	29.4	14.8	
LOS	D	F	B	E	E	B	D	A	C	B		
Approach Delay		74.9			52.8			36.0			15.7	
Approach LOS		E			D			D			B	
Queue Length 50th (ft)	12	241	19	68	158	0	45	~1026	45	12	105	
Queue Length 95th (ft)	31	#352	60	#124	#254	33	67	893	69	24	118	
Internal Link Dist (ft)		768			758			617			816	
Turn Bay Length (ft)	140		150	150			115		120	150		
Base Capacity (vph)	127	273	302	175	353	344	537	2186	980	143	2083	
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	0.12	0.96	0.40	0.52	0.56	0.16	0.22	0.97	0.17	0.22	0.23	

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 134.4

Natural Cycle: 140

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.97

Intersection Signal Delay: 39.0

Intersection LOS: D

Intersection Capacity Utilization 91.7%

ICU Level of Service F

Analysis Period (min) 15

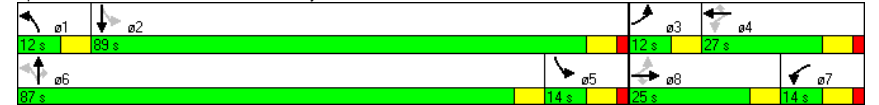
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 105: Ellerbe Rd & Flournoy Lucas Rd



Lanes, Volumes, Timings
106: LA 1 & Leonard Rd

LA 3132 (Inner Loop) Extension - Stage 0 Study
2032 Alternative B AM Peak with Improvements

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	80	90	171	905	591	52
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	145			0
Storage Lanes	1	0	1			0
Taper Length (ft)	50		50			
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95
Frt	0.929			0.988		
Flt Protected	0.977		0.950			
Satd. Flow (prot)	1700	0	1444	3034	3008	0
Flt Permitted	0.977		0.950			
Satd. Flow (perm)	1700	0	1444	3034	3008	0
Link Speed (mph)	50			65	65	
Link Distance (ft)	2733			1584	2639	
Travel Time (s)	37.3			16.6	27.7	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.89	0.89
Heavy Vehicles (%)	3%	0%	25%	19%	20%	2%
Adj. Flow (vph)	100	113	214	1131	664	58
Shared Lane Traffic (%)						
Lane Group Flow (vph)	212	0	214	1131	722	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			66	78	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	47.4%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis LA 3132 (Inner Loop) Extension - Stage 0 Study
106: LA 1 & Leonard Rd

2032 Alternative B AM Peak with Improvements

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	80	90	171	905	591	52
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.89	0.89
Hourly flow rate (vph)	100	112	214	1131	664	58
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				Raised	Raised	
Median storage (veh)				2	3	
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1686	361	722			
vC1, stage 1 conf vol	693					
vC2, stage 2 conf vol	993					
vCu, unblocked vol	1686	361	722			
tC, single (s)	6.9	6.9	4.6			
tC, 2 stage (s)	5.9					
tF (s)	3.5	3.3	2.4			
p0 queue free %	54	82	71			
cM capacity (veh/h)	216	641	739			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	212	214	566	566	443	280
Volume Left	100	214	0	0	0	0
Volume Right	112	0	0	0	0	58
cSH	333	739	1700	1700	1700	1700
Volume to Capacity	0.64	0.29	0.33	0.33	0.26	0.16
Queue Length 95th (ft)	103	30	0	0	0	0
Control Delay (s)	33.0	11.8	0.0	0.0	0.0	0.0
Lane LOS	D	B				
Approach Delay (s)	33.0	1.9			0.0	
Approach LOS	D					

Intersection Summary

Average Delay	4.2
Intersection Capacity Utilization	47.4%
Analysis Period (min)	15
	ICU Level of Service A

Lanes, Volumes, Timings
107: LA 1 & Bert Kouns Industrial Loop

LA 3132 (Inner Loop) Extension - Stage 0 Study
2032 Alternative B AM Peak with Improvements

	↖		→		↗		←		↖		↗	
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖	↖	↖	↖	↖	↖	↖	↖	↖	↖	↖
Volume (vph)	307	977	106	253	901	50	135	1026	224	131	751	162
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	230		230	150			115	220		220	230	230
Storage Lanes	2		1	1			1	2		1	2	1
Taper Length (ft)	50						50			50		
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt			0.850				0.850			0.850		0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3303	3471	1482	1770	3539	1615	3303	3505	1495	3433	3471	1568
Flt Permitted	0.950			0.141			0.950			0.950		
Satd. Flow (perm)	3303	3471	1482	263	3539	1615	3303	3505	1495	3433	3471	1568
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			80			12			35			32
Link Speed (mph)		50			50			45			45	
Link Distance (ft)		1652			1693			1702			1927	
Travel Time (s)		22.5			23.1			25.8			29.2	
Peak Hour Factor	0.89	0.89	0.89	0.92	0.92	0.92	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	6%	4%	9%	2%	2%	0%	6%	3%	8%	2%	4%	3%
Adj. Flow (vph)	345	1098	119	275	979	54	148	1127	246	144	825	178
Shared Lane Traffic (%)												
Lane Group Flow (vph)	345	1098	119	275	979	54	148	1127	246	144	825	178
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane					Yes							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Prot	NA	Prot	pm+pt	NA	pt+ov	Prot	NA	pt+ov	Prot	NA	pt+ov
Protected Phases	1	6	6	5	2	2 7	3	8	5 8	7	4	1 4
Permitted Phases				2								
Detector Phase	1	6	6	5	2	2 7	3	8	5 8	7	4	1 4
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0		5.0	10.0		12.0	10.0	
Minimum Split (s)	11.0	16.0	16.0	11.0	16.0		11.0	16.0		18.0	16.0	
Total Split (s)	23.0	51.0	51.0	22.0	50.0		17.0	49.0		18.0	50.0	
Total Split (%)	16.4%	36.4%	36.4%	15.7%	35.7%		12.1%	35.0%		12.9%	35.7%	
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5		1.5	1.5		1.5	1.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0		6.0	6.0		6.0	6.0	
Lead/Lag	Lead	Lead	Lead	Lag	Lag		Lead	Lead		Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	C-Min	C-Min	None	C-Min		None	None		None	None	
Act Effect Green (s)	16.7	45.0	45.0	44.3	44.3	56.3	10.3	43.0	65.0	12.0	44.7	67.4
Actuated g/C Ratio	0.12	0.32	0.32	0.32	0.32	0.40	0.07	0.31	0.46	0.09	0.32	0.48
v/c Ratio	0.88	0.98	0.22	1.07	0.87	0.08	0.61	1.05	0.35	0.49	0.74	0.23

Lanes, Volumes, Timings
107: LA 1 & Bert Kouns Industrial Loop

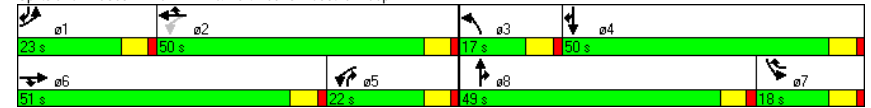
LA 3132 (Inner Loop) Extension - Stage 0 Study
2032 Alternative B AM Peak with Improvements

	↖		→		↗		←		↖		↗	
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	83.2	70.3	14.0	130.9	55.2	11.8	73.7	87.0	21.9	67.2	47.7	18.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	83.2	70.3	14.0	130.9	55.2	11.8	73.7	87.0	21.9	67.2	47.7	18.2
LOS	F	E	B	F	E	B	E	F	C	E	D	B
Approach Delay		68.9			69.3			75.2				45.6
Approach LOS		E			E			E				D
Queue Length 50th (ft)	161	522	25	~228	445	15	68	~585	119	65	356	75
Queue Length 95th (ft)	#238	#661	72	#414	#539	33	105	#723	187	102	435	126
Internal Link Dist (ft)		1572			1613			1622			1847	
Turn Bay Length (ft)	230		230	150		115	220		220	230		230
Base Capacity (vph)	401	1116	531	256	1119	656	260	1077	713	294	1108	775
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	0.86	0.98	0.22	1.07	0.87	0.08	0.57	1.05	0.35	0.49	0.74	0.23

Intersection Summary

Area Type:	Other
Cycle Length:	140
Actuated Cycle Length:	140
Offset:	0 (0%), Referenced to phase 2:WBTL and 6:EBT, Start of Green
Natural Cycle:	140
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	1.07
Intersection Signal Delay:	65.9
Intersection Capacity Utilization:	99.4%
Analysis Period (min):	15
~	Volume exceeds capacity, queue is theoretically infinite.
	Queue shown is maximum after two cycles.
#	95th percentile volume exceeds capacity, queue may be longer.
	Queue shown is maximum after two cycles.

Splits and Phases: 107: LA 1 & Bert Kouns Industrial Loop



Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
 108: Bert Kouns Industrial Loop & LA 3132 EB Off Ramp/LA 3132 EB On Ramp with Improvements



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔					↕	↕	↔	↔	
Volume (vph)	561	4	7	0	0	0	0	1435	89	33	881	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		110	0		0	0	0		0	295	0
Storage Lanes	1		1	0		0	0	0		0	1	0
Taper Length (ft)	50			50			50			50		
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frnt			0.850					0.991				
Fit Protected	0.950	0.953								0.950		
Satd. Flow (prot)	1681	1687	1615	0	0	0	0	3485	0	1736	3574	0
Fit Permitted	0.950	0.953								0.085		
Satd. Flow (perm)	1681	1687	1615	0	0	0	0	3485	0	155	3574	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			5					10				
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1564			1165			530			537	
Travel Time (s)		23.7			17.7			8.0			8.1	
Peak Hour Factor	0.83	0.83	0.83	0.92	0.92	0.92	0.87	0.87	0.87	0.82	0.82	0.82
Heavy Vehicles (%)	2%	0%	0%	0%	0%	0%	0%	2%	13%	4%	1%	0%
Adj. Flow (vph)	676	5	8	0	0	0	0	1649	102	40	1074	0
Shared Lane Traffic (%)	50%											
Lane Group Flow (vph)	338	343	8	0	0	0	0	1751	0	40	1074	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)	12			12			27			27		
Link Offset(ft)	0			0			0			0		
Crosswalk Width(ft)		16		16			16			16		
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Split	NA	Perm					NA	custom	NA		
Protected Phases	4	4						6		5	2.5	
Permitted Phases			4							2		
Detector Phase	4	4	4					6		5	2.5	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0					15.0		5.0		
Minimum Split (s)	11.0	11.0	11.0					21.0		10.0		
Total Split (s)	27.0	27.0	27.0					73.0		10.0		
Total Split (%)	24.5%	24.5%	24.5%					66.4%		9.1%		
Yellow Time (s)	5.0	5.0	5.0					5.0		5.0		
All-Red Time (s)	1.0	1.0	1.0					1.0		0.0		
Lost Time Adjust (s)	0.0	0.0	0.0					0.0		0.0		
Total Lost Time (s)	6.0	6.0	6.0					6.0		5.0		
Lead/Lag								Lag		Lead		
Lead-Lag Optimize?								Yes		Yes		
Recall Mode	None	None	None					None		None		
Act Effct Green (s)	21.0	21.0	21.0					67.0		53.0	51.0	
Actuated g/C Ratio	0.19	0.19	0.19					0.61		0.48	0.46	
v/c Ratio	1.05	1.07	0.03					0.82		0.27	0.65	

Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
 108: Bert Kouns Industrial Loop & LA 3132 EB Off Ramp/LA 3132 EB On Ramp with Improvements

Lane Group	ø1	ø2	ø8
Lane Configurations			
Volume (vph)			
Ideal Flow (vphpl)			
Storage Length (ft)			
Storage Lanes			
Taper Length (ft)			
Lane Util. Factor			
Frnt			
Fit Protected			
Satd. Flow (prot)			
Fit Permitted			
Satd. Flow (perm)			
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (mph)			
Link Distance (ft)			
Travel Time (s)			
Peak Hour Factor			
Heavy Vehicles (%)			
Adj. Flow (vph)			
Shared Lane Traffic (%)			
Lane Group Flow (vph)			
Enter Blocked Intersection			
Lane Alignment			
Median Width(ft)			
Link Offset(ft)			
Crosswalk Width(ft)			
Two way Left Turn Lane			
Headway Factor			
Turning Speed (mph)			
Turn Type			
Protected Phases	1	2	8
Permitted Phases			
Detector Phase			
Switch Phase			
Minimum Initial (s)	5.0	15.0	12.0
Minimum Split (s)	10.0	21.0	18.0
Total Split (s)	30.0	53.0	27.0
Total Split (%)	27%	48%	25%
Yellow Time (s)	5.0	5.0	5.0
All-Red Time (s)	0.0	1.0	1.0
Lost Time Adjust (s)			
Total Lost Time (s)			
Lead/Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	
Recall Mode	None	None	None
Act Effct Green (s)			
Actuated g/C Ratio			
v/c Ratio			

Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
 108: Bert Kouns Industrial Loop & LA 3132 EB Off Ramp/LA 3132 EB On Ramp with Improvements

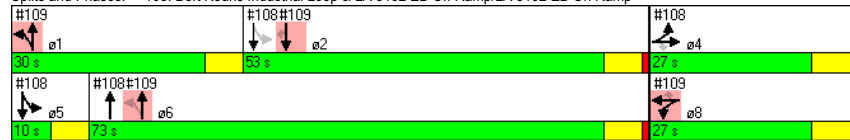


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	108.6	111.8	26.3					21.0	11.9	7.1		
Queue Delay	0.0	0.0	0.0					1.7	0.0	0.0		
Total Delay	108.6	111.8	26.3					22.7	11.9	7.2		
LOS	F	F	C					C	B	A		
Approach Delay		109.2						22.7		7.3		
Approach LOS		F						C		A		
Queue Length 50th (ft)	~275	~282	2					473	5	72		
Queue Length 95th (ft)	#408	#415	14					540	m8	75		
Internal Link Dist (ft)		1484				1085		450		457		
Turn Bay Length (ft)			110						295			
Base Capacity (vph)	321	322	312					2127	147	1657		
Starvation Cap Reductn	0	0	0					0	0	9		
Spillback Cap Reductn	0	0	0					216	0	0		
Storage Cap Reductn	0	0	0					0	0	0		
Reduced v/c Ratio	1.05	1.07	0.03					0.92	0.27	0.65		

Intersection Summary

Area Type: Other
 Cycle Length: 110
 Actuated Cycle Length: 110
 Natural Cycle: 110
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.07
 Intersection Signal Delay: 34.7 Intersection LOS: C
 Intersection Capacity Utilization 88.0% ICU Level of Service E
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 108: Bert Kouns Industrial Loop & LA 3132 EB Off Ramp/LA 3132 EB On Ramp



Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
 108: Bert Kouns Industrial Loop & LA 3132 EB Off Ramp/LA 3132 EB On Ramp with Improvements

Lane Group	ø1	ø2	ø8
Control Delay			
Queue Delay			
Total Delay			
LOS			
Approach Delay			
Approach LOS			
Queue Length 50th (ft)			
Queue Length 95th (ft)			
Internal Link Dist (ft)			
Turn Bay Length (ft)			
Base Capacity (vph)			
Starvation Cap Reductn			
Spillback Cap Reductn			
Storage Cap Reductn			
Reduced v/c Ratio			

Intersection Summary

Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
 109: Bert Kouns Industrial Loop & LA 3132 WB On Ramp/LA 3132 WB On Ramp with Improvements



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	77	0	86	14	1996	0	0	837	963
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	0	0	0	200	295	0	0	0	0	100
Storage Lanes	0	0	0	0	0	1	1	0	0	0	0	1
Taper Length (ft)	50			50			50			50		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frnt						0.850					0.850	
Fit Protected					0.950		0.950					
Satd. Flow (prot)	0	0	0	0	1805	1599	1805	3539	0	0	3539	1568
Fit Permitted					0.950		0.170					
Satd. Flow (perm)	0	0	0	0	1805	1599	323	3539	0	0	3539	1568
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						12						625
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		276			1075			537			687	
Travel Time (s)		4.2			16.3			8.1			10.4	
Peak Hour Factor	0.92	0.92	0.92	0.81	0.81	0.81	0.86	0.86	0.86	0.89	0.89	0.89
Heavy Vehicles (%)	0%	0%	0%	0%	0%	1%	0%	2%	0%	0%	2%	3%
Adj. Flow (vph)	0	0	0	95	0	106	16	2321	0	0	940	1082
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	95	106	16	2321	0	0	940	1082
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)	0							27			27	
Link Offset(ft)	0				0			0			0	
Crosswalk Width(ft)		16				16			16			16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type			Split		NA	Perm	custom		NA		NA	Perm
Protected Phases				8	8		1	1	6		2	
Permitted Phases						8	6					2
Detector Phase				8	8	8	1	1	6		2	2
Switch Phase												
Minimum Initial (s)				12.0	12.0	12.0	5.0				15.0	15.0
Minimum Split (s)				18.0	18.0	18.0	10.0				21.0	21.0
Total Split (s)				27.0	27.0	27.0	30.0				53.0	53.0
Total Split (%)				24.5%	24.5%	24.5%	27.3%				48.2%	48.2%
Yellow Time (s)				5.0	5.0	5.0	5.0				5.0	5.0
All-Red Time (s)				1.0	1.0	1.0	0.0				1.0	1.0
Lost Time Adjust (s)				0.0	0.0	0.0	0.0				0.0	0.0
Total Lost Time (s)				6.0	6.0	6.0	5.0				6.0	6.0
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Recall Mode				None	None	None	None				None	None
Act Effect Green (s)				21.0	21.0	21.0	78.0				47.0	47.0
Actuated g/C Ratio				0.19	0.19	0.19	0.71				0.43	0.43
v/c Ratio				0.28	0.34	0.03	0.93				0.62	1.05

Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
 109: Bert Kouns Industrial Loop & LA 3132 WB On Ramp/LA 3132 WB On Ramp with Improvements

Lane Group	ø4	ø5	ø6
Lane Configurations			
Volume (vph)			
Ideal Flow (vphpl)			
Storage Length (ft)			
Storage Lanes			
Taper Length (ft)			
Lane Util. Factor			
Frnt			
Fit Protected			
Satd. Flow (prot)			
Fit Permitted			
Satd. Flow (perm)			
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (mph)			
Link Distance (ft)			
Travel Time (s)			
Peak Hour Factor			
Heavy Vehicles (%)			
Adj. Flow (vph)			
Shared Lane Traffic (%)			
Lane Group Flow (vph)			
Enter Blocked Intersection			
Lane Alignment			
Median Width(ft)			
Link Offset(ft)			
Crosswalk Width(ft)			
Two way Left Turn Lane			
Headway Factor			
Turning Speed (mph)			
Turn Type			
Protected Phases	4	5	6
Permitted Phases			
Detector Phase			
Switch Phase			
Minimum Initial (s)	5.0	5.0	15.0
Minimum Split (s)	11.0	10.0	21.0
Total Split (s)	27.0	10.0	73.0
Total Split (%)	25%	9%	66%
Yellow Time (s)	5.0	5.0	5.0
All-Red Time (s)	1.0	0.0	1.0
Lost Time Adjust (s)			
Total Lost Time (s)			
Lead/Lag		Lead	Lag
Lead-Lag Optimize?		Yes	Yes
Recall Mode	None	None	None
Act Effect Green (s)			
Actuated g/C Ratio			
v/c Ratio			

Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
 109: Bert Kouns Industrial Loop & LA 3132 WB On Ramp/LA 3132 WB Off Ramp with Improvements

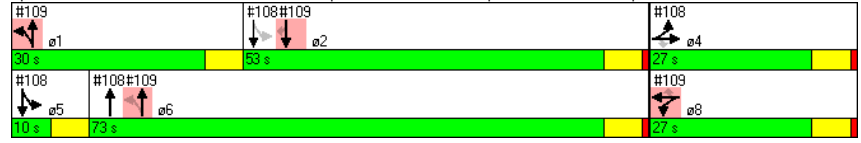


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay					40.5	37.5	4.0	14.9			26.8	57.6
Queue Delay					0.0	0.0	0.0	2.4			0.0	0.0
Total Delay					40.5	37.5	4.0	17.3			26.8	57.6
LOS					D	D	A	B			C	E
Approach Delay					38.9			17.2			43.3	
Approach LOS					D			B			D	
Queue Length 50th (ft)					58	58	3	380			266	~565
Queue Length 95th (ft)					95	97	m3	m376			329	#800
Internal Link Dist (ft)		196			995			457			607	
Turn Bay Length (ft)						200	295					100
Base Capacity (vph)					345	315	566	2509			1512	1028
Starvation Cap Reductn					0	0	0	108			0	0
Spillback Cap Reductn					0	0	0	0			0	0
Storage Cap Reductn					0	0	0	0			0	0
Reduced v/c Ratio					0.28	0.34	0.03	0.97			0.62	1.05

Intersection Summary

Area Type: Other
 Cycle Length: 110
 Actuated Cycle Length: 110
 Natural Cycle: 110
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.07
 Intersection Signal Delay: 29.7 Intersection LOS: C
 Intersection Capacity Utilization 88.0% ICU Level of Service E
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 109: Bert Kouns Industrial Loop & LA 3132 WB On Ramp/LA 3132 WB Off Ramp



Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
 109: Bert Kouns Industrial Loop & LA 3132 WB On Ramp/LA 3132 WB Off Ramp with Improvements

Lane Group	ø4	ø5	ø6
Control Delay			
Queue Delay			
Total Delay			
LOS			
Approach Delay			
Approach LOS			
Queue Length 50th (ft)			
Queue Length 95th (ft)			
Internal Link Dist (ft)			
Turn Bay Length (ft)			
Base Capacity (vph)			
Starvation Cap Reductn			
Spillback Cap Reductn			
Storage Cap Reductn			
Reduced v/c Ratio			

Intersection Summary

Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
 110: Ashley River Dr SB & Flournoy Lucas Rd 2032 Alternative B AM Peak with Improvements

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↕	↔	↔	↕	↔	↔	↔	↔	↔	↕	↔
Volume (vph)	0	957	98	26	1024	8	0	0	0	4	0	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	180	0	120	0	0	0	0	0	0	0	0	0
Storage Lanes	1	0	1	0	0	0	0	0	0	0	0	0
Taper Length (ft)	50	0	50	0	50	0	0	0	0	50	0	0
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.986			0.999						0.961	
Fit Protected				0.950							0.966	
Satd. Flow (prot)	1900	3220	0	1703	3404	0	0	0	0	0	1764	0
Fit Permitted				0.950							0.966	
Satd. Flow (perm)	1900	3220	0	1703	3404	0	0	0	0	0	1764	0
Link Speed (mph)		45			45					30		30
Link Distance (ft)		750			127					320		340
Travel Time (s)		11.4			1.9					7.3		7.7
Peak Hour Factor	0.87	0.87	0.87	0.89	0.89	0.89	0.92	0.92	0.92	0.80	0.80	0.80
Heavy Vehicles (%)	0%	11%	6%	6%	6%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	1100	113	29	1151	9	0	0	0	5	0	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1213	0	29	1160	0	0	0	0	0	7	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			14					0		0
Link Offset(ft)		0			0					0		0
Crosswalk Width(ft)		16			16					16		16
Two way Left Turn Lane					Yes							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

Intersection Summary
 Area Type: Other
 Control Type: Unsignalized
 Intersection Capacity Utilization 39.6% ICU Level of Service A
 Analysis Period (min) 15

HCM Unsignalized Intersection Capacity Analysis LA 3132 (Inner Loop) Extension - Stage 0 Study
 110: Ashley River Dr SB & Flournoy Lucas Rd 2032 Alternative B AM Peak with Improvements

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↕	↔	↔	↕	↔	↔	↔	↔	↔	↕	↔
Volume (veh/h)	0	957	98	26	1024	8	0	0	0	4	0	2
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.87	0.87	0.87	0.89	0.89	0.89	0.92	0.92	0.92	0.80	0.80	0.80
Hourly flow rate (vph)	0	1100	113	29	1151	9	0	0	0	5	0	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)		750										
pX, platoon unblocked				0.75			0.75	0.75	0.75	0.75	0.75	0.75
vC, conflicting volume	1160			1213			1793	2374	606	1763	2426	580
vC1, stage 1 conf vol							1156	1156		1213	1213	
vC2, stage 2 conf vol							636	1218		550	1213	
vCu, unblocked vol	1160			620			1392	2167	0	1353	2236	580
tC, single (s)	4.1			4.2			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			2.3			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			96			100	100	100	97	100	99
cM capacity (veh/h)	610			698			280	202	819	181	192	463

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1
Volume Total	0	733	479	29	767	393	8
Volume Left	0	0	0	29	0	0	5
Volume Right	0	0	113	0	0	9	2
cSH	1700	1700	1700	698	1700	1700	227
Volume to Capacity	0.00	0.43	0.28	0.04	0.45	0.23	0.03
Queue Length 95th (ft)	0	0	0	3	0	0	3
Control Delay (s)	0.0	0.0	0.0	10.4	0.0	0.0	21.4
Lane LOS				B			C
Approach Delay (s)	0.0			0.3			21.4
Approach LOS				C			C

Intersection Summary
 Average Delay 0.2
 Intersection Capacity Utilization 39.6% ICU Level of Service A
 Analysis Period (min) 15

Lanes, Volumes, Timings

LA 3132 (Inner Loop) Extension - Stage 0 Study

111: Ashley River Dr NB & Flournoy Lucas Rd

2032 Alternative B AM Peak with Improvements

	→	↖	↗	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑	↖	↗
Volume (vph)	961	0	0	769	289	103
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt						0.850
Fit Protected					0.950	
Satd. Flow (prot)	3282	0	0	3374	1805	1568
Fit Permitted				0.950		
Satd. Flow (perm)	3282	0	0	3374	1805	1568
Link Speed (mph)	45			45	30	
Link Distance (ft)	127			2333	283	
Travel Time (s)	1.9			35.3	6.4	
Peak Hour Factor	0.80	0.80	0.84	0.84	0.81	0.81
Heavy Vehicles (%)	10%	0%	0%	7%	0%	3%
Adj. Flow (vph)	1201	0	0	915	357	127
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1201	0	0	915	357	127
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	14			14	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane	Yes			Yes		
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	49.2%
ICU Level of Service	A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis LA 3132 (Inner Loop) Extension - Stage 0 Study

111: Ashley River Dr NB & Flournoy Lucas Rd

2032 Alternative B AM Peak with Improvements

	→	↖	↗	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑	↖	↗
Volume (veh/h)	961	0	0	769	289	103
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.80	0.80	0.84	0.84	0.81	0.81
Hourly flow rate (vph)	1201	0	0	915	357	127
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLT			TWLT		
Median storage (veh)	2			2		
Upstream signal (ft)	877					
pX, platoon unblocked			0.77		0.77	0.77
vC, conflicting volume			1201		1659	601
vC1, stage 1 conf vol					1201	
vC2, stage 2 conf vol					458	
vCu, unblocked vol			660		1256	0
tC, single (s)			4.1		6.8	7.0
tC, 2 stage (s)					5.8	
tF (s)			2.2		3.5	3.3
p0 queue free %			100		0	85
cM capacity (veh/h)			721		327	831

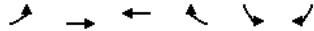
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2
Volume Total	601	601	458	458	357	127
Volume Left	0	0	0	0	357	0
Volume Right	0	0	0	0	0	127
cSH	1700	1700	1700	1700	327	831
Volume to Capacity	0.35	0.35	0.27	0.27	1.09	0.15
Queue Length 95th (ft)	0	0	0	0	339	13
Control Delay (s)	0.0	0.0	0.0	0.0	112.7	10.1
Lane LOS					F	B
Approach Delay (s)	0.0		0.0		85.8	
Approach LOS					F	

Intersection Summary

Average Delay	16.0
Intersection Capacity Utilization	49.2%
ICU Level of Service	A
Analysis Period (min)	15

Lanes, Volumes, Timings
 112: Flournoy Lucas Rd & Oaks Retirement Rd

LA 3132 (Inner Loop) Extension - Stage 0 Study
 2032 Alternative B AM Peak with Improvements

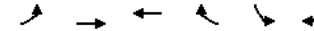


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↘	↕	↕		↘	↘
Volume (vph)	38	1026	753	27	6	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	375			0	0	0
Storage Lanes	1			0	1	1
Taper Length (ft)	50				50	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Frt			0.995			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1687	3610	3422	0	1805	1524
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1687	3610	3422	0	1805	1524
Link Speed (mph)		45	45		30	
Link Distance (ft)		2333	1050		729	
Travel Time (s)		35.3	15.9		16.6	
Peak Hour Factor	0.80	0.80	0.81	0.81	0.80	0.80
Heavy Vehicles (%)	7%	0%	5%	4%	0%	6%
Adj. Flow (vph)	48	1283	930	33	8	20
Shared Lane Traffic (%)						
Lane Group Flow (vph)	48	1282	963	0	8	20
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		14	14		28	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane		Yes	Yes			
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	38.4%		ICU Level of Service A			
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis
 112: Flournoy Lucas Rd & Oaks Retirement Rd

LA 3132 (Inner Loop) Extension - Stage 0 Study
 2032 Alternative B AM Peak with Improvements



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↘	↕	↕		↘	↘
Volume (veh/h)	38	1026	753	27	6	16
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.80	0.80	0.81	0.81	0.80	0.80
Hourly flow rate (vph)	48	1282	930	33	8	20
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		TWLT	TWLT			
Median storage (veh)		2	2			
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	963				1683	481
vC1, stage 1 conf vol					946	
vC2, stage 2 conf vol					736	
vCu, unblocked vol	963				1683	481
tC, single (s)	4.2				6.8	7.0
tC, 2 stage (s)					5.8	
tF (s)	2.3				3.5	3.4
p0 queue free %	93				97	96
cM capacity (veh/h)	681				268	520

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1	SB 2
Volume Total	48	641	641	620	343	8	20
Volume Left	48	0	0	0	0	8	0
Volume Right	0	0	0	0	33	0	20
cSH	681	1700	1700	1700	1700	268	520
Volume to Capacity	0.07	0.38	0.38	0.36	0.20	0.03	0.04
Queue Length 95th (ft)	6	0	0	0	0	2	3
Control Delay (s)	10.7	0.0	0.0	0.0	0.0	18.8	12.2
Lane LOS	B					C	B
Approach Delay (s)	0.4			0.0		14.0	
Approach LOS						B	

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	38.4%	ICU Level of Service	A
Analysis Period (min)	15		

Lanes, Volumes, Timings
201: LA 1 & I-69 WB Ramp

LA 3132 (Inner Loop) Extension - Stage 0 Study
2032 Alternative B AM Peak with Improvements

	←		↑		→	
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔	↔	↕	↕	↔	↔
Volume (vph)	122	0	307	0	57	528
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300	0	0	0	275	
Storage Lanes	1	1		1	1	
Taper Length (ft)	50				50	
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Fr						
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1641	1727	3195	1681	1656	3312
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1641	1727	3195	1681	1656	3312
Link Speed (mph)	40		65		65	
Link Distance (ft)	381		1423		531	
Travel Time (s)	6.5		14.9		5.6	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Heavy Vehicles (%)	10%	10%	13%	13%	9%	9%
Adj. Flow (vph)	153	0	384	0	63	587
Shared Lane Traffic (%)						
Lane Group Flow (vph)	152	0	384	0	63	587
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		76		76	
Link Offset(ft)	0		0		0	
Crosswalk Width(ft)	16		16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free		Free	

Intersection Summary

Area Type: Other
 Control Type: Unsignalized
 Intersection Capacity Utilization 28.6% ICU Level of Service A
 Analysis Period (min) 15

HCM Unsignalized Intersection Capacity Analysis LA 3132 (Inner Loop) Extension - Stage 0 Study
201: LA 1 & I-69 WB Ramp

2032 Alternative B AM Peak with Improvements

	←		↑		→	
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔	↔	↕	↕	↔	↔
Volume (veh/h)	122	0	307	0	57	528
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Hourly flow rate (vph)	152	0	384	0	63	587
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			Raised		Raised	
Median storage (veh)			3		3	
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	804	192			384	
vC1, stage 1 conf vol	384					
vC2, stage 2 conf vol	420					
vCu, unblocked vol	804	192			384	
tC, single (s)	7.0	7.1			4.3	
tC, 2 stage (s)	6.0					
tF (s)	3.6	3.4			2.3	
p0 queue free %	71	100			94	
cM capacity (veh/h)	518	793			1123	

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	152	0	192	192	0	63	293	293
Volume Left	152	0	0	0	0	63	0	0
Volume Right	0	0	0	0	0	0	0	0
cSH	518	1700	1700	1700	1700	1123	1700	1700
Volume to Capacity	0.29	0.00	0.11	0.11	0.00	0.06	0.17	0.17
Queue Length 95th (ft)	30	0	0	0	0	4	0	0
Control Delay (s)	14.8	0.0	0.0	0.0	0.0	8.4	0.0	0.0
Lane LOS	B	A				A		
Approach Delay (s)	14.8		0.0			0.8		
Approach LOS	B							

Intersection Summary

Average Delay 2.4
 Intersection Capacity Utilization 28.6% ICU Level of Service A
 Analysis Period (min) 15

Lanes, Volumes, Timings
202: LA 1 & I-69 EB Ramp

LA 3132 (Inner Loop) Extension - Stage 0 Study
2032 Alternative B AM Peak with Improvements

	←		↑		→	
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↗	↕	↕	↗	↘
Volume (vph)	3	100	211	122	368	282
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300	0		490	260	
Storage Lanes	1	1		1	1	
Taper Length (ft)	50				50	
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt		0.850		0.850		
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1641	1468	3195	1429	1656	3312
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1641	1468	3195	1429	1656	3312
Link Speed (mph)	40		65		65	
Link Distance (ft)	452		3194		1423	
Travel Time (s)	7.7		33.5		14.9	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Heavy Vehicles (%)	10%	10%	13%	13%	9%	9%
Adj. Flow (vph)	4	125	264	153	409	313
Shared Lane Traffic (%)						
Lane Group Flow (vph)	4	125	264	152	409	313
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	24		76		76	
Link Offset(ft)	0		0		0	
Crosswalk Width(ft)	16		16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free		Free	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	39.6%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis LA 3132 (Inner Loop) Extension - Stage 0 Study
202: LA 1 & I-69 EB Ramp

2032 Alternative B AM Peak with Improvements

	←		↑		→	
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↗	↕	↕	↗	↘
Volume (veh/h)	3	100	211	122	368	282
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Hourly flow rate (vph)	4	125	264	152	409	313
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			Raised		Raised	
Median storage (veh)			3		3	
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1238	132			264	
vC1, stage 1 conf vol	264					
vC2, stage 2 conf vol	974					
vCu, unblocked vol	1238	132			264	
tC, single (s)	7.0	7.1			4.3	
tC, 2 stage (s)	6.0					
tF (s)	3.6	3.4			2.3	
p0 queue free %	98	86			67	
cM capacity (veh/h)	206	868			1248	

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	4	125	132	132	152	409	157	157
Volume Left	4	0	0	0	0	409	0	0
Volume Right	0	125	0	0	152	0	0	0
cSH	206	868	1700	1700	1700	1248	1700	1700
Volume to Capacity	0.02	0.14	0.08	0.08	0.09	0.33	0.09	0.09
Queue Length 95th (ft)	1	13	0	0	0	36	0	0
Control Delay (s)	22.8	9.8	0.0	0.0	0.0	9.3	0.0	0.0
Lane LOS	C	A				A		
Approach Delay (s)	10.2		0.0			5.3		
Approach LOS	B							

Intersection Summary	
Average Delay	4.0
Intersection Capacity Utilization	39.6%
Analysis Period (min)	15
	ICU Level of Service A

Lanes, Volumes, Timings
301: LA 1 & Gate A

LA 3132 (Inner Loop) Extension - Stage 0 Study
2032 Alternative B AM Peak with Improvements

	←		↑		→	
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↕		↔	↕
Volume (vph)	5	14	1062	8	22	659
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	0	0	150	
Storage Lanes	1	0		0	1	
Taper Length (ft)	50				50	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Frt	0.899		0.999			
Flt Protected	0.988				0.950	
Satd. Flow (prot)	1259	0	3186	0	1656	2560
Flt Permitted	0.988				0.950	
Satd. Flow (perm)	1259	0	3186	0	1656	2560
Link Speed (mph)	40		65		65	
Link Distance (ft)	496		4383		1584	
Travel Time (s)	8.5		46.0		16.6	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Heavy Vehicles (%)	34%	34%	13%	41%	9%	41%
Adj. Flow (vph)	6	18	1328	10	24	732
Shared Lane Traffic (%)						
Lane Group Flow (vph)	24	0	1338	0	24	732
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		66		66	
Link Offset(ft)	0		0		0	
Crosswalk Width(ft)	16		16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free		Free	

Intersection Summary

Area Type: Other
 Control Type: Unsignalized
 Intersection Capacity Utilization 39.6% ICU Level of Service A
 Analysis Period (min) 15

HCM Unsignalized Intersection Capacity Analysis LA 3132 (Inner Loop) Extension - Stage 0 Study
301: LA 1 & Gate A

2032 Alternative B AM Peak with Improvements

	←		↑		→	
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↕		↔	↕
Volume (veh/h)	5	14	1062	8	22	659
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Hourly flow rate (vph)	6	18	1328	10	24	732
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			Raised		Raised	
Median storage (veh)			2		2	
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1748	669			1338	
vC1, stage 1 conf vol	1332					
vC2, stage 2 conf vol	415					
vCu, unblocked vol	1748	669			1338	
tC, single (s)	7.5	7.6			4.3	
tC, 2 stage (s)	6.5					
tF (s)	3.8	3.6			2.3	
p0 queue free %	96	95			95	
cM capacity (veh/h)	151	333			476	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	24	885	452	24	366	366
Volume Left	6	0	0	24	0	0
Volume Right	18	0	10	0	0	0
cSH	253	1700	1700	476	1700	1700
Volume to Capacity	0.09	0.52	0.27	0.05	0.22	0.22
Queue Length 95th (ft)	8	0	0	4	0	0
Control Delay (s)	20.7	0.0	0.0	13.0	0.0	0.0
Lane LOS	C			B		
Approach Delay (s)	20.7	0.0		0.4		
Approach LOS	C					

Intersection Summary

Average Delay 0.4
 Intersection Capacity Utilization 39.6% ICU Level of Service A
 Analysis Period (min) 15

Lanes, Volumes, Timings
302: LA 1 & Gate B

LA 3132 (Inner Loop) Extension - Stage 0 Study
2032 Alternative B AM Peak with Improvements

Lane Group	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Lane Configurations							
Volume (vph)	19	41	0	1028	47	98	566
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	250		0	250	
Storage Lanes	1	1	1		0	1	
Taper Length (ft)	50		50			50	
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	0.95
Frt		0.850		0.993			
Flt Protected	0.950				0.950		
Satd. Flow (prot)	1271	1137	1681	3156	0	1656	2865
Flt Permitted	0.950				0.950		
Satd. Flow (perm)	1271	1137	1681	3156	0	1656	2865
Link Speed (mph)	40			65			65
Link Distance (ft)	464			1578			4383
Travel Time (s)	7.9			16.6			46.0
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.90	0.90
Heavy Vehicles (%)	42%	42%	13%	13%	26%	9%	26%
Adj. Flow (vph)	24	51	0	1285	59	109	629
Shared Lane Traffic (%)							
Lane Group Flow (vph)	24	51	0	1344	0	109	629
Enter Blocked Intersection	No	No	No	No	No	No	No
Lane Alignment	Left	Right	R NA	Left	Right	Left	Left
Median Width(ft)	20			66			66
Link Offset(ft)	0			0			0
Crosswalk Width(ft)	16			16			16
Two way Left Turn Lane							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	9		9	15	
Sign Control	Stop			Free			Free

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	48.7%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis LA 3132 (Inner Loop) Extension - Stage 0 Study
302: LA 1 & Gate B

2032 Alternative B AM Peak with Improvements

Movement	WBL	WBR	NBU	NBT	NBR	SBL	SBT	
Lane Configurations								
Volume (veh/h)	19	41	0	1028	47	98	566	
Sign Control	Stop			Free			Free	
Grade	0%			0%			0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.90	0.90	
Hourly flow rate (vph)	24	51	0	1285	59	109	629	
Pedestrians								
Lane Width (ft)								
Walking Speed (ft/s)								
Percent Blockage								
Right turn flare (veh)								
Median type				Raised			Raised	
Median storage (veh)				2			2	
Upstream signal (ft)								
pX, platoon unblocked			0.00					
vC, conflicting volume	1847	672	0			1344		
vC1, stage 1 conf vol	1314							
vC2, stage 2 conf vol	532							
vCu, unblocked vol	1847	672	0			1344		
tC, single (s)	7.6	7.7	0.0			4.3		
tC, 2 stage (s)	6.6							
tF (s)	3.9	3.7	0.0			2.3		
p0 queue free %	83	84	0			77		
cM capacity (veh/h)	138	317	0			473		
Direction, Lane #	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	24	51	857	487	0	109	314	314
Volume Left	24	0	0	0	0	109	0	0
Volume Right	0	51	0	59	0	0	0	0
cSH	138	317	1700	1700	1700	473	1700	1700
Volume to Capacity	0.17	0.16	0.50	0.29	0.00	0.23	0.18	0.18
Queue Length 95th (ft)	15	14	0	0	0	22	0	0
Control Delay (s)	36.4	18.6	0.0	0.0	0.0	14.9	0.0	0.0
Lane LOS	E	C				B		
Approach Delay (s)	24.2		0.0			2.2		
Approach LOS	C							
Intersection Summary								
Average Delay	1.6							
Intersection Capacity Utilization	48.7%							
Analysis Period (min)	15							
	ICU Level of Service A							

Lanes, Volumes, Timings
303: LA 1 & Gate C

LA 3132 (Inner Loop) Extension - Stage 0 Study
2032 Alternative B AM Peak with Improvements

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↑	↑↑	↑		↑↑
Volume (vph)	0	24	1058	34	0	585
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	0	0	250	
Storage Lanes	0	1		1	0	
Taper Length (ft)	50				50	
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt		0.865		0.850		
Fit Protected						
Satd. Flow (prot)	0	1166	3195	1214	0	2714
Fit Permitted						
Satd. Flow (perm)	0	1166	3195	1214	0	2714
Link Speed (mph)	40		65			65
Link Distance (ft)	508		531			1081
Travel Time (s)	8.7		5.6			11.3
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Heavy Vehicles (%)	41%	41%	13%	33%	9%	33%
Adj. Flow (vph)	0	30	1323	43	0	650
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	30	1322	42	0	650
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	0		76			76
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	39.2%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis LA 3132 (Inner Loop) Extension - Stage 0 Study
303: LA 1 & Gate C

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↑	↑↑	↑		↑↑
Volume (veh/h)	0	24	1058	34	0	585
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Hourly flow rate (vph)	0	30	1322	42	0	650
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			Raised			Raised
Median storage (veh)			3			3
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1648	661			1365	
vC1, stage 1 conf vol	1322					
vC2, stage 2 conf vol	325					
vCu, unblocked vol	1648	661			1365	
tC, single (s)	7.6	7.7			4.3	
tC, 2 stage (s)	6.6					
tF (s)	3.9	3.7			2.3	
p0 queue free %	100	91			100	
cM capacity (veh/h)	151	324			464	

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	30	661	661	42	325	325
Volume Left	0	0	0	0	0	0
Volume Right	30	0	0	42	0	0
cSH	324	1700	1700	1700	1700	1700
Volume to Capacity	0.09	0.39	0.39	0.03	0.19	0.19
Queue Length 95th (ft)	8	0	0	0	0	0
Control Delay (s)	17.2	0.0	0.0	0.0	0.0	0.0
Lane LOS	C					
Approach Delay (s)	17.2	0.0			0.0	
Approach LOS	C					

Intersection Summary

Average Delay	0.3
Intersection Capacity Utilization	39.2%
Analysis Period (min)	15
	ICU Level of Service A

Lanes, Volumes, Timings
304: LA 1 & Gate D

LA 3132 (Inner Loop) Extension - Stage 0 Study
2032 Alternative B AM Peak with Improvements

	↖		↑		↗	
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↖	↖	↑↑	↖	↖	↖
Volume (vph)	1	20	312	0	21	265
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	250		300	280	
Storage Lanes	1	1		1	1	
Taper Length (ft)	50			50		
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt	0.850					
Flt Protected	0.950			0.950		
Satd. Flow (prot)	1068	956	3195	1118	1656	2124
Flt Permitted	0.950			0.950		
Satd. Flow (perm)	1068	956	3195	1118	1656	2124
Link Speed (mph)	40		65		65	
Link Distance (ft)	420		716		503	
Travel Time (s)	7.2		7.5		5.3	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Heavy Vehicles (%)	69%	69%	13%	70%	9%	70%
Adj. Flow (vph)	1	25	390	0	23	294
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1	25	390	0	23	294
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		76		76	
Link Offset(ft)	0		0		0	
Crosswalk Width(ft)	16		16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free		Free	

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 25.3% ICU Level of Service A
Analysis Period (min) 15

HCM Unsignalized Intersection Capacity Analysis LA 3132 (Inner Loop) Extension - Stage 0 Study
304: LA 1 & Gate D

2032 Alternative B AM Peak with Improvements

	↖		↑		↗	
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↖	↖	↑↑	↖	↖	↖
Volume (veh/h)	1	20	312	0	21	265
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Hourly flow rate (vph)	1	25	390	0	23	294
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		10				
Median type			Raised		Raised	
Median storage (veh)			3		3	
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	584	195			390	
vC1, stage 1 conf vol	390					
vC2, stage 2 conf vol	194					
vCu, unblocked vol	584	195			390	
tC, single (s)	8.2	8.3			4.3	
tC, 2 stage (s)	7.2					
tF (s)	4.2	4.0			2.3	
p0 queue free %	100	96			98	
cM capacity (veh/h)	473	641			1116	

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	26	195	195	0	23	147	147
Volume Left	1	0	0	0	23	0	0
Volume Right	25	0	0	0	0	0	0
cSH	673	1700	1700	1700	1116	1700	1700
Volume to Capacity	0.04	0.11	0.11	0.00	0.02	0.09	0.09
Queue Length 95th (ft)	3	0	0	0	2	0	0
Control Delay (s)	10.9	0.0	0.0	0.0	8.3	0.0	0.0
Lane LOS	B				A		
Approach Delay (s)	10.9	0.0			0.6		
Approach LOS	B						

Intersection Summary

Average Delay 0.7
Intersection Capacity Utilization 25.3% ICU Level of Service A
Analysis Period (min) 15

Lanes, Volumes, Timings
401: LA 3132 SB Ramp & Leonard Rd

LA 3132 (Inner Loop) Extension - Stage 0 Study
2032 Alternative B AM Peak with Improvements

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔						↔	
Volume (vph)	0	170	38	0	147	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.975										
Fit Protected												
Satd. Flow (prot)	0	1684	0	0	1727	0	0	0	0	0	1727	0
Fit Permitted												
Satd. Flow (perm)	0	1684	0	0	1727	0	0	0	0	0	1727	0
Link Speed (mph)		50			50			45			45	
Link Distance (ft)		559			469			669			381	
Travel Time (s)		7.6			6.4			10.1			5.8	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Heavy Vehicles (%)	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
Adj. Flow (vph)	0	213	48	0	184	0	0	0	0	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	260	0	0	184	0	0	0	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

Intersection Summary
 Area Type: Other
 Control Type: Unsignalized
 Intersection Capacity Utilization 22.7% ICU Level of Service A
 Analysis Period (min) 15

HCM Unsignalized Intersection Capacity Analysis 401: LA 3132 SB Ramp & Leonard Rd

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔						↔	
Volume (veh/h)	0	170	38	0	147	0	0	0	0	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	0	212	48	0	184	0	0	0	0	0	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)												
pX, platoon unblocked												
vC, conflicting volume	184			260			420	420	236	420	444	184
vC1, stage 1 conf vol							420	420	236	420	444	184
vC2, stage 2 conf vol												
vCu, unblocked vol	184			260			420	420	236	420	444	184
tC, single (s)	4.2			4.2			7.2	6.6	6.3	7.2	6.6	6.3
tC, 2 stage (s)												
tF (s)	2.3			2.3			3.6	4.1	3.4	3.6	4.1	3.4
p0 queue free %	100			100			100	100	100	100	100	100
cM capacity (veh/h)	1344			1259			530	512	783	530	497	838

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	260	184	0
Volume Left	0	0	0
Volume Right	48	0	0
cSH	1700	1259	1700
Volume to Capacity	0.15	0.00	0.00
Queue Length 95th (ft)	0	0	0
Control Delay (s)	0.0	0.0	0.0
Lane LOS			A
Approach Delay (s)	0.0	0.0	0.0
Approach LOS			A

Intersection Summary
 Average Delay 0.0
 Intersection Capacity Utilization 22.7% ICU Level of Service A
 Analysis Period (min) 15

Lanes, Volumes, Timings
402: LA 3132 NB Ramp & Leonard Rd

LA 3132 (Inner Loop) Extension - Stage 0 Study
2032 Alternative B AM Peak with Improvements

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕				
Volume (vph)	0	170	0	0	108	114	39	0	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fr					0.931							
Fit Protected								0.950				
Satd. Flow (prot)	0	1727	0	0	1608	0	0	1641	0	0	0	0
Fit Permitted								0.950				
Satd. Flow (perm)	0	1727	0	0	1608	0	0	1641	0	0	0	0
Link Speed (mph)		50			50			45			45	
Link Distance (ft)		469			2733			461			532	
Travel Time (s)		6.4			37.3			7.0			8.1	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Heavy Vehicles (%)	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
Adj. Flow (vph)	0	213	0	0	135	143	49	0	0	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	212	0	0	277	0	0	49	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

Intersection Summary
 Area Type: Other
 Control Type: Unsignalized
 Intersection Capacity Utilization 22.7% ICU Level of Service A
 Analysis Period (min) 15

HCM Unsignalized Intersection Capacity Analysis LA 3132 (Inner Loop) Extension - Stage 0 Study
402: LA 3132 NB Ramp & Leonard Rd

2032 Alternative B AM Peak with Improvements

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕				
Volume (veh/h)	0	170	0	0	108	114	39	0	0	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	0	212	0	0	135	142	49	0	0	0	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)												
pX, platoon unblocked												
vC, conflicting volume		278			212			419	490	212	419	206
vC1, stage 1 conf vol								419	490	212	419	206
vC2, stage 2 conf vol												
vCu, unblocked vol		278			212			419	490	212	419	206
tC, single (s)		4.2			4.2			7.2	6.6	6.3	7.2	6.6
tC, 2 stage (s)												
tF (s)		2.3			2.3			3.6	4.1	3.4	3.6	4.1
p0 queue free %		100			100			91	100	100	100	100
cM capacity (veh/h)		1241			1312			531	467	808	531	814

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	212	278	49
Volume Left	0	0	49
Volume Right	0	142	0
cSH	1241	1700	531
Volume to Capacity	0.00	0.16	0.09
Queue Length 95th (ft)	0	0	8
Control Delay (s)	0.0	0.0	12.5
Lane LOS			B
Approach Delay (s)	0.0	0.0	12.5
Approach LOS			B

Intersection Summary
 Average Delay 1.1
 Intersection Capacity Utilization 22.7% ICU Level of Service A
 Analysis Period (min) 15

Lanes, Volumes, Timings
101: Flournoy Lucas Rd & LA 3132 SB

LA 3132 (Inner Loop) Extension - Stage 0 Study
2032 Alternative B PM Peak with Improvements



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↑	↑↑					↑↑	↑	↑
Volume (vph)	0	379	0	0	401	0	0	0	0	770	0	344
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		450	200		0	0		0	250		0
Storage Lanes	0		1	1		0	0		0	1		0
Taper Length (ft)	50			50		50			50			50
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	0.97	1.00	1.00
Frnt											0.850	
Fit Protected										0.950		
Satd. Flow (prot)	0	3574	1900	1900	3610	0	0	0	0	3303	1615	0
Fit Permitted										0.950		
Satd. Flow (perm)	0	3574	1900	1900	3610	0	0	0	0	3303	1615	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)											409	
Link Speed (mph)		45			45			30			45	
Link Distance (ft)		986			649			714			631	
Travel Time (s)		14.9			9.8			16.2			9.6	
Peak Hour Factor	0.95	0.95	0.95	0.84	0.84	0.84	0.92	0.92	0.92	0.90	0.90	0.90
Heavy Vehicles (%)	0%	1%	0%	0%	0%	0%	2%	2%	2%	6%	0%	0%
Adj. Flow (vph)	0	399	0	0	477	0	0	0	0	856	0	382
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	399	0	0	477	0	0	0	0	856	382	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		34			34			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type		NA	Perm	Perm	NA					Split	NA	
Protected Phases		2 11 14			6 11 14					4	4	
Permitted Phases			2 11 14	6 11 14								
Detector Phase		2 11 14	2 11 14	6 11 14	6 11 14					4	4	
Switch Phase												
Minimum Initial (s)										7.0	7.0	
Minimum Split (s)										13.0	13.0	
Total Split (s)										22.0	22.0	
Total Split (%)										29.3%	29.3%	
Yellow Time (s)										3.5	3.5	
All-Red Time (s)										1.5	1.5	
Lost Time Adjust (s)										0.0	0.0	
Total Lost Time (s)										5.0	5.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode										None	None	
Act Effect Green (s)		47.0			47.0					17.0	17.0	
Actuated g/C Ratio		0.63			0.63					0.23	0.23	
v/c Ratio		0.18			0.21					1.14	0.56	

Lanes, Volumes, Timings
101: Flournoy Lucas Rd & LA 3132 SB

LA 3132 (Inner Loop) Extension - Stage 0 Study
2032 Alternative B PM Peak with Improvements

Lane Group	ø1	ø2	ø6	ø8	ø11	ø12	ø14
Lane Configurations							
Volume (vph)							
Ideal Flow (vphpl)							
Storage Length (ft)							
Storage Lanes							
Taper Length (ft)							
Lane Util. Factor							
Frnt							
Fit Protected							
Satd. Flow (prot)							
Fit Permitted							
Satd. Flow (perm)							
Right Turn on Red							
Satd. Flow (RTOR)							
Link Speed (mph)							
Link Distance (ft)							
Travel Time (s)							
Peak Hour Factor							
Heavy Vehicles (%)							
Adj. Flow (vph)							
Shared Lane Traffic (%)							
Lane Group Flow (vph)							
Enter Blocked Intersection							
Lane Alignment							
Median Width(ft)							
Link Offset(ft)							
Crosswalk Width(ft)							
Two way Left Turn Lane							
Headway Factor							
Turning Speed (mph)							
Turn Type							
Protected Phases	1	2	6	8	11	12	14
Permitted Phases							
Detector Phase							
Switch Phase							
Minimum Initial (s)	4.0	15.0	15.0	15.0	5.0	15.0	4.0
Minimum Split (s)	10.0	21.0	21.0	21.0	11.0	21.0	20.0
Total Split (s)	11.0	21.0	21.0	21.0	11.0	22.0	21.0
Total Split (%)	15%	28%	28%	28%	15%	29%	28%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	0.5
Lost Time Adjust (s)							
Total Lost Time (s)							
Lead/Lag							
Lead-Lag Optimize?							
Recall Mode	None	Min	Min	Min	None	None	None
Act Effect Green (s)							
Actuated g/C Ratio							
v/c Ratio							

Lanes, Volumes, Timings
101: Flournoy Lucas Rd & LA 3132 SB

LA 3132 (Inner Loop) Extension - Stage 0 Study
2032 Alternative B PM Peak with Improvements



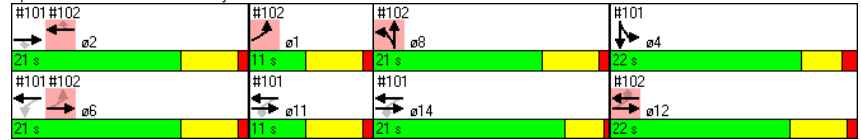
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	6.1				8.5					109.3	5.8	
Queue Delay	0.0				0.0					0.0	0.0	
Total Delay	6.1				8.5					109.3	5.8	
LOS	A				A					F	A	
Approach Delay	6.1				8.5						77.4	
Approach LOS	A				A						E	
Queue Length 50th (ft)	36				88					~244	0	
Queue Length 95th (ft)	53				118					#354	54	
Internal Link Dist (ft)	906				569			634			551	
Turn Bay Length (ft)										250		
Base Capacity (vph)	2240				2262					749	682	
Starvation Cap Reductn	0				0					0	0	
Spillback Cap Reductn	0				0					0	0	
Storage Cap Reductn	0				0					0	0	
Reduced v/c Ratio	0.18				0.21					1.14	0.56	

Intersection Summary

Area Type: Other
 Cycle Length: 75
 Actuated Cycle Length: 75
 Natural Cycle: 80
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.14
 Intersection Signal Delay: 48.4
 Intersection Capacity Utilization 77.3%
 Analysis Period (min) 15
 Intersection LOS: D
 ICU Level of Service D

- Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 101: Flournoy Lucas Rd & LA 3132 SB



Lanes, Volumes, Timings
101: Flournoy Lucas Rd & LA 3132 SB

LA 3132 (Inner Loop) Extension - Stage 0 Study
2032 Alternative B PM Peak with Improvements

Lane Group	ø1	ø2	ø6	ø8	ø11	ø12	ø14
Control Delay							
Queue Delay							
Total Delay							
LOS							
Approach Delay							
Approach LOS							
Queue Length 50th (ft)							
Queue Length 95th (ft)							
Internal Link Dist (ft)							
Turn Bay Length (ft)							
Base Capacity (vph)							
Starvation Cap Reductn							
Spillback Cap Reductn							
Storage Cap Reductn							
Reduced v/c Ratio							

Intersection Summary

Area Type: Other
 Cycle Length: 75
 Actuated Cycle Length: 75
 Natural Cycle: 80
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.14
 Intersection Signal Delay: 48.4
 Intersection Capacity Utilization 77.3%
 Analysis Period (min) 15
 Intersection LOS: D
 ICU Level of Service D

- 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.

Lanes, Volumes, Timings
102: Flournoy Lucas Rd & LA3132 NB

LA 3132 (Inner Loop) Extension - Stage 0 Study
2032 Alternative B PM Peak with Improvements



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↕	↔	↔	↕	↕	↔	↕	↔	↔	↕	↔
Volume (vph)	155	995	0	0	401	666	0	0	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	0		85	0		650	0		0
Storage Lanes	1		0	0		1	1		0	0		0
Taper Length (ft)	50			50			50			50		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00
Fr						0.850						
Fit Protected	0.950											
Satd. Flow (prot)	1770	3438	0	0	3574	1482	1805	1805	0	0	0	0
Fit Permitted	0.473											
Satd. Flow (perm)	881	3438	0	0	3574	1482	1805	1805	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						802						
Link Speed (mph)		45			45			30			45	
Link Distance (ft)		649			750			719			607	
Travel Time (s)		9.8			11.4			16.3			9.2	
Peak Hour Factor	0.94	0.94	0.94	0.83	0.83	0.83	0.80	0.80	0.80	0.92	0.92	0.92
Heavy Vehicles (%)	2%	5%	0%	0%	1%	9%	0%	0%	0%	0%	2%	0%
Adj. Flow (vph)	165	1059	0	0	483	802	0	0	0	0	0	0
Shared Lane Traffic (%)							0%					
Lane Group Flow (vph)	165	1059	0	0	483	802	0	0	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			34			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA			NA	Perm	Split					
Protected Phases	1	6 12			2 12		8	8				
Permitted Phases	6 12					2 12						
Detector Phase	1	6 12			2 12	2 12	8	8				
Switch Phase												
Minimum Initial (s)	4.0						15.0	15.0				
Minimum Split (s)	10.0						21.0	21.0				
Total Split (s)	11.0						21.0	21.0				
Total Split (%)	14.7%						28.0%	28.0%				
Yellow Time (s)	5.0						5.0	5.0				
All-Red Time (s)	1.0						1.0	1.0				
Lost Time Adjust (s)	0.0						0.0	0.0				
Total Lost Time (s)	6.0						6.0	6.0				
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None						Min	Min				
Act Effect Green (s)	42.0	37.0			37.0	37.0						
Actuated g/C Ratio	0.56	0.49			0.49	0.49						
v/c Ratio	0.30	0.62			0.27	0.71						

Lanes, Volumes, Timings
102: Flournoy Lucas Rd & LA3132 NB

LA 3132 (Inner Loop) Extension - Stage 0 Study
2032 Alternative B PM Peak with Improvements

Lane Group	ø2	ø4	ø6	ø11	ø12	ø14
Lane Configurations						
Volume (vph)						
Ideal Flow (vphpl)						
Storage Length (ft)						
Storage Lanes						
Taper Length (ft)						
Lane Util. Factor						
Fr						
Fit Protected						
Satd. Flow (prot)						
Fit Permitted						
Satd. Flow (perm)						
Right Turn on Red						
Satd. Flow (RTOR)						
Link Speed (mph)						
Link Distance (ft)						
Travel Time (s)						
Peak Hour Factor						
Heavy Vehicles (%)						
Adj. Flow (vph)						
Shared Lane Traffic (%)						
Lane Group Flow (vph)						
Enter Blocked Intersection						
Lane Alignment						
Median Width(ft)						
Link Offset(ft)						
Crosswalk Width(ft)						
Two way Left Turn Lane						
Headway Factor						
Turning Speed (mph)						
Turn Type						
Protected Phases	2	4	6	11	12	14
Permitted Phases						
Detector Phase						
Switch Phase						
Minimum Initial (s)	15.0	7.0	15.0	5.0	15.0	4.0
Minimum Split (s)	21.0	13.0	21.0	11.0	21.0	20.0
Total Split (s)	21.0	22.0	21.0	11.0	22.0	21.0
Total Split (%)	28%	29%	28%	15%	29%	28%
Yellow Time (s)	5.0	3.5	5.0	5.0	5.0	3.5
All-Red Time (s)	1.0	1.5	1.0	1.0	1.0	0.5
Lost Time Adjust (s)						
Total Lost Time (s)						
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	Min	None	Min	None	None	None
Act Effect Green (s)						
Actuated g/C Ratio						
v/c Ratio						

Lanes, Volumes, Timings
102: Flournoy Lucas Rd & LA3132 NB

LA 3132 (Inner Loop) Extension - Stage 0 Study
2032 Alternative B PM Peak with Improvements



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	9.4	3.8			11.7	4.9						
Queue Delay	0.0	0.0			0.0	0.0						
Total Delay	9.4	3.8			11.7	4.9						
LOS	A	A			B	A						
Approach Delay	4.6			7.5								
Approach LOS	A			A								
Queue Length 50th (ft)	26	28			65	0						
Queue Length 95th (ft)	48	m27			85	32						
Internal Link Dist (ft)	569			670			639			527		
Turn Bay Length (ft)	200					85						
Base Capacity (vph)	553	1696		1763		1137						
Starvation Cap Reductn	0	0		0		0						
Spillback Cap Reductn	0	0		0		0						
Storage Cap Reductn	0	0		0		0						
Reduced v/c Ratio	0.30	0.62		0.27		0.71						

Intersection Summary

Area Type: Other
 Cycle Length: 75
 Actuated Cycle Length: 75
 Natural Cycle: 80
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.14
 Intersection Signal Delay: 6.1 Intersection LOS: A
 Intersection Capacity Utilization 77.3% ICU Level of Service D
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 102: Flournoy Lucas Rd & LA3132 NB

#101 #102 → ø2 21 s	#102 ↗ ø1 11 s	#102 ↖ ø8 21 s	#101 ↘ ø4 22 s
#101 #102 ← ø6 21 s	#101 ↔ ø11 11 s	#101 ↔ ø14 21 s	#102 ↔ ø12 22 s

Lanes, Volumes, Timings
102: Flournoy Lucas Rd & LA3132 NB

LA 3132 (Inner Loop) Extension - Stage 0 Study
2032 Alternative B PM Peak with Improvements

Lane Group	ø2	ø4	ø6	ø11	ø12	ø14
Control Delay						
Queue Delay						
Total Delay						
LOS						
Approach Delay						
Approach LOS						
Queue Length 50th (ft)						
Queue Length 95th (ft)						
Internal Link Dist (ft)						
Turn Bay Length (ft)						
Base Capacity (vph)						
Starvation Cap Reductn						
Spillback Cap Reductn						
Storage Cap Reductn						
Reduced v/c Ratio						

Intersection Summary

Lanes, Volumes, Timings
103: LA 1 & Flournoy Lucas Rd

LA 3132 (Inner Loop) Extension - Stage 0 Study
2032 Alternative B PM Peak with Improvements

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	613	167	381	83	10	9	318	315	24	0	433	725
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200	0	0	0	0	0	125	0	165	0	165	165
Storage Lanes	1	0	0	0	0	0	2	0	1	0	1	1
Taper Length (ft)	50			50			50		50			
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	0.97	0.95	0.95	1.00	0.95	1.00
Frt	0.896			0.988			0.989			0.850		
Frt Protected	0.950				0.961		0.950					
Satd. Flow (prot)	3467	1378	0	0	1801	0	3045	3352	0	1900	3438	1599
Frt Permitted	0.950				0.436		0.293					
Satd. Flow (perm)	3467	1378	0	0	817	0	939	3352	0	1900	3438	1599
Right Turn on Red	Yes			Yes			Yes			No		
Satd. Flow (RTOR)	140			4			8					
Link Speed (mph)	50			50			55			55		
Link Distance (ft)	784			651			1092			934		
Travel Time (s)	10.7			8.9			13.5			11.6		
Peak Hour Factor	0.89	0.89	0.89	0.80	0.80	0.80	0.83	0.83	0.83	0.81	0.81	0.81
Heavy Vehicles (%)	1%	2%	33%	0%	2%	0%	15%	7%	0%	0%	5%	1%
Adj. Flow (vph)	689	188	428	104	12	11	383	380	29	0	535	895
Shared Lane Traffic (%)												
Lane Group Flow (vph)	689	616	0	0	127	0	383	409	0	0	535	895
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)	24			0			24			24		
Link Offset(ft)	0			0			0			0		
Crosswalk Width(ft)	16			16			16			16		
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Prot	NA		Perm	NA		pm+pt	NA		pm+pt	NA	pt+ov
Protected Phases	3	8			4		1	6		5	2	2 3
Permitted Phases							6			2		
Detector Phase	3	8		4	4		1	6		5	2	2 3
Switch Phase												
Minimum Initial (s)	5.0	10.0		7.0	7.0		7.0	15.0		5.0	15.0	
Minimum Split (s)	11.5	16.5		13.5	13.5		15.0	23.0		13.0	23.0	
Total Split (s)	26.6	47.8		21.2	21.2		15.0	39.2		13.0	37.2	
Total Split (%)	26.6%	47.8%		21.2%	21.2%		15.0%	39.2%		13.0%	37.2%	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.5	5.5		5.5	5.5	
All-Red Time (s)	1.5	1.5		1.5	1.5		2.5	2.5		2.5	2.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.5	6.5		6.5	6.5		8.0	8.0		8.0	8.0	
Lead/Lag	Lead			Lag	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes			Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None		None	Min		None	Min	
Act Effect Green (s)	20.1	41.3		14.7	14.7		44.2	44.2		29.2	55.8	
Actuated g/C Ratio	0.20	0.41		0.15	0.15		0.44	0.44		0.29	0.56	
v/c Ratio	0.99	0.95		1.02	1.02		0.68	0.28		0.53	1.00	

Lanes, Volumes, Timings
103: LA 1 & Flournoy Lucas Rd

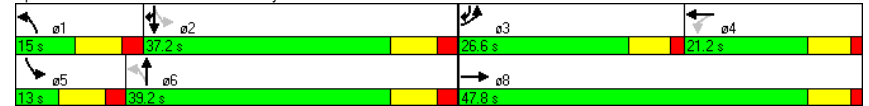
LA 3132 (Inner Loop) Extension - Stage 0 Study
2032 Alternative B PM Peak with Improvements

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	72.3	47.6			130.8		25.6	18.0			32.0	54.5
Queue Delay	0.0	0.0			0.0		0.0	0.0			0.0	0.0
Total Delay	72.3	47.6			130.8		25.6	18.0			32.0	54.5
LOS	E	D			F		C	B			C	D
Approach Delay	60.6			130.8			21.7			46.1		
Approach LOS	E			F			C			D		
Queue Length 50th (ft)	227	305			~85		78	83			150	~544
Queue Length 95th (ft)	#340	#534			#171		101	106			178	#691
Internal Link Dist (ft)	704			571			1012			854		
Turn Bay Length (ft)	200						125			165		
Base Capacity (vph)	697	651			124		562	1486			1004	892
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	0.99	0.95			1.02		0.68	0.28			0.53	1.00

Intersection Summary

Area Type: Other
 Cycle Length: 100
 Actuated Cycle Length: 100
 Natural Cycle: 100
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.02
 Intersection Signal Delay: 48.9
 Intersection Capacity Utilization 83.8%
 Analysis Period (min) 15
 Intersection LOS: D
 ICU Level of Service E
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 103: LA 1 & Flournoy Lucas Rd



Lanes, Volumes, Timings
105: Ellerbe Rd & Flournoy Lucas Rd

LA 3132 (Inner Loop) Extension - Stage 0 Study
2032 Alternative B PM Peak with Improvements

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Volume (vph)	11	134	153	167	189	17	55	606	87	29	1316	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	140		0	150		0	115		120	150		0
Storage Lanes	1		0	1		1	1		1	1		0
Taper Length (ft)	50			50			50			50		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95		1.00	1.00	0.95	0.95
Frt		0.920				0.850			0.850		0.998	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1805	1732	0	1787	1863	1615	1805	3539	1599	1752	3533	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1805	1732	0	1787	1863	1615	1805	3539	1599	1752	3533	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		50				19			97			2
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		848			838			697			896	
Travel Time (s)		12.8			12.7			10.6			13.6	
Peak Hour Factor	0.87	0.87	0.87	0.89	0.89	0.89	0.84	0.84	0.84	0.89	0.89	0.89
Heavy Vehicles (%)	0%	2%	0%	1%	2%	0%	0%	2%	1%	3%	2%	0%
Adj. Flow (vph)	13	154	176	188	212	19	65	721	104	33	1479	24
Shared Lane Traffic (%)												
Lane Group Flow (vph)	13	330	0	188	212	19	65	721	104	33	1503	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane					Yes						Yes	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases					4			6				
Detector Phase	3	8		7	4	4	1	6	6	5	2	
Switch Phase												
Minimum Initial (s)	7.0	15.0		7.0	15.0	15.0	7.0	10.0	10.0	7.0	10.0	
Minimum Split (s)	12.0	20.0		14.0	22.0	22.0	12.0	15.0	15.0	14.0	17.0	
Total Split (s)	12.0	22.0		18.0	28.0	28.0	12.0	46.0	46.0	14.0	48.0	
Total Split (%)	12.0%	22.0%		18.0%	28.0%	28.0%	12.0%	46.0%	46.0%	14.0%	48.0%	
Yellow Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	0.0	0.0		2.0	2.0	2.0	0.0	0.0	0.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0	5.0		7.0	7.0	7.0	5.0	5.0	5.0	7.0	7.0	
Lead/Lag	Lead	Lead		Lag	Lag	Lag	Lead	Lead	Lead	Lag	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	Min		None	Min	Min	None	None	None	None	None	
Act Effect Green (s)	7.0	17.0		11.0	30.7	30.7	7.0	38.5	38.5	12.8	41.1	
Actuated g/C Ratio	0.07	0.17		0.11	0.31	0.31	0.07	0.39	0.39	0.13	0.42	
v/c Ratio	0.10	0.96		0.93	0.36	0.04	0.50	0.52	0.15	0.14	1.01	

Lanes, Volumes, Timings
105: Ellerbe Rd & Flournoy Lucas Rd

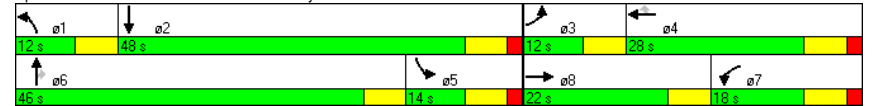
LA 3132 (Inner Loop) Extension - Stage 0 Study
2032 Alternative B PM Peak with Improvements

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	45.5	75.5		92.9	30.3	12.9	58.8	26.4	6.4	38.5	55.3	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	45.5	75.5		92.9	30.3	12.9	58.8	26.4	6.4	38.5	55.3	
LOS	D	E		F	C	B	E	C	A	D	E	
Approach Delay		74.4			57.6			26.4			54.9	
Approach LOS		E			E			C			D	
Queue Length 50th (ft)	8	182		121	101	0	41	219	3	17	-546	
Queue Length 95th (ft)	27	#341		#252	194	19	79	234	32	47	#672	
Internal Link Dist (ft)		768			758			617			816	
Turn Bay Length (ft)	140			150			115		120	150		
Base Capacity (vph)	130	344		202	587	522	130	1606	779	230	1489	
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	0.10	0.96		0.93	0.36	0.04	0.50	0.45	0.13	0.14	1.01	

Intersection Summary

Area Type:	Other
Cycle Length:	100
Actuated Cycle Length:	97.6
Natural Cycle:	100
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	1.01
Intersection Signal Delay:	49.4
Intersection Capacity Utilization:	85.5%
ICU Level of Service:	E
Analysis Period (min):	15
~ Volume exceeds capacity, queue is theoretically infinite.	
Queue shown is maximum after two cycles.	
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 105: Ellerbe Rd & Flournoy Lucas Rd



Lanes, Volumes, Timings
106: LA 1 & Leonard Rd

LA 3132 (Inner Loop) Extension - Stage 0 Study
2032 Alternative B PM Peak with Improvements

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	42	52	84	615	778	120
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	145			0
Storage Lanes	1	0	1			0
Taper Length (ft)	50		50			
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95
Frt	0.926			0.980		
Flt Protected	0.978		0.950			
Satd. Flow (prot)	1713	0	1703	3223	3031	0
Flt Permitted	0.978		0.950			
Satd. Flow (perm)	1713	0	1703	3223	3031	0
Link Speed (mph)	50			65	65	
Link Distance (ft)	2733			1583	2639	
Travel Time (s)	37.3			16.6	27.7	
Peak Hour Factor	0.88	0.88	0.87	0.87	0.89	0.89
Heavy Vehicles (%)	1%	0%	6%	12%	19%	2%
Adj. Flow (vph)	48	59	97	707	874	135
Shared Lane Traffic (%)						
Lane Group Flow (vph)	107	0	97	707	1009	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			66	78	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	45.5%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis LA 3132 (Inner Loop) Extension - Stage 0 Study
106: LA 1 & Leonard Rd

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	42	52	84	615	778	120
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.88	0.88	0.87	0.87	0.89	0.89
Hourly flow rate (vph)	48	59	97	707	874	135
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				Raised	Raised	
Median storage (veh)				2	3	
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1488	504	1009			
vC1, stage 1 conf vol	942					
vC2, stage 2 conf vol	547					
vCu, unblocked vol	1488	504	1009			
tC, single (s)	6.8	6.9	4.2			
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3	2.3			
p0 queue free %	85	89	85			
cM capacity (veh/h)	311	518	659			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	107	97	353	353	583	426
Volume Left	48	97	0	0	0	0
Volume Right	59	0	0	0	0	135
cSH	399	659	1700	1700	1700	1700
Volume to Capacity	0.27	0.15	0.21	0.21	0.34	0.25
Queue Length 95th (ft)	27	13	0	0	0	0
Control Delay (s)	17.3	11.4	0.0	0.0	0.0	0.0
Lane LOS	C	B				
Approach Delay (s)	17.3	1.4			0.0	
Approach LOS	C					

Intersection Summary

Average Delay	1.5
Intersection Capacity Utilization	45.5%
Analysis Period (min)	15
	ICU Level of Service A

Lanes, Volumes, Timings
107: LA 1 & Bert Kouns Industrial Loop

LA 3132 (Inner Loop) Extension - Stage 0 Study
2032 Alternative B PM Peak with Improvements

	↖		→		↗		↖		←		↖		↗		↘		↙	
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR						
Lane Configurations	↖	↖	↖	↖	↖	↖	↖	↖	↖	↖	↖	↖						
Volume (vph)	311	880	117	230	778	89	124	863	221	111	675	264						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900						
Storage Length (ft)	230		230	150			115	220		220	230							
Storage Lanes	2		1	1			1	2		1	2							
Taper Length (ft)	50			50			50			50								
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00						
Frt			0.850				0.850			0.850								
Flt Protected	0.950			0.950			0.950			0.950								
Satd. Flow (prot)	3502	3539	1568	1787	3539	1583	3335	3574	1553	3502	3574	1599						
Flt Permitted	0.950			0.275			0.950			0.950								
Satd. Flow (perm)	3502	3539	1568	517	3539	1583	3335	3574	1553	3502	3574	1599						
Right Turn on Red			No			Yes			Yes			Yes						
Satd. Flow (RTOR)						25			29			99						
Link Speed (mph)		50			50			45			45							
Link Distance (ft)		1652			1693			1702			1927							
Travel Time (s)		22.5			23.1			25.8			29.2							
Peak Hour Factor	0.98	0.98	0.98	0.91	0.91	0.91	0.85	0.85	0.85	0.91	0.91	0.91						
Heavy Vehicles (%)	0%	2%	3%	1%	2%	2%	5%	1%	4%	0%	1%	1%						
Adj. Flow (vph)	317	898	119	253	855	98	146	1015	260	122	742	290						
Shared Lane Traffic (%)																		
Lane Group Flow (vph)	317	898	119	253	855	98	146	1015	260	122	742	290						
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No						
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right						
Median Width(ft)		24			24			24			24							
Link Offset(ft)		0			0			0			0							
Crosswalk Width(ft)		16			16			16			16							
Two way Left Turn Lane					Yes													
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00						
Turning Speed (mph)	15			9	15			9	15			9						
Turn Type	Prot	NA	Prot	pm+pt	NA	pt+ov	Prot	NA	pt+ov	Prot	NA	pt+ov						
Protected Phases	1	6	6	5	2	2	7	3	8	5	8	7	4	1	4			
Permitted Phases				2														
Detector Phase	1	6	6	5	2	2	7	3	8	5	8	7	4	1	4			
Switch Phase																		
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0			5.0	10.0			5.0	10.0					
Minimum Split (s)	11.0	22.0	22.0	11.0	22.0			11.0	22.0			11.0	22.0					
Total Split (s)	21.0	36.0	36.0	21.0	36.0			20.0	40.0			13.0	33.0					
Total Split (%)	19.1%	32.7%	32.7%	19.1%	32.7%			18.2%	36.4%			11.8%	30.0%					
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5			4.5	4.5			4.5	4.5					
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5			1.5	1.5			1.5	1.5					
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0			0.0	0.0			0.0	0.0					
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0			6.0	6.0			6.0	6.0					
Lead/Lag	Lead	Lead	Lead	Lag	Lag			Lead	Lead			Lag	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes			Yes	Yes			Yes	Yes					
Recall Mode	None	C-Min	C-Min	None	C-Min			None	None			None	None					
Act Effect Green (s)	13.9	30.9	30.9	31.4	31.4			38.3	10.1	33.8	54.2	6.9	30.6	50.5				
Actuated g/C Ratio	0.13	0.28	0.28	0.29	0.29			0.35	0.09	0.31	0.49	0.06	0.28	0.46				
v/c Ratio	0.72	0.90	0.27	0.81	0.85			0.17	0.48	0.93	0.33	0.55	0.75	0.37				

Lanes, Volumes, Timings
107: LA 1 & Bert Kouns Industrial Loop

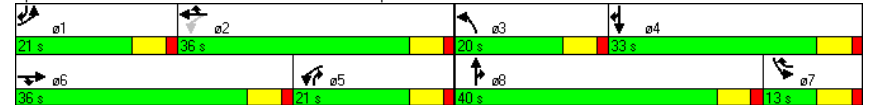
LA 3132 (Inner Loop) Extension - Stage 0 Study
2032 Alternative B PM Peak with Improvements

	↖		→		↗		↖		←		↖		↗		↘		↙	
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR						
Control Delay	55.6	52.1	33.4	61.9	46.7	11.0	52.2	51.6	16.1	59.9	42.1	13.9						
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0						
Total Delay	55.6	52.1	33.4	61.9	46.7	11.0	52.2	51.6	16.1	59.9	42.1	13.9						
LOS	E	D	C	E	D	B	D	D	B	E	D	B						
Approach Delay			51.3				47.0				45.2							
Approach LOS			D				D				D							
Queue Length 50th (ft)	110	325	66	151	304	21	51	363	93	43	250	79						
Queue Length 95th (ft)	159	#448	118	#277	#414	45	77	#424	140	74	333	151						
Internal Link Dist (ft)			1572				1613				1622							
Turn Bay Length (ft)	230			230	150		115	220		220	230							
Base Capacity (vph)	478	993	440	323	1009	569	424	1105	774	223	993	802						
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	0.66	0.90	0.27	0.78	0.85	0.17	0.34	0.92	0.34	0.55	0.75	0.36						

Intersection Summary

Area Type:	Other
Cycle Length:	110
Actuated Cycle Length:	110
Offset:	100 (91%), Referenced to phase 2:WBT and 6:EBT, Start of Green
Natural Cycle:	90
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.93
Intersection Signal Delay:	45.3
Intersection LOS:	D
Intersection Capacity Utilization:	85.1%
ICU Level of Service:	E
Analysis Period (min):	15
#	95th percentile volume exceeds capacity, queue may be longer.
	Queue shown is maximum after two cycles.

Splits and Phases: 107: LA 1 & Bert Kouns Industrial Loop



Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
 108: Bert Kouns Industrial Loop & LA 3132 EB Off Ramp/LA 3132 EB On Ramp with Improvements



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↗	↖				↕	↕		↘	↗	
Volume (vph)	810	1	13	0	0	0	0	1065	144	67	995	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		110	0		0	0	0		295	0	0
Storage Lanes	1		1	0		0	0	0		1	0	0
Taper Length (ft)	50			50			50			50		
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Fr't			0.850				0.982					
Flt Protected	0.950	0.952								0.950		
Satd. Flow (prot)	1715	1718	1615	0	0	0	0	3514	0	1805	3574	0
Flt Permitted	0.950	0.952								0.083		
Satd. Flow (perm)	1715	1718	1615	0	0	0	0	3514	0	158	3574	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			8					17				
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1564			1165			530			537	
Travel Time (s)		23.7			17.7			8.0			8.1	
Peak Hour Factor	0.93	0.93	0.93	0.92	0.92	0.92	0.86	0.86	0.86	0.96	0.96	0.96
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	1%	0%
Adj. Flow (vph)	871	1	14	0	0	0	0	1238	167	70	1036	0
Shared Lane Traffic (%)	50%											
Lane Group Flow (vph)	435	437	14	0	0	0	0	1405	0	70	1036	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			27			27	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Split	NA	Perm					NA	custom	NA		
Protected Phases	4	4						6		5	2.5	
Permitted Phases			4							2		
Detector Phase	4	4	4					6		5	2.5	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0					15.0		5.0		
Minimum Split (s)	11.0	11.0	11.0					21.0		10.0		
Total Split (s)	36.0	36.0	36.0					54.0		20.0		
Total Split (%)	32.7%	32.7%	32.7%					49.1%		18.2%		
Yellow Time (s)	5.0	5.0	5.0					5.0		5.0		
All-Red Time (s)	1.0	1.0	1.0					1.0		0.0		
Lost Time Adjust (s)	0.0	0.0	0.0					0.0		0.0		
Total Lost Time (s)	6.0	6.0	6.0					6.0		5.0		
Lead/Lag								Lag		Lead		
Lead-Lag Optimize?								Yes		Yes		
Recall Mode	None	None	None					None		None		
Act Effct Green (s)	29.2	29.2	29.2					48.0		64.0	68.0	
Actuated g/C Ratio	0.27	0.27	0.27					0.44		0.59	0.62	
v/c Ratio	0.95	0.95	0.03					0.90		0.22	0.47	

Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
 108: Bert Kouns Industrial Loop & LA 3132 EB Off Ramp/LA 3132 EB On Ramp with Improvements

Lane Group	ø1	ø2	ø8
Lane Configurations			
Volume (vph)			
Ideal Flow (vphpl)			
Storage Length (ft)			
Storage Lanes			
Taper Length (ft)			
Lane Util. Factor			
Fr't			
Flt Protected			
Satd. Flow (prot)			
Flt Permitted			
Satd. Flow (perm)			
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (mph)			
Link Distance (ft)			
Travel Time (s)			
Peak Hour Factor			
Heavy Vehicles (%)			
Adj. Flow (vph)			
Shared Lane Traffic (%)			
Lane Group Flow (vph)			
Enter Blocked Intersection			
Lane Alignment			
Median Width(ft)			
Link Offset(ft)			
Crosswalk Width(ft)			
Two way Left Turn Lane			
Headway Factor			
Turning Speed (mph)			
Turn Type			
Protected Phases	1	2	8
Permitted Phases			
Detector Phase			
Switch Phase			
Minimum Initial (s)	5.0	15.0	12.0
Minimum Split (s)	10.0	21.0	18.0
Total Split (s)	20.0	54.0	36.0
Total Split (%)	18%	49%	33%
Yellow Time (s)	5.0	5.0	5.0
All-Red Time (s)	0.0	1.0	1.0
Lost Time Adjust (s)			
Total Lost Time (s)			
Lead/Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	
Recall Mode	None	None	None
Act Effct Green (s)			
Actuated g/C Ratio			
v/c Ratio			

Lanes, Volumes, Timings
 108: Bert Kouns Industrial Loop & LA 3132 EB Off Ramp/LA 3132 EB On Ramp with Improvements

LA 3132 (Inner Loop) Extension - Stage 0 Study



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	71.3	71.7	20.1					37.8		22.2	4.9	
Queue Delay	0.0	0.0	0.0					2.6		0.0	0.0	
Total Delay	71.3	71.7	20.1					40.4		22.2	5.0	
LOS	E	E	C					D		C	A	
Approach Delay		70.7						40.4			6.1	
Approach LOS		E						D			A	
Queue Length 50th (ft)	315	316	3					473		9	56	
Queue Length 95th (ft)	#517	#522	19					536		m37	65	
Internal Link Dist (ft)		1484				1085		450			457	
Turn Bay Length (ft)			110							295		
Base Capacity (vph)	472	473	449					1555		319	2226	
Starvation Cap Reductn	0	0	0					0		0	82	
Spillback Cap Reductn	0	0	0					77		0	0	
Storage Cap Reductn	0	0	0					0		0	0	
Reduced v/c Ratio	0.92	0.92	0.03					0.95		0.22	0.48	

Intersection Summary

Area Type: Other
 Cycle Length: 110
 Actuated Cycle Length: 109.2
 Natural Cycle: 75
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.95
 Intersection Signal Delay: 37.1 Intersection LOS: D
 Intersection Capacity Utilization 77.8% ICU Level of Service D
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 108: Bert Kouns Industrial Loop & LA 3132 EB Off Ramp/LA 3132 EB On Ramp



Lanes, Volumes, Timings
 108: Bert Kouns Industrial Loop & LA 3132 EB Off Ramp/LA 3132 EB On Ramp with Improvements

LA 3132 (Inner Loop) Extension - Stage 0 Study

Lane Group	ø1	ø2	ø8
Control Delay			
Queue Delay			
Total Delay			
LOS			
Approach Delay			
Approach LOS			
Queue Length 50th (ft)			
Queue Length 95th (ft)			
Internal Link Dist (ft)			
Turn Bay Length (ft)			
Base Capacity (vph)			
Starvation Cap Reductn			
Spillback Cap Reductn			
Storage Cap Reductn			
Reduced v/c Ratio			

Intersection Summary

Area Type: Other
 Cycle Length: 110
 Actuated Cycle Length: 109.2
 Natural Cycle: 75
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.95
 Intersection Signal Delay: 37.1 Intersection LOS: D
 Intersection Capacity Utilization 77.8% ICU Level of Service D
 Analysis Period (min) 15
 # 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.

Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
 109: Bert Kouns Industrial Loop & LA 3132 WB On Ramp/LA 3132 WB On Ramp with Improvements



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	64	0	47	31	1874	0	0	997	799
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	0	0	0	200	295	0	0	0	0	115
Storage Lanes	0	0	0	0	0	1	1	0	0	0	0	1
Taper Length (ft)	50			50			50			50		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frnt						0.850					0.850	
Fit Protected					0.950		0.950					
Satd. Flow (prot)	0	0	0	0	1805	1615	1752	3539	0	0	3574	1583
Fit Permitted					0.950		0.153					
Satd. Flow (perm)	0	0	0	0	1805	1615	282	3539	0	0	3574	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						16						495
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		311			1075			537			687	
Travel Time (s)		4.7			16.3			8.1			10.4	
Peak Hour Factor	0.92	0.92	0.92	0.82	0.82	0.82	0.96	0.96	0.96	0.95	0.95	0.95
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	3%	2%	0%	0%	1%	2%
Adj. Flow (vph)	0	0	0	78	0	57	32	1952	0	0	1049	841
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	78	57	32	1952	0	0	1049	841
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0						27			27	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type				Split	NA	Perm	custom	NA			NA	Perm
Protected Phases				8	8		1	1 6			2	
Permitted Phases						8	6					2
Detector Phase				8	8	8	1	1 6			2	2
Switch Phase												
Minimum Initial (s)				12.0	12.0	12.0	5.0				15.0	15.0
Minimum Split (s)				18.0	18.0	18.0	10.0				21.0	21.0
Total Split (s)				36.0	36.0	36.0	20.0				54.0	54.0
Total Split (%)				32.7%	32.7%	32.7%	18.2%				49.1%	49.1%
Yellow Time (s)				5.0	5.0	5.0	5.0				5.0	5.0
All-Red Time (s)				1.0	1.0	1.0	0.0				1.0	1.0
Lost Time Adjust (s)					0.0	0.0	0.0				0.0	0.0
Total Lost Time (s)					6.0	6.0	5.0				6.0	6.0
Lead/Lag							Lead				Lag	
Lead-Lag Optimize?							Yes				Yes	Yes
Recall Mode				None	None	None	None				None	None
Act Effect Green (s)				29.2	29.2	29.2	64.0	69.0			48.0	48.0
Actuated g/C Ratio				0.27	0.27	0.27	0.59	0.63			0.44	0.44
v/c Ratio				0.16	0.13	0.09	0.09	0.87			0.67	0.86

Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
 109: Bert Kouns Industrial Loop & LA 3132 WB On Ramp/LA 3132 WB On Ramp with Improvements

Lane Group	ø4	ø5	ø6
Lane Configurations			
Volume (vph)			
Ideal Flow (vphpl)			
Storage Length (ft)			
Storage Lanes			
Taper Length (ft)			
Lane Util. Factor			
Frnt			
Fit Protected			
Satd. Flow (prot)			
Fit Permitted			
Satd. Flow (perm)			
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (mph)			
Link Distance (ft)			
Travel Time (s)			
Peak Hour Factor			
Heavy Vehicles (%)			
Adj. Flow (vph)			
Shared Lane Traffic (%)			
Lane Group Flow (vph)			
Enter Blocked Intersection			
Lane Alignment			
Median Width(ft)			
Link Offset(ft)			
Crosswalk Width(ft)			
Two way Left Turn Lane			
Headway Factor			
Turning Speed (mph)			
Turn Type			
Protected Phases	4	5	6
Permitted Phases			
Detector Phase			
Switch Phase			
Minimum Initial (s)	5.0	5.0	15.0
Minimum Split (s)	11.0	10.0	21.0
Total Split (s)	36.0	20.0	54.0
Total Split (%)	33%	18%	49%
Yellow Time (s)	5.0	5.0	5.0
All-Red Time (s)	1.0	0.0	1.0
Lost Time Adjust (s)			
Total Lost Time (s)			
Lead/Lag		Lead	Lag
Lead-Lag Optimize?		Yes	Yes
Recall Mode	None	None	None
Act Effect Green (s)			
Actuated g/C Ratio			
v/c Ratio			

Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
 109: Bert Kouns Industrial Loop & LA 3132 WB On Ramp/LA 3132 WB Off Ramp with Improvements



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay					31.6	24.1	8.7	17.6			27.0	21.8
Queue Delay					0.0	0.0	0.0	3.4			0.0	0.0
Total Delay					31.6	24.1	8.7	21.1			27.0	21.8
LOS					C	C	A	C			C	C
Approach Delay					28.4			20.9			24.7	
Approach LOS					C			C			C	
Queue Length 50th (ft)					42	22	9	356			303	244
Queue Length 95th (ft)					73	48	m11	m428			378	#551
Internal Link Dist (ft)		231			995			457			607	
Turn Bay Length (ft)						200	295					115
Base Capacity (vph)					496	455	368	2237			1572	974
Starvation Cap Reductn					0	0	0	205			0	0
Spillback Cap Reductn					0	0	0	0			0	0
Storage Cap Reductn					0	0	0	0			0	0
Reduced v/c Ratio					0.16	0.13	0.09	0.96			0.67	0.86

Intersection Summary

Area Type: Other
 Cycle Length: 110
 Actuated Cycle Length: 109.2
 Natural Cycle: 75
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.95
 Intersection Signal Delay: 22.9 Intersection LOS: C
 Intersection Capacity Utilization 77.8% ICU Level of Service D
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 109: Bert Kouns Industrial Loop & LA 3132 WB On Ramp/LA 3132 WB Off Ramp

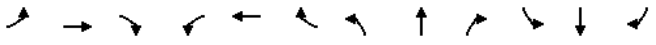


Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
 109: Bert Kouns Industrial Loop & LA 3132 WB On Ramp/LA 3132 WB Off Ramp with Improvements

Lane Group	ø4	ø5	ø6
Control Delay			
Queue Delay			
Total Delay			
LOS			
Approach Delay			
Approach LOS			
Queue Length 50th (ft)			
Queue Length 95th (ft)			
Internal Link Dist (ft)			
Turn Bay Length (ft)			
Base Capacity (vph)			
Starvation Cap Reductn			
Spillback Cap Reductn			
Storage Cap Reductn			
Reduced v/c Ratio			

Intersection Summary


Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
 110: Ashley River Dr SB & Flournoy Lucas Rd 2032 Alternative B PM Peak with Improvements



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↕↔		↔	↕↔					↔	↕↔	
Volume (vph)	0	749	246	108	1055	1	0	0	0	7	0	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	180		0	120		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	50			50		50			50			50
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.963									0.918	
Fit Protected				0.950							0.981	
Satd. Flow (prot)	1900	3318	0	1805	3406	0	0	0	0	0	1711	0
Fit Permitted				0.950							0.981	
Satd. Flow (perm)	1900	3318	0	1805	3406	0	0	0	0	0	1711	0
Link Speed (mph)		45		45		45		30		30		30
Link Distance (ft)		750		127		320		340		7.7		7.7
Travel Time (s)		11.4		1.9		7.3		7.7				
Peak Hour Factor	0.92	0.92	0.92	0.85	0.85	0.85	0.92	0.92	0.92	0.80	0.80	0.80
Heavy Vehicles (%)	0%	6%	1%	0%	6%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	814	267	127	1241	1	0	0	0	9	0	14
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1081	0	127	1242	0	0	0	0	0	23	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12		14		0		0		0		0
Link Offset(ft)		0		0		0		0		0		0
Crosswalk Width(ft)		16		16		16		16		16		16
Two way Left Turn Lane				Yes								
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop				Stop

Intersection Summary
 Area Type: Other
 Control Type: Unsignalized
 Intersection Capacity Utilization 47.9% ICU Level of Service A
 Analysis Period (min) 15

HCM Unsignalized Intersection Capacity Analysis LA 3132 (Inner Loop) Extension - Stage 0 Study
 110: Ashley River Dr SB & Flournoy Lucas Rd 2032 Alternative B PM Peak with Improvements



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↕↔		↔	↕↔					↔	↕↔	
Volume (veh/h)	0	749	246	108	1055	1	0	0	0	7	0	11
Sign Control		Free			Free			Stop				Stop
Grade		0%			0%			0%				0%
Peak Hour Factor	0.92	0.92	0.92	0.85	0.85	0.85	0.92	0.92	0.92	0.80	0.80	0.80
Hourly flow rate (vph)	0	814	267	127	1241	1	0	0	0	9	0	14
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)		750										
pX, platoon unblocked				0.77			0.77	0.77	0.77	0.77	0.77	0.77
vC, conflicting volume	1242			1082			1836	2444	541	1903	2577	621
vC1, stage 1 conf vol							948	948		1496	1496	
vC2, stage 2 conf vol							888	1496		407	1082	
vCu, unblocked vol	1242			516			1493	2281	0	1580	2453	621
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 %	100			84			100	100	100	92	100	97
cM capacity (veh/h)	567			819			224	147	843	108	135	435

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1
Volume Total	0	543	539	127	827	415	22
Volume Left	0	0	0	127	0	0	9
Volume Right	0	0	267	0	0	1	14
cSH	1700	1700	1700	819	1700	1700	199
Volume to Capacity	0.00	0.32	0.32	0.16	0.49	0.24	0.11
Queue Length 95th (ft)	0	0	0	14	0	0	9
Control Delay (s)	0.0	0.0	0.0	10.2	0.0	0.0	25.4
Lane LOS				B			D
Approach Delay (s)	0.0			0.9			25.4
Approach LOS				D			D

Intersection Summary
 Average Delay 0.8
 Intersection Capacity Utilization 47.9% ICU Level of Service A
 Analysis Period (min) 15

Lanes, Volumes, Timings

LA 3132 (Inner Loop) Extension - Stage 0 Study

111: Ashley River Dr NB & Flournoy Lucas Rd

2032 Alternative B PM Peak with Improvements

	→	↖	↗	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑	↖	↗
Volume (vph)	756	0	0	1039	125	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt						0.850
Fit Protected					0.950	
Satd. Flow (prot)	3406	0	0	3438	1805	1568
Fit Permitted				0.950		
Satd. Flow (perm)	3406	0	0	3438	1805	1568
Link Speed (mph)	45			45	30	
Link Distance (ft)	127			2333	283	
Travel Time (s)	1.9			35.3	6.4	
Peak Hour Factor	0.88	0.88	0.80	0.80	0.80	0.80
Heavy Vehicles (%)	6%	0%	0%	5%	0%	3%
Adj. Flow (vph)	859	0	0	1299	156	81
Shared Lane Traffic (%)						
Lane Group Flow (vph)	859	0	0	1299	156	81
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	14			14	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane	Yes			Yes		
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	42.3%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis LA 3132 (Inner Loop) Extension - Stage 0 Study

111: Ashley River Dr NB & Flournoy Lucas Rd

2032 Alternative B PM Peak with Improvements

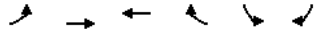
	→	↖	↗	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑	↖	↗
Volume (veh/h)	756	0	0	1039	125	65
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.88	0.88	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	859	0	0	1299	156	81
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLT			TWLT		
Median storage (veh)	2			2		
Upstream signal (ft)	877					
pX, platoon unblocked			0.83		0.83	0.83
vC, conflicting volume			859		1508	430
vC1, stage 1 conf vol					859	
vC2, stage 2 conf vol					649	
vCu, unblocked vol			427		1208	0
tC, single (s)			4.1		6.8	7.0
tC, 2 stage (s)					5.8	
tF (s)			2.2		3.5	3.3
p0 queue free %			100		59	91
cM capacity (veh/h)			951		377	900

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2
Volume Total	430	430	649	649	156	81
Volume Left	0	0	0	0	156	0
Volume Right	0	0	0	0	0	81
cSH	1700	1700	1700	1700	377	900
Volume to Capacity	0.25	0.25	0.38	0.38	0.41	0.09
Queue Length 95th (ft)	0	0	0	0	50	7
Control Delay (s)	0.0	0.0	0.0	0.0	21.1	9.4
Lane LOS					C	A
Approach Delay (s)	0.0		0.0		17.1	
Approach LOS					C	

Intersection Summary

Average Delay	1.7
Intersection Capacity Utilization	42.3%
Analysis Period (min)	15
	ICU Level of Service A

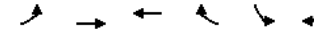
Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
 112: Flournoy Lucas Rd & Oaks Retirement Rd 2032 Alternative B PM Peak with Improvements



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↔	↕↕	↕↕		↔	↕↕
Volume (vph)	14	807	1011	24	21	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	375			0	0	0
Storage Lanes	1			0	1	1
Taper Length (ft)	50				50	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Frt			0.997			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1805	3471	3432	0	1805	1553
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1805	3471	3432	0	1805	1553
Link Speed (mph)		45	45		30	
Link Distance (ft)		2333	1050		729	
Travel Time (s)		35.3	15.9		16.6	
Peak Hour Factor	0.88	0.88	0.80	0.80	0.80	0.80
Heavy Vehicles (%)	0%	4%	5%	0%	0%	4%
Adj. Flow (vph)	16	917	1264	30	26	35
Shared Lane Traffic (%)						
Lane Group Flow (vph)	16	917	1294	0	26	35
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		14	14		28	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane		Yes	Yes			
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	38.7%
ICU Level of Service A	
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis LA 3132 (Inner Loop) Extension - Stage 0 Study
 112: Flournoy Lucas Rd & Oaks Retirement Rd 2032 Alternative B PM Peak with Improvements



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↔	↕↕	↕↕		↔	↕↕
Volume (veh/h)	14	807	1011	24	21	28
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.88	0.88	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	16	917	1264	30	26	35
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		TWLT	TWLT			
Median storage (veh)		2	2			
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1294				1769	647
vC1, stage 1 conf vol					1279	
vC2, stage 2 conf vol					490	
vCu, unblocked vol	1294				1769	647
tC, single (s)	4.1				6.8	7.0
tC, 2 stage (s)					5.8	
tF (s)	2.2				3.5	3.3
p0 queue free %	97				88	91
cM capacity (veh/h)	543				213	409

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1	SB 2
Volume Total	16	459	459	842	451	26	35
Volume Left	16	0	0	0	0	26	0
Volume Right	0	0	0	0	30	0	35
cSH	543	1700	1700	1700	1700	213	409
Volume to Capacity	0.03	0.27	0.27	0.50	0.27	0.12	0.09
Queue Length 95th (ft)	2	0	0	0	0	10	7
Control Delay (s)	11.8	0.0	0.0	0.0	0.0	24.3	14.6
Lane LOS	B					C	B
Approach Delay (s)	0.2			0.0		18.8	
Approach LOS						C	

Intersection Summary	
Average Delay	0.6
Intersection Capacity Utilization	38.7%
ICU Level of Service A	
Analysis Period (min)	15

Lanes, Volumes, Timings
201: LA 1 & I-69 WB Ramp

LA 3132 (Inner Loop) Extension - Stage 0 Study
2032 Alternative B PM Peak with Improvements

	↖ ↗		↑		↘ ↙	
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↗	↑↑	↘	↙	↑↑
Volume (vph)	107	0	168	3	97	737
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300	0	0	0	275	
Storage Lanes	1	1		1		
Taper Length (ft)	50				50	
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt			0.850			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1641	1727	3034	1357	1656	3312
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1641	1727	3034	1357	1656	3312
Link Speed (mph)	40		65		65	
Link Distance (ft)	384		1426		533	
Travel Time (s)	6.5		15.0		5.6	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Heavy Vehicles (%)	10%	10%	19%	19%	9%	9%
Adj. Flow (vph)	134	0	210	4	108	819
Shared Lane Traffic (%)						
Lane Group Flow (vph)	134	0	210	4	108	819
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		76		76	
Link Offset(ft)	0		0		0	
Crosswalk Width(ft)	16		16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	33.0%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis LA 3132 (Inner Loop) Extension - Stage 0 Study
201: LA 1 & I-69 WB Ramp

2032 Alternative B PM Peak with Improvements

	↖ ↗		↑		↘ ↙	
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↗	↑↑	↘	↙	↑↑
Volume (veh/h)	107	0	168	3	97	737
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Hourly flow rate (vph)	134	0	210	4	108	819
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			Raised		Raised	
Median storage (veh)			3		3	
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	835	105			210	
vC1, stage 1 conf vol	210					
vC2, stage 2 conf vol	625					
vCu, unblocked vol	835	105			210	
tC, single (s)	7.0	7.1			4.3	
tC, 2 stage (s)	6.0					
tF (s)	3.6	3.4			2.3	
p0 queue free %	69	100			92	
cM capacity (veh/h)	429	904			1308	

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	134	0	105	105	4	108	409	409
Volume Left	134	0	0	0	0	108	0	0
Volume Right	0	0	0	0	4	0	0	0
cSH	429	1700	1700	1700	1700	1308	1700	1700
Volume to Capacity	0.31	0.00	0.06	0.06	0.00	0.08	0.24	0.24
Queue Length 95th (ft)	33	0	0	0	0	7	0	0
Control Delay (s)	17.2	0.0	0.0	0.0	0.0	8.0	0.0	0.0
Lane LOS	C	A				A		
Approach Delay (s)	17.2		0.0			0.9		
Approach LOS	C							

Intersection Summary

Average Delay	2.5
Intersection Capacity Utilization	33.0%
Analysis Period (min)	15
	ICU Level of Service A

Lanes, Volumes, Timings
202: LA 1 & I-69 EB Ramp

LA 3132 (Inner Loop) Extension - Stage 0 Study
2032 Alternative B PM Peak with Improvements

	↖ ↗		↑		↘ ↙	
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↘	↕	↘	↘	↕
Volume (vph)	0	0	150	0	541	303
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300	0		490	260	
Storage Lanes	1	1		1	1	
Taper Length (ft)	50				50	
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt						
Flt Protected					0.950	
Satd. Flow (prot)	1727	1727	3034	1597	1656	3312
Flt Permitted					0.950	
Satd. Flow (perm)	1727	1727	3034	1597	1656	3312
Link Speed (mph)	40		65			65
Link Distance (ft)	460		3193			1426
Travel Time (s)	7.8		33.5			15.0
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Heavy Vehicles (%)	10%	10%	19%	19%	9%	9%
Adj. Flow (vph)	0	0	188	0	601	337
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	188	0	601	337
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	24		76			76
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary

Area Type: Other
 Control Type: Unsignalized
 Intersection Capacity Utilization 40.8% ICU Level of Service A
 Analysis Period (min) 15

HCM Unsignalized Intersection Capacity Analysis LA 3132 (Inner Loop) Extension - Stage 0 Study
202: LA 1 & I-69 EB Ramp

2032 Alternative B PM Peak with Improvements

	↖ ↗		↑		↘ ↙	
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↘	↕	↘	↘	↕
Volume (veh/h)	0	0	150	0	541	303
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Hourly flow rate (vph)	0	0	188	0	601	337
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			Raised			Raised
Median storage (veh)			3			3
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1558	94			188	
vC1, stage 1 conf vol	188					
vC2, stage 2 conf vol	1371					
vCu, unblocked vol	1558	94			188	
tC, single (s)	7.0	7.1			4.3	
tC, 2 stage (s)	6.0					
tF (s)	3.6	3.4			2.3	
p0 queue free %	100	100			55	
cM capacity (veh/h)	102	920			1334	

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	0	0	94	94	0	601	168	168
Volume Left	0	0	0	0	0	601	0	0
Volume Right	0	0	0	0	0	0	0	0
cSH	1700	1700	1700	1700	1700	1334	1700	1700
Volume to Capacity	0.00	0.00	0.06	0.06	0.00	0.45	0.10	0.10
Queue Length 95th (ft)	0	0	0	0	0	60	0	0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	9.9	0.0	0.0
Lane LOS	A	A				A		
Approach Delay (s)	0.0		0.0			6.3		
Approach LOS	A							

Intersection Summary

Average Delay 5.3
 Intersection Capacity Utilization 40.8% ICU Level of Service A
 Analysis Period (min) 15

Lanes, Volumes, Timings
301: LA 1 & Gate A

LA 3132 (Inner Loop) Extension - Stage 0 Study
2032 Alternative B PM Peak with Improvements

	↖ ↗		↑		↘ ↙	
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↖		↕		↗	↘
Volume (vph)	13	39	660	4	11	819
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	0	0	150	
Storage Lanes	1	0		0	1	
Taper Length (ft)	50				50	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Frt	0.898		0.999			
Flt Protected	0.988				0.950	
Satd. Flow (prot)	1492	0	3031	0	1656	3059
Flt Permitted	0.988				0.950	
Satd. Flow (perm)	1492	0	3031	0	1656	3059
Link Speed (mph)	40		65		65	
Link Distance (ft)	496		4385		1583	
Travel Time (s)	8.5		46.0		16.6	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Heavy Vehicles (%)	13%	13%	19%	18%	9%	18%
Adj. Flow (vph)	16	49	825	5	12	910
Shared Lane Traffic (%)						
Lane Group Flow (vph)	65	0	830	0	12	910
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		66		66	
Link Offset(ft)	0		0		0	
Crosswalk Width(ft)	16		16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free		Free	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	32.6%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis LA 3132 (Inner Loop) Extension - Stage 0 Study
301: LA 1 & Gate A

	↖ ↗		↑		↘ ↙	
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↖		↕		↗	↘
Volume (veh/h)	13	39	660	4	11	819
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Hourly flow rate (vph)	16	49	825	5	12	910
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			Raised		Raised	
Median storage (veh)			2		2	
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1307	415			830	
vC1, stage 1 conf vol	828					
vC2, stage 2 conf vol	479					
vCu, unblocked vol	1307	415			830	
tC, single (s)	7.1	7.2			4.3	
tC, 2 stage (s)	6.1					
tF (s)	3.6	3.4			2.3	
p0 queue free %	95	91			98	
cM capacity (veh/h)	318	557			754	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	65	550	280	12	455	455
Volume Left	16	0	0	12	0	0
Volume Right	49	0	5	0	0	0
cSH	469	1700	1700	754	1700	1700
Volume to Capacity	0.14	0.32	0.16	0.02	0.27	0.27
Queue Length 95th (ft)	12	0	0	1	0	0
Control Delay (s)	13.9	0.0	0.0	9.9	0.0	0.0
Lane LOS	B			A		
Approach Delay (s)	13.9	0.0		0.1		
Approach LOS	B					

Intersection Summary	
Average Delay	0.6
Intersection Capacity Utilization	32.6%
Analysis Period (min)	15
	ICU Level of Service A

Lanes, Volumes, Timings
302: LA 1 & Gate B

LA 3132 (Inner Loop) Extension - Stage 0 Study
2032 Alternative B PM Peak with Improvements

Lane Group	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Lane Configurations							
Volume (vph)	39	82	0	582	12	36	795
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	250		0	250	
Storage Lanes	1	1	1		0	1	
Taper Length (ft)	50		50			50	
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	0.95
Frt		0.850		0.997			
Flt Protected	0.950				0.950		
Satd. Flow (prot)	1517	1357	1597	3009	0	1656	2423
Flt Permitted	0.950				0.950		
Satd. Flow (perm)	1517	1357	1597	3009	0	1656	2423
Link Speed (mph)	40			65			65
Link Distance (ft)	499			1577			4385
Travel Time (s)	8.5			16.5			46.0
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.90	0.90
Heavy Vehicles (%)	19%	19%	19%	19%	49%	9%	49%
Adj. Flow (vph)	49	103	0	728	15	40	883
Shared Lane Traffic (%)							
Lane Group Flow (vph)	49	102	0	743	0	40	883
Enter Blocked Intersection	No	No	No	No	No	No	No
Lane Alignment	Left	Right	R NA	Left	Right	Left	Left
Median Width(ft)	20			66			66
Link Offset(ft)	0			0			0
Crosswalk Width(ft)	16			16			16
Two way Left Turn Lane							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	9		9	15	
Sign Control	Stop			Free			Free

Intersection Summary

Area Type: Other
 Control Type: Unsignalized
 Intersection Capacity Utilization 38.6% ICU Level of Service A
 Analysis Period (min) 15

HCM Unsignalized Intersection Capacity Analysis LA 3132 (Inner Loop) Extension - Stage 0 Study
302: LA 1 & Gate B

2032 Alternative B PM Peak with Improvements

Movement	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Lane Configurations							
Volume (veh/h)	39	82	0	582	12	36	795
Sign Control	Stop			Free			Free
Grade	0%			0%			0%
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.90	0.90
Hourly flow rate (vph)	49	102	0	728	15	40	883
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type				Raised			Raised
Median storage (veh)				2			2
Upstream signal (ft)							
pX, platoon unblocked			0.00				
vC, conflicting volume	1257	371	0			742	
vC1, stage 1 conf vol	735						
vC2, stage 2 conf vol	522						
vCu, unblocked vol	1257	371	0			742	
tC, single (s)	7.2	7.3	0.0			4.3	
tC, 2 stage (s)	6.2						
tF (s)	3.7	3.5	0.0			2.3	
p0 queue free %	85	82	0			95	
cM capacity (veh/h)	324	580	0			816	

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	49	102	485	258	0	40	442	442
Volume Left	49	0	0	0	0	40	0	0
Volume Right	0	102	0	15	0	0	0	0
cSH	324	580	1700	1700	1700	816	1700	1700
Volume to Capacity	0.15	0.18	0.29	0.15	0.00	0.05	0.26	0.26
Queue Length 95th (ft)	13	16	0	0	0	4	0	0
Control Delay (s)	18.0	12.5	0.0	0.0	0.0	9.6	0.0	0.0
Lane LOS	C	B				A		
Approach Delay (s)	14.3		0.0			0.4		
Approach LOS	B							

Intersection Summary

Average Delay 1.4
 Intersection Capacity Utilization 38.6% ICU Level of Service A
 Analysis Period (min) 15

Lanes, Volumes, Timings
303: LA 1 & Gate C

LA 3132 (Inner Loop) Extension - Stage 0 Study
2032 Alternative B PM Peak with Improvements

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↑	↑↑	↑		↑↑
Volume (vph)	0	47	559	12	0	834
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	0	0	250	
Storage Lanes	0	1		1	0	
Taper Length (ft)	50				50	
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt		0.865		0.850		
Fit Protected						
Satd. Flow (prot)	0	1325	3034	1077	0	2407
Fit Permitted						
Satd. Flow (perm)	0	1325	3034	1077	0	2407
Link Speed (mph)	40		65			65
Link Distance (ft)	508		533			1082
Travel Time (s)	8.7		5.6			11.3
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Heavy Vehicles (%)	24%	24%	19%	50%	9%	50%
Adj. Flow (vph)	0	59	699	15	0	927
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	59	699	15	0	927
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	0		76			76
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	26.4%
ICU Level of Service	A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis LA 3132 (Inner Loop) Extension - Stage 0 Study
303: LA 1 & Gate C

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↑	↑↑	↑		↑↑
Volume (veh/h)	0	47	559	12	0	834
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Hourly flow rate (vph)	0	59	699	15	0	927
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			Raised			Raised
Median storage (veh)			3			3
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1162	349			714	
vC1, stage 1 conf vol	699					
vC2, stage 2 conf vol	463					
vCu, unblocked vol	1162	349			714	
tC, single (s)	7.3	7.4			4.3	
tC, 2 stage (s)	6.3					
tF (s)	3.7	3.5			2.3	
p0 queue free %	100	90			100	
cM capacity (veh/h)	371	587			837	

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	59	349	349	15	463	463
Volume Left	0	0	0	0	0	0
Volume Right	59	0	0	15	0	0
cSH	587	1700	1700	1700	1700	1700
Volume to Capacity	0.10	0.21	0.21	0.01	0.27	0.27
Queue Length 95th (ft)	8	0	0	0	0	0
Control Delay (s)	11.8	0.0	0.0	0.0	0.0	0.0
Lane LOS	B					
Approach Delay (s)	11.8	0.0			0.0	
Approach LOS	B					

Intersection Summary	
Average Delay	0.4
Intersection Capacity Utilization	26.4%
ICU Level of Service	A
Analysis Period (min)	15

Lanes, Volumes, Timings
304: LA 1 & Gate D

LA 3132 (Inner Loop) Extension - Stage 0 Study
2032 Alternative B PM Peak with Improvements

	↖	↗	↑	↘	↙	↓
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↘	↕	↘	↘	↕
Volume (vph)	1	18	225	0	11	294
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	250		300	280	
Storage Lanes	1	1		1	1	
Taper Length (ft)	50				50	
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt	0.850					
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1337	1196	3034	1195	1656	2270
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1337	1196	3034	1195	1656	2270
Link Speed (mph)	40		65		65	
Link Distance (ft)	501		710		505	
Travel Time (s)	8.5		7.4		5.3	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Heavy Vehicles (%)	35%	35%	19%	59%	9%	59%
Adj. Flow (vph)	1	23	281	0	12	327
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1	22	281	0	12	327
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		76		76	
Link Offset(ft)	0		0		0	
Crosswalk Width(ft)	16		16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	19.1%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis LA 3132 (Inner Loop) Extension - Stage 0 Study
304: LA 1 & Gate D

2032 Alternative B PM Peak with Improvements

	↖	↗	↑	↘	↙	↓
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↘	↕	↘	↘	↕
Volume (veh/h)	1	18	225	0	11	294
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Hourly flow rate (vph)	1	22	281	0	12	327
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		10				
Median type			Raised			Raised
Median storage (veh)			3			3
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	469	141			281	
vC1, stage 1 conf vol	281					
vC2, stage 2 conf vol	188					
vCu, unblocked vol	469	141			281	
tC, single (s)	7.5	7.6			4.3	
tC, 2 stage (s)	6.5					
tF (s)	3.8	3.6			2.3	
p0 queue free %	100	97			99	
cM capacity (veh/h)	617	786			1229	

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	24	141	141	0	12	163	163
Volume Left	1	0	0	0	12	0	0
Volume Right	22	0	0	0	0	0	0
cSH	830	1700	1700	1700	1229	1700	1700
Volume to Capacity	0.03	0.08	0.08	0.00	0.01	0.10	0.10
Queue Length 95th (ft)	2	0	0	0	1	0	0
Control Delay (s)	9.8	0.0	0.0	0.0	8.0	0.0	0.0
Lane LOS	A				A		
Approach Delay (s)	9.8	0.0			0.3		
Approach LOS	A						

Intersection Summary	
Average Delay	0.5
Intersection Capacity Utilization	19.1%
Analysis Period (min)	15
	ICU Level of Service A

Lanes, Volumes, Timings
401: LA 3132 SB Ramp & Leonard Rd

LA 3132 (Inner Loop) Extension - Stage 0 Study
2032 Alternative B PM Peak with Improvements



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔						↔	
Volume (vph)	0	94	39	0	242	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.960										
Fit Protected												
Satd. Flow (prot)	0	1658	0	0	1727	0	0	0	0	0	1727	0
Fit Permitted												
Satd. Flow (perm)	0	1658	0	0	1727	0	0	0	0	0	1727	0
Link Speed (mph)		50			50				45			45
Link Distance (ft)		559			469				669			381
Travel Time (s)		7.6			6.4				10.1			5.8
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Heavy Vehicles (%)	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
Adj. Flow (vph)	0	118	49	0	303	0	0	0	0	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	167	0	0	302	0	0	0	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0				0			0
Link Offset(ft)		0			0				0			0
Crosswalk Width(ft)		16			16				16			16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free				Stop			Stop

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	22.7%
ICU Level of Service	A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis
401: LA 3132 SB Ramp & Leonard Rd

LA 3132 (Inner Loop) Extension - Stage 0 Study
2032 Alternative B PM Peak with Improvements



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔						↔	
Volume (veh/h)	0	94	39	0	242	0	0	0	0	0	0	0
Sign Control		Free			Free				Stop			Stop
Grade		0%			0%				0%			0%
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	0	118	49	0	302	0	0	0	0	0	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)												
pX, platoon unblocked												
vC, conflicting volume	302			166			444	444	142	444	469	302
vC1, stage 1 conf vol							444	444	142	444	469	302
vC2, stage 2 conf vol												
vCu, unblocked vol	302			166			444	444	142	444	469	302
tC, single (s)	4.2			4.2			7.2	6.6	6.3	7.2	6.6	6.3
tC, 2 stage (s)												
tF (s)	2.3			2.3			3.6	4.1	3.4	3.6	4.1	3.4
p0 queue free %	100			100			100	100	100	100	100	100
cM capacity (veh/h)	1214			1365			510	496	885	510	481	719

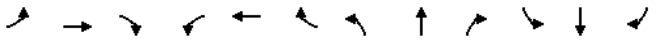
Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	166	302	0
Volume Left	0	0	0
Volume Right	49	0	0
cSH	1700	1365	1700
Volume to Capacity	0.10	0.00	0.00
Queue Length 95th (ft)	0	0	0
Control Delay (s)	0.0	0.0	0.0
Lane LOS			A
Approach Delay (s)	0.0	0.0	0.0
Approach LOS			A

Intersection Summary

Average Delay	0.0
Intersection Capacity Utilization	22.7%
ICU Level of Service	A
Analysis Period (min)	15

Lanes, Volumes, Timings
402: LA 3132 NB Ramp & Leonard Rd

LA 3132 (Inner Loop) Extension - Stage 0 Study
2032 Alternative B PM Peak with Improvements




Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕				
Volume (vph)	0	94	0	0	204	0	38	0	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fit Protected								0.950				
Satd. Flow (prot)	0	1727	0	0	1727	0	0	1641	0	0	0	0
Fit Permitted								0.950				
Satd. Flow (perm)	0	1727	0	0	1727	0	0	1641	0	0	0	0
Link Speed (mph)		50			50			45			45	
Link Distance (ft)		469			2733			461			532	
Travel Time (s)		6.4			37.3			7.0			8.1	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Heavy Vehicles (%)	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
Adj. Flow (vph)	0	118	0	0	255	0	48	0	0	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	118	0	0	255	0	0	48	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	22.7%
ICU Level of Service	A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis LA 3132 (Inner Loop) Extension - Stage 0 Study
402: LA 3132 NB Ramp & Leonard Rd

2032 Alternative B PM Peak with Improvements



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕				
Volume (veh/h)	0	94	0	0	204	0	38	0	0	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	0	118	0	0	255	0	48	0	0	0	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)												
pX, platoon unblocked												
vC, conflicting volume		255			118			372	372	118	372	255
vC1, stage 1 conf vol								372	372	118	372	
vC2, stage 2 conf vol												
vCu, unblocked vol		255			118			372	372	118	372	255
tC, single (s)		4.2			4.2			7.2	6.6	6.3	7.2	6.6
tC, 2 stage (s)												
tF (s)		2.3			2.3			3.6	4.1	3.4	3.6	4.1
p0 queue free %		100			100			92	100	100	100	100
cM capacity (veh/h)		1265			1423			570	545	913	570	765

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	118	255	48
Volume Left	0	0	48
Volume Right	0	0	0
cSH	1265	1700	570
Volume to Capacity	0.00	0.15	0.08
Queue Length 95th (ft)	0	0	7
Control Delay (s)	0.0	0.0	11.9
Lane LOS			B
Approach Delay (s)	0.0	0.0	11.9
Approach LOS			B

Intersection Summary

Average Delay	1.3
Intersection Capacity Utilization	22.7%
ICU Level of Service	A
Analysis Period (min)	15

Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
 100: LA3132 NB/LA3132 SB & Flournoy Lucas Rd 2032 Alternative B AM Peak with SPU

Lane Group	EBL	EBT	EBR2	WBL	WBT	WBR2	SEL	SER2	NWL	NWR2
Lane Configurations	↑↑	↑↑	↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑
Volume (vph)	348	753	0	0	226	800	651	136	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	350			250			0		0	
Storage Lanes	2			2			2		2	
Taper Length (ft)	50			50			50		50	
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	1.00	0.97	1.00
Frt						0.850		0.850		
Flt Protected	0.950						0.950			
Satd. Flow (prot)	3467	3505	1900	3686	3406	1538	3367	1553	3686	1900
Flt Permitted	0.950						0.950			
Satd. Flow (perm)	3467	3505	1900	3686	3406	1538	3367	1553	3686	1900
Right Turn on Red			Yes			Yes		Yes		Yes
Satd. Flow (RTOR)						712		170		
Link Speed (mph)		45			45					
Link Distance (ft)		749			713					
Travel Time (s)		11.3			10.8					
Peak Hour Factor	0.86	0.86	0.86	0.81	0.81	0.81	0.80	0.80	0.90	0.90
Heavy Vehicles (%)	1%	3%	0%	0%	6%	5%	4%	4%	0%	0%
Adj. Flow (vph)	405	876	0	0	279	988	814	170	0	0
Shared Lane Traffic (%)										
Lane Group Flow (vph)	405	876	0	0	279	988	814	170	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Right	Left	Right
Median Width(ft)		24			34					
Link Offset(ft)		0			0					
Crosswalk Width(ft)		16			16					
Two way Left Turn Lane										
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15	9	15	9
Turn Type	Prot	NA	Free	Prot	NA	Free	Prot	Free	Prot	Free
Protected Phases	5	2		1	6		4		8	
Permitted Phases			Free			Free		Free		Free
Detector Phase	5	2		1	6		4		8	
Switch Phase										
Minimum Initial (s)	4.0	15.0		4.0	15.0		4.0		4.0	
Minimum Split (s)	10.0	21.0		10.0	21.0		22.0		10.0	
Total Split (s)	34.0	56.0		12.0	34.0		22.0		22.0	
Total Split (%)	37.8%	62.2%		13.3%	37.8%		24.4%		24.4%	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0		5.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0		1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0		0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0		6.0		6.0	
Lead/Lag	Lag	Lag		Lead	Lead					
Lead-Lag Optimize?	Yes	Yes		Yes	Yes					
Recall Mode	None	Min		None	Min		None		None	
Act Effct Green (s)	12.3	33.4		15.0	61.4		16.0		61.4	
Actuated g/C Ratio	0.20	0.54		0.24	1.00		0.26		1.00	
v/c Ratio	0.58	0.46		0.33	0.64		0.93		0.11	

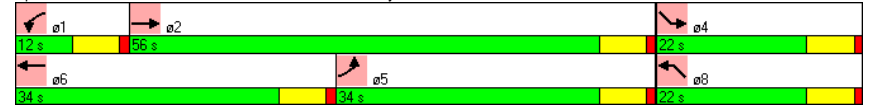
Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
 100: LA3132 NB/LA3132 SB & Flournoy Lucas Rd 2032 Alternative B AM Peak with SPU

Lane Group	EBL	EBT	EBR2	WBL	WBT	WBR2	SEL	SER2	NWL	NWR2
Control Delay	25.7	9.4			20.9	2.1	42.0	0.1		
Queue Delay	0.0	0.0			0.0	0.0	0.0	0.0		
Total Delay	25.7	9.4			20.9	2.1	42.0	0.1		
LOS	C	A			C	A	D	A		
Approach Delay		14.6			6.2					
Approach LOS		B			A					
Queue Length 50th (ft)	70	94			44	0	151	0		
Queue Length 95th (ft)	103	123			70	0	#223	0		
Internal Link Dist (ft)		669			633					
Turn Bay Length (ft)	350				350		600			
Base Capacity (vph)	1584	2859			1556	1538	879	1553		
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	0.26	0.31			0.18	0.64	0.93	0.11		

Intersection Summary

Area Type:	Other
Cycle Length:	90
Actuated Cycle Length:	61.4
Natural Cycle:	60
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.93
Intersection Signal Delay:	17.2
Intersection LOS:	B
Intersection Capacity Utilization:	56.1%
ICU Level of Service:	B
Analysis Period (min):	15
#	95th percentile volume exceeds capacity, queue may be longer.
	Queue shown is maximum after two cycles.

Splits and Phases: 100: LA3132 NB/LA3132 SB & Flournoy Lucas Rd



Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
 100: LA3132 NB/LA3132 SB & Flournoy Lucas Rd 2032 Alternative B PM Peak with SPU

Lane Group	EBL	EBT	EBR2	WBL	WBT	WBR2	SEL	SER2	NWL	NWR2
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Volume (vph)	155	225	0	0	401	666	770	344	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	350			250			0		0	
Storage Lanes	2			2			2		2	
Taper Length (ft)	50			50			50		50	
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	1.00	0.97	1.00
Frt						0.850		0.850		
Flt Protected	0.950						0.950			
Satd. Flow (prot)	3433	3438	1900	3686	3574	1482	3303	1615	3686	1900
Flt Permitted	0.950						0.950			
Satd. Flow (perm)	3433	3438	1900	3686	3574	1482	3303	1615	3686	1900
Right Turn on Red			Yes			Yes		Yes		Yes
Satd. Flow (RTOR)						802		382		
Link Speed (mph)		45			45					
Link Distance (ft)		749			713					
Travel Time (s)		11.3			10.8					
Peak Hour Factor	0.94	0.94	0.86	0.83	0.83	0.83	0.90	0.90	0.80	0.80
Heavy Vehicles (%)	2%	5%	0%	0%	1%	9%	6%	0%	0%	0%
Adj. Flow (vph)	165	239	0	0	483	802	856	382	0	0
Shared Lane Traffic (%)										
Lane Group Flow (vph)	165	239	0	0	483	802	856	382	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Right	Left	Right
Median Width(ft)		24			34					
Link Offset(ft)		0			0					
Crosswalk Width(ft)		16			16					
Two way Left Turn Lane										
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15	9	15	9
Turn Type	Prot	NA	Free	Prot	NA	Free	Prot	Free	Prot	Free
Protected Phases	5	2		1	6		4		8	
Permitted Phases			Free			Free		Free		Free
Detector Phase	5	2		1	6		4		8	
Switch Phase										
Minimum Initial (s)	4.0	15.0		4.0	15.0		4.0		4.0	
Minimum Split (s)	10.0	21.0		10.0	21.0		22.0		10.0	
Total Split (s)	34.0	56.0		12.0	34.0		22.0		22.0	
Total Split (%)	37.8%	62.2%		13.3%	37.8%		24.4%		24.4%	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0		5.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0		1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0		0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0		6.0		6.0	
Lead/Lag	Lag	Lag		Lead	Lead					
Lead-Lag Optimize?	Yes	Yes		Yes	Yes					
Recall Mode	None	Min		None	Min		None		None	
Act Effect Green (s)	8.3	30.4		16.1	58.5		16.1		58.5	
Actuated g/C Ratio	0.14	0.52		0.28	1.00		0.28		1.00	
v/c Ratio	0.34	0.13		0.49	0.54		0.94		0.24	

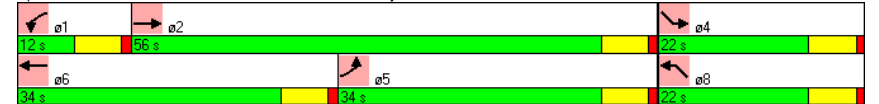
Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
 100: LA3132 NB/LA3132 SB & Flournoy Lucas Rd 2032 Alternative B PM Peak with SPU

Lane Group	EBL	EBT	EBR2	WBL	WBT	WBR2	SEL	SER2	NWL	NWR2
Control Delay	24.9	7.3			19.9	1.4	43.3	0.3		
Queue Delay	0.0	0.0			0.0	0.0	0.0	0.0		
Total Delay	24.9	7.3			19.9	1.4	43.3	0.3		
LOS	C	A			B	A	D	A		
Approach Delay		14.5			8.4					
Approach LOS		B			A					
Queue Length 50th (ft)	26	20			73	0	145	0		
Queue Length 95th (ft)	54	35			106	0	#293	0		
Internal Link Dist (ft)		669			633					
Turn Bay Length (ft)	350					350		600		
Base Capacity (vph)	1648	2948			1716	1482	906	1615		
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	0.10	0.08			0.28	0.54	0.94	0.24		

Intersection Summary

Area Type:	Other
Cycle Length:	90
Actuated Cycle Length:	58.5
Natural Cycle:	55
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.94
Intersection Signal Delay:	18.4
Intersection Capacity Utilization:	52.2%
ICU Level of Service:	A
Analysis Period (min):	15
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 100: LA3132 NB/LA3132 SB & Flournoy Lucas Rd






APPENDIX F | Intersection Analysis of Build Alternative C (2015 & 2032)

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Lanes, Volumes, Timings
103: LA 1 & Flournoy Lucas Rd

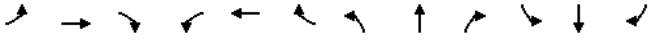
LA 3132 (Inner Loop) Extension - Stage 0 Study
2015 Alternative C AM Peak with Improvements



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔		↔	↔	↔	↔	↔	↔	↔	↔	↔
Volume (vph)	434	52	40	0	10	9	48	321	23	0	291	316
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	0	0	0	0	125	0	165	0	165	165
Storage Lanes	1	0	0	0	0	0	1	0	1	0	1	1
Taper Length (ft)	50			50			50		50			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt		0.935			0.939			0.990				0.850
Flt Protected	0.950						0.950					
Satd. Flow (prot)	1752	1562	0	0	1690	0	1347	3269	0	1900	3406	1553
Flt Permitted	0.408						0.394					
Satd. Flow (perm)	753	1562	0	0	1690	0	559	3269	0	1900	3406	1553
Right Turn on Red			Yes			Yes			Yes			No
Satd. Flow (RTOR)		34			10			6				
Link Speed (mph)		50			50			55				55
Link Distance (ft)		784			651			1092				934
Travel Time (s)		10.7			8.9			13.5				11.6
Peak Hour Factor	0.80	0.80	0.80	0.86	0.86	0.86	0.86	0.86	0.86	0.80	0.80	0.80
Heavy Vehicles (%)	3%	2%	29%	0%	1%	11%	34%	10%	0%	0%	6%	4%
Adj. Flow (vph)	542	65	50	0	12	10	56	373	27	0	364	395
Shared Lane Traffic (%)												
Lane Group Flow (vph)	542	115	0	0	22	0	56	400	0	0	364	395
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			0			12				12
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA		Perm	NA		pm+pt	NA		pm+pt	NA	pt+ov
Protected Phases	3	8			4		1	6		5	2	2 3
Permitted Phases	8			4			6			2		
Detector Phase	3	8		4	4		1	6		5	2	2 3
Switch Phase												
Minimum Initial (s)	5.0	10.0		7.0	7.0		7.0	15.0		5.0	15.0	
Minimum Split (s)	11.5	16.5		13.5	13.5		15.0	23.0		13.0	23.0	
Total Split (s)	30.0	60.0		30.0	30.0		15.0	60.0		15.0	60.0	
Total Split (%)	22.2%	44.4%		22.2%	22.2%		11.1%	44.4%		11.1%	44.4%	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.5	5.5		5.5	5.5	
All-Red Time (s)	1.5	1.5		1.5	1.5		2.5	2.5		2.5	2.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.5	6.5		6.5	6.5		8.0	8.0		8.0	8.0	
Lead/Lag	Lead			Lag	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes			Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None		None	Min		None	Min	
Act Effect Green (s)	30.4	30.4		9.8	9.8		33.9	33.9		22.4	56.8	
Actuated g/C Ratio	0.38	0.38		0.12	0.12		0.43	0.43		0.28	0.71	
v/c Ratio	0.90	0.19		0.10	0.10		0.18	0.29		0.38	0.36	

Lanes, Volumes, Timings
103: LA 1 & Flournoy Lucas Rd

LA 3132 (Inner Loop) Extension - Stage 0 Study
2015 Alternative C AM Peak with Improvements

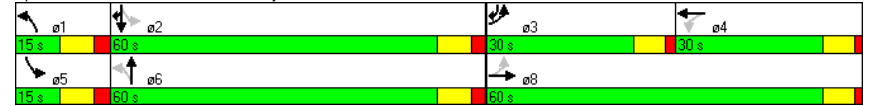


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	45.9	15.1			29.9		15.6	15.2		25.5	8.9	
Queue Delay	0.0	0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay	45.9	15.1			29.9		15.6	15.2		25.5	8.9	
LOS	D	B			C		B	B		C	A	
Approach Delay		40.5			29.9		15.3			16.8		
Approach LOS		D			C		B			B		
Queue Length 50th (ft)	234	25			5		13	52		70	63	
Queue Length 95th (ft)	#412	63			31		41	107		118	161	
Internal Link Dist (ft)		704			571		1012			854		
Turn Bay Length (ft)							125					165
Base Capacity (vph)	601	1124			538		311	2274		2368	1140	
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	0.90	0.10			0.04		0.18	0.18		0.15	0.35	

Intersection Summary

Area Type:	Other
Cycle Length:	135
Actuated Cycle Length:	79.7
Natural Cycle:	80
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.90
Intersection Signal Delay:	24.8
Intersection Capacity Utilization:	67.8%
ICU Level of Service:	C
Analysis Period (min):	15
#	95th percentile volume exceeds capacity, queue may be longer.
	Queue shown is maximum after two cycles.

Splits and Phases: 103: LA 1 & Flournoy Lucas Rd



Lanes, Volumes, Timings
105: Ellerbe Rd & Flournoy Lucas Rd

LA 3132 (Inner Loop) Extension - Stage 0 Study
2015 Alternative C AM Peak with Improvements

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	12	144	38	60	155	343	80	1361	134	194	367	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	140		0	150		0	115		120		150	0
Storage Lanes	1		0	1		1	1		1		1	0
Taper Length (ft)	50			50			50				50	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Frt		0.968				0.850			0.850		0.999	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1671	1747	0	1656	1727	1468	1736	3406	1615	1770	3570	0
Flt Permitted	0.312			0.557			0.426			0.081		
Satd. Flow (perm)	549	1747	0	971	1727	1468	778	3406	1615	151	3570	0
Right Turn on Red			Yes			Yes		Yes			Yes	
Satd. Flow (RTOR)		10				250		71			1	
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		848			838			697			896	
Travel Time (s)		12.8			12.7			10.6			13.6	
Peak Hour Factor	0.80	0.80	0.80	0.82	0.82	0.82	0.81	0.81	0.81	0.80	0.80	0.80
Heavy Vehicles (%)	8%	4%	10%	9%	10%	10%	4%	6%	0%	2%	1%	3%
Adj. Flow (vph)	15	180	48	73	189	418	99	1680	165	242	459	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	15	228	0	73	189	418	99	1680	165	242	463	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)	12			12			12			12		
Link Offset(ft)	0			0			0			0		
Crosswalk Width(ft)		16		16			16			16		
Two way Left Turn Lane				Yes							Yes	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8			4		4	6		6	2		
Detector Phase	3	8		7	4	4	1	6	6	5	2	
Switch Phase												
Minimum Initial (s)	7.0	15.0		7.0	15.0	15.0	7.0	10.0	10.0	7.0	10.0	
Minimum Split (s)	12.0	20.0		14.0	22.0	22.0	12.0	15.0	15.0	14.0	17.0	
Total Split (s)	12.0	20.0		14.0	22.0	22.0	12.0	60.0	60.0	16.0	64.0	
Total Split (%)	10.9%	18.2%		12.7%	20.0%	20.0%	10.9%	54.5%	54.5%	14.5%	58.2%	
Yellow Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	0.0	0.0		2.0	2.0	2.0	0.0	0.0	0.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0	5.0		7.0	7.0	7.0	5.0	5.0	5.0	7.0	7.0	
Lead/Lag	Lead	Lead		Lag	Lag	Lag	Lead	Lead	Lead	Lag	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	Min		None	Min	Min	None	None	None	None	None	
Act Effect Green (s)	15.5	15.5		21.3	19.7	19.7	55.0	55.0	55.0	59.7	59.7	
Actuated g/C Ratio	0.14	0.14		0.20	0.18	0.18	0.51	0.51	0.51	0.56	0.56	
v/c Ratio	0.10	0.88		0.31	0.60	0.88	0.21	0.96	0.19	1.10	0.23	

Lanes, Volumes, Timings
105: Ellerbe Rd & Flournoy Lucas Rd

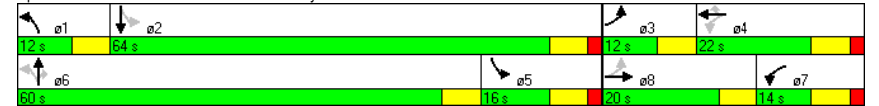
LA 3132 (Inner Loop) Extension - Stage 0 Study
2015 Alternative C AM Peak with Improvements

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	43.1	76.7		45.0	50.7	39.2	15.7	41.0	9.2	129.3	13.9	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	43.1	76.7		45.0	50.7	39.2	15.7	41.0	9.2	129.3	13.9	
LOS	D	E		D	D	D	B	D	A	F	B	
Approach Delay		74.6			43.0			37.0			53.5	
Approach LOS		E			D			D			D	
Queue Length 50th (ft)	9	155		41	114	111	36	594	34	~152	91	
Queue Length 95th (ft)	26	#249		84	#211	#267	58	588	61	#254	107	
Internal Link Dist (ft)		768			758			617			816	
Turn Bay Length (ft)	140			150			115		120	150		
Base Capacity (vph)	152	260		237	317	473	461	1746	862	220	1982	
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	0.10	0.88		0.31	0.60	0.88	0.21	0.96	0.19	1.10	0.23	

Intersection Summary

Area Type:	Other
Cycle Length:	110
Actuated Cycle Length:	107.5
Natural Cycle:	110
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	1.10
Intersection Signal Delay:	44.0
Intersection Capacity Utilization:	86.7%
ICU Level of Service:	E
Analysis Period (min):	15
~ Volume exceeds capacity, queue is theoretically infinite.	
Queue shown is maximum after two cycles.	
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 105: Ellerbe Rd & Flournoy Lucas Rd



Lanes, Volumes, Timings
107: LA 1 & Bert Kouns Industrial Loop

LA 3132 (Inner Loop) Extension - Stage 0 Study
2015 Alternative C AM Peak with Improvements

	↖	→	↘	↙	←	↖	↙	↘	↙	↘	↙	↘
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖	↖	↖	↖	↖	↖	↖	↖	↖	↖	↖
Volume (vph)	248	839	113	263	701	50	123	1000	215	131	771	164
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	230		230	150		115	220		220	230		230
Storage Lanes	2		1	2		1	2		1	2		1
Taper Length (ft)	50			50			50			50		
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3303	3471	1482	3433	3539	1615	3433	3471	1568	3303	3505	1495
Flt Permitted	0.950			0.207			0.950			0.950		
Satd. Flow (perm)	3303	3471	1482	748	3539	1615	3433	3471	1568	3303	3505	1495
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			122			11			70			40
Link Speed (mph)		50			50			45				45
Link Distance (ft)		1652			1693			1702				1927
Travel Time (s)		22.5			23.1			25.8				29.2
Peak Hour Factor	0.89	0.89	0.89	0.92	0.92	0.92	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	6%	4%	9%	2%	2%	0%	2%	4%	3%	6%	3%	8%
Adj. Flow (vph)	279	943	127	286	762	54	135	1099	236	144	847	180
Shared Lane Traffic (%)												
Lane Group Flow (vph)	279	943	127	286	762	54	135	1099	236	144	847	180
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane					Yes							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Prot	NA	Prot	pm+pt	NA	pt+ov	Prot	NA	pt+ov	Prot	NA	pt+ov
Protected Phases	1	6	6	5	2	2 7	3	8	5 8	7	4	1 4
Permitted Phases				2								
Detector Phase	1	6	6	5	2	2 7	3	8	5 8	7	4	1 4
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0		5.0	10.0		12.0	10.0	
Minimum Split (s)	11.0	16.0	16.0	11.0	16.0		11.0	16.0		18.0	16.0	
Total Split (s)	16.0	39.0	39.0	12.0	35.0		14.0	41.0		18.0	45.0	
Total Split (%)	14.5%	35.5%	35.5%	10.9%	31.8%		12.7%	37.3%		16.4%	40.9%	
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5		1.5	1.5		1.5	1.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0		6.0	6.0		6.0	6.0	
Lead/Lag	Lead	Lead	Lead	Lag	Lag		Lead	Lead		Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	C-Min	C-Min	None	C-Min		None	None		None	None	
Act Effect Green (s)	10.0	33.0	33.0	29.0	29.0	41.0	7.8	35.0	47.0	12.0	39.2	55.2
Actuated g/C Ratio	0.09	0.30	0.30	0.26	0.26	0.37	0.07	0.32	0.43	0.11	0.36	0.50
v/c Ratio	0.93	0.91	0.24	0.83	0.82	0.09	0.55	1.00	0.33	0.40	0.68	0.23

Lanes, Volumes, Timings
107: LA 1 & Bert Kouns Industrial Loop

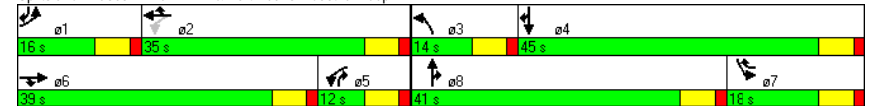
LA 3132 (Inner Loop) Extension - Stage 0 Study
2015 Alternative C AM Peak with Improvements

	↖	→	↘	↙	←	↖	↙	↘	↙	↘	↙	↘
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	87.2	50.3	7.0	64.6	46.3	11.0	58.5	64.0	16.0	49.3	33.4	12.8
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	87.2	50.3	7.0	64.6	46.3	11.0	58.5	64.0	16.0	49.3	33.4	12.8
LOS	F	D	A	E	D	B	E	E	B	D	C	B
Approach Delay			53.9					49.3			55.8	
Approach LOS			D					D			E	
Queue Length 50th (ft)	102	336	2	84	266	13	48	405	74	49	265	53
Queue Length 95th (ft)	#180	#445	45	#145	341	30	80	#556	135	81	336	96
Internal Link Dist (ft)		1572			1613			1622			1847	
Turn Bay Length (ft)	230			230	150		115	220		220	230	230
Base Capacity (vph)	300	1041	530	344	933	609	250	1104	710	360	1249	771
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	0.93	0.91	0.24	0.83	0.82	0.09	0.54	1.00	0.33	0.40	0.68	0.23

Intersection Summary

Area Type:	Other
Cycle Length:	110
Actuated Cycle Length:	110
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBT, Start of Green	
Natural Cycle:	90
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	1.00
Intersection Signal Delay:	48.5
Intersection Capacity Utilization:	88.3%
ICU Level of Service:	E
Analysis Period (min):	15
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 107: LA 1 & Bert Kouns Industrial Loop



Lanes, Volumes, Timings
 108: Bert Kouns Industrial Loop & LA 3132 EB Off Ramp/LA 3132 EB Off Ramp with Improvements

LA 3132 (Inner Loop) Extension - Stage 0 Study



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔				↕	↕		↔	↔	
Volume (vph)	670	4	7	0	0	0	0	1289	30	0	779	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		110	0		0	0		0	295	0	
Storage Lanes	1		1	0		0	0		0	1	0	
Taper Length (ft)	50			50			50			50		
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt			0.850					0.997				
Fit Protected	0.950	0.953										
Satd. Flow (prot)	1681	1687	1615	0	0	0	0	3520	0	1827	3574	0
Fit Permitted	0.950	0.953										
Satd. Flow (perm)	1681	1687	1615	0	0	0	0	3520	0	1827	3574	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			5					3				
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1564			1165			530			537	
Travel Time (s)		23.7			17.7			8.0			8.1	
Peak Hour Factor	0.83	0.83	0.83	0.92	0.92	0.92	0.87	0.87	0.87	0.82	0.82	0.82
Heavy Vehicles (%)	2%	0%	0%	0%	0%	0%	0%	2%	13%	4%	1%	0%
Adj. Flow (vph)	807	5	8	0	0	0	0	1482	34	0	950	0
Shared Lane Traffic (%)	50%											
Lane Group Flow (vph)	403	409	8	0	0	0	0	1516	0	0	950	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			27			27	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Split	NA	Perm					NA	custom		NA	
Protected Phases	4	4						6		5	2.5	
Permitted Phases			4							2		
Detector Phase	4	4	4					6		5	2.5	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0					15.0		5.0		
Minimum Split (s)	11.0	11.0	11.0					21.0		10.0		
Total Split (s)	36.0	36.0	36.0					54.0		20.0		
Total Split (%)	32.7%	32.7%	32.7%					49.1%		18.2%		
Yellow Time (s)	5.0	5.0	5.0					5.0		5.0		
All-Red Time (s)	1.0	1.0	1.0					1.0		0.0		
Lost Time Adjust (s)	0.0	0.0	0.0					0.0		0.0		
Total Lost Time (s)	6.0	6.0	6.0					6.0		5.0		
Lead/Lag								Lag		Lead		
Lead-Lag Optimize?								Yes		Yes		
Recall Mode	None	None	None					None		None		
Act Effct Green (s)	28.5	28.5	28.5					48.1			68.1	
Actuated g/C Ratio	0.26	0.26	0.26					0.44			0.63	
v/c Ratio	0.91	0.92	0.02					0.97			0.42	

Lanes, Volumes, Timings
 108: Bert Kouns Industrial Loop & LA 3132 EB Off Ramp/LA 3132 EB Off Ramp with Improvements

LA 3132 (Inner Loop) Extension - Stage 0 Study

Lane Group	ø1	ø2	ø8
Lane Configurations			
Volume (vph)			
Ideal Flow (vphpl)			
Storage Length (ft)			
Storage Lanes			
Taper Length (ft)			
Lane Util. Factor			
Frt			
Fit Protected			
Satd. Flow (prot)			
Fit Permitted			
Satd. Flow (perm)			
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (mph)			
Link Distance (ft)			
Travel Time (s)			
Peak Hour Factor			
Heavy Vehicles (%)			
Adj. Flow (vph)			
Shared Lane Traffic (%)			
Lane Group Flow (vph)			
Enter Blocked Intersection			
Lane Alignment			
Median Width(ft)			
Link Offset(ft)			
Crosswalk Width(ft)			
Two way Left Turn Lane			
Headway Factor			
Turning Speed (mph)			
Turn Type			
Protected Phases	1	2	8
Permitted Phases			
Detector Phase			
Switch Phase			
Minimum Initial (s)	5.0	15.0	12.0
Minimum Split (s)	10.0	21.0	18.0
Total Split (s)	20.0	54.0	36.0
Total Split (%)	18%	49%	33%
Yellow Time (s)	5.0	5.0	5.0
All-Red Time (s)	0.0	1.0	1.0
Lost Time Adjust (s)			
Total Lost Time (s)			
Lead/Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	
Recall Mode	None	None	None
Act Effct Green (s)			
Actuated g/C Ratio			
v/c Ratio			

Lanes, Volumes, Timings
 108: Bert Kouns Industrial Loop & LA 3132 EB Off Ramp/LA 3132 EB On Ramp with Improvements

LA 3132 (Inner Loop) Extension - Stage 0 Study

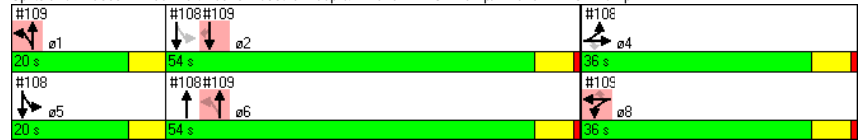


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	65.5	67.1	21.1					47.5			5.0	
Queue Delay	3.1	3.5	0.0					12.9			0.0	
Total Delay	68.6	70.6	21.1					60.4			5.0	
LOS	E	E	C					E			A	
Approach Delay		69.2						60.4			5.0	
Approach LOS		E						E			A	
Queue Length 50th (ft)	286	292	2					544			55	
Queue Length 95th (ft)	#406	#413	13					#673			59	
Internal Link Dist (ft)		1484				1085		450			457	
Turn Bay Length (ft)			110									
Base Capacity (vph)	465	466	450					1559			2240	
Starvation Cap Reductn	0	0	0					0			0	
Spillback Cap Reductn	22	22	0					83			0	
Storage Cap Reductn	0	0	0					0			0	
Reduced v/c Ratio	0.91	0.92	0.02					1.03			0.42	

Intersection Summary

Area Type: Other
 Cycle Length: 110
 Actuated Cycle Length: 108.6
 Natural Cycle: 90
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.01
 Intersection Signal Delay: 46.6
 Intersection Capacity Utilization 85.7%
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 108: Bert Kouns Industrial Loop & LA 3132 EB Off Ramp/LA 3132 EB On Ramp



Lanes, Volumes, Timings
 108: Bert Kouns Industrial Loop & LA 3132 EB Off Ramp/LA 3132 EB On Ramp with Improvements

LA 3132 (Inner Loop) Extension - Stage 0 Study

Lane Group	ø1	ø2	ø8
Control Delay			
Queue Delay			
Total Delay			
LOS			
Approach Delay			
Approach LOS			
Queue Length 50th (ft)			
Queue Length 95th (ft)			
Internal Link Dist (ft)			
Turn Bay Length (ft)			
Base Capacity (vph)			
Starvation Cap Reductn			
Spillback Cap Reductn			
Storage Cap Reductn			
Reduced v/c Ratio			

Intersection Summary

Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
 109: Bert Kouns Industrial Loop & LA 3132 WB On Ramp/LA 3132 WB On Ramp with Improvements



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	43	0	0	14	1959	0	0	736	926
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	0	0	0	200	295	0	0	0	0	100
Storage Lanes	0	0	0	0	0	1	1	0	0	0	0	1
Taper Length (ft)	50			50			50			50		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frnt												0.850
Fit Protected					0.950		0.950					
Satd. Flow (prot)	0	0	0	0	1805	1881	1805	3539	0	0	3539	1568
Fit Permitted					0.950		0.246					
Satd. Flow (perm)	0	0	0	0	1805	1881	467	3539	0	0	3539	1568
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)												694
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		276			1075			537			687	
Travel Time (s)		4.2			16.3			8.1			10.4	
Peak Hour Factor	0.92	0.92	0.92	0.81	0.81	0.81	0.86	0.86	0.86	0.89	0.89	0.89
Heavy Vehicles (%)	0%	0%	0%	0%	0%	1%	0%	2%	0%	0%	2%	3%
Adj. Flow (vph)	0	0	0	53	0	0	16	2278	0	0	827	1040
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	53	0	16	2278	0	0	827	1040
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			27			27	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type			Split	NA	Perm	custom	NA			NA	Perm	
Protected Phases				8	8		1	1	6		2	
Permitted Phases						8	6					2
Detector Phase				8	8	8	1	1	6		2	2
Switch Phase												
Minimum Initial (s)				12.0	12.0	12.0	5.0				15.0	15.0
Minimum Split (s)				18.0	18.0	18.0	10.0				21.0	21.0
Total Split (s)				36.0	36.0	36.0	20.0				54.0	54.0
Total Split (%)				32.7%	32.7%	32.7%	18.2%				49.1%	49.1%
Yellow Time (s)				5.0	5.0	5.0	5.0				5.0	5.0
All-Red Time (s)				1.0	1.0	1.0	0.0				1.0	1.0
Lost Time Adjust (s)					0.0	0.0	0.0				0.0	0.0
Total Lost Time (s)					6.0	6.0	5.0				6.0	6.0
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Recall Mode				None	None	None	None				None	None
Act Effect Green (s)					28.5		64.1	69.1			48.1	48.1
Actuated g/C Ratio					0.26		0.59	0.64			0.44	0.44
v/c Ratio					0.11		0.03	1.01			0.53	0.96

Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
 109: Bert Kouns Industrial Loop & LA 3132 WB On Ramp/LA 3132 WB On Ramp with Improvements

Lane Group	ø4	ø5	ø6
Lane Configurations			
Volume (vph)			
Ideal Flow (vphpl)			
Storage Length (ft)			
Storage Lanes			
Taper Length (ft)			
Lane Util. Factor			
Frnt			
Fit Protected			
Satd. Flow (prot)			
Fit Permitted			
Satd. Flow (perm)			
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (mph)			
Link Distance (ft)			
Travel Time (s)			
Peak Hour Factor			
Heavy Vehicles (%)			
Adj. Flow (vph)			
Shared Lane Traffic (%)			
Lane Group Flow (vph)			
Enter Blocked Intersection			
Lane Alignment			
Median Width(ft)			
Link Offset(ft)			
Crosswalk Width(ft)			
Two way Left Turn Lane			
Headway Factor			
Turning Speed (mph)			
Turn Type			
Protected Phases	4	5	6
Permitted Phases			
Detector Phase			
Switch Phase			
Minimum Initial (s)	5.0	5.0	15.0
Minimum Split (s)	11.0	10.0	21.0
Total Split (s)	36.0	20.0	54.0
Total Split (%)	33%	18%	49%
Yellow Time (s)	5.0	5.0	5.0
All-Red Time (s)	1.0	0.0	1.0
Lost Time Adjust (s)			
Total Lost Time (s)			
Lead/Lag		Lead	Lag
Lead-Lag Optimize?		Yes	Yes
Recall Mode	None	None	None
Act Effect Green (s)			
Actuated g/C Ratio			
v/c Ratio			

Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
 109: Bert Kouns Industrial Loop & LA 3132 WB On Ramp/LA 3132 WB Off Ramp with Improvements

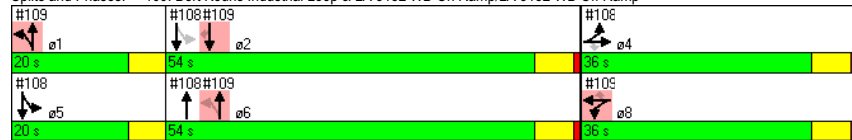


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay					30.9		8.4	31.0			23.8	30.8
Queue Delay					0.0		0.0	6.6			0.0	0.0
Total Delay					30.9		8.4	37.6			23.8	30.8
LOS					C		A	D			C	C
Approach Delay					30.9			37.4			27.7	
Approach LOS					C			D			C	
Queue Length 50th (ft)					28		5	~427			221	315
Queue Length 95th (ft)					54		m5	m#940			276	#673
Internal Link Dist (ft)		196			995			457			607	
Turn Bay Length (ft)							295					100
Base Capacity (vph)					499		460	2251			1566	1080
Starvation Cap Reductn					0		0	44			0	0
Spillback Cap Reductn					0		0	0			0	0
Storage Cap Reductn					0		0	0			0	0
Reduced v/c Ratio					0.11		0.03	1.03			0.53	0.96

Intersection Summary

Area Type: Other
 Cycle Length: 110
 Actuated Cycle Length: 108.6
 Natural Cycle: 90
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.01
 Intersection Signal Delay: 33.0 Intersection LOS: C
 Intersection Capacity Utilization 85.7% ICU Level of Service E
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 109: Bert Kouns Industrial Loop & LA 3132 WB On Ramp/LA 3132 WB Off Ramp

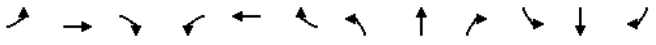


Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
 109: Bert Kouns Industrial Loop & LA 3132 WB On Ramp/LA 3132 WB Off Ramp with Improvements

Lane Group	ø4	ø5	ø6
Control Delay			
Queue Delay			
Total Delay			
LOS			
Approach Delay			
Approach LOS			
Queue Length 50th (ft)			
Queue Length 95th (ft)			
Internal Link Dist (ft)			
Turn Bay Length (ft)			
Base Capacity (vph)			
Starvation Cap Reductn			
Spillback Cap Reductn			
Storage Cap Reductn			
Reduced v/c Ratio			

Intersection Summary


Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
 110: Ashley River Dr SB & Flournoy Lucas Rd 2015 Alternative C AM Peak with Improvements



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↕↔		↔	↕↔						↕↔	
Volume (vph)	0	429	98	26	324	8	0	0	0	4	0	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	180	0	120	0	120	0	0	0	0	0	0	0
Storage Lanes	1		0	1		0	0	0	0	0		0
Taper Length (ft)	50			50		50				50		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.972			0.996						0.961	
Fit Protected				0.950							0.966	
Satd. Flow (prot)	1900	3188	0	1703	3397	0	0	0	0	0	1764	0
Fit Permitted				0.950							0.966	
Satd. Flow (perm)	1900	3188	0	1703	3397	0	0	0	0	0	1764	0
Link Speed (mph)		45			45					30		30
Link Distance (ft)		750			127					320		340
Travel Time (s)		11.4			1.9					7.3		7.7
Peak Hour Factor	0.87	0.87	0.87	0.89	0.89	0.89	0.92	0.92	0.92	0.80	0.80	0.80
Heavy Vehicles (%)	0%	11%	6%	6%	6%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	493	113	29	364	9	0	0	0	5	0	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	606	0	29	373	0	0	0	0	0	7	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			14					0		0
Link Offset(ft)		0			0					0		0
Crosswalk Width(ft)		16			16					16		16
Two way Left Turn Lane					Yes							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

Intersection Summary
 Area Type: Other
 Control Type: Unsignalized
 Intersection Capacity Utilization 31.6% ICU Level of Service A
 Analysis Period (min) 15

HCM Unsignalized Intersection Capacity Analysis LA 3132 (Inner Loop) Extension - Stage 0 Study
 110: Ashley River Dr SB & Flournoy Lucas Rd 2015 Alternative C AM Peak with Improvements



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↕↔		↔	↕↔						↕↔	
Volume (veh/h)	0	429	98	26	324	8	0	0	0	4	0	2
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.87	0.87	0.87	0.89	0.89	0.89	0.92	0.92	0.92	0.80	0.80	0.80
Hourly flow rate (vph)	0	493	113	29	364	9	0	0	0	5	0	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)												
pX, platoon unblocked												
vC, conflicting volume	373			606			792	981	303	674	1033	187
vC1, stage 1 conf vol							549	549		427	427	
vC2, stage 2 conf vol							243	431		247	606	
vCu, unblocked vol	373			606			792	981	303	674	1033	187
tC, single (s)	4.1			4.2			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			2.3		3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			97			100	100	100	99	100	100
cM capacity (veh/h)	1197			941			451	431	699	509	401	830

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1
Volume Total	0	329	277	29	243	130	8
Volume Left	0	0	0	29	0	0	5
Volume Right	0	0	113	0	0	9	2
cSH	1700	1700	1700	941	1700	1700	584
Volume to Capacity	0.00	0.19	0.16	0.03	0.14	0.08	0.01
Queue Length 95th (ft)	0	0	0	2	0	0	1
Control Delay (s)	0.0	0.0	0.0	8.9	0.0	0.0	11.2
Lane LOS				A			B
Approach Delay (s)	0.0			0.6			11.2
Approach LOS				B			B

Intersection Summary
 Average Delay 0.3
 Intersection Capacity Utilization 31.6% ICU Level of Service A
 Analysis Period (min) 15

Lanes, Volumes, Timings

LA 3132 (Inner Loop) Extension - Stage 0 Study

111: Ashley River Dr NB & Flournoy Lucas Rd

2015 Alternative C AM Peak with Improvements

	→	↖	↗	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑	↖	↗
Volume (vph)	433	0	0	69	289	103
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt						0.850
Fit Protected					0.950	
Satd. Flow (prot)	3282	0	0	3374	1805	1568
Fit Permitted				0.950		
Satd. Flow (perm)	3282	0	0	3374	1805	1568
Link Speed (mph)	45			45	30	
Link Distance (ft)	127			2333	283	
Travel Time (s)	1.9			35.3	6.4	
Peak Hour Factor	0.80	0.80	0.84	0.84	0.81	0.81
Heavy Vehicles (%)	10%	0%	0%	7%	0%	3%
Adj. Flow (vph)	541	0	0	82	357	127
Shared Lane Traffic (%)						
Lane Group Flow (vph)	541	0	0	82	357	127
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	14			14	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane	Yes			Yes		
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	34.6%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis LA 3132 (Inner Loop) Extension - Stage 0 Study

111: Ashley River Dr NB & Flournoy Lucas Rd

2015 Alternative C AM Peak with Improvements

	→	↖	↗	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑	↖	↗
Volume (veh/h)	433	0	0	69	289	103
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.80	0.80	0.84	0.84	0.81	0.81
Hourly flow rate (vph)	541	0	0	82	357	127
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			541		582	271
vC1, stage 1 conf vol					541	
vC2, stage 2 conf vol					41	
vCu, unblocked vol			541		582	271
tC, single (s)			4.1		6.8	7.0
tC, 2 stage (s)					5.8	
tF (s)			2.2		3.5	3.3
p0 queue free %			100		34	82
cM capacity (veh/h)			1038		537	724

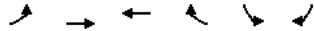
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2
Volume Total	271	271	41	41	357	127
Volume Left	0	0	0	0	357	0
Volume Right	0	0	0	0	0	127
cSH	1700	1700	1700	1700	537	724
Volume to Capacity	0.16	0.16	0.02	0.02	0.66	0.18
Queue Length 95th (ft)	0	0	0	0	122	16
Control Delay (s)	0.0	0.0	0.0	0.0	24.0	11.0
Lane LOS					C	B
Approach Delay (s)	0.0		0.0		20.6	
Approach LOS					C	

Intersection Summary

Average Delay	9.0
Intersection Capacity Utilization	34.6%
Analysis Period (min)	15
	ICU Level of Service A

Lanes, Volumes, Timings
 112: Flournoy Lucas Rd & Oaks Retirement Rd

LA 3132 (Inner Loop) Extension - Stage 0 Study
 2015 Alternative C AM Peak with Improvements

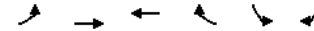


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↔	↕↕	↕↕		↔	↕↕
Volume (vph)	38	498	53	27	6	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	375			0	0	0
Storage Lanes	1			0	1	1
Taper Length (ft)	50				50	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Frt			0.949			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1687	3610	3273	0	1805	1524
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1687	3610	3273	0	1805	1524
Link Speed (mph)		45	45		30	
Link Distance (ft)		2333	1050		729	
Travel Time (s)		35.3	15.9		16.6	
Peak Hour Factor	0.80	0.80	0.81	0.81	0.80	0.80
Heavy Vehicles (%)	7%	0%	5%	4%	0%	6%
Adj. Flow (vph)	48	623	65	33	8	20
Shared Lane Traffic (%)						
Lane Group Flow (vph)	48	622	98	0	8	20
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		14	14		28	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane		Yes	Yes			
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	23.8%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis
 112: Flournoy Lucas Rd & Oaks Retirement Rd

LA 3132 (Inner Loop) Extension - Stage 0 Study
 2015 Alternative C AM Peak with Improvements



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↔	↕↕	↕↕		↔	↕↕
Volume (veh/h)	38	498	53	27	6	16
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.80	0.80	0.81	0.81	0.80	0.80
Hourly flow rate (vph)	48	622	65	33	8	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	99				488	49
vC1, stage 1 conf vol					82	
vC2, stage 2 conf vol					406	
vCu, unblocked vol	99				488	49
tC, single (s)	4.2				6.8	7.0
tC, 2 stage (s)					5.8	
tF (s)	2.3				3.5	3.4
p0 queue free %	97				99	98
cM capacity (veh/h)	1456				603	996

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1	SB 2
Volume Total	48	311	311	44	55	8	20
Volume Left	48	0	0	0	0	8	0
Volume Right	0	0	0	0	33	0	20
cSH	1456	1700	1700	1700	1700	603	996
Volume to Capacity	0.03	0.18	0.18	0.03	0.03	0.01	0.02
Queue Length 95th (ft)	3	0	0	0	0	1	2
Control Delay (s)	7.6	0.0	0.0	0.0	0.0	11.0	8.7
Lane LOS	A					B	A
Approach Delay (s)	0.5			0.0		9.3	
Approach LOS						A	

Intersection Summary	
Average Delay	0.8
Intersection Capacity Utilization	23.8%
Analysis Period (min)	15
	ICU Level of Service A

Lanes, Volumes, Timings
201: LA 1 & I-69 WB Ramp

LA 3132 (Inner Loop) Extension - Stage 0 Study
2015 Alternative C AM Peak with Improvements

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔	↔	↕	↕	↔	↕
Volume (vph)	84	0	216	0	62	464
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300	0	0	0	275	
Storage Lanes	1	1		1	1	
Taper Length (ft)	50				50	
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Friction						
Fit Protected	0.950				0.950	
Satd. Flow (prot)	1641	1727	3195	1681	1656	3312
Fit Permitted	0.950				0.950	
Satd. Flow (perm)	1641	1727	3195	1681	1656	3312
Link Speed (mph)	40		65		65	
Link Distance (ft)	381		1423		531	
Travel Time (s)	6.5		14.9		5.6	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Heavy Vehicles (%)	10%	10%	13%	13%	9%	9%
Adj. Flow (vph)	105	0	270	0	69	516
Shared Lane Traffic (%)						
Lane Group Flow (vph)	105	0	270	0	69	516
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		76		76	
Link Offset(ft)	0		0		0	
Crosswalk Width(ft)	16		16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	24.1%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis LA 3132 (Inner Loop) Extension - Stage 0 Study
201: LA 1 & I-69 WB Ramp

2015 Alternative C AM Peak with Improvements

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔	↔	↕	↕	↔	↕
Volume (veh/h)	84	0	216	0	62	464
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Hourly flow rate (vph)	105	0	270	0	69	516
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			Raised			Raised
Median storage (veh)			3			3
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	666	135			270	
vC1, stage 1 conf vol	270					
vC2, stage 2 conf vol	396					
vCu, unblocked vol	666	135			270	
tC, single (s)	7.0	7.1			4.3	
tC, 2 stage (s)	6.0					
tF (s)	3.6	3.4			2.3	
p0 queue free %	81	100			94	
cM capacity (veh/h)	561	864			1241	

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	105	0	135	135	0	69	258	258
Volume Left	105	0	0	0	0	69	0	0
Volume Right	0	0	0	0	0	0	0	0
cSH	561	1700	1700	1700	1700	1241	1700	1700
Volume to Capacity	0.19	0.00	0.08	0.08	0.00	0.06	0.15	0.15
Queue Length 95th (ft)	17	0	0	0	0	4	0	0
Control Delay (s)	12.9	0.0	0.0	0.0	0.0	8.1	0.0	0.0
Lane LOS	B	A				A		
Approach Delay (s)	12.9		0.0			1.0		
Approach LOS	B							

Intersection Summary	
Average Delay	2.0
Intersection Capacity Utilization	24.1%
Analysis Period (min)	15
	ICU Level of Service A

Lanes, Volumes, Timings
202: LA 1 & I-69 EB Ramp

LA 3132 (Inner Loop) Extension - Stage 0 Study
2015 Alternative C AM Peak with Improvements

	↖	↗	↑	↘	↙	↓
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↘	↕	↘	↘	↕
Volume (vph)	4	40	176	59	309	238
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300	0		490	260	
Storage Lanes	1	1		1	1	
Taper Length (ft)	50				50	
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt		0.850		0.850		
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1641	1468	3195	1429	1656	3312
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1641	1468	3195	1429	1656	3312
Link Speed (mph)	40		65		65	
Link Distance (ft)	452		3194		1423	
Travel Time (s)	7.7		33.5		14.9	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Heavy Vehicles (%)	10%	10%	13%	13%	9%	9%
Adj. Flow (vph)	5	50	220	74	343	264
Shared Lane Traffic (%)						
Lane Group Flow (vph)	5	50	220	74	343	264
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	24		76		76	
Link Offset(ft)	0		0		0	
Crosswalk Width(ft)	16		16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free		Free	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	35.3%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis LA 3132 (Inner Loop) Extension - Stage 0 Study
202: LA 1 & I-69 EB Ramp

2015 Alternative C AM Peak with Improvements

	↖	↗	↑	↘	↙	↓
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↘	↕	↘	↘	↕
Volume (veh/h)	4	40	176	59	309	238
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Hourly flow rate (vph)	5	50	220	74	343	264
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			Raised		Raised	
Median storage (veh)			3		3	
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1039	110			220	
vC1, stage 1 conf vol	220					
vC2, stage 2 conf vol	819					
vCu, unblocked vol	1039	110			220	
tC, single (s)	7.0	7.1			4.3	
tC, 2 stage (s)	6.0					
tF (s)	3.6	3.4			2.3	
p0 queue free %	98	94			74	
cM capacity (veh/h)	273	897			1297	

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	5	50	110	110	74	343	132	132
Volume Left	5	0	0	0	0	343	0	0
Volume Right	0	50	0	0	74	0	0	0
cSH	273	897	1700	1700	1700	1297	1700	1700
Volume to Capacity	0.02	0.06	0.06	0.06	0.04	0.26	0.08	0.08
Queue Length 95th (ft)	1	4	0	0	0	27	0	0
Control Delay (s)	18.5	9.2	0.0	0.0	0.0	8.8	0.0	0.0
Lane LOS	C	A				A		
Approach Delay (s)	10.1		0.0			5.0		
Approach LOS	B							

Intersection Summary	
Average Delay	3.7
Intersection Capacity Utilization	35.3%
Analysis Period (min)	15
	ICU Level of Service A

Lanes, Volumes, Timings
301: LA 1 & Gate A

LA 3132 (Inner Loop) Extension - Stage 0 Study
2015 Alternative C AM Peak with Improvements

	←		↑		→	
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↕		↔	↕
Volume (vph)	5	14	809	8	21	583
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	0	0	250	
Storage Lanes	1	0		0	1	
Taper Length (ft)	50				50	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Frt	0.899		0.999			
Flt Protected	0.988				0.950	
Satd. Flow (prot)	1259	0	3184	0	1280	3312
Flt Permitted	0.988				0.950	
Satd. Flow (perm)	1259	0	3184	0	1280	3312
Link Speed (mph)	40		65		65	
Link Distance (ft)	496		4383		376	
Travel Time (s)	8.5		46.0		3.9	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Heavy Vehicles (%)	34%	34%	13%	41%	41%	9%
Adj. Flow (vph)	6	18	1011	10	23	648
Shared Lane Traffic (%)						
Lane Group Flow (vph)	24	0	1021	0	23	648
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		66		66	
Link Offset(ft)	0		0		0	
Crosswalk Width(ft)	16		16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free		Free	

Intersection Summary

Area Type: Other
 Control Type: Unsignalized
 Intersection Capacity Utilization 32.6% ICU Level of Service A
 Analysis Period (min) 15

HCM Unsignalized Intersection Capacity Analysis LA 3132 (Inner Loop) Extension - Stage 0 Study
301: LA 1 & Gate A

2015 Alternative C AM Peak with Improvements

	←		↑		→	
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↕		↔	↕
Volume (veh/h)	5	14	809	8	21	583
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Hourly flow rate (vph)	6	18	1011	10	23	648
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			Raised		Raised	
Median storage (veh)			2		2	
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1387	511			1021	
vC1, stage 1 conf vol	1016					
vC2, stage 2 conf vol	371					
vCu, unblocked vol	1387	511			1021	
tC, single (s)	7.5	7.6			4.9	
tC, 2 stage (s)	6.5					
tF (s)	3.8	3.6			2.6	
p0 queue free %	97	96			95	
cM capacity (veh/h)	230	432			484	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	24	674	347	23	324	324
Volume Left	6	0	0	23	0	0
Volume Right	18	0	10	0	0	0
cSH	351	1700	1700	484	1700	1700
Volume to Capacity	0.07	0.40	0.20	0.05	0.19	0.19
Queue Length 95th (ft)	5	0	0	4	0	0
Control Delay (s)	16.0	0.0	0.0	12.8	0.0	0.0
Lane LOS	C			B		
Approach Delay (s)	16.0	0.0		0.4		
Approach LOS	C					

Intersection Summary

Average Delay 0.4
 Intersection Capacity Utilization 32.6% ICU Level of Service A
 Analysis Period (min) 15

Lanes, Volumes, Timings
302: LA 1 & Gate B

LA 3132 (Inner Loop) Extension - Stage 0 Study
2015 Alternative C AM Peak with Improvements

Lane Group	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Lane Configurations							
Volume (vph)	19	40	0	776	42	104	485
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	250		0	250	
Storage Lanes	1	1	1		0	1	
Taper Length (ft)	50		50			50	
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	0.95
Frt		0.850		0.992			
Flt Protected	0.950					0.950	
Satd. Flow (prot)	1271	1137	1681	3151	0	1433	3312
Flt Permitted	0.950					0.950	
Satd. Flow (perm)	1271	1137	1681	3151	0	1433	3312
Link Speed (mph)	40			65			65
Link Distance (ft)	464			1578			4383
Travel Time (s)	7.9			16.6			46.0
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.90	0.90
Heavy Vehicles (%)	42%	42%	13%	13%	26%	26%	9%
Adj. Flow (vph)	24	50	0	970	53	116	539
Shared Lane Traffic (%)							
Lane Group Flow (vph)	24	50	0	1022	0	116	539
Enter Blocked Intersection	No	No	No	No	No	No	No
Lane Alignment	Left	Right	R NA	Left	Right	Left	Left
Median Width(ft)	20			66			66
Link Offset(ft)	0			0			0
Crosswalk Width(ft)	16			16			16
Two way Left Turn Lane							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	9		9	15	
Sign Control	Stop			Free			Free

Intersection Summary

Area Type: Other
 Control Type: Unsignalized
 Intersection Capacity Utilization 41.9% ICU Level of Service A
 Analysis Period (min) 15

HCM Unsignalized Intersection Capacity Analysis LA 3132 (Inner Loop) Extension - Stage 0 Study
302: LA 1 & Gate B

2015 Alternative C AM Peak with Improvements

Movement	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Lane Configurations							
Volume (veh/h)	19	40	0	776	42	104	485
Sign Control	Stop			Free			Free
Grade	0%			0%			0%
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.90	0.90
Hourly flow rate (vph)	24	50	0	970	52	116	539
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type				Raised			Raised
Median storage (veh)				2			2
Upstream signal (ft)							
pX, platoon unblocked			0.00				
vC, conflicting volume	1497	511	0			1022	
vC1, stage 1 conf vol	996						
vC2, stage 2 conf vol	501						
vCu, unblocked vol	1497	511	0			1022	
tC, single (s)	7.6	7.7	0.0			4.6	
tC, 2 stage (s)	6.6						
tF (s)	3.9	3.7	0.0			2.5	
p0 queue free %	88	88	0			79	
cM capacity (veh/h)	204	415	0			548	

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	24	50	647	376	0	116	269	269
Volume Left	24	0	0	0	0	116	0	0
Volume Right	0	50	0	52	0	0	0	0
cSH	204	415	1700	1700	1700	548	1700	1700
Volume to Capacity	0.12	0.12	0.38	0.22	0.00	0.21	0.16	0.16
Queue Length 95th (ft)	10	10	0	0	0	20	0	0
Control Delay (s)	25.0	14.9	0.0	0.0	0.0	13.3	0.0	0.0
Lane LOS	C	B				B		
Approach Delay (s)	18.1		0.0			2.4		
Approach LOS	C							

Intersection Summary

Average Delay 1.6
 Intersection Capacity Utilization 41.9% ICU Level of Service A
 Analysis Period (min) 15

Lanes, Volumes, Timings
303: LA 1 & Gate C

LA 3132 (Inner Loop) Extension - Stage 0 Study
2015 Alternative C AM Peak with Improvements

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↑	↑↑	↑		↑↑
Volume (vph)	0	24	800	34	0	525
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	0	0	250	
Storage Lanes	0	1		1	0	
Taper Length (ft)	50				50	
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt		0.865		0.850		
Flt Protected						
Satd. Flow (prot)	0	1166	3195	1214	0	3312
Flt Permitted						
Satd. Flow (perm)	0	1166	3195	1214	0	3312
Link Speed (mph)	40		65			65
Link Distance (ft)	508		531			1081
Travel Time (s)	8.7		5.6			11.3
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Heavy Vehicles (%)	41%	41%	13%	33%	33%	9%
Adj. Flow (vph)	0	30	1000	43	0	583
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	30	1000	42	0	583
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	0		76			76
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary

Area Type: Other
 Control Type: Unsignalized
 Intersection Capacity Utilization 32.1% ICU Level of Service A
 Analysis Period (min) 15

HCM Unsignalized Intersection Capacity Analysis LA 3132 (Inner Loop) Extension - Stage 0 Study
303: LA 1 & Gate C

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↑	↑↑	↑		↑↑
Volume (veh/h)	0	24	800	34	0	525
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Hourly flow rate (vph)	0	30	1000	42	0	583
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			Raised			Raised
Median storage (veh)			3			3
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1292	500			1042	
vC1, stage 1 conf vol	1000					
vC2, stage 2 conf vol	292					
vCu, unblocked vol	1292	500			1042	
tC, single (s)	7.6	7.7			4.8	
tC, 2 stage (s)	6.6					
tF (s)	3.9	3.7			2.5	
p0 queue free %	100	93			100	
cM capacity (veh/h)	237	425			506	

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	30	500	500	42	292	292
Volume Left	0	0	0	0	0	0
Volume Right	30	0	0	42	0	0
cSH	425	1700	1700	1700	1700	1700
Volume to Capacity	0.07	0.29	0.29	0.03	0.17	0.17
Queue Length 95th (ft)	6	0	0	0	0	0
Control Delay (s)	14.1	0.0	0.0	0.0	0.0	0.0
Lane LOS	B					
Approach Delay (s)	14.1	0.0			0.0	
Approach LOS	B					

Intersection Summary

Average Delay 0.3
 Intersection Capacity Utilization 32.1% ICU Level of Service A
 Analysis Period (min) 15

Lanes, Volumes, Timings
304: LA 1 & Gate D

LA 3132 (Inner Loop) Extension - Stage 0 Study
2015 Alternative C AM Peak with Improvements

	↙	↖	↑	↗	↘	↓
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↙	↖	↑↑	↗	↘	↘↘
Volume (vph)	1	21	216	0	21	222
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	250		300	280	
Storage Lanes	1	1		1	1	
Taper Length (ft)	50				50	
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt	0.850					
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1068	956	3195	1118	1062	3312
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1068	956	3195	1118	1062	3312
Link Speed (mph)	40		65		65	
Link Distance (ft)	420		716		503	
Travel Time (s)	7.2		7.5		5.3	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Heavy Vehicles (%)	69%	69%	13%	70%	70%	9%
Adj. Flow (vph)	1	26	270	0	23	247
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1	26	270	0	23	247
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		76		76	
Link Offset(ft)	0		0		0	
Crosswalk Width(ft)	16		16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	22.6%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis LA 3132 (Inner Loop) Extension - Stage 0 Study
304: LA 1 & Gate D

2015 Alternative C AM Peak with Improvements

	↙	↖	↑	↗	↘	↓
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↙	↖	↑↑	↗	↘	↘↘
Volume (veh/h)	1	21	216	0	21	222
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Hourly flow rate (vph)	1	26	270	0	23	247
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		10				
Median type			Raised			Raised
Median storage (veh)			3			3
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	440	135			270	
vC1, stage 1 conf vol	270					
vC2, stage 2 conf vol	170					
vCu, unblocked vol	440	135			270	
tC, single (s)	8.2	8.3			5.5	
tC, 2 stage (s)	7.2					
tF (s)	4.2	4.0			2.9	
p0 queue free %	100	96			97	
cM capacity (veh/h)	553	712			914	

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	28	135	135	0	23	123	123
Volume Left	1	0	0	0	23	0	0
Volume Right	26	0	0	0	0	0	0
cSH	746	1700	1700	1700	914	1700	1700
Volume to Capacity	0.04	0.08	0.08	0.00	0.03	0.07	0.07
Queue Length 95th (ft)	3	0	0	0	2	0	0
Control Delay (s)	10.3	0.0	0.0	0.0	9.0	0.0	0.0
Lane LOS	B				A		
Approach Delay (s)	10.3	0.0			0.8		
Approach LOS	B						

Intersection Summary

Average Delay	0.9
Intersection Capacity Utilization	22.6%
Analysis Period (min)	15
	ICU Level of Service A

Lanes, Volumes, Timings
103: LA 1 & Flournoy Lucas Rd

LA 3132 (Inner Loop) Extension - Stage 0 Study
2015 Alternative C PM Peak with Improvements

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔		↔	↔	↔	↔	↔	↔	↔	↔	↔
Volume (vph)	331	0	29	27	46	9	41	305	0	0	305	408
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	0	0	0	0	125	0	165	165	165	165
Storage Lanes	1	0	0	0	0	0	1	0	1	1	1	1
Taper Length (ft)	50			50			50		50			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt		0.850			0.986						0.850	
Frt Protected	0.950				0.984		0.950					
Satd. Flow (prot)	1787	1214	0	0	1823	0	1570	3374	0	1900	3438	1599
Frt Permitted	0.526				0.877		0.427					
Satd. Flow (perm)	990	1214	0	0	1625	0	705	3374	0	1900	3438	1599
Right Turn on Red			Yes			Yes			Yes			No
Satd. Flow (RTOR)		399			4							
Link Speed (mph)		50			50			55			55	
Link Distance (ft)		784			651			1092			934	
Travel Time (s)		10.7			8.9			13.5			11.6	
Peak Hour Factor	0.89	0.89	0.89	0.80	0.80	0.80	0.83	0.83	0.83	0.81	0.81	0.81
Heavy Vehicles (%)	1%	2%	33%	0%	2%	0%	15%	7%	0%	0%	5%	1%
Adj. Flow (vph)	372	0	33	34	58	11	49	367	0	0	377	504
Shared Lane Traffic (%)												
Lane Group Flow (vph)	372	33	0	0	103	0	49	367	0	0	377	504
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA		Perm	NA		pm+pt	NA		pm+pt	NA	pt+ov
Protected Phases	3	8			4		1	6		5	2	2 3
Permitted Phases	8			4			6			2		
Detector Phase	3	8		4	4		1	6		5	2	2 3
Switch Phase												
Minimum Initial (s)	5.0	10.0		7.0	7.0		7.0	15.0		5.0	15.0	
Minimum Split (s)	11.5	16.5		13.5	13.5		15.0	23.0		13.0	23.0	
Total Split (s)	30.0	60.0		30.0	30.0		15.0	60.0		15.0	60.0	
Total Split (%)	22.2%	44.4%		22.2%	22.2%		11.1%	44.4%		11.1%	44.4%	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.5	5.5		5.5	5.5	
All-Red Time (s)	1.5	1.5		1.5	1.5		2.5	2.5		2.5	2.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.5	6.5		6.5	6.5		8.0	8.0		8.0	8.0	
Lead/Lag	Lead			Lag	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes			Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None		None	Min		None	Min	
Act Effect Green (s)	35.8	35.8		16.0	16.0		45.1	45.1		34.4	65.8	
Actuated g/C Ratio	0.36	0.36		0.16	0.16		0.46	0.46		0.35	0.67	
v/c Ratio	0.71	0.05		0.38	0.38		0.12	0.24		0.31	0.47	

Lanes, Volumes, Timings
103: LA 1 & Flournoy Lucas Rd

LA 3132 (Inner Loop) Extension - Stage 0 Study
2015 Alternative C PM Peak with Improvements

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	34.8	0.1			48.6		17.3	17.4			26.9	14.6
Queue Delay	0.0	0.0			0.0		0.0	0.0			0.0	0.0
Total Delay	34.8	0.1			48.6		17.3	17.4			26.9	14.6
LOS	C	A			D		B	B			C	B
Approach Delay		31.9			48.6			17.4			19.9	
Approach LOS		C			D			B			B	
Queue Length 50th (ft)	185	0			62		18	76			102	196
Queue Length 95th (ft)	342	0			120		40	111			137	271
Internal Link Dist (ft)		704			571			1012			854	
Turn Bay Length (ft)							125					165
Base Capacity (vph)	653	877			465		397	2040			1981	1098
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	0.57	0.04			0.22		0.12	0.18			0.19	0.46

Intersection Summary

Area Type:	Other
Cycle Length:	135
Actuated Cycle Length:	98.1
Natural Cycle:	70
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.71
Intersection Signal Delay:	23.6
Intersection Capacity Utilization:	62.1%
Intersection LOS:	C
ICU Level of Service:	B
Analysis Period (min):	15

Splits and Phases: 103: LA 1 & Flournoy Lucas Rd



Lanes, Volumes, Timings
105: Ellerbe Rd & Flournoy Lucas Rd

LA 3132 (Inner Loop) Extension - Stage 0 Study
2015 Alternative C PM Peak with Improvements

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	11	110	72	122	175	180	43	480	74	319	1128	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	140	0	150	0	115	120	150	0	0	0	0	0
Storage Lanes	1	0	1	1	1	1	1	1	1	1	0	0
Taper Length (ft)	50		50		50		50		50		50	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00	0.95	0.95
Frt		0.940			0.850		0.850		0.997			
Flt Protected	0.950		0.950		0.950		0.950		0.950			
Satd. Flow (prot)	1805	1765	0	1787	1863	1615	1805	3539	1599	1752	3530	0
Flt Permitted	0.371		0.627		0.274		0.431					
Satd. Flow (perm)	705	1765	0	1180	1863	1615	521	3539	1599	795	3530	0
Right Turn on Red			Yes		Yes		Yes		Yes		Yes	
Satd. Flow (RTOR)		32			202		88		2			
Link Speed (mph)		45		45		45		45		45		45
Link Distance (ft)		848		838		697		896		896		
Travel Time (s)		12.8		12.7		10.6		13.6		13.6		
Peak Hour Factor	0.87	0.87	0.87	0.89	0.89	0.89	0.84	0.84	0.84	0.89	0.89	0.89
Heavy Vehicles (%)	0%	2%	0%	1%	2%	0%	0%	2%	1%	3%	2%	0%
Adj. Flow (vph)	13	126	83	137	197	202	51	571	88	358	1267	24
Shared Lane Traffic (%)												
Lane Group Flow (vph)	13	209	0	137	197	202	51	571	88	358	1291	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)	12		12		12		12		12		12	
Link Offset(ft)	0		0		0		0		0		0	
Crosswalk Width(ft)		16		16		16		16		16		16
Two way Left Turn Lane			Yes		Yes		Yes		Yes		Yes	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA		
Protected Phases	3	8	7	4	1	6	5	2				
Permitted Phases	8		4	4	6	6	2					
Detector Phase	3	8	7	4	4	1	6	6	5	2		
Switch Phase												
Minimum Initial (s)	7.0	15.0	7.0	15.0	15.0	7.0	10.0	10.0	7.0	10.0		
Minimum Split (s)	12.0	20.0	14.0	22.0	22.0	12.0	15.0	15.0	14.0	17.0		
Total Split (s)	12.0	20.0	14.0	22.0	22.0	12.0	27.0	27.0	29.0	44.0		
Total Split (%)	13.3%	22.2%	15.6%	24.4%	24.4%	13.3%	30.0%	30.0%	32.2%	48.9%		
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		
All-Red Time (s)	0.0	0.0	2.0	2.0	2.0	0.0	0.0	0.0	2.0	2.0		
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Total Lost Time (s)	5.0	5.0	7.0	7.0	7.0	5.0	5.0	5.0	7.0	7.0		
Lead/Lag	Lead	Lead	Lag	Lag	Lag	Lead	Lead	Lag	Lag	Lag		
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		
Recall Mode	None	Min	None	Min	Min	None	None	None	None	None		
Act Effect Green (s)	15.2	15.2	25.2	25.2	25.2	18.4	18.4	18.4	34.0	34.0		
Actuated g/C Ratio	0.18	0.18	0.31	0.31	0.31	0.22	0.22	0.22	0.41	0.41		
v/c Ratio	0.06	0.59	0.33	0.35	0.32	0.22	0.72	0.21	0.68	0.88		

Lanes, Volumes, Timings
105: Ellerbe Rd & Flournoy Lucas Rd

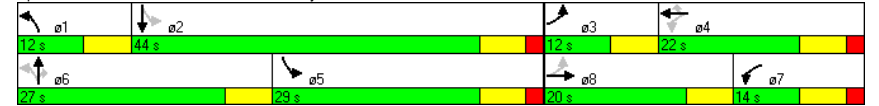
LA 3132 (Inner Loop) Extension - Stage 0 Study
2015 Alternative C PM Peak with Improvements

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	32.3	35.8		30.0	28.5	6.4	29.1	35.9	7.9	30.8	31.6	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	32.3	35.8		30.0	28.5	6.4	29.1	35.9	7.9	30.8	31.6	
LOS	C	D		C	C	A	C	D	A	C	C	
Approach Delay		35.6			20.5			31.9				31.4
Approach LOS		D			C			C				C
Queue Length 50th (ft)	6	95		59	87	0	23	158	0	147	349	
Queue Length 95th (ft)	22	161		127	175	57	48	194	31	225	#455	
Internal Link Dist (ft)		768			758			617				816
Turn Bay Length (ft)	140			150			115		120	150		
Base Capacity (vph)	226	353		414	571	635	227	961	498	645	1613	
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	0.06	0.59		0.33	0.35	0.32	0.22	0.59	0.18	0.56	0.80	

Intersection Summary

Area Type:	Other
Cycle Length:	90
Actuated Cycle Length:	82.2
Natural Cycle:	80
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.88
Intersection Signal Delay:	29.9
Intersection Capacity Utilization:	76.9%
ICU Level of Service:	D
Analysis Period (min):	15
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 105: Ellerbe Rd & Flournoy Lucas Rd



Lanes, Volumes, Timings
107: LA 1 & Bert Kouns Industrial Loop

LA 3132 (Inner Loop) Extension - Stage 0 Study
2015 Alternative C PM Peak with Improvements

	↖		→		↗		↖		↗		↖		↗	
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		
Lane Configurations	↖	↖	↖	↖	↖	↖	↖	↖	↖	↖	↖	↖	↖	↖
Volume (vph)	210	690	120	246	697	89	108	832	272	111	897	97		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900		
Storage Length (ft)	230		230	150			115	220		220	230			230
Storage Lanes	2		1	2			1	2		1	2			1
Taper Length (ft)	50			50			50			50				
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00		
Frt			0.850			0.850			0.850			0.850		
Flt Protected	0.950			0.950			0.950			0.950				
Satd. Flow (prot)	3502	3539	1568	3467	3539	1583	3335	3574	1553	3502	3574	1599		
Flt Permitted	0.950			0.384			0.950			0.950				
Satd. Flow (perm)	3502	3539	1568	1401	3539	1583	3335	3574	1553	3502	3574	1599		
Right Turn on Red			No			Yes			Yes			Yes		
Satd. Flow (RTOR)						58			45			107		
Link Speed (mph)		50			50			45			45			
Link Distance (ft)		1652			1693			1702			1927			
Travel Time (s)		22.5			23.1			25.8			29.2			
Peak Hour Factor	0.98	0.98	0.98	0.91	0.91	0.91	0.85	0.85	0.85	0.91	0.91	0.91		
Heavy Vehicles (%)	0%	2%	3%	1%	2%	2%	5%	1%	4%	0%	1%	1%		
Adj. Flow (vph)	214	704	122	270	766	98	127	979	320	122	986	107		
Shared Lane Traffic (%)														
Lane Group Flow (vph)	214	704	122	270	766	98	127	979	320	122	986	107		
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No		
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right		
Median Width(ft)		24			24			24			24			
Link Offset(ft)		0			0			0			0			
Crosswalk Width(ft)		16			16			16			16			
Two way Left Turn Lane					Yes									
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Turning Speed (mph)	15		9	15			9	15			9	15		9
Turn Type	Prot	NA	Prot	pm+pt	NA	pt+ov	Prot	NA	pt+ov	Prot	NA	pt+ov		
Protected Phases	1	6	6	5	2	2.7	3	8	5.8	7	4	1.4		
Permitted Phases				2										
Detector Phase	1	6	6	5	2	2.7	3	8	5.8	7	4	1.4		
Switch Phase														
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0		5.0	10.0		5.0	10.0			
Minimum Split (s)	11.0	22.0	22.0	11.0	22.0		11.0	22.0		11.0	22.0			
Total Split (s)	21.0	36.0	36.0	21.0	36.0		20.0	40.0		13.0	33.0			
Total Split (%)	19.1%	32.7%	32.7%	19.1%	32.7%		18.2%	36.4%		11.8%	30.0%			
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5			
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5		1.5	1.5		1.5	1.5			
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0			
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0		6.0	6.0		6.0	6.0			
Lead/Lag	Lead	Lead	Lead	Lag	Lag		Lead	Lead		Lag	Lag			
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes			
Recall Mode	None	C-Min	C-Min	None	C-Min		None	None		None	None			
Act Effect Green (s)	11.9	27.0	27.0	30.7	30.7	40.3	9.5	33.8	55.5	9.5	33.8	51.7		
Actuated g/C Ratio	0.11	0.25	0.25	0.28	0.28	0.37	0.09	0.31	0.50	0.09	0.31	0.47		
v/c Ratio	0.56	0.81	0.32	0.39	0.77	0.16	0.44	0.89	0.40	0.40	0.90	0.13		

Lanes, Volumes, Timings
107: LA 1 & Bert Kouns Industrial Loop

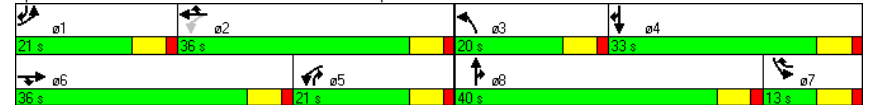
LA 3132 (Inner Loop) Extension - Stage 0 Study
2015 Alternative C PM Peak with Improvements

	↖		→		↗		↖		↗		↖		↗	
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		
Control Delay	52.1	47.0	35.5	37.2	42.7	6.9	52.1	47.8	16.1	53.3	49.5	3.8		
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	52.1	47.0	35.5	37.2	42.7	6.9	52.1	47.8	16.1	53.3	49.5	3.8		
LOS	D	D	D	D	D	A	D	D	B	D	D	A		
Approach Delay			46.7				38.3			41.1		45.8		
Approach LOS			D				D			D		D		
Queue Length 50th (ft)	75	242	69	74	253	11	44	345	112	43	361	0		
Queue Length 95th (ft)	110	306	120	113	337	34	69	396	169	74	#532	31		
Internal Link Dist (ft)		1572			1613			1622			1847			
Turn Bay Length (ft)	230		230	150		115	220		220	230		230		
Base Capacity (vph)	478	965	428	686	997	620	424	1115	813	304	1098	850		
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0		
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0		
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0		
Reduced v/c Ratio	0.45	0.73	0.29	0.39	0.77	0.16	0.30	0.88	0.39	0.40	0.90	0.13		

Intersection Summary

Area Type:	Other
Cycle Length:	110
Actuated Cycle Length:	110
Offset:	100 (91%), Referenced to phase 2:WBT and 6:EBT, Start of Green
Natural Cycle:	75
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.90
Intersection Signal Delay:	42.8
Intersection Capacity Utilization:	75.1%
ICU Level of Service:	D
Analysis Period (min):	15
#	95th percentile volume exceeds capacity, queue may be longer.
	Queue shown is maximum after two cycles.

Splits and Phases: 107: LA 1 & Bert Kouns Industrial Loop



Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
 108: Bert Kouns Industrial Loop & LA 3132 EB Off Ramp/LA 3132 EB On Ramp with Improvements



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↗	↖				↕	↕	↕	↘	↗	↖
Volume (vph)	833	1	13	0	0	0	0	934	39	0	912	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		110	0		0	0	0	0	295	0	0
Storage Lanes	1		1	0		0	0	0	0	1	0	0
Taper Length (ft)	50			50			50			50		
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Fr't			0.850				0.994					
Flt Protected	0.950	0.952										
Satd. Flow (prot)	1715	1718	1615	0	0	0	0	3554	0	1900	3574	0
Flt Permitted	0.950	0.952										
Satd. Flow (perm)	1715	1718	1615	0	0	0	0	3554	0	1900	3574	0
Right Turn on Red			Yes			Yes		Yes			Yes	
Satd. Flow (RTOR)			8					5				
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1564			1165			530			537	
Travel Time (s)		23.7			17.7			8.0			8.1	
Peak Hour Factor	0.93	0.93	0.93	0.92	0.92	0.92	0.86	0.86	0.86	0.96	0.96	0.96
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	1%	0%
Adj. Flow (vph)	896	1	14	0	0	0	0	1086	45	0	950	0
Shared Lane Traffic (%)	50%											
Lane Group Flow (vph)	448	449	14	0	0	0	0	1131	0	0	950	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			27			27	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Split	NA	Perm					NA	custom		NA	
Protected Phases	4	4						6		5	2.5	
Permitted Phases			4							2		
Detector Phase	4	4	4					6		5	2.5	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0					15.0		5.0		
Minimum Split (s)	11.0	11.0	11.0					21.0		10.0		
Total Split (s)	36.0	36.0	36.0					54.0		20.0		
Total Split (%)	32.7%	32.7%	32.7%					49.1%		18.2%		
Yellow Time (s)	5.0	5.0	5.0					5.0		5.0		
All-Red Time (s)	1.0	1.0	1.0					1.0		0.0		
Lost Time Adjust (s)	0.0	0.0	0.0					0.0		0.0		
Total Lost Time (s)	6.0	6.0	6.0					6.0		5.0		
Lead/Lag								Lag		Lead		
Lead-Lag Optimize?								Yes		Yes		
Recall Mode	None	None	None					None		None		
Act Effct Green (s)	29.6	29.6	29.6					48.0		68.0		
Actuated g/C Ratio	0.27	0.27	0.27					0.44		0.62		
v/c Ratio	0.97	0.97	0.03					0.73		0.43		

Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
 108: Bert Kouns Industrial Loop & LA 3132 EB Off Ramp/LA 3132 EB On Ramp with Improvements

Lane Group	ø1	ø2	ø8
Lane Configurations			
Volume (vph)			
Ideal Flow (vphpl)			
Storage Length (ft)			
Storage Lanes			
Taper Length (ft)			
Lane Util. Factor			
Fr't			
Flt Protected			
Satd. Flow (prot)			
Flt Permitted			
Satd. Flow (perm)			
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (mph)			
Link Distance (ft)			
Travel Time (s)			
Peak Hour Factor			
Heavy Vehicles (%)			
Adj. Flow (vph)			
Shared Lane Traffic (%)			
Lane Group Flow (vph)			
Enter Blocked Intersection			
Lane Alignment			
Median Width(ft)			
Link Offset(ft)			
Crosswalk Width(ft)			
Two way Left Turn Lane			
Headway Factor			
Turning Speed (mph)			
Turn Type			
Protected Phases	1	2	8
Permitted Phases			
Detector Phase			
Switch Phase			
Minimum Initial (s)	5.0	15.0	12.0
Minimum Split (s)	10.0	21.0	18.0
Total Split (s)	20.0	54.0	36.0
Total Split (%)	18%	49%	33%
Yellow Time (s)	5.0	5.0	5.0
All-Red Time (s)	0.0	1.0	1.0
Lost Time Adjust (s)			
Total Lost Time (s)			
Lead/Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	
Recall Mode	None	None	None
Act Effct Green (s)			
Actuated g/C Ratio			
v/c Ratio			

Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
 108: Bert Kouns Industrial Loop & LA 3132 EB Off Ramp/LA 3132 EB On Ramp with Improvements

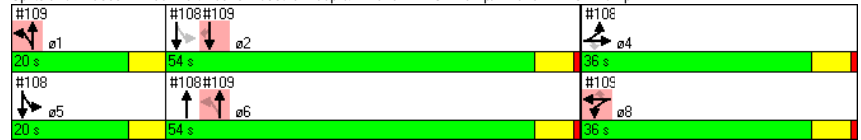


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	74.7	74.7	20.1					28.7			4.3	
Queue Delay	0.0	0.0	0.0					0.1			0.0	
Total Delay	74.7	74.7	20.1					28.8			4.3	
LOS	E	E	C					C			A	
Approach Delay		73.8						28.8			4.3	
Approach LOS		E						C			A	
Queue Length 50th (ft)	328	329	3					337			44	
Queue Length 95th (ft)	#540	#541	19					390			52	
Internal Link Dist (ft)		1484				1085		450			457	
Turn Bay Length (ft)			110									
Base Capacity (vph)	470	471	448					1559			2217	
Starvation Cap Reductn	0	0	0					0			18	
Spillback Cap Reductn	0	0	0					43			0	
Storage Cap Reductn	0	0	0					0			0	
Reduced v/c Ratio	0.95	0.95	0.03					0.75			0.43	

Intersection Summary

Area Type: Other
 Cycle Length: 110
 Actuated Cycle Length: 109.6
 Natural Cycle: 70
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.97
 Intersection Signal Delay: 34.7 Intersection LOS: C
 Intersection Capacity Utilization 80.0% ICU Level of Service D
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 108: Bert Kouns Industrial Loop & LA 3132 EB Off Ramp/LA 3132 EB On Ramp



Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
 108: Bert Kouns Industrial Loop & LA 3132 EB Off Ramp/LA 3132 EB On Ramp with Improvements

Lane Group	ø1	ø2	ø8
Control Delay			
Queue Delay			
Total Delay			
LOS			
Approach Delay			
Approach LOS			
Queue Length 50th (ft)			
Queue Length 95th (ft)			
Internal Link Dist (ft)			
Turn Bay Length (ft)			
Base Capacity (vph)			
Starvation Cap Reductn			
Spillback Cap Reductn			
Storage Cap Reductn			
Reduced v/c Ratio			

Intersection Summary

Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
 109: Bert Kouns Industrial Loop & LA 3132 WB On Ramp/LA 3132 WB On Ramp with Improvements



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	38	0	0	31	1767	0	0	874	834
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	0	0	0	200	295	0	0	0	0	115
Storage Lanes	0	0	0	0	0	1	1	0	0	0	0	1
Taper Length (ft)	50			50			50			50		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frnt												0.850
Fit Protected					0.950		0.950					
Satd. Flow (prot)	0	0	0	0	1805	1900	1752	3539	0	0	3574	1583
Fit Permitted					0.950		0.203					
Satd. Flow (perm)	0	0	0	0	1805	1900	374	3539	0	0	3574	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)												590
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		311			1075			537			687	
Travel Time (s)		4.7			16.3			8.1			10.4	
Peak Hour Factor	0.92	0.92	0.92	0.82	0.82	0.82	0.96	0.96	0.96	0.95	0.95	0.95
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	3%	2%	0%	0%	1%	2%
Adj. Flow (vph)	0	0	0	46	0	0	32	1841	0	0	920	878
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	46	0	32	1841	0	0	920	878
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)	0			0			27			27		
Link Offset(ft)	0			0			0			0		
Crosswalk Width(ft)	16			16			16			16		
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type				Split	NA	Perm	custom	NA			NA	Perm
Protected Phases				8	8		1	1	6		2	
Permitted Phases						8	6					2
Detector Phase				8	8	8	1	1	6		2	2
Switch Phase												
Minimum Initial (s)				12.0	12.0	12.0	5.0				15.0	15.0
Minimum Split (s)				18.0	18.0	18.0	10.0				21.0	21.0
Total Split (s)				36.0	36.0	36.0	20.0				54.0	54.0
Total Split (%)				32.7%	32.7%	32.7%	18.2%				49.1%	49.1%
Yellow Time (s)				5.0	5.0	5.0	5.0				5.0	5.0
All-Red Time (s)				1.0	1.0	1.0	0.0				1.0	1.0
Lost Time Adjust (s)				0.0	0.0	0.0	0.0				0.0	0.0
Total Lost Time (s)				6.0	6.0	6.0	5.0				6.0	6.0
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Recall Mode				None	None	None	None				None	None
Act Effect Green (s)				29.6	29.6	29.6	64.0	69.0			48.0	48.0
Actuated g/C Ratio				0.27	0.27	0.27	0.58	0.63			0.44	0.44
v/c Ratio				0.09	0.09	0.09	0.08	0.83			0.59	0.86

Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
 109: Bert Kouns Industrial Loop & LA 3132 WB On Ramp/LA 3132 WB On Ramp with Improvements

Lane Group	ø4	ø5	ø6
Lane Configurations			
Volume (vph)			
Ideal Flow (vphpl)			
Storage Length (ft)			
Storage Lanes			
Taper Length (ft)			
Lane Util. Factor			
Frnt			
Fit Protected			
Satd. Flow (prot)			
Fit Permitted			
Satd. Flow (perm)			
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (mph)			
Link Distance (ft)			
Travel Time (s)			
Peak Hour Factor			
Heavy Vehicles (%)			
Adj. Flow (vph)			
Shared Lane Traffic (%)			
Lane Group Flow (vph)			
Enter Blocked Intersection			
Lane Alignment			
Median Width(ft)			
Link Offset(ft)			
Crosswalk Width(ft)			
Two way Left Turn Lane			
Headway Factor			
Turning Speed (mph)			
Turn Type			
Protected Phases	4	5	6
Permitted Phases			
Detector Phase			
Switch Phase			
Minimum Initial (s)	5.0	5.0	15.0
Minimum Split (s)	11.0	10.0	21.0
Total Split (s)	36.0	20.0	54.0
Total Split (%)	33%	18%	49%
Yellow Time (s)	5.0	5.0	5.0
All-Red Time (s)	1.0	0.0	1.0
Lost Time Adjust (s)			
Total Lost Time (s)			
Lead/Lag		Lead	Lag
Lead-Lag Optimize?		Yes	Yes
Recall Mode	None	None	None
Act Effect Green (s)			
Actuated g/C Ratio			
v/c Ratio			

Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
 109: Bert Kouns Industrial Loop & LA 3132 WB On Ramp/LA 3132 WB Off Ramp with Improvements



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay					30.6		7.9	16.8			25.3	18.6
Queue Delay					0.0		0.0	0.6			0.0	0.0
Total Delay					30.6		7.9	17.4			25.3	18.6
LOS					C		A	B			C	B
Approach Delay					30.6			17.3			22.0	
Approach LOS					C			B			C	
Queue Length 50th (ft)					24		10	361			253	196
Queue Length 95th (ft)					49		m12	m388			318	#481
Internal Link Dist (ft)		231			995			457			607	
Turn Bay Length (ft)							295					115
Base Capacity (vph)					494		407	2228			1565	1025
Starvation Cap Reductn					0		0	120			0	0
Spillback Cap Reductn					0		0	0			0	0
Storage Cap Reductn					0		0	0			0	0
Reduced v/c Ratio					0.09		0.08	0.87			0.59	0.86

Intersection Summary

Area Type: Other
 Cycle Length: 110
 Actuated Cycle Length: 109.6
 Natural Cycle: 70
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.97
 Intersection Signal Delay: 19.7 Intersection LOS: B
 Intersection Capacity Utilization 80.0% ICU Level of Service D
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 109: Bert Kouns Industrial Loop & LA 3132 WB On Ramp/LA 3132 WB Off Ramp

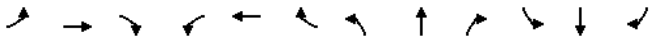


Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
 109: Bert Kouns Industrial Loop & LA 3132 WB On Ramp/LA 3132 WB Off Ramp with Improvements

Lane Group	ø4	ø5	ø6
Control Delay			
Queue Delay			
Total Delay			
LOS			
Approach Delay			
Approach LOS			
Queue Length 50th (ft)			
Queue Length 95th (ft)			
Internal Link Dist (ft)			
Turn Bay Length (ft)			
Base Capacity (vph)			
Starvation Cap Reductn			
Spillback Cap Reductn			
Storage Cap Reductn			
Reduced v/c Ratio			

Intersection Summary


Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
 110: Ashley River Dr SB & Flournoy Lucas Rd 2015 Alternative C PM Peak with Improvements



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↕	↔	↔	↕	↔	↔	↔	↔	↔	↕	↔
Volume (vph)	0	114	246	108	460	1	0	0	0	7	0	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	180	0	120	0	0	0	0	0	0	0	0	0
Storage Lanes	1	0	1	0	0	0	0	0	0	0	0	0
Taper Length (ft)	50	0	50	0	50	0	0	0	0	50	0	0
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.898											0.918
Fit Protected	0.950			0.981								
Satd. Flow (prot)	1900	3160	0	1805	3406	0	0	0	0	0	1711	0
Fit Permitted	0.950											0.981
Satd. Flow (perm)	1900	3160	0	1805	3406	0	0	0	0	0	1711	0
Link Speed (mph)	45			45			30			30		
Link Distance (ft)	750			127			320			340		
Travel Time (s)	11.4			1.9			7.3			7.7		
Peak Hour Factor	0.92	0.92	0.92	0.85	0.85	0.85	0.92	0.92	0.92	0.80	0.80	0.80
Heavy Vehicles (%)	0%	6%	1%	0%	6%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	124	267	127	541	1	0	0	0	9	0	14
Shared Lane Traffic (%)	0											
Lane Group Flow (vph)	0	391	0	127	542	0	0	0	0	0	23	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)	12			14			0			0		
Link Offset(ft)	0			0			0			0		
Crosswalk Width(ft)	16			16			16			16		
Two way Left Turn Lane	Yes											
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	0	9	15	0	9	15	0	9	15	0	9
Sign Control	Free		Free				Stop			Stop		

Intersection Summary
 Area Type: Other
 Control Type: Unsignalized
 Intersection Capacity Utilization 30.4% ICU Level of Service A
 Analysis Period (min) 15

HCM Unsignalized Intersection Capacity Analysis LA 3132 (Inner Loop) Extension - Stage 0 Study
 110: Ashley River Dr SB & Flournoy Lucas Rd 2015 Alternative C PM Peak with Improvements



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR						
Lane Configurations	↔	↕	↔	↔	↕	↔	↔	↔	↔	↔	↕	↔						
Volume (veh/h)	0	114	246	108	460	1	0	0	0	7	0	11						
Sign Control	Free			Free			Stop			Stop								
Grade	0%																	
Peak Hour Factor	0.92	0.92	0.92	0.85	0.85	0.85	0.92	0.92	0.92	0.80	0.80	0.80						
Hourly flow rate (vph)	0	124	267	127	541	1	0	0	0	9	0	14						
Pedestrians	0																	
Lane Width (ft)	12																	
Walking Speed (ft/s)	3.5																	
Percent Blockage	0																	
Right turn flare (veh)	0																	
Median type	None			TWLTL														
Median storage (veh)	2																	
Upstream signal (ft)	0																	
pX, platoon unblocked	0																	
vC, conflicting volume	542			391			796		1054		196		858		1187		271	
vC1, stage 1 conf vol	258			258			796		796		62		391		796		796	
vC2, stage 2 conf vol	538			796			62		391		796		796		796		796	
vCu, unblocked vol	542			391			796		1054		196		858		1187		271	
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		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 %	100			89			100		100		100		97		100		98	
cM capacity (veh/h)	1037			1178			410		339		819		304		316		733	

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1
Volume Total	0	83	309	127	361	182	22
Volume Left	0	0	0	127	0	0	9
Volume Right	0	0	267	0	0	1	14
cSH	1700	1700	1700	1178	1700	1700	474
Volume to Capacity	0.00	0.05	0.18	0.11	0.21	0.11	0.05
Queue Length 95th (ft)	0	0	0	9	0	0	4
Control Delay (s)	0.0	0.0	0.0	8.4	0.0	0.0	13.0
Lane LOS	A			B			
Approach Delay (s)	0.0			1.6		13.0	
Approach LOS	B			B			

Intersection Summary
 Average Delay 1.3
 Intersection Capacity Utilization 30.4% ICU Level of Service A
 Analysis Period (min) 15

Lanes, Volumes, Timings
 111: Ashley River Dr NB & Flournoy Lucas Rd

LA 3132 (Inner Loop) Extension - Stage 0 Study
 2015 Alternative C PM Peak with Improvements

	→	↖	↗	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑	↖	↗
Volume (vph)	121	0	0	444	125	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt						0.850
Fit Protected						0.950
Satd. Flow (prot)	3406	0	0	3438	1805	1568
Fit Permitted						0.950
Satd. Flow (perm)	3406	0	0	3438	1805	1568
Link Speed (mph)	45			45	30	
Link Distance (ft)	127			2333	283	
Travel Time (s)	1.9			35.3	6.4	
Peak Hour Factor	0.88	0.88	0.80	0.80	0.80	0.80
Heavy Vehicles (%)	6%	0%	0%	5%	0%	3%
Adj. Flow (vph)	138	0	0	555	156	81
Shared Lane Traffic (%)						
Lane Group Flow (vph)	138	0	0	555	156	81
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	14			14	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane	Yes			Yes		
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	25.9%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis
 111: Ashley River Dr NB & Flournoy Lucas Rd

LA 3132 (Inner Loop) Extension - Stage 0 Study
 2015 Alternative C PM Peak with Improvements

	→	↖	↗	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑	↖	↗
Volume (veh/h)	121	0	0	444	125	65
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.88	0.88	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	138	0	0	555	156	81
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			138		415	69
vC1, stage 1 conf vol					138	
vC2, stage 2 conf vol					278	
vCu, unblocked vol			138		415	69
tC, single (s)			4.1		6.8	7.0
tC, 2 stage (s)					5.8	
tF (s)			2.2		3.5	3.3
p0 queue free %			100		78	92
cM capacity (veh/h)			1459		702	977

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2
Volume Total	69	69	278	278	156	81
Volume Left	0	0	0	0	156	0
Volume Right	0	0	0	0	0	81
cSH	1700	1700	1700	1700	702	977
Volume to Capacity	0.04	0.04	0.16	0.16	0.22	0.08
Queue Length 95th (ft)	0	0	0	0	21	7
Control Delay (s)	0.0	0.0	0.0	0.0	11.6	9.0
Lane LOS					B	A
Approach Delay (s)	0.0		0.0		10.7	
Approach LOS					B	

Intersection Summary	
Average Delay	2.7
Intersection Capacity Utilization	25.9%
Analysis Period (min)	15
	ICU Level of Service A

Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
 112: Flournoy Lucas Rd & Oaks Retirement Rd 2015 Alternative C PM Peak with Improvements

	↖	→	←	↗	↘	
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖	↖↖	↖↖		↖	↖
Volume (vph)	14	172	416	24	21	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	375			0	0	0
Storage Lanes	1			0	1	1
Taper Length (ft)	50				50	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Frt			0.992			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1805	3471	3419	0	1805	1553
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1805	3471	3419	0	1805	1553
Link Speed (mph)		45	45		30	
Link Distance (ft)		2333	1050		729	
Travel Time (s)		35.3	15.9		16.6	
Peak Hour Factor	0.88	0.88	0.80	0.80	0.80	0.80
Heavy Vehicles (%)	0%	4%	5%	0%	0%	4%
Adj. Flow (vph)	16	195	520	30	26	35
Shared Lane Traffic (%)						
Lane Group Flow (vph)	16	195	550	0	26	35
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		14	14		28	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane		Yes	Yes			
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	22.3%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis LA 3132 (Inner Loop) Extension - Stage 0 Study
 112: Flournoy Lucas Rd & Oaks Retirement Rd 2015 Alternative C PM Peak with Improvements

	↖	→	←	↗	↘	
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖	↖↖	↖↖		↖	↖
Volume (veh/h)	14	172	416	24	21	28
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.88	0.88	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	16	195	520	30	26	35
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		TWLT	TWLT			
Median storage (veh)		2	2			
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	550				665	275
vC1, stage 1 conf vol					535	
vC2, stage 2 conf vol					130	
vCu, unblocked vol	550				665	275
tC, single (s)	4.1				6.8	7.0
tC, 2 stage (s)					5.8	
tF (s)	2.2				3.5	3.3
p0 queue free %	98				95	95
cM capacity (veh/h)	1030				531	717

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1	SB 2
Volume Total	16	98	98	347	203	26	35
Volume Left	16	0	0	0	0	26	0
Volume Right	0	0	0	0	30	0	35
cSH	1030	1700	1700	1700	1700	531	717
Volume to Capacity	0.02	0.06	0.06	0.20	0.12	0.05	0.05
Queue Length 95th (ft)	1	0	0	0	0	4	4
Control Delay (s)	8.6	0.0	0.0	0.0	0.0	12.1	10.3
Lane LOS	A					B	B
Approach Delay (s)	0.6			0.0		11.1	
Approach LOS						B	

Intersection Summary	
Average Delay	1.0
Intersection Capacity Utilization	22.3%
Analysis Period (min)	15
	ICU Level of Service A

Lanes, Volumes, Timings
201: LA 1 & I-69 WB Ramp

LA 3132 (Inner Loop) Extension - Stage 0 Study
2015 Alternative C PM Peak with Improvements

	↖ ↗		↑		↘ ↙	
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↗	↑↑	↘	↙	↑↑
Volume (vph)	65	0	157	3	68	621
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300	0	0	0	275	
Storage Lanes	1	1		1		
Taper Length (ft)	50				50	
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt			0.850			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1641	1727	3034	1357	1656	3312
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1641	1727	3034	1357	1656	3312
Link Speed (mph)	40		65		65	
Link Distance (ft)	384		1426		533	
Travel Time (s)	6.5		15.0		5.6	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Heavy Vehicles (%)	10%	10%	19%	19%	9%	9%
Adj. Flow (vph)	81	0	196	4	76	690
Shared Lane Traffic (%)						
Lane Group Flow (vph)	81	0	196	4	76	690
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		76		76	
Link Offset(ft)	0		0		0	
Crosswalk Width(ft)	16		16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 27.4% ICU Level of Service A
Analysis Period (min) 15

HCM Unsignalized Intersection Capacity Analysis LA 3132 (Inner Loop) Extension - Stage 0 Study
201: LA 1 & I-69 WB Ramp

2015 Alternative C PM Peak with Improvements

	↖ ↗		↑		↘ ↙	
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↗	↑↑	↘	↙	↑↑
Volume (veh/h)	65	0	157	3	68	621
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Hourly flow rate (vph)	81	0	196	4	76	690
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			Raised		Raised	
Median storage (veh)			3		3	
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	692	98			196	
vC1, stage 1 conf vol	196					
vC2, stage 2 conf vol	496					
vCu, unblocked vol	692	98			196	
tC, single (s)	7.0	7.1			4.3	
tC, 2 stage (s)	6.0					
tF (s)	3.6	3.4			2.3	
p0 queue free %	84	100			94	
cM capacity (veh/h)	512	914			1324	

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	81	0	98	98	4	76	345	345
Volume Left	81	0	0	0	0	76	0	0
Volume Right	0	0	0	0	4	0	0	0
cSH	512	1700	1700	1700	1700	1324	1700	1700
Volume to Capacity	0.16	0.00	0.06	0.06	0.00	0.06	0.20	0.20
Queue Length 95th (ft)	14	0	0	0	0	5	0	0
Control Delay (s)	13.3	0.0	0.0	0.0	0.0	7.9	0.0	0.0
Lane LOS	B	A				A		
Approach Delay (s)	13.3		0.0			0.8		
Approach LOS	B							

Intersection Summary

Average Delay 1.6
Intersection Capacity Utilization 27.4% ICU Level of Service A
Analysis Period (min) 15

Lanes, Volumes, Timings
202: LA 1 & I-69 EB Ramp

LA 3132 (Inner Loop) Extension - Stage 0 Study
2015 Alternative C PM Peak with Improvements

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↘	↗	↗	↘	↘
Volume (vph)	0	15	145	52	447	238
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300	0		490	260	
Storage Lanes	1	1		1	1	
Taper Length (ft)	50				50	
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt		0.850		0.850		
Flt Protected					0.950	
Satd. Flow (prot)	1727	1468	3034	1357	1656	3312
Flt Permitted					0.950	
Satd. Flow (perm)	1727	1468	3034	1357	1656	3312
Link Speed (mph)	40		65			65
Link Distance (ft)	460		3193			1426
Travel Time (s)	7.8		33.5			15.0
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Heavy Vehicles (%)	10%	10%	19%	19%	9%	9%
Adj. Flow (vph)	0	19	181	65	497	264
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	19	181	65	497	264
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	24		76			76
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	35.4%
ICU Level of Service	A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis LA 3132 (Inner Loop) Extension - Stage 0 Study
202: LA 1 & I-69 EB Ramp

2015 Alternative C PM Peak with Improvements

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↘	↗	↗	↘	↘
Volume (veh/h)	0	15	145	52	447	238
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Hourly flow rate (vph)	0	19	181	65	497	264
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			Raised			Raised
Median storage (veh)			3			3
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1307	91			181	
vC1, stage 1 conf vol	181					
vC2, stage 2 conf vol	1126					
vCu, unblocked vol	1307	91			181	
tC, single (s)	7.0	7.1			4.3	
tC, 2 stage (s)	6.0					
tF (s)	3.6	3.4			2.3	
p0 queue free %	100	98			63	
cM capacity (veh/h)	160	924			1342	

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	0	19	91	91	65	497	132	132
Volume Left	0	0	0	0	0	497	0	0
Volume Right	0	19	0	0	65	0	0	0
cSH	1700	924	1700	1700	1700	1342	1700	1700
Volume to Capacity	0.00	0.02	0.05	0.05	0.04	0.37	0.08	0.08
Queue Length 95th (ft)	0	2	0	0	0	43	0	0
Control Delay (s)	0.0	9.0	0.0	0.0	0.0	9.3	0.0	0.0
Lane LOS	A	A				A		
Approach Delay (s)	9.0		0.0			6.0		
Approach LOS	A							

Intersection Summary	
Average Delay	4.6
Intersection Capacity Utilization	35.4%
ICU Level of Service	A
Analysis Period (min)	15

Lanes, Volumes, Timings
301: LA 1 & Gate A

LA 3132 (Inner Loop) Extension - Stage 0 Study
2015 Alternative C PM Peak with Improvements

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	13	39	598	0	11	649
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	0	0	150	
Storage Lanes	1	0		0	1	
Taper Length (ft)	50				50	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Frt	0.898					
Flt Protected	0.988				0.950	
Satd. Flow (prot)	1492	0	3034	0	1656	3059
Flt Permitted	0.988				0.950	
Satd. Flow (perm)	1492	0	3034	0	1656	3059
Link Speed (mph)	40		65		65	
Link Distance (ft)	496		4385		375	
Travel Time (s)	8.5		46.0		3.9	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Heavy Vehicles (%)	13%	13%	19%	18%	9%	18%
Adj. Flow (vph)	16	49	748	0	12	721
Shared Lane Traffic (%)						
Lane Group Flow (vph)	65	0	748	0	12	721
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		66		66	
Link Offset(ft)	0		0		0	
Crosswalk Width(ft)	16		16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free		Free	

Intersection Summary

Area Type: Other
 Control Type: Unsignalized
 Intersection Capacity Utilization 27.9% ICU Level of Service A
 Analysis Period (min) 15

HCM Unsignalized Intersection Capacity Analysis LA 3132 (Inner Loop) Extension - Stage 0 Study
301: LA 1 & Gate A

2015 Alternative C PM Peak with Improvements

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	13	39	598	0	11	649
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Hourly flow rate (vph)	16	49	748	0	12	721
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			Raised		Raised	
Median storage (veh)			2		2	
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1132	374			748	
vC1, stage 1 conf vol	748					
vC2, stage 2 conf vol	385					
vCu, unblocked vol	1132	374			748	
tC, single (s)	7.1	7.2			4.3	
tC, 2 stage (s)	6.1					
tF (s)	3.6	3.4			2.3	
p0 queue free %	95	92			98	
cM capacity (veh/h)	360	593			812	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	65	498	249	12	361	361
Volume Left	16	0	0	12	0	0
Volume Right	49	0	0	0	0	0
cSH	510	1700	1700	812	1700	1700
Volume to Capacity	0.13	0.29	0.15	0.02	0.21	0.21
Queue Length 95th (ft)	11	0	0	1	0	0
Control Delay (s)	13.1	0.0	0.0	9.5	0.0	0.0
Lane LOS	B			A		
Approach Delay (s)	13.1	0.0		0.2		
Approach LOS	B					

Intersection Summary

Average Delay 0.6
 Intersection Capacity Utilization 27.9% ICU Level of Service A
 Analysis Period (min) 15

Lanes, Volumes, Timings
302: LA 1 & Gate B

LA 3132 (Inner Loop) Extension - Stage 0 Study
2015 Alternative C PM Peak with Improvements

Lane Group	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Lane Configurations							
Volume (vph)	40	81	0	521	13	36	626
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	250		0	250	
Storage Lanes	1	1	1		0	1	
Taper Length (ft)	50		50		50		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	0.95
Frt		0.850		0.996			
Flt Protected	0.950				0.950		
Satd. Flow (prot)	1517	1357	1597	3003	0	1656	2423
Flt Permitted	0.950				0.950		
Satd. Flow (perm)	1517	1357	1597	3003	0	1656	2423
Link Speed (mph)	40			65			65
Link Distance (ft)	499			1577			4385
Travel Time (s)	8.5			16.5			46.0
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.90	0.90
Heavy Vehicles (%)	19%	19%	19%	19%	49%	9%	49%
Adj. Flow (vph)	50	101	0	651	16	40	696
Shared Lane Traffic (%)							
Lane Group Flow (vph)	50	101	0	667	0	40	696
Enter Blocked Intersection	No	No	No	No	No	No	No
Lane Alignment	Left	Right	R NA	Left	Right	Left	Left
Median Width(ft)	20			66			66
Link Offset(ft)	0			0			0
Crosswalk Width(ft)	16			16			16
Two way Left Turn Lane							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	9		9	15	
Sign Control	Stop			Free			Free

Intersection Summary

Area Type: Other
 Control Type: Unsignalized
 Intersection Capacity Utilization 34.0%
 Analysis Period (min) 15
 ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis LA 3132 (Inner Loop) Extension - Stage 0 Study
302: LA 1 & Gate B

2015 Alternative C PM Peak with Improvements

Movement	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Lane Configurations							
Volume (veh/h)	40	81	0	521	13	36	626
Sign Control	Stop			Free			Free
Grade	0%			0%			0%
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.90	0.90
Hourly flow rate (vph)	50	101	0	651	16	40	696
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type				Raised			Raised
Median storage (veh)				2			2
Upstream signal (ft)							
pX, platoon unblocked			0.00				
vC, conflicting volume	1087	334	0			668	
vC1, stage 1 conf vol	659						
vC2, stage 2 conf vol	428						
vCu, unblocked vol	1087	334	0			668	
tC, single (s)	7.2	7.3	0.0			4.3	
tC, 2 stage (s)	6.2						
tF (s)	3.7	3.5	0.0			2.3	
p0 queue free %	86	84	0			95	
cM capacity (veh/h)	368	615	0			872	

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	50	101	434	233	0	40	348	348
Volume Left	50	0	0	0	0	40	0	0
Volume Right	0	101	0	16	0	0	0	0
cSH	368	615	1700	1700	1700	872	1700	1700
Volume to Capacity	0.14	0.16	0.26	0.14	0.00	0.05	0.20	0.20
Queue Length 95th (ft)	12	15	0	0	0	4	0	0
Control Delay (s)	16.3	12.0	0.0	0.0	0.0	9.3	0.0	0.0
Lane LOS	C	B				A		
Approach Delay (s)	13.4		0.0			0.5		
Approach LOS	B							

Intersection Summary

Average Delay 1.5
 Intersection Capacity Utilization 34.0%
 Analysis Period (min) 15
 ICU Level of Service A

Lanes, Volumes, Timings
303: LA 1 & Gate C

LA 3132 (Inner Loop) Extension - Stage 0 Study
2015 Alternative C PM Peak with Improvements

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↑	↑↑	↑		↑↑
Volume (vph)	0	47	499	12	0	689
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	0	0	250	
Storage Lanes	0	1		1	0	
Taper Length (ft)	50				50	
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt		0.865		0.850		
Flt Protected						
Satd. Flow (prot)	0	1325	3034	1077	0	2407
Flt Permitted						
Satd. Flow (perm)	0	1325	3034	1077	0	2407
Link Speed (mph)	40		65			65
Link Distance (ft)	508		533			1082
Travel Time (s)	8.7		5.6			11.3
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Heavy Vehicles (%)	24%	24%	19%	50%	9%	50%
Adj. Flow (vph)	0	59	624	15	0	766
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	59	624	15	0	766
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	0		76			76
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary

Area Type: Other
 Control Type: Unsignalized
 Intersection Capacity Utilization 23.8% ICU Level of Service A
 Analysis Period (min) 15

HCM Unsignalized Intersection Capacity Analysis LA 3132 (Inner Loop) Extension - Stage 0 Study
303: LA 1 & Gate C

2015 Alternative C PM Peak with Improvements

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↑	↑↑	↑		↑↑
Volume (veh/h)	0	47	499	12	0	689
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Hourly flow rate (vph)	0	59	624	15	0	766
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			Raised			Raised
Median storage (veh)			3			3
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1007	312			639	
vC1, stage 1 conf vol	624					
vC2, stage 2 conf vol	383					
vCu, unblocked vol	1007	312			639	
tC, single (s)	7.3	7.4			4.3	
tC, 2 stage (s)	6.3					
tF (s)	3.7	3.5			2.3	
p0 queue free %	100	91			100	
cM capacity (veh/h)	414	623			895	

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	59	312	312	15	383	383
Volume Left	0	0	0	0	0	0
Volume Right	59	0	0	15	0	0
cSH	623	1700	1700	1700	1700	1700
Volume to Capacity	0.09	0.18	0.18	0.01	0.23	0.23
Queue Length 95th (ft)	8	0	0	0	0	0
Control Delay (s)	11.4	0.0	0.0	0.0	0.0	0.0
Lane LOS	B					
Approach Delay (s)	11.4	0.0			0.0	
Approach LOS	B					

Intersection Summary

Average Delay 0.5
 Intersection Capacity Utilization 23.8% ICU Level of Service A
 Analysis Period (min) 15

Lanes, Volumes, Timings
304: LA 1 & Gate D

LA 3132 (Inner Loop) Extension - Stage 0 Study
2015 Alternative C PM Peak with Improvements

	↖		↗		↕	
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↖	↖	↗	↗	↖	↖
Volume (vph)	1	18	180	0	11	229
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	250		300	280	
Storage Lanes	1	1		1	1	
Taper Length (ft)	50				50	
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt	0.850					
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1337	1196	3034	1195	1656	2270
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1337	1196	3034	1195	1656	2270
Link Speed (mph)	40		65		65	
Link Distance (ft)	501		710		505	
Travel Time (s)	8.5		7.4		5.3	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Heavy Vehicles (%)	35%	35%	19%	59%	9%	59%
Adj. Flow (vph)	1	23	225	0	12	254
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1	22	225	0	12	254
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		76		76	
Link Offset(ft)	0		0		0	
Crosswalk Width(ft)	16		16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free		Free	

Intersection Summary

Area Type: Other
 Control Type: Unsignalized
 Intersection Capacity Utilization 19.1% ICU Level of Service A
 Analysis Period (min) 15

HCM Unsignalized Intersection Capacity Analysis LA 3132 (Inner Loop) Extension - Stage 0 Study
304: LA 1 & Gate D

2015 Alternative C PM Peak with Improvements

	↖		↗		↕	
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↖	↖	↗	↗	↖	↖
Volume (veh/h)	1	18	180	0	11	229
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Hourly flow rate (vph)	1	22	225	0	12	254
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		10				
Median type			Raised			Raised
Median storage (veh)			3			3
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	377	112			225	
vC1, stage 1 conf vol	225					
vC2, stage 2 conf vol	152					
vCu, unblocked vol	377	112			225	
tC, single (s)	7.5	7.6			4.3	
tC, 2 stage (s)	6.5					
tF (s)	3.8	3.6			2.3	
p0 queue free %	100	97			99	
cM capacity (veh/h)	667	823			1291	

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	24	112	112	0	12	127	127
Volume Left	1	0	0	0	12	0	0
Volume Right	22	0	0	0	0	0	0
cSH	869	1700	1700	1700	1291	1700	1700
Volume to Capacity	0.03	0.07	0.07	0.00	0.01	0.07	0.07
Queue Length 95th (ft)	2	0	0	0	1	0	0
Control Delay (s)	9.5	0.0	0.0	0.0	7.8	0.0	0.0
Lane LOS	A				A		
Approach Delay (s)	9.5	0.0			0.4		
Approach LOS	A						

Intersection Summary

Average Delay 0.6
 Intersection Capacity Utilization 19.1% ICU Level of Service A
 Analysis Period (min) 15

Lanes, Volumes, Timings
103: LA 1 & Flournoy Lucas Rd

LA 3132 (Inner Loop) Extension - Stage 0 Study
2032 Alternative C AM Peak

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	[Diagrammatic Lane Configurations]											
Volume (vph)	534	70	49	35	34	9	70	486	50	0	288	361
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	0	0	0	0	125	0	165	0	165	165
Storage Lanes	1	0	0	0	0	0	1	0	1	0	1	1
Taper Length (ft)	50			50			50		50			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt		0.939			0.985			0.986				0.850
Flt Protected	0.950				0.978		0.950					
Satd. Flow (prot)	1752	1578	0	0	1801	0	1347	3263	0	1900	3406	1553
Flt Permitted	0.592				0.784		0.421					
Satd. Flow (perm)	1092	1578	0	0	1443	0	597	3263	0	1900	3406	1553
Right Turn on Red			Yes			Yes			Yes			No
Satd. Flow (RTOR)		31			4			9				
Link Speed (mph)		50			50			55				55
Link Distance (ft)		784			651			1092				934
Travel Time (s)		10.7			8.9			13.5				11.6
Peak Hour Factor	0.80	0.80	0.80	0.86	0.86	0.86	0.86	0.86	0.86	0.80	0.80	0.80
Heavy Vehicles (%)	3%	2%	29%	0%	1%	11%	34%	10%	0%	0%	6%	4%
Adj. Flow (vph)	668	88	61	41	40	10	81	565	58	0	360	451
Shared Lane Traffic (%)												
Lane Group Flow (vph)	668	149	0	0	91	0	81	623	0	0	360	451
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			0			12				12
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA		Perm	NA		pm+pt	NA		pm+pt	NA	pt+ov
Protected Phases	3	8			4		1	6		5	2	2 3
Permitted Phases	8			4			6			2		
Detector Phase	3	8		4	4		1	6		5	2	2 3
Switch Phase												
Minimum Initial (s)	5.0	10.0		7.0	7.0		7.0	15.0		5.0	15.0	
Minimum Split (s)	11.5	16.5		13.5	13.5		15.0	23.0		13.0	23.0	
Total Split (s)	30.0	60.0		30.0	30.0		15.0	60.0		15.0	60.0	
Total Split (%)	22.2%	44.4%		22.2%	22.2%		11.1%	44.4%		11.1%	44.4%	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.5	5.5		5.5	5.5	
All-Red Time (s)	1.5	1.5		1.5	1.5		2.5	2.5		2.5	2.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.5	6.5		6.5	6.5		8.0	8.0		8.0	8.0	
Lead/Lag	Lead			Lag	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes			Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None		None	Min		None	Min	
Act Effect Green (s)	41.8	41.8		15.1	15.1		41.6	41.6		30.7	66.1	
Actuated g/C Ratio	0.42	0.42		0.15	0.15		0.42	0.42		0.31	0.67	
v/c Ratio	1.06	0.22		0.41	0.41		0.26	0.45		0.34	0.44	

Lanes, Volumes, Timings
103: LA 1 & Flournoy Lucas Rd

LA 3132 (Inner Loop) Extension - Stage 0 Study
2032 Alternative C AM Peak

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	82.4	17.8			48.4		20.4	21.1			28.9	14.0
Queue Delay	0.0	0.0			0.0		0.0	0.0			0.0	0.0
Total Delay	82.4	17.8			48.4		20.4	21.1			28.9	14.0
LOS	F	B			D		C	C			C	B
Approach Delay		70.6			48.4			21.1			20.6	
Approach LOS		E			D			C			C	
Queue Length 50th (ft)	~454	47			54		32	146			100	168
Queue Length 95th (ft)	#747	96			114		64	199			131	235
Internal Link Dist (ft)		704			571			1012			854	
Turn Bay Length (ft)							125					165
Base Capacity (vph)	630	937			374		308	1911			1938	1008
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	1.06	0.16			0.24		0.26	0.33			0.19	0.45

Intersection Summary

Area Type:	Other
Cycle Length:	135
Actuated Cycle Length:	99.2
Natural Cycle:	90
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	1.06
Intersection Signal Delay:	38.7
Intersection Capacity Utilization:	74.2%
ICU Level of Service:	D
Analysis Period (min):	15
~ Volume exceeds capacity, queue is theoretically infinite.	
Queue shown is maximum after two cycles.	
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 103: LA 1 & Flournoy Lucas Rd



Lanes, Volumes, Timings
105: Ellerbe Rd & Flournoy Lucas Rd

LA 3132 (Inner Loop) Extension - Stage 0 Study
2032 Alternative C AM Peak

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Volume (vph)	12	345	102	83	209	442	98	1752	139	112	403	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	140		150	150			0	115		120	150	
Storage Lanes	1		1	1			1	1		1	1	
Taper Length (ft)	50			50				50			50	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Frt			0.850				0.850			0.850		0.999
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1671	1827	1468	1656	1727	1468	1770	3574	1568	1736	3404	0
Flt Permitted	0.270			0.132			0.395			0.056		
Satd. Flow (perm)	475	1827	1468	230	1727	1468	736	3574	1568	102	3404	0
Right Turn on Red			Yes			Yes		Yes			Yes	
Satd. Flow (RTOR)			64			161		44			1	
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		848			838			697			896	
Travel Time (s)		12.8			12.7			10.6			13.6	
Peak Hour Factor	0.80	0.80	0.80	0.82	0.82	0.82	0.81	0.81	0.81	0.80	0.80	0.80
Heavy Vehicles (%)	8%	4%	10%	9%	10%	10%	2%	1%	3%	4%	6%	0%
Adj. Flow (vph)	15	431	128	101	255	539	121	2163	172	140	504	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	15	431	128	101	255	539	121	2163	172	140	508	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)	12			12			12			12		
Link Offset(ft)	0			0			0			0		
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane				Yes							Yes	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15			9	15		9	15	9
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8		8	4		4	6		6	2		
Detector Phase	3	8	8	7	4	4	1	6	6	5	2	
Switch Phase												
Minimum Initial (s)	7.0	15.0	15.0	7.0	15.0	15.0	7.0	10.0	10.0	7.0	10.0	
Minimum Split (s)	12.0	20.0	20.0	14.0	22.0	22.0	12.0	15.0	15.0	14.0	17.0	
Total Split (s)	12.0	38.0	38.0	14.0	40.0	40.0	12.0	84.0	84.0	14.0	86.0	
Total Split (%)	8.0%	25.3%	25.3%	9.3%	26.7%	26.7%	8.0%	56.0%	56.0%	9.3%	57.3%	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	0.0	0.0	0.0	2.0	2.0	2.0	0.0	0.0	0.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0	5.0	5.0	7.0	7.0	7.0	5.0	5.0	5.0	7.0	7.0	
Lead/Lag	Lead	Lead	Lead	Lag	Lag	Lag	Lead	Lead	Lag	Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	Min	Min	None	Min	Min	None	None	None	None	None	
Act Effect Green (s)	33.0	33.0	33.0	40.2	40.2	40.2	79.0	79.0	79.0	79.0	79.0	
Actuated g/C Ratio	0.22	0.22	0.22	0.27	0.27	0.27	0.53	0.53	0.53	0.53	0.53	
v/c Ratio	0.09	1.07	0.34	0.79	0.55	1.05	0.28	1.15	0.20	1.08	0.28	

Lanes, Volumes, Timings
105: Ellerbe Rd & Flournoy Lucas Rd

LA 3132 (Inner Loop) Extension - Stage 0 Study
2032 Alternative C AM Peak

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	47.6	119.5	27.6	97.3	54.0	90.8	19.9	107.5	14.4	152.4	20.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	47.6	119.5	27.6	97.3	54.0	90.8	19.9	107.5	14.4	152.4	20.2	
LOS	D	F	C	F	D	F	B	F	B	F	C	
Approach Delay		97.1			81.0			96.7			48.8	
Approach LOS		F			F			F			D	
Queue Length 50th (ft)	12	~467	52	74	206	401	59	~1304	63	~101	141	
Queue Length 95th (ft)	29	#562	94	#161	297	#625	85	#1190	93	#200	156	
Internal Link Dist (ft)		768			758			617			816	
Turn Bay Length (ft)	140		150	150			115		120	150		
Base Capacity (vph)	160	402	373	128	463	511	436	1882	847	130	1793	
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	0.09	1.07	0.34	0.79	0.55	1.05	0.28	1.15	0.20	1.08	0.28	

Intersection Summary

Area Type:	Other
Cycle Length:	150
Actuated Cycle Length:	150
Natural Cycle:	150
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	1.15
Intersection Signal Delay:	86.9
Intersection Capacity Utilization:	98.6%
ICU Level of Service:	F
Analysis Period (min):	15
~ Volume exceeds capacity, queue is theoretically infinite.	
Queue shown is maximum after two cycles.	
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 105: Ellerbe Rd & Flournoy Lucas Rd



Lanes, Volumes, Timings
107: LA 1 & Bert Kouns Industrial Loop

LA 3132 (Inner Loop) Extension - Stage 0 Study
2032 Alternative C AM Peak

	↖	→	↘	↙	←	↖	↙	↘	↙	↘	↙	↘
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖	↖	↖	↖	↖	↖	↖	↖	↖	↖	↖
Volume (vph)	269	808	155	251	827	50	182	1076	232	131	494	174
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	230		230	150		115	220		220	230		230
Storage Lanes	2		1	2		1	2		1	2		1
Taper Length (ft)	50			50			50			50		
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3303	3471	1482	3433	3539	1615	3303	3505	1495	3433	3471	1568
Flt Permitted	0.950			0.222			0.950			0.950		
Satd. Flow (perm)	3303	3471	1482	802	3539	1615	3303	3505	1495	3433	3471	1568
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			157			11			59			31
Link Speed (mph)		50			50			45				45
Link Distance (ft)		1652			1693			1702				1927
Travel Time (s)		22.5			23.1			25.8				29.2
Peak Hour Factor	0.89	0.89	0.89	0.92	0.92	0.92	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	6%	4%	9%	2%	2%	0%	6%	3%	8%	2%	4%	3%
Adj. Flow (vph)	302	908	174	273	899	54	200	1182	255	144	543	191
Shared Lane Traffic (%)												
Lane Group Flow (vph)	302	908	174	273	899	54	200	1182	255	144	543	191
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24				24
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane					Yes							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Prot	NA	Prot	pm+pt	NA	pt+ov	Prot	NA	pt+ov	Prot	NA	pt+ov
Protected Phases	1	6	6	5	2	2.7	3	8	5.8	7	4	1.4
Permitted Phases				2								
Detector Phase	1	6	6	5	2	2.7	3	8	5.8	7	4	1.4
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0		5.0	10.0		12.0	10.0	
Minimum Split (s)	11.0	16.0	16.0	11.0	16.0		11.0	16.0		18.0	16.0	
Total Split (s)	18.0	41.0	41.0	14.0	37.0		18.0	47.0		18.0	47.0	
Total Split (%)	15.0%	34.2%	34.2%	11.7%	30.8%		15.0%	39.2%		15.0%	39.2%	
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5		1.5	1.5		1.5	1.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0		6.0	6.0		6.0	6.0	
Lead/Lag	Lead	Lead	Lead	Lag	Lag		Lead	Lead		Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	C-Min	C-Min	None	C-Min		None	None		None	None	
Act Effect Green (s)	12.0	35.0	35.0	31.0	31.0	43.0	11.2	41.0	55.0	12.0	41.8	59.8
Actuated g/C Ratio	0.10	0.29	0.29	0.26	0.26	0.36	0.09	0.34	0.46	0.10	0.35	0.50
v/c Ratio	0.92	0.90	0.32	0.71	0.98	0.09	0.65	0.99	0.36	0.42	0.45	0.24

Lanes, Volumes, Timings
107: LA 1 & Bert Kouns Industrial Loop

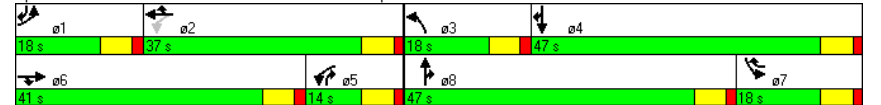
LA 3132 (Inner Loop) Extension - Stage 0 Study
2032 Alternative C AM Peak

	↖	→	↘	↙	←	↖	↙	↘	↙	↘	↙	↘
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	85.8	53.6	8.3	57.6	70.6	12.5	62.6	62.5	17.5	54.8	31.9	15.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	85.8	53.6	8.3	57.6	70.6	12.5	62.6	62.5	17.5	54.8	31.9	15.4
LOS	F	D	A	E	E	B	E	E	B	D	C	B
Approach Delay			54.9				65.1				55.5	
Approach LOS			D				E				E	C
Queue Length 50th (ft)	121	355	9	88	365	14	77	475	94	55	171	68
Queue Length 95th (ft)	#202	#460	61	126	#504	34	118	#631	159	88	224	117
Internal Link Dist (ft)		1572			1613			1622			1847	
Turn Bay Length (ft)	230		230	150		115	220		220	230		230
Base Capacity (vph)	330	1012	543	384	914	586	330	1198	718	343	1209	797
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	0.92	0.90	0.32	0.71	0.98	0.09	0.61	0.99	0.36	0.42	0.45	0.24

Intersection Summary

Area Type:	Other
Cycle Length:	120
Actuated Cycle Length:	120
Offset: 0 (0%), Referenced to phase 2:WBTl and 6:EBT, Start of Green	
Natural Cycle:	110
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.99
Intersection Signal Delay:	53.6
Intersection Capacity Utilization:	90.3%
ICU Level of Service:	E
Analysis Period (min):	15
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 107: LA 1 & Bert Kouns Industrial Loop



Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
 108: Bert Kouns Industrial Loop & LA 3132 EB Off Ramp/LA 3132 EB On Ramp Alternative C AM Peak



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↕	↗					↕	↗	↔	↕	↗
Volume (vph)	733	4	7	0	0	0	0	1363	31	0	839	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		110	0		0	0	0		0	295	0
Storage Lanes	1		1	0		0	0	0		0	1	0
Taper Length (ft)	50			50			50			50		
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Fr't			0.850					0.997				
Flt Protected	0.950	0.953										
Satd. Flow (prot)	1681	1687	1615	0	0	0	0	3520	0	1827	3574	0
Flt Permitted	0.950	0.953										
Satd. Flow (perm)	1681	1687	1615	0	0	0	0	3520	0	1827	3574	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			6					4				
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1564			1165			530			537	
Travel Time (s)		23.7			17.7			8.0			8.1	
Peak Hour Factor	0.83	0.83	0.83	0.92	0.92	0.92	0.87	0.87	0.87	0.82	0.82	0.82
Heavy Vehicles (%)	2%	0%	0%	0%	0%	0%	0%	2%	13%	4%	1%	0%
Adj. Flow (vph)	883	5	8	0	0	0	0	1567	36	0	1023	0
Shared Lane Traffic (%)	50%											
Lane Group Flow (vph)	441	447	8	0	0	0	0	1603	0	0	1023	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			27			27	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Split	NA	Perm					NA	custom		NA	
Protected Phases	4	4						6		5	2 5	
Permitted Phases			4							2		
Detector Phase	4	4	4					6		5	2 5	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0					15.0		5.0		
Minimum Split (s)	11.0	11.0	11.0					21.0		10.0		
Total Split (s)	24.0	24.0	24.0					46.0		10.0		
Total Split (%)	30.0%	30.0%	30.0%					57.5%		12.5%		
Yellow Time (s)	5.0	5.0	5.0					5.0		5.0		
All-Red Time (s)	1.0	1.0	1.0					1.0		0.0		
Lost Time Adjust (s)	0.0	0.0	0.0					0.0		0.0		
Total Lost Time (s)	6.0	6.0	6.0					6.0		5.0		
Lead/Lag								Lag		Lead		
Lead-Lag Optimize?								Yes		Yes		
Recall Mode	None	None	None					None		None		
Act Effct Green (s)	18.0	18.0	18.0					40.0			34.0	
Actuated g/C Ratio	0.22	0.22	0.22					0.50			0.42	
v/c Ratio	1.17	1.18	0.02					0.91			0.67	

Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
 108: Bert Kouns Industrial Loop & LA 3132 EB Off Ramp/LA 3132 EB On Ramp Alternative C AM Peak

Lane Group	ø1	ø2	ø8
Lane Configurations			
Volume (vph)			
Ideal Flow (vphpl)			
Storage Length (ft)			
Storage Lanes			
Taper Length (ft)			
Lane Util. Factor			
Fr't			
Flt Protected			
Satd. Flow (prot)			
Flt Permitted			
Satd. Flow (perm)			
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (mph)			
Link Distance (ft)			
Travel Time (s)			
Peak Hour Factor			
Heavy Vehicles (%)			
Adj. Flow (vph)			
Shared Lane Traffic (%)			
Lane Group Flow (vph)			
Enter Blocked Intersection			
Lane Alignment			
Median Width(ft)			
Link Offset(ft)			
Crosswalk Width(ft)			
Two way Left Turn Lane			
Headway Factor			
Turning Speed (mph)			
Turn Type			
Protected Phases	1	2	8
Permitted Phases			
Detector Phase			
Switch Phase			
Minimum Initial (s)	5.0	15.0	12.0
Minimum Split (s)	10.0	21.0	18.0
Total Split (s)	20.0	36.0	24.0
Total Split (%)	25%	45%	30%
Yellow Time (s)	5.0	5.0	5.0
All-Red Time (s)	0.0	1.0	1.0
Lost Time Adjust (s)			
Total Lost Time (s)			
Lead/Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	
Recall Mode	None	None	None
Act Effct Green (s)			
Actuated g/C Ratio			
v/c Ratio			

Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
 108: Bert Kouns Industrial Loop & LA 3132 EB Off Ramp/LA 3132 EB On Ramp Alternative C AM Peak



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	131.3	134.7	16.9					27.8			6.7	
Queue Delay	0.0	0.0	0.0					6.1			0.0	
Total Delay	131.3	134.7	16.9					33.8			6.7	
LOS	F	F	B					C			A	
Approach Delay		131.9						33.8			6.7	
Approach LOS		F						C			A	
Queue Length 50th (ft)	~280	~286	1					365			49	
Queue Length 95th (ft)	#411	#415	10					#456			72	
Internal Link Dist (ft)		1484				1085		450			457	
Turn Bay Length (ft)			110									
Base Capacity (vph)	378	380	368					1762			1519	
Starvation Cap Reductn	0	0	0					0			0	
Spillback Cap Reductn	0	0	0					132			0	
Storage Cap Reductn	0	0	0					0			0	
Reduced v/c Ratio	1.17	1.18	0.02					0.98			0.67	

Intersection Summary

Area Type: Other
 Cycle Length: 80
 Actuated Cycle Length: 80
 Natural Cycle: 80
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.18
 Intersection Signal Delay: 50.9 Intersection LOS: D
 Intersection Capacity Utilization 99.2% ICU Level of Service F
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 108: Bert Kouns Industrial Loop & LA 3132 EB Off Ramp/LA 3132 EB On Ramp



Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
 108: Bert Kouns Industrial Loop & LA 3132 EB Off Ramp/LA 3132 EB On Ramp Alternative C AM Peak

Lane Group	ø1	ø2	ø8
Control Delay			
Queue Delay			
Total Delay			
LOS			
Approach Delay			
Approach LOS			
Queue Length 50th (ft)			
Queue Length 95th (ft)			
Internal Link Dist (ft)			
Turn Bay Length (ft)			
Base Capacity (vph)			
Starvation Cap Reductn			
Spillback Cap Reductn			
Storage Cap Reductn			
Reduced v/c Ratio			

Intersection Summary

Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
 109: Bert Kouns Industrial Loop & LA 3132 WB On Ramp/LA 3132 WB Off Ramp Alternative C AM Peak



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	47	0	0	14	2090	0	0	798	1145
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	0	0	0	200	295	0	0	0	0	100
Storage Lanes	0	0	0	0	0	1	1	0	0	0	0	1
Taper Length (ft)	50	50	50	50	50	50	50	50	50	50	50	50
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frnt												0.850
Fit Protected					0.950		0.950					
Satd. Flow (prot)	0	0	0	0	1805	1881	1805	3539	0	0	3539	1568
Fit Permitted					0.950		0.165					
Satd. Flow (perm)	0	0	0	0	1805	1881	314	3539	0	0	3539	1568
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)												982
Link Speed (mph)		45			45			45				45
Link Distance (ft)		276			1075			537				687
Travel Time (s)		4.2			16.3			8.1				10.4
Peak Hour Factor	0.92	0.92	0.92	0.81	0.81	0.81	0.86	0.86	0.86	0.89	0.89	0.89
Heavy Vehicles (%)	0%	0%	0%	0%	0%	1%	0%	2%	0%	0%	2%	3%
Adj. Flow (vph)	0	0	0	58	0	0	16	2430	0	0	897	1287
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	58	0	16	2430	0	0	897	1287
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)								27				27
Link Offset(ft)								0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type				Split	NA	Perm	custom	NA			NA	Perm
Protected Phases				8	8		1	1 6			2	
Permitted Phases						8	6					2
Detector Phase				8	8	8	1	1 6			2	2
Switch Phase												
Minimum Initial (s)				12.0	12.0	12.0	5.0				15.0	15.0
Minimum Split (s)				18.0	18.0	18.0	10.0				21.0	21.0
Total Split (s)				24.0	24.0	24.0	20.0				36.0	36.0
Total Split (%)				30.0%	30.0%	30.0%	25.0%				45.0%	45.0%
Yellow Time (s)				5.0	5.0	5.0	5.0				5.0	5.0
All-Red Time (s)				1.0	1.0	1.0	0.0				1.0	1.0
Lost Time Adjust (s)					0.0	0.0	0.0				0.0	0.0
Total Lost Time (s)					6.0	6.0	5.0				6.0	6.0
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Recall Mode				None	None	None	None				None	None
Act Effect Green (s)					18.0		51.0				30.0	30.0
Actuated g/C Ratio					0.22		0.64	0.64			0.38	0.38
v/c Ratio					0.14		0.03	1.08			0.68	1.07

Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
 109: Bert Kouns Industrial Loop & LA 3132 WB On Ramp/LA 3132 WB Off Ramp Alternative C AM Peak

Lane Group	ø4	ø5	ø6
Lane Configurations			
Volume (vph)			
Ideal Flow (vphpl)			
Storage Length (ft)			
Storage Lanes			
Taper Length (ft)			
Lane Util. Factor			
Frnt			
Fit Protected			
Satd. Flow (prot)			
Fit Permitted			
Satd. Flow (perm)			
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (mph)			
Link Distance (ft)			
Travel Time (s)			
Peak Hour Factor			
Heavy Vehicles (%)			
Adj. Flow (vph)			
Shared Lane Traffic (%)			
Lane Group Flow (vph)			
Enter Blocked Intersection			
Lane Alignment			
Median Width(ft)			
Link Offset(ft)			
Crosswalk Width(ft)			
Two way Left Turn Lane			
Headway Factor			
Turning Speed (mph)			
Turn Type			
Protected Phases	4	5	6
Permitted Phases			
Detector Phase			
Switch Phase			
Minimum Initial (s)	5.0	5.0	15.0
Minimum Split (s)	11.0	10.0	21.0
Total Split (s)	24.0	10.0	46.0
Total Split (%)	30%	13%	58%
Yellow Time (s)	5.0	5.0	5.0
All-Red Time (s)	1.0	0.0	1.0
Lost Time Adjust (s)			
Total Lost Time (s)			
Lead/Lag		Lead	Lag
Lead-Lag Optimize?		Yes	Yes
Recall Mode	None	None	None
Act Effect Green (s)			
Actuated g/C Ratio			
v/c Ratio			

Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
 109: Bert Kouns Industrial Loop & LA 3132 WB On Ramp/LA 3132 WB Off Ramp Alternative C AM Peak

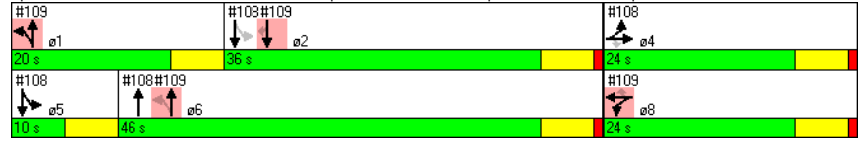


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay					26.0		5.3	50.0			24.1	56.1
Queue Delay					0.0		0.0	6.0			0.0	0.0
Total Delay					26.0		5.3	55.9			24.1	56.1
LOS					C		A	E			C	E
Approach Delay					26.0			55.6			43.0	
Approach LOS					C			E			D	
Queue Length 50th (ft)					23		2	~711			193	~386
Queue Length 95th (ft)					48		m3	m#689			254	#615
Internal Link Dist (ft)		196			995			457			607	
Turn Bay Length (ft)							295					100
Base Capacity (vph)					406		480	2256			1327	1202
Starvation Cap Reductn					0		0	29			0	0
Spillback Cap Reductn					0		0	0			0	0
Storage Cap Reductn					0		0	0			0	0
Reduced v/c Ratio					0.14		0.03	1.09			0.68	1.07

Intersection Summary

Area Type: Other
 Cycle Length: 80
 Actuated Cycle Length: 80
 Natural Cycle: 80
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.18
 Intersection Signal Delay: 49.3 Intersection LOS: D
 Intersection Capacity Utilization 99.2% ICU Level of Service F
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 109: Bert Kouns Industrial Loop & LA 3132 WB On Ramp/LA 3132 WB Off Ramp



Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
 109: Bert Kouns Industrial Loop & LA 3132 WB On Ramp/LA 3132 WB Off Ramp Alternative C AM Peak

Lane Group	ø4	ø5	ø6
Control Delay			
Queue Delay			
Total Delay			
LOS			
Approach Delay			
Approach LOS			
Queue Length 50th (ft)			
Queue Length 95th (ft)			
Internal Link Dist (ft)			
Turn Bay Length (ft)			
Base Capacity (vph)			
Starvation Cap Reductn			
Spillback Cap Reductn			
Storage Cap Reductn			
Reduced v/c Ratio			

Intersection Summary

Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
 110: Ashley River Dr SB & Flournoy Lucas Rd 2032 Alternative C AM Peak

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↕	↔	↔	↕	↔	↔	↔	↔	↔	↕	↔
Volume (vph)	0	556	98	26	424	8	0	0	0	4	0	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	180	0	120	0	0	0	0	0	0	0	0	0
Storage Lanes	1	0	1	0	0	0	0	0	0	0	0	0
Taper Length (ft)	50	0	50	0	0	50	0	0	0	50	0	0
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.977			0.997							0.961
Flt Protected				0.950								0.966
Satd. Flow (prot)	1900	3199	0	1703	3399	0	0	0	0	0	1764	0
Flt Permitted				0.950								0.966
Satd. Flow (perm)	1900	3199	0	1703	3399	0	0	0	0	0	1764	0
Link Speed (mph)	45	45	45	45	45	45	30	30	30	30	30	30
Link Distance (ft)	750	750	750	750	750	750	320	320	320	320	320	340
Travel Time (s)	11.4	11.4	11.4	11.4	11.4	11.4	7.3	7.3	7.3	7.3	7.3	7.7
Peak Hour Factor	0.87	0.87	0.87	0.89	0.89	0.89	0.92	0.92	0.92	0.80	0.80	0.80
Heavy Vehicles (%)	0%	11%	6%	6%	6%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	639	113	29	476	9	0	0	0	5	0	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	752	0	29	485	0	0	0	0	0	7	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)	12	12	12	14	14	14	0	0	0	0	0	0
Link Offset(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Crosswalk Width(ft)	16	16	16	16	16	16	16	16	16	16	16	16
Two way Left Turn Lane				Yes	Yes	Yes						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	15	9	15	15	15	9	15	9	15	15	9
Sign Control		Free			Free			Stop				Stop

Intersection Summary
 Area Type: Other
 Control Type: Unsignalized
 Intersection Capacity Utilization 31.6% ICU Level of Service A
 Analysis Period (min) 15

HCM Unsignalized Intersection Capacity Analysis LA 3132 (Inner Loop) Extension - Stage 0 Study
 110: Ashley River Dr SB & Flournoy Lucas Rd 2032 Alternative C AM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↕	↔	↔	↕	↔	↔	↔	↔	↔	↕	↔
Volume (veh/h)	0	556	98	26	424	8	0	0	0	4	0	2
Sign Control		Free			Free			Stop				Stop
Grade		0%			0%			0%				0%
Peak Hour Factor	0.87	0.87	0.87	0.89	0.89	0.89	0.92	0.92	0.92	0.80	0.80	0.80
Hourly flow rate (vph)	0	639	113	29	476	9	0	0	0	5	0	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)												
pX, platoon unblocked												
vC, conflicting volume	485			752			995	1239	376	859	1291	243
vC1, stage 1 conf vol							695	695		539	539	
vC2, stage 2 conf vol							299	544		320	752	
vCu, unblocked vol	485			752			995	1239	376	859	1291	243
tC, single (s)	4.1			4.2			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			2.3			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			96			100	100	100	99	100	100
cM capacity (veh/h)	1088			828			369	363	627	429	334	764

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1
Volume Total	0	426	326	29	318	168	8
Volume Left	0	0	0	29	0	0	5
Volume Right	0	0	113	0	0	9	2
cSH	1700	1700	1700	828	1700	1700	502
Volume to Capacity	0.00	0.25	0.19	0.04	0.19	0.10	0.01
Queue Length 95th (ft)	0	0	0	3	0	0	1
Control Delay (s)	0.0	0.0	0.0	9.5	0.0	0.0	12.3
Lane LOS				A			B
Approach Delay (s)	0.0			0.5			12.3
Approach LOS				B			B

Intersection Summary
 Average Delay 0.3
 Intersection Capacity Utilization 31.6% ICU Level of Service A
 Analysis Period (min) 15

Lanes, Volumes, Timings

LA 3132 (Inner Loop) Extension - Stage 0 Study

111: Ashley River Dr NB & Flournoy Lucas Rd

2032 Alternative C AM Peak

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑	↔	↔
Volume (vph)	560	0	0	169	289	103
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt						0.850
Fit Protected					0.950	
Satd. Flow (prot)	3282	0	0	3374	1805	1568
Fit Permitted					0.950	
Satd. Flow (perm)	3282	0	0	3374	1805	1568
Link Speed (mph)	45			45	30	
Link Distance (ft)	127			2333	283	
Travel Time (s)	1.9			35.3	6.4	
Peak Hour Factor	0.80	0.80	0.84	0.84	0.81	0.81
Heavy Vehicles (%)	10%	0%	0%	7%	0%	3%
Adj. Flow (vph)	700	0	0	201	357	127
Shared Lane Traffic (%)						
Lane Group Flow (vph)	700	0	0	201	357	127
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	14			14	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane	Yes			Yes		
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	38.2%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis LA 3132 (Inner Loop) Extension - Stage 0 Study

111: Ashley River Dr NB & Flournoy Lucas Rd

2032 Alternative C AM Peak

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑	↔	↔
Volume (veh/h)	560	0	0	169	289	103
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.80	0.80	0.84	0.84	0.81	0.81
Hourly flow rate (vph)	700	0	0	201	357	127
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			700		801	350
vC1, stage 1 conf vol					700	
vC2, stage 2 conf vol					101	
vCu, unblocked vol			700		801	350
tC, single (s)			4.1		6.8	7.0
tC, 2 stage (s)					5.8	
tF (s)			2.2		3.5	3.3
p0 queue free %			100		19	80
cM capacity (veh/h)			906		443	643

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2
Volume Total	350	350	101	101	357	127
Volume Left	0	0	0	0	357	0
Volume Right	0	0	0	0	0	127
cSH	1700	1700	1700	1700	443	643
Volume to Capacity	0.21	0.21	0.06	0.06	0.81	0.20
Queue Length 95th (ft)	0	0	0	0	184	18
Control Delay (s)	0.0	0.0	0.0	0.0	39.1	12.0
Lane LOS					E	B
Approach Delay (s)	0.0		0.0		31.9	
Approach LOS					D	

Intersection Summary

Average Delay	11.2
Intersection Capacity Utilization	38.2%
Analysis Period (min)	15
	ICU Level of Service A

Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
 112: Flournoy Lucas Rd & Oaks Retirement Rd 2032 Alternative C AM Peak

	↖	→	←	↗	↘	
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↘	↖↖	↖↗		↘	↗
Volume (vph)	38	625	153	27	6	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	375			0	0	0
Storage Lanes	1			0	1	1
Taper Length (ft)	50				50	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Frt			0.978			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1687	3610	3367	0	1805	1524
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1687	3610	3367	0	1805	1524
Link Speed (mph)		45	45		30	
Link Distance (ft)		2333	1050		729	
Travel Time (s)		35.3	15.9		16.6	
Peak Hour Factor	0.80	0.80	0.81	0.81	0.80	0.80
Heavy Vehicles (%)	7%	0%	5%	4%	0%	6%
Adj. Flow (vph)	48	781	189	33	8	20
Shared Lane Traffic (%)						
Lane Group Flow (vph)	48	781	222	0	8	20
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		14	14		28	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane		Yes	Yes			
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	27.3%		ICU Level of Service A			
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis LA 3132 (Inner Loop) Extension - Stage 0 Study
 112: Flournoy Lucas Rd & Oaks Retirement Rd 2032 Alternative C AM Peak

	↖	→	←	↗	↘		
Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations	↘	↖↖	↖↗		↘	↗	
Volume (veh/h)	38	625	153	27	6	16	
Sign Control		Free	Free		Stop		
Grade		0%	0%		0%		
Peak Hour Factor	0.80	0.80	0.81	0.81	0.80	0.80	
Hourly flow rate (vph)	48	781	189	33	8	20	
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type		TWLT	TWLT				
Median storage (veh)		2	2				
Upstream signal (ft)							
pX, platoon unblocked							
vC, conflicting volume	222				691	111	
vC1, stage 1 conf vol					206		
vC2, stage 2 conf vol					486		
vCu, unblocked vol	222				691	111	
tC, single (s)	4.2				6.8	7.0	
tC, 2 stage (s)					5.8		
tF (s)	2.3				3.5	3.4	
p0 queue free %	96				99	98	
cM capacity (veh/h)	1308				531	908	
Direction, Lane #							
	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1	SB 2
Volume Total	48	391	391	126	96	8	20
Volume Left	48	0	0	0	0	8	0
Volume Right	0	0	0	0	33	0	20
cSH	1308	1700	1700	1700	1700	531	908
Volume to Capacity	0.04	0.23	0.23	0.07	0.06	0.01	0.02
Queue Length 95th (ft)	3	0	0	0	0	1	2
Control Delay (s)	7.9	0.0	0.0	0.0	0.0	11.9	9.1
Lane LOS	A					B	A
Approach Delay (s)	0.5			0.0		9.8	
Approach LOS						A	
Intersection Summary							
Average Delay	0.6						
Intersection Capacity Utilization	27.3%		ICU Level of Service				A
Analysis Period (min)	15						

Lanes, Volumes, Timings
201: LA 1 & I-69 WB Ramp

LA 3132 (Inner Loop) Extension - Stage 0 Study
2032 Alternative C AM Peak

	↖ ↗		↑		↙ ↘		↓
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations	↖	↗	↑↑	↖	↗	↑↑	
Volume (vph)	99	0	174	3	111	782	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Storage Length (ft)	300	0	0	275			
Storage Lanes	1	1	1	1			
Taper Length (ft)	50			50			
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95	
Frt			0.850				
Flt Protected	0.950			0.950			
Satd. Flow (prot)	1641	1727	3195	1429	1656	3312	
Flt Permitted	0.950			0.950			
Satd. Flow (perm)	1641	1727	3195	1429	1656	3312	
Link Speed (mph)	40		65		65		
Link Distance (ft)	381		1423		531		
Travel Time (s)	6.5		14.9		5.6		
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90	
Heavy Vehicles (%)	10%	10%	13%	13%	9%	9%	
Adj. Flow (vph)	124	0	218	4	123	869	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	124	0	218	4	123	869	
Enter Blocked Intersection	No	No	No	No	No	No	
Lane Alignment	Left	Right	Left	Right	Left	Left	
Median Width(ft)	12		76		76		
Link Offset(ft)	0		0		0		
Crosswalk Width(ft)	16		16		16		
Two way Left Turn Lane							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Turning Speed (mph)	15	9		9	15		
Sign Control	Stop		Free			Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	33.8%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis LA 3132 (Inner Loop) Extension - Stage 0 Study
201: LA 1 & I-69 WB Ramp

	↖ ↗		↑		↙ ↘		↓
Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations	↖	↗	↑↑	↖	↗	↑↑	
Volume (veh/h)	99	0	174	3	111	782	
Sign Control	Stop		Free			Free	
Grade	0%		0%		0%		
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90	
Hourly flow rate (vph)	124	0	218	4	123	869	
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type			Raised		Raised		
Median storage (veh)			3		3		
Upstream signal (ft)							
pX, platoon unblocked							
vC, conflicting volume	899	109			218		
vC1, stage 1 conf vol	218						
vC2, stage 2 conf vol	681						
vCu, unblocked vol	899	109			218		
tC, single (s)	7.0	7.1			4.3		
tC, 2 stage (s)	6.0						
tF (s)	3.6	3.4			2.3		
p0 queue free %	69	100			91		
cM capacity (veh/h)	395	899			1300		

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	124	0	109	109	4	123	434	434
Volume Left	124	0	0	0	0	123	0	0
Volume Right	0	0	0	0	4	0	0	0
cSH	395	1700	1700	1700	1700	1300	1700	1700
Volume to Capacity	0.31	0.00	0.06	0.06	0.00	0.09	0.26	0.26
Queue Length 95th (ft)	33	0	0	0	0	8	0	0
Control Delay (s)	18.2	0.0	0.0	0.0	0.0	8.1	0.0	0.0
Lane LOS	C	A				A		
Approach Delay (s)	18.2		0.0			1.0		
Approach LOS	C							

Intersection Summary

Average Delay	2.4
Intersection Capacity Utilization	33.8%
Analysis Period (min)	15
	ICU Level of Service A

Lanes, Volumes, Timings
202: LA 1 & I-69 EB Ramp

LA 3132 (Inner Loop) Extension - Stage 0 Study
2032 Alternative C AM Peak

	↙	↘	↑	↗	↖	↓
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↘	↗	↗	↖	↖
Volume (vph)	0	18	158	83	582	299
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300	0		490	260	
Storage Lanes	1	1		1	1	
Taper Length (ft)	50				50	
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt		0.850		0.850		
Flt Protected					0.950	
Satd. Flow (prot)	1727	1468	3195	1429	1656	3312
Flt Permitted					0.950	
Satd. Flow (perm)	1727	1468	3195	1429	1656	3312
Link Speed (mph)	40		65		65	
Link Distance (ft)	452		3194		1423	
Travel Time (s)	7.7		33.5		14.9	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Heavy Vehicles (%)	10%	10%	13%	13%	9%	9%
Adj. Flow (vph)	0	23	198	104	647	332
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	22	198	104	647	332
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	24		76		76	
Link Offset(ft)	0		0		0	
Crosswalk Width(ft)	16		16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free		Free	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	44.0%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis LA 3132 (Inner Loop) Extension - Stage 0 Study
202: LA 1 & I-69 EB Ramp

2032 Alternative C AM Peak

	↙	↘	↑	↗	↖	↓
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↘	↗	↗	↖	↖
Volume (veh/h)	0	18	158	83	582	299
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Hourly flow rate (vph)	0	22	198	104	647	332
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			Raised		Raised	
Median storage (veh)			3		3	
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1657	99			198	
vC1, stage 1 conf vol	198					
vC2, stage 2 conf vol	1459					
vCu, unblocked vol	1657	99			198	
tC, single (s)	7.0	7.1			4.3	
tC, 2 stage (s)	6.0					
tF (s)	3.6	3.4			2.3	
p0 queue free %	100	98			51	
cM capacity (veh/h)	85	913			1323	

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	0	22	99	99	104	647	166	166
Volume Left	0	0	0	0	0	647	0	0
Volume Right	0	22	0	0	104	0	0	0
cSH	1700	913	1700	1700	1700	1323	1700	1700
Volume to Capacity	0.00	0.02	0.06	0.06	0.06	0.49	0.10	0.10
Queue Length 95th (ft)	0	2	0	0	0	69	0	0
Control Delay (s)	0.0	9.0	0.0	0.0	0.0	10.3	0.0	0.0
Lane LOS	A	A				B		
Approach Delay (s)	9.0		0.0			6.8		
Approach LOS	A							

Intersection Summary	
Average Delay	5.3
Intersection Capacity Utilization	44.0%
Analysis Period (min)	15
	ICU Level of Service A

Lanes, Volumes, Timings
301: LA 1 & Gate A

LA 3132 (Inner Loop) Extension - Stage 0 Study
2032 Alternative C AM Peak

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	5	14	1092	8	21	648
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	0	0	150	
Storage Lanes	1	0		0	1	
Taper Length (ft)	50				50	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Frt	0.899		0.999			
Flt Protected	0.988				0.950	
Satd. Flow (prot)	1259	0	3186	0	1656	2560
Flt Permitted	0.988				0.950	
Satd. Flow (perm)	1259	0	3186	0	1656	2560
Link Speed (mph)	40		65		65	
Link Distance (ft)	496		4383		376	
Travel Time (s)	8.5		46.0		3.9	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Heavy Vehicles (%)	34%	34%	13%	41%	9%	41%
Adj. Flow (vph)	6	18	1365	10	23	720
Shared Lane Traffic (%)						
Lane Group Flow (vph)	24	0	1375	0	23	720
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		66		66	
Link Offset(ft)	0		0		0	
Crosswalk Width(ft)	16		16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	40.4%
ICU Level of Service	A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis LA 3132 (Inner Loop) Extension - Stage 0 Study
301: LA 1 & Gate A

2032 Alternative C AM Peak

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	5	14	1092	8	21	648
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Hourly flow rate (vph)	6	18	1365	10	23	720
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			Raised			Raised
Median storage (veh)			2			2
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1777	688			1375	
vC1, stage 1 conf vol	1370					
vC2, stage 2 conf vol	407					
vCu, unblocked vol	1777	688			1375	
tC, single (s)	7.5	7.6			4.3	
tC, 2 stage (s)	6.5					
tF (s)	3.8	3.6			2.3	
p0 queue free %	96	95			95	
cM capacity (veh/h)	144	323			460	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	24	910	465	23	360	360
Volume Left	6	0	0	23	0	0
Volume Right	18	0	10	0	0	0
cSH	243	1700	1700	460	1700	1700
Volume to Capacity	0.10	0.54	0.27	0.05	0.21	0.21
Queue Length 95th (ft)	8	0	0	4	0	0
Control Delay (s)	21.4	0.0	0.0	13.2	0.0	0.0
Lane LOS	C			B		
Approach Delay (s)	21.4	0.0		0.4		
Approach LOS	C					

Intersection Summary

Average Delay	0.4
Intersection Capacity Utilization	40.4%
ICU Level of Service	A
Analysis Period (min)	15

Lanes, Volumes, Timings
302: LA 1 & Gate B

LA 3132 (Inner Loop) Extension - Stage 0 Study
2032 Alternative C AM Peak

Lane Group	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Lane Configurations							
Volume (vph)	20	40	0	1060	52	94	559
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	250		0	250	
Storage Lanes	1	1	1		0	1	
Taper Length (ft)	50		50		50		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	0.95
Frt		0.850		0.993			
Flt Protected	0.950				0.950		
Satd. Flow (prot)	1271	1137	1681	3155	0	1656	2865
Flt Permitted	0.950				0.950		
Satd. Flow (perm)	1271	1137	1681	3155	0	1656	2865
Link Speed (mph)	40			65		65	
Link Distance (ft)	464			1578		4383	
Travel Time (s)	7.9			16.6		46.0	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.90	0.90
Heavy Vehicles (%)	42%	42%	13%	13%	26%	9%	26%
Adj. Flow (vph)	25	50	0	1325	65	104	621
Shared Lane Traffic (%)							
Lane Group Flow (vph)	25	50	0	1390	0	104	621
Enter Blocked Intersection	No	No	No	No	No	No	No
Lane Alignment	Left	Right	R NA	Left	Right	Left	Left
Median Width(ft)	20			66		66	
Link Offset(ft)	0			0		0	
Crosswalk Width(ft)	16			16		16	
Two way Left Turn Lane							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	9		9	15	
Sign Control	Stop			Free		Free	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	49.5%
ICU Level of Service	A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis LA 3132 (Inner Loop) Extension - Stage 0 Study
302: LA 1 & Gate B

2032 Alternative C AM Peak

Movement	WBL	WBR	NBU	NBT	NBR	SBL	SBT	
Lane Configurations								
Volume (veh/h)	20	40	0	1060	52	94	559	
Sign Control	Stop			Free		Free		
Grade	0%			0%		0%		
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.90	0.90	
Hourly flow rate (vph)	25	50	0	1325	65	104	621	
Pedestrians								
Lane Width (ft)								
Walking Speed (ft/s)								
Percent Blockage								
Right turn flare (veh)								
Median type				Raised		Raised		
Median storage (veh)				2		2		
Upstream signal (ft)								
pX, platoon unblocked			0.00					
vC, conflicting volume	1877	695	0			1390		
vC1, stage 1 conf vol	1358							
vC2, stage 2 conf vol	519							
vCu, unblocked vol	1877	695	0			1390		
tC, single (s)	7.6	7.7	0.0			4.3		
tC, 2 stage (s)	6.6							
tF (s)	3.9	3.7	0.0			2.3		
p0 queue free %	81	84	0			77		
cM capacity (veh/h)	131	304	0			454		
Direction, Lane #	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	25	50	883	507	0	104	311	311
Volume Left	25	0	0	0	0	104	0	0
Volume Right	0	50	0	65	0	0	0	0
cSH	131	304	1700	1700	1700	454	1700	1700
Volume to Capacity	0.19	0.16	0.52	0.30	0.00	0.23	0.18	0.18
Queue Length 95th (ft)	17	14	0	0	0	22	0	0
Control Delay (s)	38.8	19.1	0.0	0.0	0.0	15.3	0.0	0.0
Lane LOS	E	C				C		
Approach Delay (s)	25.7		0.0			2.2		
Approach LOS	D							
Intersection Summary								
Average Delay			1.6					
Intersection Capacity Utilization			49.5%			ICU Level of Service		A
Analysis Period (min)			15					

Lanes, Volumes, Timings
303: LA 1 & Gate C

LA 3132 (Inner Loop) Extension - Stage 0 Study
2032 Alternative C AM Peak

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↑	↑↑	↑		↑↑
Volume (vph)	0	24	1094	34	0	893
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	0	0	250	
Storage Lanes	0	1		1	0	
Taper Length (ft)	50				50	
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt		0.865		0.850		
Flt Protected						
Satd. Flow (prot)	0	1166	3195	1214	0	2714
Flt Permitted						
Satd. Flow (perm)	0	1166	3195	1214	0	2714
Link Speed (mph)	40		65			65
Link Distance (ft)	508		531			1081
Travel Time (s)	8.7		5.6			11.3
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Heavy Vehicles (%)	41%	41%	13%	33%	9%	33%
Adj. Flow (vph)	0	30	1368	43	0	992
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	30	1368	42	0	992
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	0		76			76
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	40.2%		ICU Level of Service A			
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis LA 3132 (Inner Loop) Extension - Stage 0 Study
303: LA 1 & Gate C

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↑	↑↑	↑		↑↑
Volume (veh/h)	0	24	1094	34	0	893
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Hourly flow rate (vph)	0	30	1368	42	0	992
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			Raised			Raised
Median storage (veh)			3			3
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1864	684			1410	
vC1, stage 1 conf vol	1368					
vC2, stage 2 conf vol	496					
vCu, unblocked vol	1864	684			1410	
tC, single (s)	7.6	7.7			4.3	
tC, 2 stage (s)	6.6					
tF (s)	3.9	3.7			2.3	
p0 queue free %	100	90			100	
cM capacity (veh/h)	141	312			445	
Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	30	684	684	42	496	496
Volume Left	0	0	0	0	0	0
Volume Right	30	0	0	42	0	0
cSH	312	1700	1700	1700	1700	1700
Volume to Capacity	0.10	0.40	0.40	0.03	0.29	0.29
Queue Length 95th (ft)	8	0	0	0	0	0
Control Delay (s)	17.8	0.0	0.0	0.0	0.0	0.0
Lane LOS	C					
Approach Delay (s)	17.8	0.0			0.0	
Approach LOS	C					
Intersection Summary						
Average Delay	0.2					
Intersection Capacity Utilization	40.2%		ICU Level of Service		A	
Analysis Period (min)	15					

Lanes, Volumes, Timings
304: LA 1 & Gate D

LA 3132 (Inner Loop) Extension - Stage 0 Study
2032 Alternative C AM Peak

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↘	↗	↗	↘	↘
Volume (vph)	1	30	295	0	21	262
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	250		300	280	
Storage Lanes	1	1		1	1	
Taper Length (ft)	50				50	
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt	0.850					
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1068	956	3195	1118	1656	2124
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1068	956	3195	1118	1656	2124
Link Speed (mph)	40		65		65	
Link Distance (ft)	420		716		503	
Travel Time (s)	7.2		7.5		5.3	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Heavy Vehicles (%)	69%	69%	13%	70%	9%	70%
Adj. Flow (vph)	1	38	369	0	23	291
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1	38	369	0	23	291
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		76		76	
Link Offset(ft)	0		0		0	
Crosswalk Width(ft)	16		16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	24.8%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis LA 3132 (Inner Loop) Extension - Stage 0 Study
304: LA 1 & Gate D

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↘	↗	↗	↘	↘
Volume (veh/h)	1	30	295	0	21	262
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Hourly flow rate (vph)	1	38	369	0	23	291
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)	10					
Median type	Raised			Raised		
Median storage (veh)	3			3		
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	561	184			369	
vC1, stage 1 conf vol	369					
vC2, stage 2 conf vol	192					
vCu, unblocked vol	561	184			369	
tC, single (s)	8.2	8.3			4.3	
tC, 2 stage (s)	7.2					
tF (s)	4.2	4.0			2.3	
p0 queue free %	100	94			98	
cM capacity (veh/h)	486	653			1138	

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	39	184	184	0	23	146	146
Volume Left	1	0	0	0	23	0	0
Volume Right	38	0	0	0	0	0	0
cSH	675	1700	1700	1700	1138	1700	1700
Volume to Capacity	0.06	0.11	0.11	0.00	0.02	0.09	0.09
Queue Length 95th (ft)	5	0	0	0	2	0	0
Control Delay (s)	10.9	0.0	0.0	0.0	8.2	0.0	0.0
Lane LOS	B				A		
Approach Delay (s)	10.9	0.0			0.6		
Approach LOS	B						

Intersection Summary

Average Delay	0.9
Intersection Capacity Utilization	24.8%
Analysis Period (min)	15
	ICU Level of Service A

Lanes, Volumes, Timings
103: LA 1 & Flournoy Lucas Rd

LA 3132 (Inner Loop) Extension - Stage 0 Study
2032 Alternative C PM Peak with Improvements

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Volume (vph)	357	26	41	64	78	9	61	312	30	0	375	540
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	0	0	0	0	125	0	165	0	165	165
Storage Lanes	1	0	0	0	0	0	1	0	1	0	1	1
Taper Length (ft)	50			50			50		50			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt		0.908			0.992			0.987				0.850
Flt Protected	0.950				0.979		0.950					
Satd. Flow (prot)	1787	1426	0	0	1826	0	1570	3349	0	1900	3438	1599
Flt Permitted	0.514				0.828		0.376					
Satd. Flow (perm)	967	1426	0	0	1545	0	621	3349	0	1900	3438	1599
Right Turn on Red			Yes			Yes			Yes			No
Satd. Flow (RTOR)		46			2			9				
Link Speed (mph)		50			50			55				55
Link Distance (ft)		784			651			1092				934
Travel Time (s)		10.7			8.9			13.5				11.6
Peak Hour Factor	0.89	0.89	0.89	0.80	0.80	0.80	0.83	0.83	0.83	0.81	0.81	0.81
Heavy Vehicles (%)	1%	2%	33%	0%	2%	0%	15%	7%	0%	0%	5%	1%
Adj. Flow (vph)	401	29	46	80	98	11	73	376	36	0	463	667
Shared Lane Traffic (%)												
Lane Group Flow (vph)	401	75	0	0	189	0	73	412	0	0	463	667
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			0			12				12
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA		Perm	NA		pm+pt	NA		pm+pt	NA	pt+ov
Protected Phases	3	8			4		1	6		5	2	2 3
Permitted Phases	8			4			6			2		
Detector Phase	3	8		4	4		1	6		5	2	2 3
Switch Phase												
Minimum Initial (s)	5.0	10.0		7.0	7.0		7.0	15.0		5.0	15.0	
Minimum Split (s)	11.5	16.5		13.5	13.5		15.0	23.0		13.0	23.0	
Total Split (s)	30.0	60.0		30.0	30.0		15.0	60.0		15.0	60.0	
Total Split (%)	22.2%	44.4%		22.2%	22.2%		11.1%	44.4%		11.1%	44.4%	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.5	5.5		5.5	5.5	
All-Red Time (s)	1.5	1.5		1.5	1.5		2.5	2.5		2.5	2.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.5	6.5		6.5	6.5		8.0	8.0		8.0	8.0	
Lead/Lag	Lead			Lag	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes			Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None		None	Min		None	Min	
Act Effect Green (s)	49.1	49.1		21.0	21.0		55.8	55.8		44.9	73.0	
Actuated g/C Ratio	0.41	0.41		0.17	0.17		0.46	0.46		0.37	0.61	
v/c Ratio	0.74	0.12		0.69	0.69		0.21	0.26		0.36	0.69	

Lanes, Volumes, Timings
103: LA 1 & Flournoy Lucas Rd

LA 3132 (Inner Loop) Extension - Stage 0 Study
2032 Alternative C PM Peak with Improvements

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	39.6	12.8			64.4		19.6	19.3			29.2	21.4
Queue Delay	0.0	0.0			0.0		0.0	0.0			0.0	0.0
Total Delay	39.6	12.8			64.4		19.6	19.3			29.2	21.4
LOS	D	B			E		B	B			C	C
Approach Delay		35.4			64.4		19.4				24.6	
Approach LOS		D			E		B				C	
Queue Length 50th (ft)	271	16			156		33	104			150	374
Queue Length 95th (ft)	372	49			212		56	125			173	426
Internal Link Dist (ft)		704			571		1012				854	
Turn Bay Length (ft)							125					165
Base Capacity (vph)	565	698			323		346	1806			1579	1019
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	0.71	0.11			0.59		0.21	0.23			0.29	0.65

Intersection Summary

Area Type:	Other
Cycle Length:	135
Actuated Cycle Length:	120.3
Natural Cycle:	90
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.74
Intersection Signal Delay:	29.0
Intersection Capacity Utilization:	66.2%
ICU Level of Service:	C
Analysis Period (min):	15

Splits and Phases: 103: LA 1 & Flournoy Lucas Rd



Lanes, Volumes, Timings
105: Ellerbe Rd & Flournoy Lucas Rd

LA 3132 (Inner Loop) Extension - Stage 0 Study
2032 Alternative C PM Peak with Improvements

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Volume (vph)	11	209	155	178	245	252	56	619	94	330	1351	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	140		150	150			0	115		120	150	0
Storage Lanes	1		1	1			1	1		1	1	0
Taper Length (ft)	50			50				50			50	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Frt			0.850				0.850			0.850		0.998
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1805	1863	1615	1787	1863	1615	1805	3539	1599	1752	3533	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1805	1863	1615	1787	1863	1615	1805	3539	1599	1752	3533	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			178			283			89			2
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		848			838			697			896	
Travel Time (s)		12.8			12.7			10.6			13.6	
Peak Hour Factor	0.87	0.87	0.87	0.89	0.89	0.89	0.84	0.84	0.84	0.89	0.89	0.89
Heavy Vehicles (%)	0%	2%	0%	1%	2%	0%	0%	2%	1%	3%	2%	0%
Adj. Flow (vph)	13	240	178	200	275	283	67	737	112	371	1518	24
Shared Lane Traffic (%)												
Lane Group Flow (vph)	13	240	178	200	275	283	67	737	112	371	1542	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)	12			12			12			12		
Link Offset(ft)	0			0			0			0		
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane				Yes							Yes	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases			8			4			6			
Detector Phase	3	8	8	7	4	4	1	6	6	5	2	
Switch Phase												
Minimum Initial (s)	7.0	15.0	15.0	7.0	15.0	15.0	7.0	10.0	10.0	7.0	10.0	
Minimum Split (s)	12.0	20.0	20.0	14.0	22.0	22.0	12.0	15.0	15.0	14.0	17.0	
Total Split (s)	12.0	19.0	19.0	17.0	24.0	24.0	12.0	27.0	27.0	27.0	42.0	
Total Split (%)	13.3%	21.1%	21.1%	18.9%	26.7%	26.7%	13.3%	30.0%	30.0%	30.0%	46.7%	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	0.0	0.0	0.0	2.0	2.0	2.0	0.0	0.0	0.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0	5.0	5.0	7.0	7.0	7.0	5.0	5.0	5.0	7.0	7.0	
Lead/Lag	Lead	Lead	Lead	Lag	Lag	Lag	Lead	Lead	Lead	Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	Min	Min	None	Min	Min	None	None	None	None	None	
Act Effct Green (s)	7.0	14.0	14.0	10.0	26.6	26.6	7.0	21.2	21.2	20.0	36.7	
Actuated g/C Ratio	0.08	0.16	0.16	0.11	0.30	0.30	0.08	0.24	0.24	0.22	0.41	
v/c Ratio	0.09	0.82	0.44	1.00	0.49	0.42	0.48	0.88	0.25	0.95	1.06	

Lanes, Volumes, Timings
105: Ellerbe Rd & Flournoy Lucas Rd

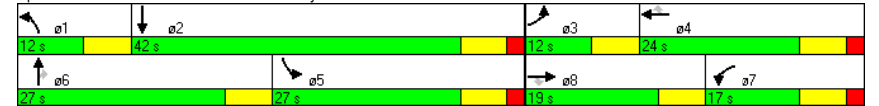
LA 3132 (Inner Loop) Extension - Stage 0 Study
2032 Alternative C PM Peak with Improvements

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	40.2	60.3	9.3	105.5	31.7	5.9	51.4	45.8	10.6	69.9	69.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	40.2	60.3	9.3	105.5	31.7	5.9	51.4	45.8	10.6	69.9	69.5	
LOS	D	E	A	F	C	A	D	D	B	E	E	
Approach Delay			38.7			41.5				41.9		69.6
Approach LOS			D			D				D		E
Queue Length 50th (ft)	7	134	0	~117	123	0	37	211	10	209	~539	
Queue Length 95th (ft)	24	#244	51	#251	#267	63	74	255	45	#375	#664	
Internal Link Dist (ft)			768			758			617		816	
Turn Bay Length (ft)	140		150	150			115		120	150		
Base Capacity (vph)	141	293	404	201	556	680	141	873	461	392	1454	
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	0.09	0.82	0.44	1.00	0.49	0.42	0.48	0.84	0.24	0.95	1.06	

Intersection Summary

Area Type:	Other
Cycle Length:	90
Actuated Cycle Length:	89.2
Natural Cycle:	90
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	1.06
Intersection Signal Delay:	54.7
Intersection Capacity Utilization:	86.2%
ICU Level of Service:	E
Analysis Period (min):	15
~ Volume exceeds capacity, queue is theoretically infinite.	
Queue shown is maximum after two cycles.	
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 105: Ellerbe Rd & Flournoy Lucas Rd



Lanes, Volumes, Timings
107: LA 1 & Bert Kouns Industrial Loop

LA 3132 (Inner Loop) Extension - Stage 0 Study
2032 Alternative C PM Peak with Improvements

	↖		→		↘		←		↙		↗	
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑↑	↑↑	↑	↑	↑↑	↑	↑↑	↑↑	↑	↑↑	↑↑	↑
Volume (vph)	277	813	226	228	669	89	214	884	220	111	663	290
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	230		230	150			115	220		220	230	230
Storage Lanes	2		1	1			1	2		1	2	1
Taper Length (ft)	50			50			50			50		
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt			0.850				0.850			0.850		0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3502	3539	1568	1787	3539	1583	3335	3574	1553	3502	3574	1599
Flt Permitted	0.950			0.339			0.950			0.950		
Satd. Flow (perm)	3502	3539	1568	638	3539	1583	3335	3574	1553	3502	3574	1599
Right Turn on Red			No			Yes			Yes			Yes
Satd. Flow (RTOR)						31			33			47
Link Speed (mph)		50			50			45				45
Link Distance (ft)		1652			1693			1702				1927
Travel Time (s)		22.5			23.1			25.8				29.2
Peak Hour Factor	0.98	0.98	0.98	0.91	0.91	0.91	0.85	0.85	0.85	0.91	0.91	0.91
Heavy Vehicles (%)	0%	2%	3%	1%	2%	2%	5%	1%	4%	0%	1%	1%
Adj. Flow (vph)	283	830	231	251	735	98	252	1040	259	122	729	319
Shared Lane Traffic (%)												
Lane Group Flow (vph)	283	830	231	251	735	98	252	1040	259	122	729	319
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24				24
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane					Yes							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15			9	15			9
Turn Type	Prot	NA	Prot	pm+pt	NA	pt+ov	Prot	NA	pt+ov	Prot	NA	pt+ov
Protected Phases	1	6	6	5	2	2.7	3	8	5.8	7	4	1.4
Permitted Phases				2								
Detector Phase	1	6	6	5	2	2.7	3	8	5.8	7	4	1.4
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0		5.0	10.0		5.0	10.0	
Minimum Split (s)	11.0	22.0	22.0	11.0	22.0		11.0	22.0		11.0	22.0	
Total Split (s)	21.0	36.0	36.0	21.0	36.0		20.0	40.0		13.0	33.0	
Total Split (%)	19.1%	32.7%	32.7%	19.1%	32.7%		18.2%	36.4%		11.8%	30.0%	
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5		1.5	1.5		1.5	1.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0		6.0	6.0		6.0	6.0	
Lead/Lag	Lead	Lead	Lead	Lag	Lag		Lead	Lead		Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	C-Min	C-Min	None	C-Min		None	None		None	None	
Act Effect Green (s)	13.4	30.9	30.9	31.2	31.2	38.1	12.7	34.4	54.2	6.9	28.7	48.1
Actuated g/C Ratio	0.12	0.28	0.28	0.28	0.28	0.35	0.12	0.31	0.49	0.06	0.26	0.44
v/c Ratio	0.66	0.84	0.52	0.77	0.73	0.17	0.66	0.93	0.33	0.55	0.78	0.44

Lanes, Volumes, Timings
107: LA 1 & Bert Kouns Industrial Loop

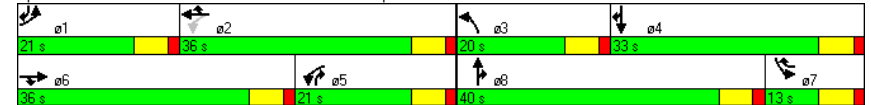
LA 3132 (Inner Loop) Extension - Stage 0 Study
2032 Alternative C PM Peak with Improvements

	↖		→		↘		←		↙		↗	
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	53.9	46.2	38.9	57.6	41.0	10.3	55.0	51.7	15.8	59.9	45.0	20.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.9	46.2	38.9	57.6	41.0	10.3	55.0	51.7	15.8	59.9	45.0	20.4
LOS	D	D	D	E	D	B	E	D	B	E	D	C
Approach Delay		46.6			42.1			46.3				39.9
Approach LOS		D			D			D				D
Queue Length 50th (ft)	98	293	139	148	247	19	88	375	91	43	256	131
Queue Length 95th (ft)	142	#394	221	#258	322	43	122	#457	137	74	#335	207
Internal Link Dist (ft)		1572			1613			1622				1847
Turn Bay Length (ft)	230		230	150		115	220		220	230		230
Base Capacity (vph)	478	993	440	345	1004	570	424	1119	766	223	933	748
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	0.59	0.84	0.53	0.73	0.73	0.17	0.59	0.93	0.34	0.55	0.78	0.43

Intersection Summary

Area Type: Other
 Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 100 (91%), Referenced to phase 2:WBT and 6:EBT, Start of Green
 Natural Cycle: 90
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.93
 Intersection Signal Delay: 44.0
 Intersection Capacity Utilization 83.7%
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 107: LA 1 & Bert Kouns Industrial Loop



Lanes, Volumes, Timings
 108: Bert Kouns Industrial Loop & LA 3132 EB Off Ramp/LA 3132 EB Off Ramp with Improvements

LA 3132 (Inner Loop) Extension - Stage 0 Study



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔					↕	↕	↔	↔	
Volume (vph)	1006	1	13	0	0	0	0	1032	45	0	945	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		110	0		0	0	0	0	295	0	0
Storage Lanes	1		1	0		0	0	0	0	1	0	0
Taper Length (ft)	50			50			50			50		
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frnt			0.850					0.994				
Flt Protected	0.950	0.952										
Satd. Flow (prot)	1715	1718	1615	0	0	0	0	3554	0	1900	3574	0
Flt Permitted	0.950	0.952										
Satd. Flow (perm)	1715	1718	1615	0	0	0	0	3554	0	1900	3574	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			6					6				
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1564			1165			530			537	
Travel Time (s)		23.7			17.7			8.0			8.1	
Peak Hour Factor	0.93	0.93	0.93	0.92	0.92	0.92	0.86	0.86	0.86	0.96	0.96	0.96
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	1%	0%
Adj. Flow (vph)	1082	1	14	0	0	0	0	1200	52	0	984	0
Shared Lane Traffic (%)	50%											
Lane Group Flow (vph)	541	542	14	0	0	0	0	1252	0	0	984	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			27			27	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Split	NA	Perm					NA	custom	NA		
Protected Phases	4	4						6		5	2.5	
Permitted Phases			4							2		
Detector Phase	4	4	4					6		5	2.5	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0					15.0		5.0		
Minimum Split (s)	11.0	11.0	11.0					21.0		10.0		
Total Split (s)	37.0	37.0	37.0					63.0		10.0		
Total Split (%)	33.6%	33.6%	33.6%					57.3%		9.1%		
Yellow Time (s)	5.0	5.0	5.0					5.0		5.0		
All-Red Time (s)	1.0	1.0	1.0					1.0		0.0		
Lost Time Adjust (s)	0.0	0.0	0.0					0.0		0.0		
Total Lost Time (s)	6.0	6.0	6.0					6.0		5.0		
Lead/Lag								Lag		Lead		
Lead-Lag Optimize?								Yes		Yes		
Recall Mode	None	None	None					None		None		
Act Effct Green (s)	31.0	31.0	31.0					57.0		44.0		
Actuated g/C Ratio	0.28	0.28	0.28					0.52		0.40		
v/c Ratio	1.12	1.12	0.03					0.68		0.69		

Lanes, Volumes, Timings
 108: Bert Kouns Industrial Loop & LA 3132 EB Off Ramp/LA 3132 EB Off Ramp with Improvements

LA 3132 (Inner Loop) Extension - Stage 0 Study

Lane Group	ø1	ø2	ø8
Lane Configurations			
Volume (vph)			
Ideal Flow (vphpl)			
Storage Length (ft)			
Storage Lanes			
Taper Length (ft)			
Lane Util. Factor			
Frnt			
Flt Protected			
Satd. Flow (prot)			
Flt Permitted			
Satd. Flow (perm)			
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (mph)			
Link Distance (ft)			
Travel Time (s)			
Peak Hour Factor			
Heavy Vehicles (%)			
Adj. Flow (vph)			
Shared Lane Traffic (%)			
Lane Group Flow (vph)			
Enter Blocked Intersection			
Lane Alignment			
Median Width(ft)			
Link Offset(ft)			
Crosswalk Width(ft)			
Two way Left Turn Lane			
Headway Factor			
Turning Speed (mph)			
Turn Type			
Protected Phases	1	2	8
Permitted Phases			
Detector Phase			
Switch Phase			
Minimum Initial (s)	5.0	15.0	12.0
Minimum Split (s)	10.0	21.0	18.0
Total Split (s)	27.0	46.0	37.0
Total Split (%)	25%	42%	34%
Yellow Time (s)	5.0	5.0	5.0
All-Red Time (s)	0.0	1.0	1.0
Lost Time Adjust (s)			
Total Lost Time (s)			
Lead/Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	
Recall Mode	None	None	None
Act Effct Green (s)			
Actuated g/C Ratio			
v/c Ratio			

Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
 108: Bert Kouns Industrial Loop & LA 3132 EB Off Ramp/LA 3132 EB On Ramp with Improvements

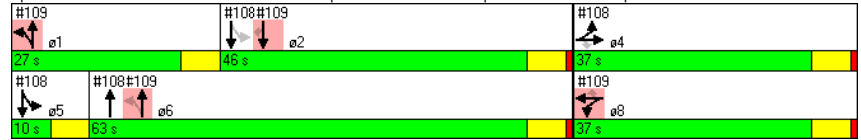


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	115.7	115.6	21.6					21.9				6.5
Queue Delay	9.8	9.8	0.0					5.4				0.0
Total Delay	125.5	125.3	21.6					27.3				6.5
LOS	F	F	C					C				A
Approach Delay		124.1						27.3				6.5
Approach LOS		F						C				A
Queue Length 50th (ft)	~464	~465	4					330				41
Queue Length 95th (ft)	#686	#686	20					378				73
Internal Link Dist (ft)		1484				1085		450				457
Turn Bay Length (ft)			110									
Base Capacity (vph)	483	484	459					1845				1430
Starvation Cap Reductn	0	0	0					0				2
Spillback Cap Reductn	10	10	0					525				0
Storage Cap Reductn	0	0	0					0				0
Reduced v/c Ratio	1.14	1.14	0.03					0.95				0.69

Intersection Summary

Area Type: Other
 Cycle Length: 110
 Actuated Cycle Length: 110
 Natural Cycle: 80
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.12
 Intersection Signal Delay: 53.0 Intersection LOS: D
 Intersection Capacity Utilization 136.3% ICU Level of Service H
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 108: Bert Kouns Industrial Loop & LA 3132 EB Off Ramp/LA 3132 EB On Ramp



Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
 108: Bert Kouns Industrial Loop & LA 3132 EB Off Ramp/LA 3132 EB On Ramp with Improvements

Lane Group	ø1	ø2	ø8
Control Delay			
Queue Delay			
Total Delay			
LOS			
Approach Delay			
Approach LOS			
Queue Length 50th (ft)			
Queue Length 95th (ft)			
Internal Link Dist (ft)			
Turn Bay Length (ft)			
Base Capacity (vph)			
Starvation Cap Reductn			
Spillback Cap Reductn			
Storage Cap Reductn			
Reduced v/c Ratio			

Intersection Summary

Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
 109: Bert Kouns Industrial Loop & LA 3132 WB On Ramp/LA 3132 WB On Ramp with Improvements



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↕	↕	↕	↕			↕	↕
Volume (vph)	0	0	0	29	0	0	31	2037	0	0	916	1000
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	0	0	0	200	295	0	0	0	0	115
Storage Lanes	0	0	0	0	0	1	1	0	0	0	0	1
Taper Length (ft)	50			50			50			50		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frnt												0.850
Fit Protected					0.950		0.950					
Satd. Flow (prot)	0	0	0	0	1805	1900	1752	3539	0	0	3574	1583
Fit Permitted					0.950		0.122					
Satd. Flow (perm)	0	0	0	0	1805	1900	225	3539	0	0	3574	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)												598
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		311			1075			537			687	
Travel Time (s)		4.7			16.3			8.1			10.4	
Peak Hour Factor	0.92	0.92	0.92	0.82	0.82	0.82	0.96	0.96	0.96	0.95	0.95	0.95
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	3%	2%	0%	0%	1%	2%
Adj. Flow (vph)	0	0	0	35	0	0	32	2122	0	0	964	1053
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	35	0	32	2122	0	0	964	1053
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0						27			27	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type				Split	NA	Perm	custom	NA			NA	Perm
Protected Phases				8	8		1	1 6			2	
Permitted Phases						8	6					2
Detector Phase				8	8	8	1	1 6			2	2
Switch Phase												
Minimum Initial (s)				12.0	12.0	12.0	5.0				15.0	15.0
Minimum Split (s)				18.0	18.0	18.0	10.0				21.0	21.0
Total Split (s)				37.0	37.0	37.0	27.0				46.0	46.0
Total Split (%)				33.6%	33.6%	33.6%	24.5%				41.8%	41.8%
Yellow Time (s)				5.0	5.0	5.0	5.0				5.0	5.0
All-Red Time (s)				1.0	1.0	1.0	0.0				1.0	1.0
Lost Time Adjust (s)					0.0	0.0	0.0				0.0	0.0
Total Lost Time (s)					6.0	6.0	5.0				6.0	6.0
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Recall Mode				None	None	None	None				None	None
Act Effct Green (s)					31.0		68.0	68.0			40.0	40.0
Actuated g/C Ratio					0.28		0.62	0.62			0.36	0.36
v/c Ratio					0.07		0.07	0.97			0.74	1.10

Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
 109: Bert Kouns Industrial Loop & LA 3132 WB On Ramp/LA 3132 WB On Ramp with Improvements

Lane Group	ø4	ø5	ø6
Lane Configurations			
Volume (vph)			
Ideal Flow (vphpl)			
Storage Length (ft)			
Storage Lanes			
Taper Length (ft)			
Lane Util. Factor			
Frnt			
Fit Protected			
Satd. Flow (prot)			
Fit Permitted			
Satd. Flow (perm)			
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (mph)			
Link Distance (ft)			
Travel Time (s)			
Peak Hour Factor			
Heavy Vehicles (%)			
Adj. Flow (vph)			
Shared Lane Traffic (%)			
Lane Group Flow (vph)			
Enter Blocked Intersection			
Lane Alignment			
Median Width(ft)			
Link Offset(ft)			
Crosswalk Width(ft)			
Two way Left Turn Lane			
Headway Factor			
Turning Speed (mph)			
Turn Type			
Protected Phases	4	5	6
Permitted Phases			
Detector Phase			
Switch Phase			
Minimum Initial (s)	5.0	5.0	15.0
Minimum Split (s)	11.0	10.0	21.0
Total Split (s)	37.0	10.0	63.0
Total Split (%)	34%	9%	57%
Yellow Time (s)	5.0	5.0	5.0
All-Red Time (s)	1.0	0.0	1.0
Lost Time Adjust (s)			
Total Lost Time (s)			
Lead/Lag		Lead	Lag
Lead-Lag Optimize?		Yes	Yes
Recall Mode	None	None	None
Act Effct Green (s)			
Actuated g/C Ratio			
v/c Ratio			

Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
 109: Bert Kouns Industrial Loop & LA 3132 WB On Ramp/LA 3132 WB Off Ramp with Improvements



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay					29.5		8.3	30.3			34.7	77.1
Queue Delay					0.0		0.0	12.4			0.0	0.0
Total Delay					29.5		8.3	42.7			34.7	77.1
LOS					C		A	D			C	E
Approach Delay					29.5			42.2			56.9	
Approach LOS					C			D			E	
Queue Length 50th (ft)					18		10	805			308	~559
Queue Length 95th (ft)					40		m12	m770			386	#812
Internal Link Dist (ft)		231			995			457			607	
Turn Bay Length (ft)							295					115
Base Capacity (vph)					509		444	2188			1300	956
Starvation Cap Reductn					0		0	118			0	0
Spillback Cap Reductn					0		0	0			0	0
Storage Cap Reductn					0		0	0			0	0
Reduced v/c Ratio					0.07		0.07	1.03			0.74	1.10

Intersection Summary

Area Type: Other
 Cycle Length: 110
 Actuated Cycle Length: 110
 Natural Cycle: 80
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.12
 Intersection Signal Delay: 49.1 Intersection LOS: D
 Intersection Capacity Utilization 136.3% ICU Level of Service H
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 109: Bert Kouns Industrial Loop & LA 3132 WB On Ramp/LA 3132 WB Off Ramp

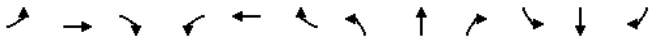


Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
 109: Bert Kouns Industrial Loop & LA 3132 WB On Ramp/LA 3132 WB Off Ramp with Improvements

Lane Group	ø4	ø5	ø6
Control Delay			
Queue Delay			
Total Delay			
LOS			
Approach Delay			
Approach LOS			
Queue Length 50th (ft)			
Queue Length 95th (ft)			
Internal Link Dist (ft)			
Turn Bay Length (ft)			
Base Capacity (vph)			
Starvation Cap Reductn			
Spillback Cap Reductn			
Storage Cap Reductn			
Reduced v/c Ratio			

Intersection Summary


Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
 110: Ashley River Dr SB & Flournoy Lucas Rd 2032 Alternative C PM Peak with Improvements



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↕	↔	↔	↕	↔	↔	↔	↔	↔	↕	↔
Volume (vph)	0	178	246	108	627	1	0	0	0	7	0	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	180	0	120	0	120	0	0	0	0	0	0	0
Storage Lanes	1	0	1	0	1	0	0	0	0	0	0	0
Taper Length (ft)	50	0	50	0	50	0	0	0	0	0	0	0
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.913											0.918
Flt Protected	0.950			0.981								
Satd. Flow (prot)	1900	3197	0	1805	3406	0	0	0	0	0	1711	0
Flt Permitted	0.950											0.981
Satd. Flow (perm)	1900	3197	0	1805	3406	0	0	0	0	0	1711	0
Link Speed (mph)	45				45				30			
Link Distance (ft)	750				127				320			
Travel Time (s)	11.4				1.9				7.3			
Peak Hour Factor	0.92	0.92	0.92	0.85	0.85	0.85	0.92	0.92	0.92	0.80	0.80	0.80
Heavy Vehicles (%)	0%	6%	1%	0%	6%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	193	267	127	738	1	0	0	0	9	0	14
Shared Lane Traffic (%)	0											
Lane Group Flow (vph)	0	460	0	127	739	0	0	0	0	0	23	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)	12				14				0			
Link Offset(ft)	0				0				0			
Crosswalk Width(ft)	16				16				16			
Two way Left Turn Lane	Yes											
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	0	9	15	0	9	15	0	9	15	0	9
Sign Control	Free			Free			Stop			Stop		

Intersection Summary
 Area Type: Other
 Control Type: Unsignalized
 Intersection Capacity Utilization 34.0% ICU Level of Service A
 Analysis Period (min) 15

HCM Unsignalized Intersection Capacity Analysis LA 3132 (Inner Loop) Extension - Stage 0 Study
 110: Ashley River Dr SB & Flournoy Lucas Rd 2032 Alternative C PM Peak with Improvements



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↕	↔	↔	↕	↔	↔	↔	↔	↔	↕	↔
Volume (veh/h)	0	178	246	108	627	1	0	0	0	7	0	11
Sign Control	Free			Free			Stop			Stop		
Grade	0%											
Peak Hour Factor	0.92	0.92	0.92	0.85	0.85	0.85	0.92	0.92	0.92	0.80	0.80	0.80
Hourly flow rate (vph)	0	193	267	127	738	1	0	0	0	9	0	14
Pedestrians	0											
Lane Width (ft)	12											
Walking Speed (ft/s)	3.5											
Percent Blockage	0											
Right turn flare (veh)	0											
Median type	None			TWLTL								
Median storage (veh)	2											
Upstream signal (ft)	0											
pX, platoon unblocked	0											
vC, conflicting volume	739			461			964			1320		
vC1, stage 1 conf vol	0			0			327			327		
vC2, stage 2 conf vol	0			0			637			993		
vCu, unblocked vol	739			461			964			1320		
tC, single (s)	4.1			4.1			7.5			6.5		
tC, 2 stage (s)	0			0			6.5			5.5		
tF (s)	2.2			2.2			3.5			4.0		
p0 queue free %	100			89			100			100		
cM capacity (veh/h)	877			1111			351			273		

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1
Volume Total	0	129	332	127	492	247	22
Volume Left	0	0	0	127	0	0	9
Volume Right	0	0	267	0	0	1	14
cSH	1700	1700	1700	1111	1700	1700	377
Volume to Capacity	0.00	0.08	0.20	0.11	0.29	0.15	0.06
Queue Length 95th (ft)	0	0	0	10	0	0	5
Control Delay (s)	0.0	0.0	0.0	8.7	0.0	0.0	15.2
Lane LOS	A			C			
Approach Delay (s)	0.0			1.3			15.2
Approach LOS	C			C			

Intersection Summary
 Average Delay 1.1
 Intersection Capacity Utilization 34.0% ICU Level of Service A
 Analysis Period (min) 15

Lanes, Volumes, Timings

LA 3132 (Inner Loop) Extension - Stage 0 Study

111: Ashley River Dr NB & Flournoy Lucas Rd

2032 Alternative C PM Peak with Improvements

	→	↖	↗	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑	↖	↗
Volume (vph)	185	0	0	611	125	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt						0.850
Fit Protected					0.950	
Satd. Flow (prot)	3406	0	0	3438	1805	1568
Fit Permitted				0.950		
Satd. Flow (perm)	3406	0	0	3438	1805	1568
Link Speed (mph)	45			45	30	
Link Distance (ft)	127			2333	283	
Travel Time (s)	1.9			35.3	6.4	
Peak Hour Factor	0.88	0.88	0.80	0.80	0.80	0.80
Heavy Vehicles (%)	6%	0%	0%	5%	0%	3%
Adj. Flow (vph)	210	0	0	764	156	81
Shared Lane Traffic (%)						
Lane Group Flow (vph)	210	0	0	764	156	81
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	14			14	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane	Yes			Yes		
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	30.5%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis LA 3132 (Inner Loop) Extension - Stage 0 Study

111: Ashley River Dr NB & Flournoy Lucas Rd

2032 Alternative C PM Peak with Improvements

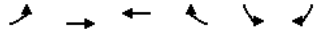
	→	↖	↗	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑	↖	↗
Volume (veh/h)	185	0	0	611	125	65
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.88	0.88	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	210	0	0	764	156	81
Pedestrians						
Lane Width (ft)						
Walking Speed (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			210		592	105
vC1, stage 1 conf vol					210	
vC2, stage 2 conf vol					382	
vCu, unblocked vol			210		592	105
tC, single (s)			4.1		6.8	7.0
tC, 2 stage (s)					5.8	
tF (s)			2.2		3.5	3.3
p0 queue free %			100		74	91
cM capacity (veh/h)			1372		609	926

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2
Volume Total	105	105	382	382	156	81
Volume Left	0	0	0	0	156	0
Volume Right	0	0	0	0	0	81
cSH	1700	1700	1700	1700	609	926
Volume to Capacity	0.06	0.06	0.22	0.22	0.26	0.09
Queue Length 95th (ft)	0	0	0	0	25	7
Control Delay (s)	0.0	0.0	0.0	0.0	12.9	9.3
Lane LOS					B	A
Approach Delay (s)	0.0		0.0		11.7	
Approach LOS					B	

Intersection Summary

Average Delay	2.3
Intersection Capacity Utilization	30.5%
Analysis Period (min)	15
	ICU Level of Service A

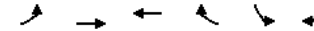
Lanes, Volumes, Timings LA 3132 (Inner Loop) Extension - Stage 0 Study
 112: Flournoy Lucas Rd & Oaks Retirement Rd 2032 Alternative C PM Peak with Improvements



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↔	↕↕	↕↕		↔	↕↕
Volume (vph)	14	236	583	24	21	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	375			0	0	0
Storage Lanes	1			0	1	1
Taper Length (ft)	50				50	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Frt			0.994			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1805	3471	3424	0	1805	1553
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1805	3471	3424	0	1805	1553
Link Speed (mph)		45	45		30	
Link Distance (ft)		2333	1050		729	
Travel Time (s)		35.3	15.9		16.6	
Peak Hour Factor	0.88	0.88	0.80	0.80	0.80	0.80
Heavy Vehicles (%)	0%	4%	5%	0%	0%	4%
Adj. Flow (vph)	16	268	729	30	26	35
Shared Lane Traffic (%)						
Lane Group Flow (vph)	16	268	759	0	26	35
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		14	14		28	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane		Yes	Yes			
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	26.9%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis LA 3132 (Inner Loop) Extension - Stage 0 Study
 112: Flournoy Lucas Rd & Oaks Retirement Rd 2032 Alternative C PM Peak with Improvements



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↔	↕↕	↕↕		↔	↕↕
Volume (veh/h)	14	236	583	24	21	28
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.88	0.88	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	16	268	729	30	26	35
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		TWLT	TWLT			
Median storage (veh)		2	2			
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	759				910	379
vC1, stage 1 conf vol					744	
vC2, stage 2 conf vol					166	
vCu, unblocked vol	759				910	379
tC, single (s)	4.1				6.8	7.0
tC, 2 stage (s)					5.8	
tF (s)	2.2				3.5	3.3
p0 queue free %	98				94	94
cM capacity (veh/h)	862				416	613

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1	SB 2
Volume Total	16	134	134	486	273	26	35
Volume Left	16	0	0	0	0	26	0
Volume Right	0	0	0	0	30	0	35
cSH	862	1700	1700	1700	1700	416	613
Volume to Capacity	0.02	0.08	0.08	0.29	0.16	0.06	0.06
Queue Length 95th (ft)	1	0	0	0	0	5	5
Control Delay (s)	9.3	0.0	0.0	0.0	0.0	14.2	11.2
Lane LOS	A					B	B
Approach Delay (s)	0.5			0.0		12.5	
Approach LOS						B	

Intersection Summary	
Average Delay	0.8
Intersection Capacity Utilization	26.9%
Analysis Period (min)	15
	ICU Level of Service A

Lanes, Volumes, Timings
201: LA 1 & I-69 WB Ramp

LA 3132 (Inner Loop) Extension - Stage 0 Study
2032 Alternative C PM Peak with Improvements

	←		↑		→	
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔	↔	↕	↕	↔	↕
Volume (vph)	99	0	174	3	111	782
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300	0	0	0	275	
Storage Lanes	1	1		1	1	
Taper Length (ft)	50				50	
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt			0.850			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1641	1727	3034	1357	1656	3312
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1641	1727	3034	1357	1656	3312
Link Speed (mph)	40		65		65	
Link Distance (ft)	384		1426		533	
Travel Time (s)	6.5		15.0		5.6	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Heavy Vehicles (%)	10%	10%	19%	19%	9%	9%
Adj. Flow (vph)	124	0	218	4	123	869
Shared Lane Traffic (%)						
Lane Group Flow (vph)	124	0	218	4	123	869
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		76		76	
Link Offset(ft)	0		0		0	
Crosswalk Width(ft)	16		16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free		Free	

Intersection Summary

Area Type: Other
 Control Type: Unsignalized
 Intersection Capacity Utilization 33.8% ICU Level of Service A
 Analysis Period (min) 15

HCM Unsignalized Intersection Capacity Analysis LA 3132 (Inner Loop) Extension - Stage 0 Study
201: LA 1 & I-69 WB Ramp

2032 Alternative C PM Peak with Improvements

	←		↑		→	
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔	↔	↕	↕	↔	↕
Volume (veh/h)	99	0	174	3	111	782
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Hourly flow rate (vph)	124	0	218	4	123	869
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			Raised		Raised	
Median storage (veh)			3		3	
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	899	109			218	
vC1, stage 1 conf vol	218					
vC2, stage 2 conf vol	681					
vCu, unblocked vol	899	109			218	
tC, single (s)	7.0	7.1			4.3	
tC, 2 stage (s)	6.0					
tF (s)	3.6	3.4			2.3	
p0 queue free %	69	100			91	
cM capacity (veh/h)	395	899			1300	

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	124	0	109	109	4	123	434	434
Volume Left	124	0	0	0	0	123	0	0
Volume Right	0	0	0	0	4	0	0	0
cSH	395	1700	1700	1700	1700	1300	1700	1700
Volume to Capacity	0.31	0.00	0.06	0.06	0.00	0.09	0.26	0.26
Queue Length 95th (ft)	33	0	0	0	0	8	0	0
Control Delay (s)	18.2	0.0	0.0	0.0	0.0	8.1	0.0	0.0
Lane LOS	C	A				A		
Approach Delay (s)	18.2		0.0			1.0		
Approach LOS	C							

Intersection Summary

Average Delay 2.4
 Intersection Capacity Utilization 33.8% ICU Level of Service A
 Analysis Period (min) 15

Lanes, Volumes, Timings
202: LA 1 & I-69 EB Ramp

LA 3132 (Inner Loop) Extension - Stage 0 Study
2032 Alternative C PM Peak with Improvements

	↖	↗	↑	↘	↙	↓
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↘	↗	↗	↘	↗
Volume (vph)	0	20	158	83	582	299
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300	0		490	260	
Storage Lanes	1	1		1	1	
Taper Length (ft)	50				50	
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt		0.850		0.850		
Flt Protected					0.950	
Satd. Flow (prot)	1727	1468	3034	1357	1656	3312
Flt Permitted					0.950	
Satd. Flow (perm)	1727	1468	3034	1357	1656	3312
Link Speed (mph)	40		65			65
Link Distance (ft)	460		3193			1426
Travel Time (s)	7.8		33.5			15.0
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Heavy Vehicles (%)	10%	10%	19%	19%	9%	9%
Adj. Flow (vph)	0	25	198	104	647	332
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	25	198	104	647	332
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	24		76			76
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary

Area Type: Other
 Control Type: Unsignalized
 Intersection Capacity Utilization 44.0% ICU Level of Service A
 Analysis Period (min) 15

HCM Unsignalized Intersection Capacity Analysis LA 3132 (Inner Loop) Extension - Stage 0 Study
202: LA 1 & I-69 EB Ramp

2032 Alternative C PM Peak with Improvements

	↖	↗	↑	↘	↙	↓
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↘	↗	↗	↘	↗
Volume (veh/h)	0	20	158	83	582	299
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Hourly flow rate (vph)	0	25	198	104	647	332
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			Raised			Raised
Median storage (veh)			3			3
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1657	99			198	
vC1, stage 1 conf vol	198					
vC2, stage 2 conf vol	1459					
vCu, unblocked vol	1657	99			198	
tC, single (s)	7.0	7.1			4.3	
tC, 2 stage (s)	6.0					
tF (s)	3.6	3.4			2.3	
p0 queue free %	100	97			51	
cM capacity (veh/h)	85	913			1323	

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	0	25	99	99	104	647	166	166
Volume Left	0	0	0	0	0	647	0	0
Volume Right	0	25	0	0	104	0	0	0
cSH	1700	913	1700	1700	1700	1323	1700	1700
Volume to Capacity	0.00	0.03	0.06	0.06	0.06	0.49	0.10	0.10
Queue Length 95th (ft)	0	2	0	0	0	69	0	0
Control Delay (s)	0.0	9.1	0.0	0.0	0.0	10.3	0.0	0.0
Lane LOS	A	A				B		
Approach Delay (s)	9.1		0.0			6.8		
Approach LOS	A							

Intersection Summary

Average Delay 5.3
 Intersection Capacity Utilization 44.0% ICU Level of Service A
 Analysis Period (min) 15

Lanes, Volumes, Timings
301: LA 1 & Gate A

LA 3132 (Inner Loop) Extension - Stage 0 Study
2032 Alternative C PM Peak with Improvements

	↖ ↗		↑		↘ ↙	
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↖		↕		↗	↖
Volume (vph)	13	38	667	0	11	816
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	0	0	150	
Storage Lanes	1	0		0	1	
Taper Length (ft)	50				50	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Frt	0.899					
Flt Protected	0.988				0.950	
Satd. Flow (prot)	1493	0	3034	0	1656	3059
Flt Permitted	0.988				0.950	
Satd. Flow (perm)	1493	0	3034	0	1656	3059
Link Speed (mph)	40		65		65	
Link Distance (ft)	496		4385		375	
Travel Time (s)	8.5		46.0		3.9	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Heavy Vehicles (%)	13%	13%	19%	18%	9%	18%
Adj. Flow (vph)	16	48	834	0	12	907
Shared Lane Traffic (%)						
Lane Group Flow (vph)	64	0	834	0	12	907
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		66		66	
Link Offset(ft)	0		0		0	
Crosswalk Width(ft)	16		16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free		Free	

Intersection Summary

Area Type: Other
 Control Type: Unsignalized
 Intersection Capacity Utilization 32.6% ICU Level of Service A
 Analysis Period (min) 15

HCM Unsignalized Intersection Capacity Analysis LA 3132 (Inner Loop) Extension - Stage 0 Study
301: LA 1 & Gate A

2032 Alternative C PM Peak with Improvements

	↖ ↗		↑		↘ ↙	
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↖		↕		↗	↖
Volume (veh/h)	13	38	667	0	11	816
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Hourly flow rate (vph)	16	48	834	0	12	907
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			Raised		Raised	
Median storage (veh)			2		2	
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1312	417			834	
vC1, stage 1 conf vol	834					
vC2, stage 2 conf vol	478					
vCu, unblocked vol	1312	417			834	
tC, single (s)	7.1	7.2			4.3	
tC, 2 stage (s)	6.1					
tF (s)	3.6	3.4			2.3	
p0 queue free %	95	91			98	
cM capacity (veh/h)	316	555			752	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	64	556	278	12	453	453
Volume Left	16	0	0	12	0	0
Volume Right	48	0	0	0	0	0
cSH	465	1700	1700	752	1700	1700
Volume to Capacity	0.14	0.33	0.16	0.02	0.27	0.27
Queue Length 95th (ft)	12	0	0	1	0	0
Control Delay (s)	14.0	0.0	0.0	9.9	0.0	0.0
Lane LOS	B			A		
Approach Delay (s)	14.0	0.0		0.1		
Approach LOS	B					

Intersection Summary

Average Delay 0.6
 Intersection Capacity Utilization 32.6% ICU Level of Service A
 Analysis Period (min) 15

Lanes, Volumes, Timings
302: LA 1 & Gate B

LA 3132 (Inner Loop) Extension - Stage 0 Study
2032 Alternative C PM Peak with Improvements

Lane Group	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Lane Configurations							
Volume (vph)	42	80	0	592	13	35	794
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	250		0	250	
Storage Lanes	1	1	1		0	1	
Taper Length (ft)	50		50			50	
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	0.95
Frt		0.850		0.997			
Flt Protected	0.950					0.950	
Satd. Flow (prot)	1517	1357	1597	3008	0	1656	2423
Flt Permitted	0.950					0.950	
Satd. Flow (perm)	1517	1357	1597	3008	0	1656	2423
Link Speed (mph)	40			65			65
Link Distance (ft)	499			1577			4385
Travel Time (s)	8.5			16.5			46.0
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.90	0.90
Heavy Vehicles (%)	19%	19%	19%	19%	49%	9%	49%
Adj. Flow (vph)	53	100	0	740	16	39	882
Shared Lane Traffic (%)							
Lane Group Flow (vph)	52	100	0	756	0	39	882
Enter Blocked Intersection	No	No	No	No	No	No	No
Lane Alignment	Left	Right	R NA	Left	Right	Left	Left
Median Width(ft)	20			66			66
Link Offset(ft)	0			0			0
Crosswalk Width(ft)	16			16			16
Two way Left Turn Lane							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	9		9	15	
Sign Control	Stop			Free			Free

Intersection Summary

Area Type: Other
 Control Type: Unsignalized
 Intersection Capacity Utilization 38.6% ICU Level of Service A
 Analysis Period (min) 15

HCM Unsignalized Intersection Capacity Analysis LA 3132 (Inner Loop) Extension - Stage 0 Study
302: LA 1 & Gate B

2032 Alternative C PM Peak with Improvements

Movement	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Lane Configurations							
Volume (veh/h)	42	80	0	592	13	35	794
Sign Control	Stop			Free			Free
Grade	0%			0%			0%
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.90	0.90
Hourly flow rate (vph)	52	100	0	740	16	39	882
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type				Raised			Raised
Median storage (veh)				2			2
Upstream signal (ft)							
pX, platoon unblocked			0.00				
vC, conflicting volume	1267	378	0			756	
vC1, stage 1 conf vol	748						
vC2, stage 2 conf vol	519						
vCu, unblocked vol	1267	378	0			756	
tC, single (s)	7.2	7.3	0.0			4.3	
tC, 2 stage (s)	6.2						
tF (s)	3.7	3.5	0.0			2.3	
p0 queue free %	84	83	0			95	
cM capacity (veh/h)	321	574	0			806	

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	52	100	493	263	0	39	441	441
Volume Left	52	0	0	0	0	39	0	0
Volume Right	0	100	0	16	0	0	0	0
cSH	321	574	1700	1700	1700	806	1700	1700
Volume to Capacity	0.16	0.17	0.29	0.15	0.00	0.05	0.26	0.26
Queue Length 95th (ft)	14	16	0	0	0	4	0	0
Control Delay (s)	18.4	12.6	0.0	0.0	0.0	9.7	0.0	0.0
Lane LOS	C	B				A		
Approach Delay (s)	14.6		0.0			0.4		
Approach LOS	B							

Intersection Summary

Average Delay 1.4
 Intersection Capacity Utilization 38.6% ICU Level of Service A
 Analysis Period (min) 15

Lanes, Volumes, Timings
303: LA 1 & Gate C

LA 3132 (Inner Loop) Extension - Stage 0 Study
2032 Alternative C PM Peak with Improvements

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↑	↑↑	↑		↑↑
Volume (vph)	0	47	571	12	0	893
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	0	0	250	
Storage Lanes	0	1		1	0	
Taper Length (ft)	50				50	
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt		0.865		0.850		
Flt Protected						
Satd. Flow (prot)	0	1325	3034	1077	0	2407
Flt Permitted						
Satd. Flow (perm)	0	1325	3034	1077	0	2407
Link Speed (mph)	40		65			65
Link Distance (ft)	508		533			1082
Travel Time (s)	8.7		5.6			11.3
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Heavy Vehicles (%)	24%	24%	19%	50%	9%	50%
Adj. Flow (vph)	0	59	714	15	0	992
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	59	714	15	0	992
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	0		76			76
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	28.0%
ICU Level of Service	A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis LA 3132 (Inner Loop) Extension - Stage 0 Study
303: LA 1 & Gate C

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↑	↑↑	↑		↑↑
Volume (veh/h)	0	47	571	12	0	893
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Hourly flow rate (vph)	0	59	714	15	0	992
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			Raised			Raised
Median storage (veh)			3			3
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1210	357			729	
vC1, stage 1 conf vol	714					
vC2, stage 2 conf vol	496					
vCu, unblocked vol	1210	357			729	
tC, single (s)	7.3	7.4			4.3	
tC, 2 stage (s)	6.3					
tF (s)	3.7	3.5			2.3	
p0 queue free %	100	90			100	
cM capacity (veh/h)	360	580			826	

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	59	357	357	15	496	496
Volume Left	0	0	0	0	0	0
Volume Right	59	0	0	15	0	0
cSH	580	1700	1700	1700	1700	1700
Volume to Capacity	0.10	0.21	0.21	0.01	0.29	0.29
Queue Length 95th (ft)	8	0	0	0	0	0
Control Delay (s)	11.9	0.0	0.0	0.0	0.0	0.0
Lane LOS	B					
Approach Delay (s)	11.9	0.0			0.0	
Approach LOS	B					

Intersection Summary	
Average Delay	0.4
Intersection Capacity Utilization	28.0%
ICU Level of Service	A
Analysis Period (min)	15

Lanes, Volumes, Timings
304: LA 1 & Gate D

LA 3132 (Inner Loop) Extension - Stage 0 Study
2032 Alternative C PM Peak with Improvements

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	1	18	224	0	11	290
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	250		300	280	
Storage Lanes	1	1		1	1	
Taper Length (ft)	50			50		
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt	0.850					
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1337	1196	3034	1195	1656	2270
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1337	1196	3034	1195	1656	2270
Link Speed (mph)	40		65		65	
Link Distance (ft)	501		710		505	
Travel Time (s)	8.5		7.4		5.3	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Heavy Vehicles (%)	35%	35%	19%	59%	9%	59%
Adj. Flow (vph)	1	23	280	0	12	322
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1	22	280	0	12	322
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		76		76	
Link Offset(ft)	0		0		0	
Crosswalk Width(ft)	16		16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	19.1%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis LA 3132 (Inner Loop) Extension - Stage 0 Study
304: LA 1 & Gate D

2032 Alternative C PM Peak with Improvements

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	1	18	224	0	11	290
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.80	0.80	0.80	0.80	0.90	0.90
Hourly flow rate (vph)	1	22	280	0	12	322
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		10				
Median type			Raised			Raised
Median storage (veh)			3			3
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	466	140			280	
vC1, stage 1 conf vol	280					
vC2, stage 2 conf vol	186					
vCu, unblocked vol	466	140			280	
tC, single (s)	7.5	7.6			4.3	
tC, 2 stage (s)	6.5					
tF (s)	3.8	3.6			2.3	
p0 queue free %	100	97			99	
cM capacity (veh/h)	618	787			1230	

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	24	140	140	0	12	161	161
Volume Left	1	0	0	0	12	0	0
Volume Right	22	0	0	0	0	0	0
cSH	831	1700	1700	1700	1230	1700	1700
Volume to Capacity	0.03	0.08	0.08	0.00	0.01	0.09	0.09
Queue Length 95th (ft)	2	0	0	0	1	0	0
Control Delay (s)	9.8	0.0	0.0	0.0	8.0	0.0	0.0
Lane LOS	A				A		
Approach Delay (s)	9.8	0.0			0.3		
Approach LOS	A						

Intersection Summary

Average Delay	0.5
Intersection Capacity Utilization	19.1%
Analysis Period (min)	15
	ICU Level of Service A