

SR 70 DESIGN TRAFFIC TECHNICAL MEMORANDUM REEVALUATION

Florida Department of Transportation

District 1

SR 70

Limits of Project: from Lorraine Road to CR 675/Waterbury Road

Manatee County, Florida

Financial Management Number: 414506-2

ETDM Number: 14263

Date: OCTOBER 2018

The environmental review, consultation, and other actions required by applicable federal environmental laws for this project are being, or have been, carried out by FDOT pursuant to 23 U.S.C. § 327 and a Memorandum of Understanding dated December 14, 2016 and executed by FHWA and FDOT.



Final

SR 70 Design Traffic Technical Memorandum

Future Traffic Reevaluation

October 2018



Final

SR 70 Design Traffic

Technical Memorandum

Future Traffic Reevaluation

Financial Project ID: 414506-2
Roadway ID: 13160000

Prepared for:

▶ FDOT District 1

▶ 10/17/2018

Table of Contents

Page

1	INTRODUCTION	1
1.1	DESCRIPTION OF PROJECT	1
1.2	OBJECTIVE	3
2	FUTURE TRAFFIC FORECASTS.....	4
2.1	DESIGN PERIOD.....	4
2.2	STUDY ALTERNATIVES	4
2.3	POPULATION ESTIMATES	4
2.4	TRAVEL DEMAND MODEL.....	5
2.4.1	PROGRAMMED AND PLANNED IMPROVEMENTS	6
2.5	FUTURE YEAR AVERAGE ANNUAL DAILY TRAFFIC (AADT) VOLUMES.....	6
2.6	INTERSECTION DESIGN HOUR VOLUMES	9
3	FUTURE OPERATIONAL ANALYSIS.....	16
3.1	NO BUILD ALTERNATIVE OPERATIONAL ANALYSIS	16
3.1.1	INTERSECTIONS LEVEL OF SERVICE ANALYSIS- NO BUILD.....	16
3.1.2	ROADWAY LEVEL OF SERVICE ANALYSIS- NO BUILD.....	20
3.2	BUILD ALTERNATIVE OPERATIONAL ANALYSIS	21
3.2.1	INTERSECTIONS LEVEL OF SERVICE ANALYSIS- BUILD.....	21
3.2.2	ROADWAY LEVEL OF SERVICE ANALYSIS- BUILD.....	24
3.3	ROUNDABOUT ANALYSIS	25
3.3.1	NO-BUILD ALTERNATIVE – 2045 CONDITIONS	25
3.3.2	BUILD ALTERNATIVE – 2045 CONDITIONS	25
3.4	AIR/NOISE ANALYSIS.....	26
3.4.1	NOISE ANALYSIS	26
3.4.2	AIR QUALITY ANALYSIS	26
4	RECOMMENDATIONS	29
5	APPENDICES	30

List of Tables

Page

Table 1: Population Analysis Summary- Manatee County	5
Table 2: No Build (without signalization) Intersection LOS Analysis Summary.....	18
Table 3: No Build (after signalization) Intersection LOS Analysis Summary	19
Table 4: No Build (after signalization) Arterial LOS Analysis Summary.....	20
Table 5: Build Intersection LOS Analysis Summary	23
Table 6: Build Arterial LOS Analysis Summary	24
Table 7: LOS Summary with a Roundabout Option – 2045 Conditions	26
Table 8: Recommended Queue Storage Lengths for Turn Lanes at Signals – Build Alternative	29

List of Figures

Page

Figure 1: Project Location Map	2
Figure 2: Future Year Annual Average Daily Traffic (AADT) (No Build).....	7
Figure 3: Future Year Annual Average Daily Traffic (AADT) (Build).....	8
Figure 4: Year 2025 No Build Turning Movement Volumes.....	10
Figure 5: Year 2035 No Build Turning Movement Volumes.....	11
Figure 6: Year 2045 No Build Turning Movement Volumes.....	12
Figure 7: Year 2025 Build Turning Movement Volumes	13
Figure 8: Year 2035 Build Turning Movement Volumes	14
Figure 9: Year 2045 Build Turning Movement Volumes	15
Figure 10: Future No Build Recommended Geometry.....	27
Figure 11: Future Build Recommended Geometry	28

VANASSE HANGEN BRUSTLIN, INC.

Financial Project ID: 414506-2

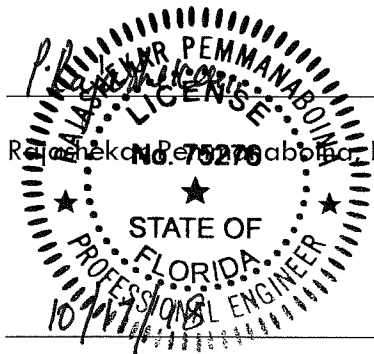
Roadway ID: 13160000

I, Rajashekar Pemmanaboina, Florida P.E. Number 75276, have prepared and reviewed the Design Traffic Technical Memorandum for the above referenced Florida Department of Transportation project. I have specifically followed the guidelines "Project Traffic Forecasting Handbook (2014)" as adopted by the Florida Department of Transportation. Based on traffic count information, general data sources, and other pertinent information, the Project Traffic Report have been prepared using current traffic engineering, transportation planning, and Florida Department of Transportation practices and procedures.

Vanasse Hangen Brustlin, Inc.

225 East Robinson Street, Suite 300,

Orlando, FL 32801


Rajashekar Pemmanaboina, P.E. # 75276
Date

1 Introduction

The Florida Department of Transportation (FDOT) District One is conducting a Project Development and Environment (PD&E) Study, State Financial Project Number 414506-2, to evaluate capacity improvements for the SR 70 corridor, an Emerging Strategic Intermodal System (ESIS) facility (Roadway ID: 13160000) from Lorraine Rd (M.P 9.476) to CR 675 (M.P 15.567), in Manatee County, Florida. A Design Traffic Technical Memorandum was previously completed in November 2016 in support of this PD&E Study. However, based on the recently approved Northeast Sector, a multi-project, mixed-use proposed development with a build out year of 2032, it was determined that a reevaluation must be conducted to assess the future conditions for the study area. The reevaluation memorandum that made this determination is provided in **Appendix A** of this report.

As such, the current document provides the revised design traffic volumes (utilizing the 2016 traffic volumes and recommended design traffic characteristics from the Final DTTM completed in November 2016), and evaluation of the future capacity needs. The study area map is shown in **Figure 1**. The comments received on the draft report submitted in September 2018 and the corresponding responses are also provided in **Appendix A**.

1.1 Description of Project

The State maintained SR 70 corridor is an east/west facility between 15th St/301 Blvd to CR 675 in Manatee County, with a length of 15.567 miles. The widening of the SR 70 corridor from 2 lanes to 4 lanes between Lorraine Rd to CR 675 is identified in the Needs Plan section of the Sarasota/Manatee Metropolitan Planning organization's 2040 Long Range Transportation Plan. PD&E, Preliminary Engineering and Right-of-way phases of the project are included in the latest FDOT Five Year Work Program for FY 2019-2023. FDOT D1 Freight Mobility and Trade Study also identifies this project as part of the prioritization of long-term freight improvement projects. FDOT 2040 Cost Feasible Plan for SIS facilities identified funding for the preliminary engineering phase. This study will evaluate SR 70 improvements as a means of providing additional capacity and reducing congestion along the corridor. See **Appendix B** for more details.



Study Corridor



Figure 1
Project Location Map
SR 70 Reevaluation

1.2 Objective

The objective of this Technical Memorandum is to provide future operational analyses for opening year 2025, mid-design year 2035 and design year 2045 for No Build and Build conditions and recommended improvements based on the analysis results.

2 Future Traffic Forecasts

The development of traffic projections for the study corridors required the examination of historical growth, proposed development levels within the corridor vicinity, and a basic understanding of local traffic circulation patterns and travel characteristics of the corridor. Since, the traffic growth within the study area is primarily dictated by the proposed Northeast Sector Development, the following sources were used to derive reasonable future traffic forecasts for the study corridor.

1) Travel Demand Models: The latest adopted District One Regional Planning Model (D1 RPM v1.0.3) was used in the traffic forecasting process.

2) Population Projections: The population estimates from the latest Bureau of Economic and Business Research (BEBR), Florida Population Studies, Bulletin 180 (Volume 51, Jan 2018) was used.

2.1 Design Period

Based on the information provided by FDOT, the following design period was used to provide the future traffic forecasts for the study corridor.

- Opening Year - 2025
- Mid-design Year – 2035
- Design Year – 2045

2.2 Study Alternatives

Based on the direction from FDOT, a No Build Alternative and a Build Alternative were evaluated. The No Build Alternative consists of the existing two-lane roadway section, whereas the Build Alternative evaluates future capacity needs.

2.3 Population Estimates

Low, medium and high population projections for Manatee County were obtained from the latest BEBR publication. **Table 2** shows the growth rates derived from the population estimates for the year 2045.

As illustrated in this table, the low, medium and high population estimates for Manatee County obtained from BEBR reported an annual growth rate of 0.66%, 1.76%, and 2.93% per year, respectively.

Table 1: Population Analysis Summary- Manatee County

Projection Type	2017 Estimate	2045 Projection	Annual Growth Rate
BEBR Low Projection	368,782	436,500	0.66%
BEBR Medium Projection	368,782	550,800	1.76%
BEBR High Projection	368,782	671,800	2.93%

Population projections from BEBR are provided in **Appendix C**.

2.4 Travel Demand Model

The validated base year 2010 and year 2040 D1RPM data were provided by FDOT. Based on a review of the future land uses near the study corridor, it was noted that Northeast Sector, a multi-project, mixed-use development was approved in December 2017 with a proposed build out year of 2032. With a size of approximately 2,700 acres, this project is bounded by SR 64 to the north, SR 70 to the south, Lorraine Rd to the west, and Bourneside Blvd to the east.

Access will be provided via connections to SR 64, SR 70, and Lorraine Rd from thoroughfare roadways that are being constructed within Northeast Sector. These roadways are:

- 4-lane divided extension of 44th Ave East from Lorraine Rd to Bourneside Blvd.
- 4-lane divided extension of Rangeland Pkwy to Bourneside Blvd.
- 4-lane divided extension of Uihlein Rd from current terminus north of SR 70 to SR 64.
- 2-lane undivided extension of Bourneside Blvd from the extension of The Masters Ave south of SR 70 to SR 64.
- 4-lane divided extension of Post Blvd from current terminus north of SR 70 to Rangeland Pkwy.

As such, two (2) new study intersections – SR 70/ Uihlein Rd and SR 70/Bourneside Blvd will be added to the SR 70 study corridor because of the Northeast Sector Development. The 2040 model plots are included in the SR 70 Reevaluation Memorandum included in **Appendix A**.

2.4.1 Programmed and Planned Improvements

Based on a review of the Sarasota-Manatee 2040 Long Range Transportation Plan (LRTP), updated on 04-27-2016, and the FDOT Five Year Work Program (FY 2017/18 – FY 2021/22), only the following project is planned or programmed in the study area:

- SR 70 from Lorraine Rd to CR 675: Widening from two (2) lanes to four (4) lanes is identified as a cost feasible improvement in the LRTP. In addition, the FDOT Five Year Work Program (FY 2017/18 – FY 2021/22) identifies that funds are allocated for Preliminary Engineering, Construction and Environmental and the FDOT SIS Cost Feasible Plan 2024-2040 includes funds for preliminary engineering phase for this segment.

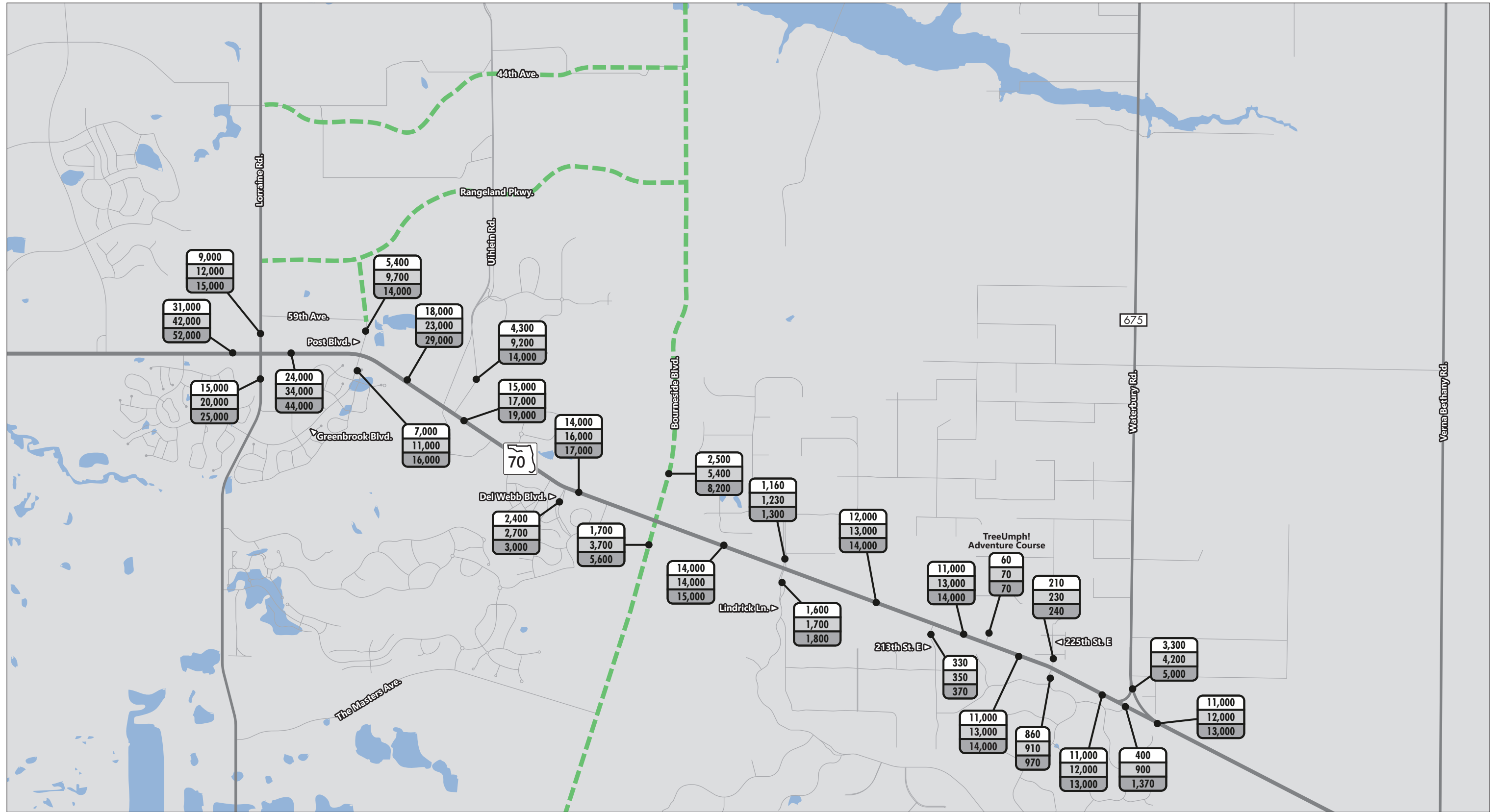
Relevant excerpts from the Northeast Sector Traffic Impact Analysis Report are provided in **Appendix D**.

2.5 Future Year Average Annual Daily Traffic (AADT) Volumes

Since the traffic volumes within the study area including the new connections to SR 70, are primarily determined by the proposed Northeast Sector Development (with a buildout date of 2032), 2040 model volumes were grown by 0.66% (BEBR estimated annual low growth rate for Manatee County) to calculate the design year 2045 AADTs for SR 70. The same assumption was made for the side streets including Lorraine Rd, Greenbrook Blvd/Post Blvd, Uihlein Rd, Bourneside Blvd, and CR 675, which will be influenced by the Northeast Sector traffic.

Please note that AADTs along SR 70 between Lorraine Rd and Bourneside Blvd and along Greenbrook Blvd/Post Blvd, Uihlein Rd, Bourneside Blvd were redistributed to account for the extension of Post Blvd to Rangeland Pkwy and to be consistent with the traffic pattern shown in the Northeast Sector Traffic Impact Analysis Report completed in December 2017.

For the remaining side streets, which are build out now (and 2040 model does not show any increase in traffic), the 2045 project AADT volumes were derived using an annual growth rate of 0.66% between 2016 and 2045. **Figure 2** provides the opening year 2025, mid-design year 2035 and design year 2045 AADT volumes based on the recommended growth rate for the No Build scenario. **Figure 3** provides the same for the Build scenario.



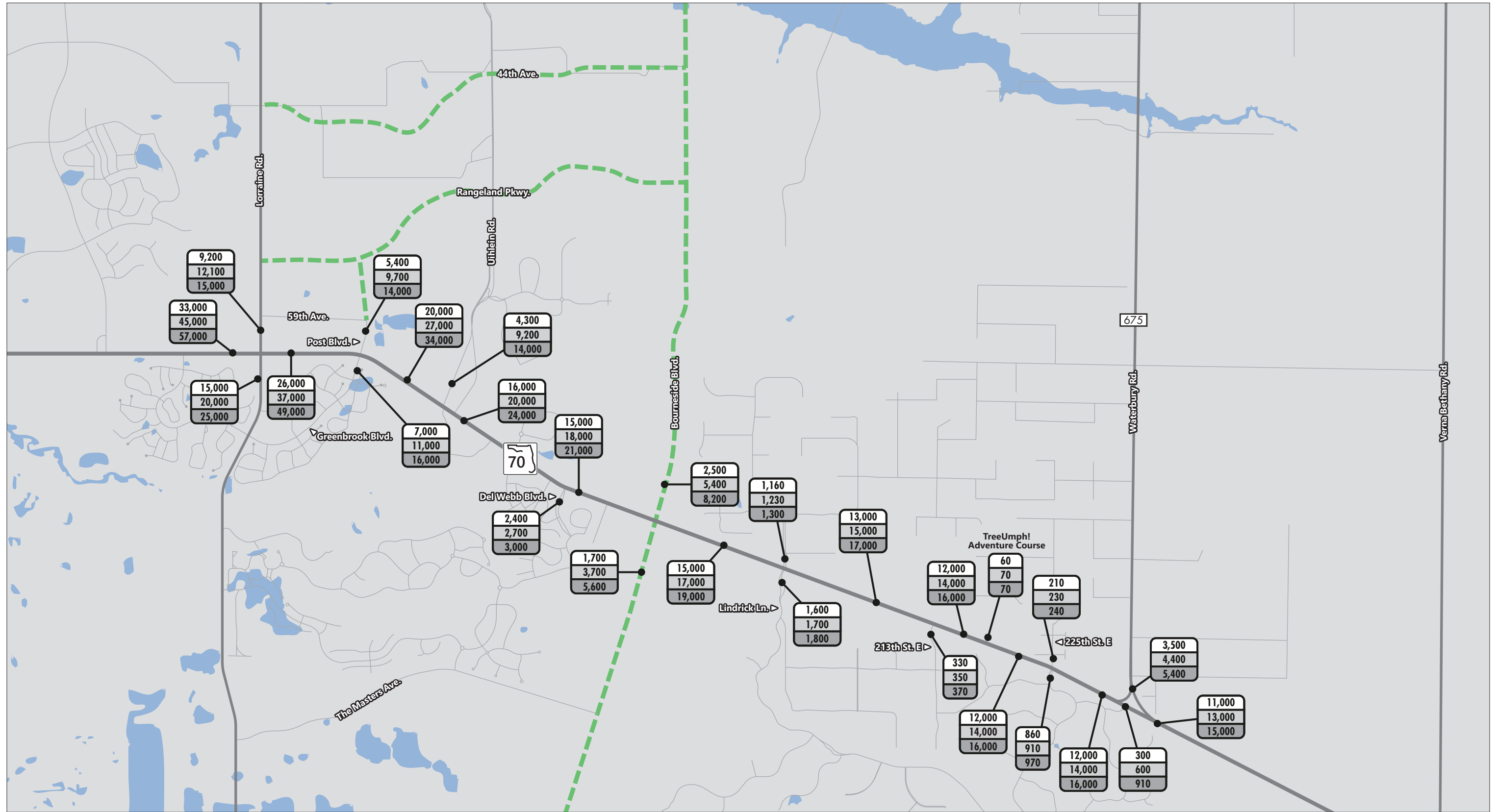
--- Proposed Roadways

Year 2025
Year 2035
Year 2045

 Annual Average Daily Traffic (AADT)



Figure 2
Future Year Annual Average Daily Traffic (AADT) (No Build)
 SR 70 Reevaluation



--- Proposed Roadways

Year 2025
Year 2035
Year 2045

 Annual Average Daily Traffic (AADT)



Figure 3
Future Year Annual Average Daily Traffic (AADT) (Build)
 SR 70 Reevaluation

2.6 Intersection Design Hour Volumes

The existing and future year AADT's for the No Build and Build Alternatives along with the recommended traffic characteristics were used to develop the design hour volumes (DHVs) for both the AM and PM design hours at the intersections for the opening, mid-design and design years.

The 2045 DHV's for the intersections were developed using the TURNS5 spreadsheet, which balances AADT's and calculates DHV's based on recommended K and D factors used as input into the program. 2025 and 2035 DHVs were then interpolated between 2016 and 2045 volumes. Please note that turning movement counts collected in 2018 were used to develop the 2025 and 2035 volumes at the intersection of SR 70 and Del Webb Blvd. The field collected volumes at SR 70 and Del Webb Blvd intersection are provided in **Appendix E**. The estimated design hour volumes for the AM and PM design hours from TURNS5 spreadsheet were assessed for reasonableness. Adjustments were made and are reported in **Appendix E**. In general, it was made sure that the year 2025, 2035 and 2045 design hour volumes were higher than the existing peak hour volumes. These adjustments are necessary because accepting an estimated volume that is unrealistically large may lead to over design and accepting an estimated volume that is too small may result in an inadequate design.

The future year AM and PM design hour volumes for the No-Build Alternative are shown in **Figures 4 through 6** for the years 2025, 2035 and 2045, respectively. The future year AM and PM design hour volumes for the Build Alternative are shown in **Figures 7 through 9** for years 2025, 2035 and 2045 respectively.

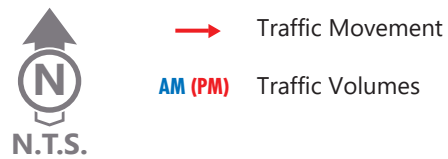
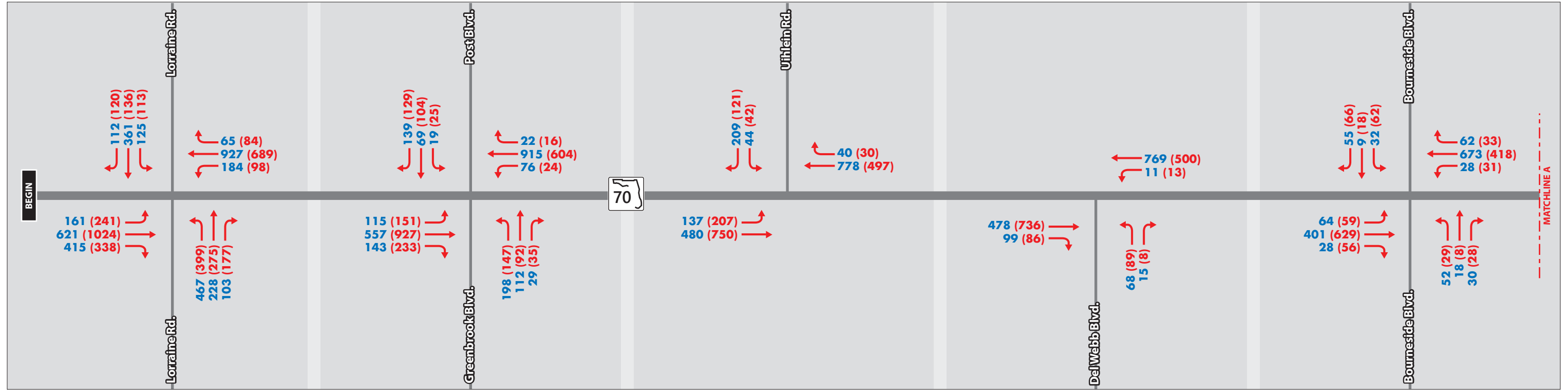


Figure 4
Year 2025 No Build
Turning Movement Volumes
 SR 70 Reevaluation

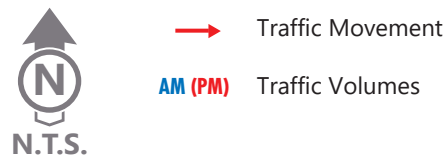
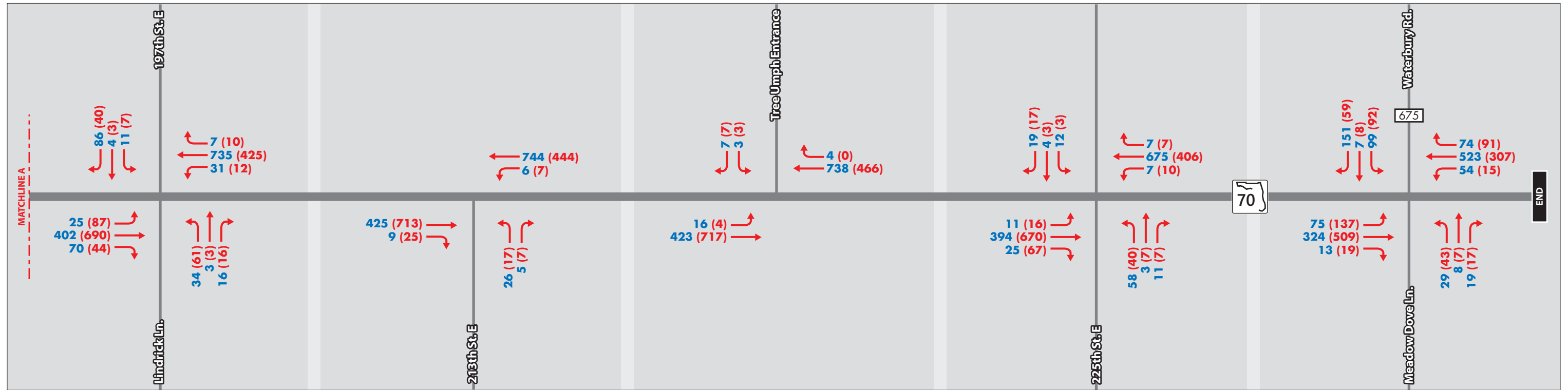
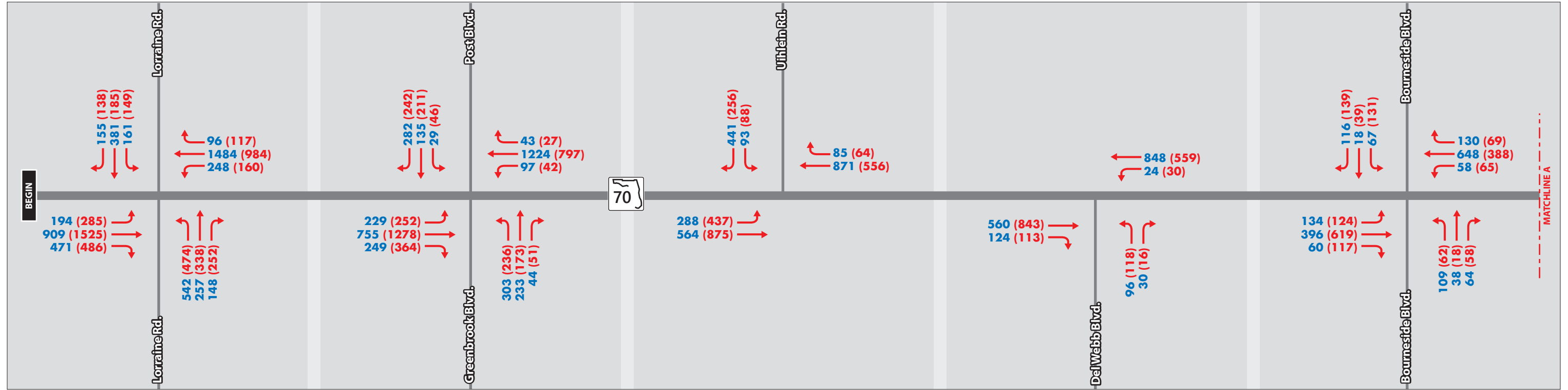
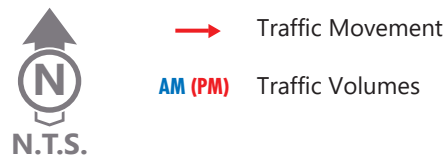
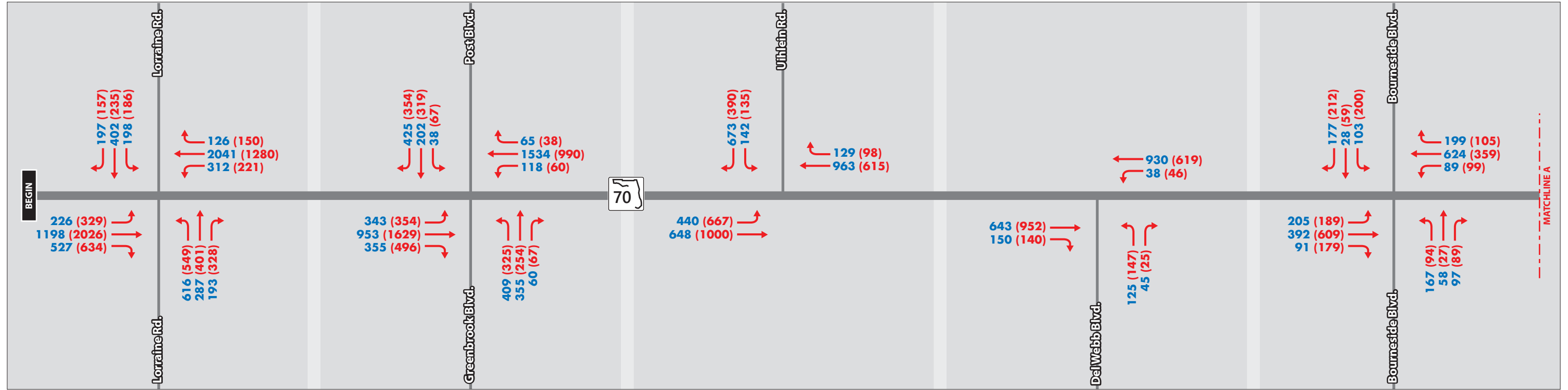


Figure 5
 Year 2035 No Build
 Turning Movement Volumes
 SR 70 Reevaluation



FDOT **Figure 6**
Year 2045 No Build
Turning Movement Volumes
 SR 70 Reevaluation

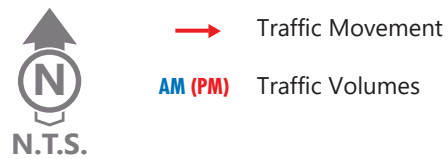
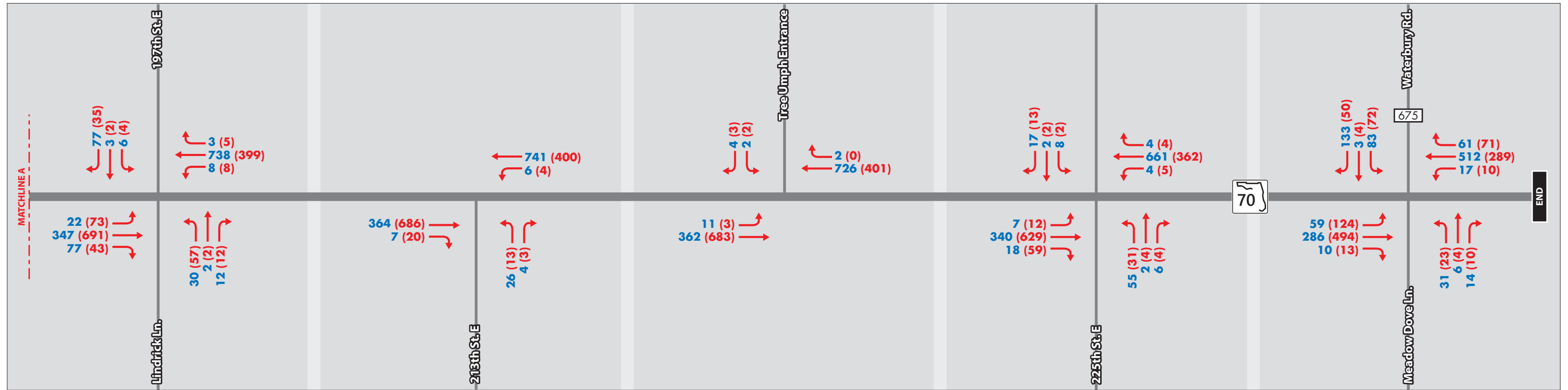
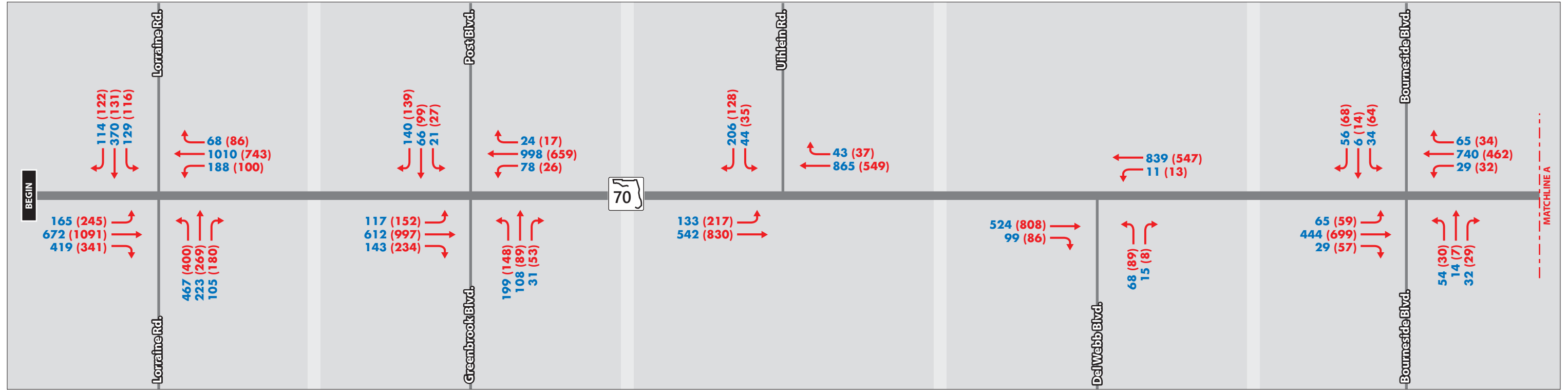


Figure 7
Year 2025 Build
Turning Movement Volumes
 SR 70 Reevaluation

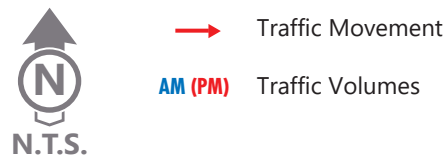
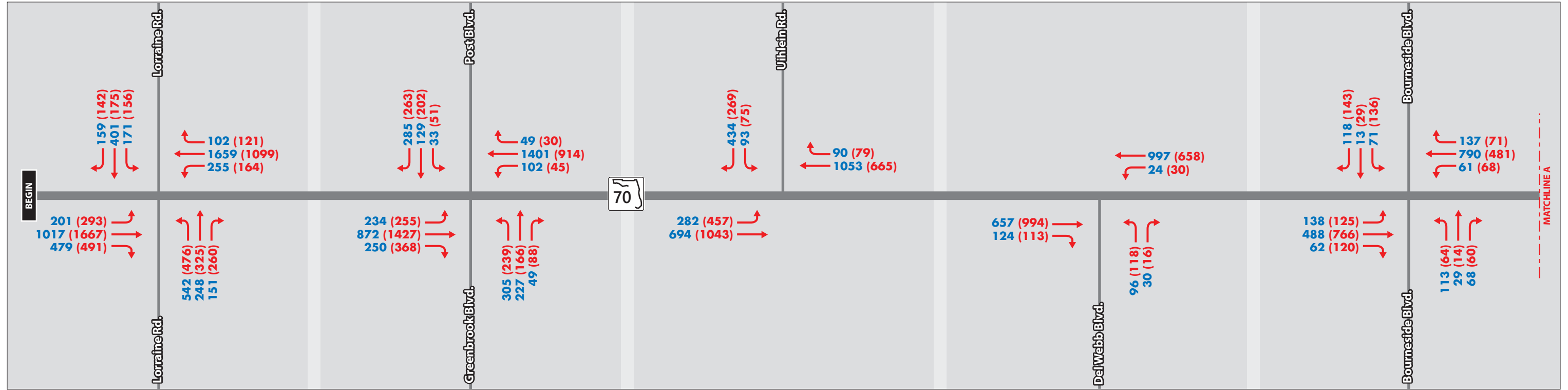


Figure 8
Year 2035 Build
Turning Movement Volumes
 SR 70 Reevaluation

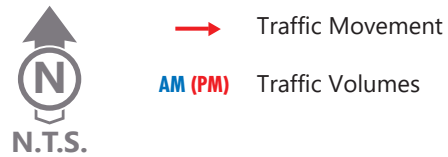
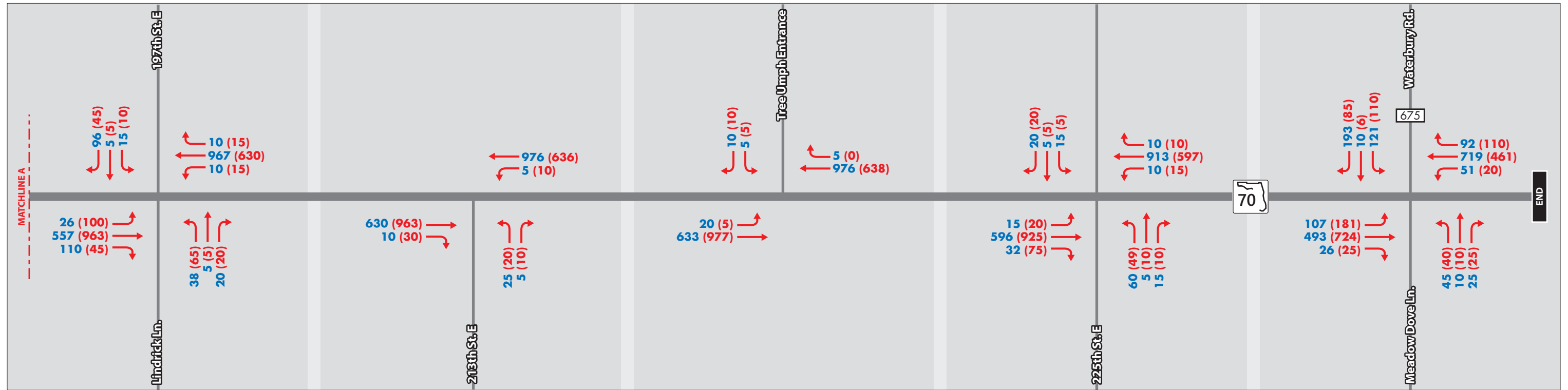
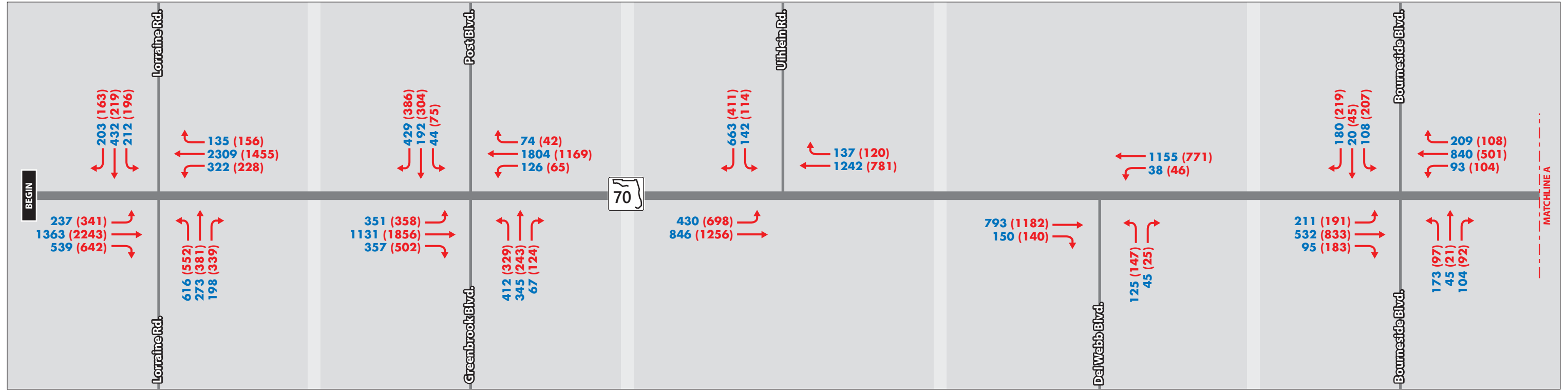


Figure 9
 Year 2045 Build
 Turning Movement Volumes
 SR 70 Reevaluation

3 Future Operational Analysis

This section presents the results of the traffic operational analysis for the No Build and Build alternatives. The Build alternative was designed to examine how the widening of SR 70 in the study area and different geometric improvements at the study intersections would affect the traffic flow. The level of service for the study intersections was determined using Synchro software version 10.0. Analysis techniques utilized in the study include the signalized and unsignalized intersections in Synchro based on the HCM 6 methodology and FDOT LOSPLAN software for roadway analysis.

3.1 No Build Alternative Operational Analysis

3.1.1 Intersections Level of Service Analysis- No Build

3.1.1.1 Preliminary Intersections Analysis- No Build

The No Build alternative assumes the same geometric configurations as the existing conditions. Intersection analysis was performed to determine if there are any deficiencies for the signalized and unsignalized intersections for the future years. Forecasted turning movement volumes as shown in previous Section 2 were used to analyze the No Build alternative. The results of the intersection analysis are summarized in **Table 2**.

As shown in **Table 2**, the signalized intersection at Lorraine Rd and the minor street approaches of the unsignalized intersections at Greenbrook Blvd/Post Blvd, Uihlein Rd, Bourneside Blvd, and Lindrick Ln/197th St E are projected to operate below the target LOS starting from opening year 2025 for both AM and PM design hours with significant delays. In addition, the minor street approaches of the unsignalized intersections at 213th St (AM and PM peak from 2035), 225th St (AM and PM peak from 2025) and CR 675 (2035 PM, 2045 AM and 2045 PM) are also expected to operate below the target LOS. However, the associated delays were not very high for these intersections.

Based on the result of this analysis, a signal is proposed for the intersections with SR 70 at Greenbrook Blvd/Post Blvd, Uihlein Rd and Bourneside Blvd for future years, since they are projected to have very high delays (>300 seconds per vehicle).

Appendix F provides the Synchro output sheets for the preliminary No Build intersections analysis results.

3.1.1.2 No Build Analysis with Proposed Signals

A revised No Build analysis was performed considering signals at SR 70 & Greenbrook Blvd/Post Blvd (from 2025), SR 70 & Uihlein Rd (from 2035), SR 70 & Del Webb Blvd (from 2045) and SR 70 & Bourneside Blvd (from 2025). **Table 3** shows the results of the revised No Build alternative.

The results show that after the proposed signalization, the intersections along SR 70 at Uihlein Rd, Del Webb Blvd and Bourneside Blvd are expected to perform at LOS E or better throughout design year 2045 for both AM and PM design hours. Whereas, the intersection along SR 70 & Greenbrook Blvd/Post Blvd is expected to fail with LOS F by 2035.

Table 3 summarizes the results for the revised No Build alternative analysis for the intersections. **Appendix G** provides the Synchro output sheets for the revised No Build intersections analysis results for the signalized intersections.

Table 2: No Build (without signalization) Intersection LOS Analysis Summary

Study Intersection	Control Type	FDOT Target LOS	AM Peak Hour						PM Peak Hour					
			2025		2035		2045		2025		2035		2045	
			Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
Lorraine Road	Signal	D	120.6	F	163.0	F	252.8	F	99.3	F	121.7	F	197.4	F
Greenbrook Blvd/Post Blvd	Stop	C	11.3/ >300	B/F	17.8/ >300	C/F	64.3/ >300	F/F	11.7/ >300	B/F	16.7/ >300	C/F	26.1/ >300	D/F
Uihlein Road	Stop	C	10.8/ 77.2	B/F	14.8/ >300	B/F	29.8/ >300	D/F	9.7/ 109.0	A/F	12.9/ >300	B/F	27.2/ >300	D/F
Del Webb Blvd	Stop	C	8.8/ 41.8	A/E	9.3/ 103.7	A/F	9.9/ >300	A/F	9.8/ 50.5	A/F	10.6/ 158.1	B/F	11.6/ >300	B/F
Bourneside Blvd	Stop	C	9.8/ 99.6	A/F	10.6/ >300	B/F	11.6/ >300	B/F	9.4/ 85.4	A/F	9.8/ >300	A/F	10.3/ >300	B/F
Lindrick Ln./197th Street E.	Stop	C	9.3/ 42.9	A/E	9.6/ 72.7	A/F	9.8/ 143.7	A/F	9.2/ 52.0	A/F	9.5/ 99.8	A/F	9.8/ 220.7	A/F
213th Street (East)	Stop	C	8.1/ 21.8	A/C	8.4/ 26.6	A/D	8.7/ 32.9	A/D	9.1/ 20.2	A/C	9.4/ 25.3	A/D	9.8/ 32.2	A/D
Tree Umph Park	Stop	C	9.2/ 15.6	A/C	9.5/ 17.6	A/C	9.8/ 21.0	A/C	8.1/ 14.1	A/B	8.4/ 15.0	A/C	8.6/ 18.0	A/C
225th Street (East)	Stop	C	9.0/ 28.6	A/D	9.2/ 44.1	A/E	9.6/ 78.1	A/F	9.0/ 25.1	A/D	9.5/ 39.1	A/E	9.9/ 77.3	A/F
Meadow Dove Ln./CR 675	Stop	C	8.6/ 17.3	A/C	8.9/ 24.3	A/C	9.2/ 45.4	A/E	8.5/ 17.8	A/C	8.7/ 25.1	A/D	9.0/ 50.8	A/F

Notes:

1. HCM 6 based outputs are presented in this table for both the signalized and unsignalized intersections
2. Overall intersection delay and LOS results are reported for the signalized intersection
3. In case of unsignalized intersections, major street/minor street worst case results (delay and LOS) are reported

Table 3: No Build (after signalization) Intersection LOS Analysis Summary

Study Intersection	Control Type	FDOT Target LOS	AM Peak Hour						PM Peak Hour					
			2025		2035		2045		2025		2035		2045	
			Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
Lorraine Road	Signal	D	128.0	F	163.0	F	252.8	F	99.3	F	121.7	F	197.4	F
Greenbrook Blvd/Post Blvd	Proposed Signal	C	52.2	D	125.3	F	226.9	F	41.7	D	111.5	F	205.3	F
Uihlein Road	Stop/ Proposed Signal*	C	10.8/ 77.2	B/F	34.4	C	66.8	E	9.7/ 109.0	A/F	20.7	C	45.1	D
Del Webb Blvd	Stop/ Proposed Signal**	C	8.8/ 41.8	A/E	9.3/ 103.7	A/F	10.1	B	9.8/ 50.5	A/F	10.6/ 158.1	B/F	12.6	B
Bourneside Blvd	Proposed Signal	C	19.6	B	36.2	D	73.2	E	14.8	B	21.3	C	36.3	D
Lindrick Ln./197th Street E.	Stop	C	9.3/ 42.9	A/E	9.6/ 72.7	A/F	9.8/ 143.7	A/F	9.2/ 52.0	A/F	9.5/ 99.8	A/F	9.8/ 220.7	A/F
213th Street (East)	Stop	C	8.1/ 21.8	A/C	8.4/ 26.6	A/D	8.7/ 32.9	A/D	9.1/ 20.2	A/C	9.4/ 25.3	A/D	9.8/ 32.2	A/D
Tree Umph Park	Stop	C	9.2/ 15.6	A/C	9.5/ 17.6	A/C	9.8/ 21.0	A/C	8.1/ 14.1	A/B	8.4/ 15.0	A/C	8.6/ 18.0	A/C
225th Street (East)	Stop	C	9.0/ 28.6	A/D	9.2/ 44.1	A/E	9.6/ 78.1	A/F	9.0/ 25.1	A/D	9.5/ 39.1	A/E	9.9/ 77.3	A/F
Meadow Dove Ln./CR 675	Stop	C	8.6/ 17.3	A/C	8.9/ 24.3	A/C	9.2/ 45.4	A/E	8.5/ 17.8	A/C	8.7/ 25.1	A/D	9.0/ 50.8	A/F

Notes:

1. HCM 6 based outputs are presented in this table for both the signalized and unsignalized intersections
2. Overall intersection delay and LOS results are reported for the signalized intersections
3. In case of unsignalized intersections, major street/minor street worst case results (delay and LOS) are reported
4. A signal is proposed for the intersections with higher delay (>300 seconds per vehicle)
5. * The Signal at Uihlein Rd is proposed by year 2035.
6. ** The Signal at Del Webb Blvd is proposed by year 2045.

3.1.2 Roadway Level of Service Analysis- No Build

The roadway segment LOS analysis was performed for the No Build alternative for both AM and PM design hours for SR 70 using the latest HIGHPLAN 2012 (part of LOSPLAN) software. Due to the presence of closely spaced signalized intersections (existing signal at Lorraine Rd and proposed signals at Greenbrook Blvd/Post Blvd, and Uihlein Rd) near the western end of the study corridor, the roadway analysis was performed on SR 70 only for the following segments between Uihlein Rd and Meadow Dove Ln/ CR 675.

- Uihlein Rd and Bourneside Blvd
- Bourneside Blvd to Lindrick Ln/ 197th St E, and
- Lindrick Ln/ 197th St E to Meadow Dove Ln/ CR 675

The no passing zone percentages for each segment were calculated based on the existing roadway configuration.

A summary of the HIGHPLAN 2012 analysis for the No Build conditions is illustrated in **Table 4**. The results show that for the No Build alternative the entire study segment operates below the target LOS during both AM and PM design hour conditions. The HIGHPLAN 2012 outputs for the No Build alternative are provided in **Appendix H**.

Table 4: No Build (after signalization) Arterial LOS Analysis Summary

SR 70 Segments	Year	Number Of Lanes	FDOT Target LOS	AM LOS	PM LOS
Uihlein Rd to Bourneside Blvd	2025	2	C	E	E
	2035			E	E
	2045			E	E
Bourneside Blvd to Lindrick Ln/197 th St E	2025	2	C	E	E
	2035			E	E
	2045			E	E
Lindrick Ln/197 th St E to CR 675/Meadow Dove Ln	2025	2	C	E	E
	2035			E	E
	2045			E	E

3.2 Build Alternative Operational Analysis

3.2.1 Intersections Level of Service Analysis- Build

3.2.1.1 Preliminary Intersections Analysis- Build

Intersection operations were evaluated under the Build Alternative. The Build Alternative improvements include widening of SR 70 from two lanes to six lanes between Lorraine Rd and Greenbook Blvd/Post Blvd and from two lanes to four lanes between Greenbrook Blvd/Post Blvd and CR 675 as well as the following additional improvements:

SR 70 & Lorraine Rd:

- Eastbound approach – an additional left-turn lane
- Northbound approach – an additional left-turn and convert right-turn lane to a through lane and an exclusive right-turn lane
- Southbound approach – an additional through lane and converting the shared through-right lane to a through lane and an exclusive right-turn lane.
- Westbound approach - an additional left-turn
- A two-lane northbound exit to accommodate the eastbound dual left-turn lanes and northbound through lanes. The two-lane exit shall transition to a one lane north of the intersection.

SR 70 & Greenbrook Blvd/Post Blvd: A signal is proposed by 2025.

- Eastbound approach – an additional left-turn lane
- Westbound approach – convert right-turn lane to a shared through lane and right-turn lane
- Northbound approach – an additional left-turn and convert right-turn lane to a shared through/right-turn lane
- Southbound approach – an additional through lane.

SR 70 & Uihlein Rd: A signal is proposed by 2025.

- Eastbound approach – an additional left-turn lane

SR 70 & Del Webb Blvd: A signal is proposed by 2045.

SR 70 & Bourneside Blvd: A signal is proposed by 2025.

- Eastbound approach – an exclusive left-turn lane and right-turn lane

- Westbound approach – an exclusive left-turn lane and right-turn lane
- Northbound approach – an exclusive left-turn, a through lane and an exclusive right-turn lane
- Southbound approach – an exclusive left-turn, a through lane and an exclusive right-turn lane

SR 70 & CR 675:

- Westbound approach - an exclusive left-turn lane
- Southbound approach – an exclusive left-turn lane

Intersection analysis was performed to determine if there are any deficiencies for the signalized and unsignalized intersections for the future years. Forecasted turning movement volumes as shown in **Figures 7 through 9** were used to analyze the Build alternative. The results of the intersection analysis are summarized in **Table 5**.

The results show that the intersections along SR 70 at Lorraine Rd, Greenbrook Blvd/Post Blvd, Uihlein Rd, Del Webb Blvd and Bourneside Blvd are expected to perform at LOS D or better through design year 2045 for both AM and PM design hours. In addition, the minor street approaches of the unsignalized intersections are also expected to operate below the target LOS. However, the associated delays were not very high for these intersections.

Appendix I provides the Synchro output sheets for the revised Build intersections analysis results for the signalized intersections.

Table 5: Build Intersection LOS Analysis Summary

No.	Study Intersection	Control Type	FDOT Target LOS	AM Peak Hour						PM Peak Hour					
				2025		2035		2045		2025		2035		2045	
				Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1	Lorraine Road	Signal	D	34.2	C	38.0	D	51.6	D	32.6	C	30.7	C	39.0	D
2	Greenbrook Blvd/Post Blvd	Proposed Signal	C	28.9	C	33.7	C	50.1	D	27.2	C	32.3	C	46.8	D
3	Uihlein Road	Proposed Signal	C	11.0	B	21.4	C	35.7	D	9.8	A	18.6	B	22.9	C
10	Del Webb Blvd	Stop/ Proposed Signal*	C	9.1/ 27.6	A/D	9.8/ 62.9	A/F	8.2	A	10.3/ 43.7	B/E	11.7/ 186.7	B/F	9.5	A
4	Bourneside Blvd	Proposed Signal	C	15.1	B	18.4	B	23.8	C	15.3	B	18.0	B	22.1	C
5	Lindrick Ln./197th Street E.	Stop	C	9.6/ 17.0	A/C	10.2/ 20.5	B/C	10.9/ 25.5	B/D	9.5/ 26.7	A/D	10.2/ 39.1	B/E	10.9/ 63.2	B/F
6	213th Street (East)	Stop	C	8.2/ 13.5	A/B	8.6/ 15.3	A/C	9.1/ 17.3	A/C	9.4/ 15.3	A/C	10.0/ 17.9	B/C	10.8/ 21.1	B/C
7	Tree Umph Park	Stop	C	9.5/ 12.4	A/B	10.1/ 15.9	B/C	10.8/ 15.3	B/C	8.3/ 11.0	A/B	8.7/ 11.4	A/B	9.1/ 12.7	A/B
8	225th Street (East)	Stop	C	9.2/ 15.3	A/C	9.8/ 18.9	A/C	10.5/ 24.3	B/C	9.3/ 17.4	A/C	10.0/ 22.7	B/C	10.9/ 31.9	B/D
9	Meadow Dove Ln./CR 675	Stop	C	8.9/ 20.9	A/C	9.4/ 33.9	A/D	10.1/ 75.5	B/F	8.7/ 20.8	A/C	9.1/ 32.4	A/D	9.6/ 67.3	A/F

Notes:

1. HCM 6 based outputs are presented in this table for both the signalized and unsignalized intersections
2. Overall intersection delay and LOS results are reported for the signalized intersection
3. In case of unsignalized intersections, major street/minor street worst case results (delay and LOS) are reported
4. Please note that a signal is assumed at SR 70/Uihlein Rd starting from 2025 because of the proposed 2 EB left turn lanes.
5. * The Signal at Del Webb Blvd is proposed by year 2045.

3.2.2 Roadway Level of Service Analysis- Build

The roadway segment LOS analysis was performed for the Build alternative for both AM and PM design hours for SR 70 using the latest HIGHPLAN 2012 (part of LOSPLAN) software. Due to the presence of closely spaced signalized intersections (existing signal at Lorraine Rd and proposed signals at Greenbrook Blvd /Post Blvd, Uihlein Rd and Bourneside Blvd) near the western end of the study corridor, the roadway analysis was performed on SR 70 only for the following segments between Bourneside Blvd and Meadow Dove Ln/ CR 675.

- Uihlein Rd to Bourneside Blvd
- Bourneside Blvd to Lindrick Ln/ 197th St E, and
- Lindrick Ln/ 197th St E to Meadow Dove Ln/ CR 675

A summary of the HIGHPLAN 2012 analysis for the existing conditions is illustrated in **Table 6**. The results show that under the Build alternative, the entire study corridor operates within target LOS through the design year 2045 during both AM and PM design hour conditions. The HIGHPLAN 2012 outputs for Build roadway analysis are provided in **Appendix J**.

Table 6: Build Arterial LOS Analysis Summary

SR 70 Segment	Year	Number Of Lanes	FDOT Target LOS	AM LOS	PM LOS
Uihlein Rd to Bourneside Blvd	2025	4	C	B	B
	2035			C	C
	2045			C	C
Bourneside Blvd to Lindrick Ln/197 th St E	2025	4	C	B	B
	2035			B	B
	2045			B	B
Lindrick Ln/197 th St E to CR 675/Meadow Dove Ln	2025	4	C	B	B
	2035			B	B
	2045			B	B

Further, the segment SR 70 between Lorraine Rd and Bourneside Blvd was evaluated using Synchro Software (Arterial LOS analysis) for both No Build and Build conditions during design year 2045. Since all the intersections within this segment were either signals or proposed as signals by year 2045 in both No Build and Build conditions. Under 2045 No Build conditions, SR 70 WB during AM, SR 70 EB during PM and SR 70 WB during PM were projected to operate at below LOS D (LOS E or F). Whereas, under 2045 Build conditions, the segment is projected to operate at LOS D or better in both AM and PM conditions. Synchro arterial analysis outputs are included in **Appendix J**.

3.3 Roundabout Analysis

In accordance with FDOT policy, as stated in Section 2.13.1 of the PPM, Volume 1, a roundabout alternative must be evaluated on new construction and reconstruction projects. For the purpose of this report, a roundabout option was evaluated for the 2045 traffic conditions at the following study intersections for both the No Build and Build alternatives.

- SR 70 and Uihlein Rd
- SR 70 and Del Webb Blvd
- SR 70 and Bourneside Blvd
- SR 70 and CR 675

SIDRA roundabout software was used to conduct the preliminary analyses. For the No Build alternative, one-lane roundabout (along SR 70) configuration was assumed. For the Build alternative, two-lane roundabouts were evaluated at the above-mentioned intersections.

3.3.1 No-Build Alternative – 2045 Conditions

Based on the SIDRA analysis under the No Build alternative, with the exception of SR 70 and CR 675 intersection and SR 70 and Del Webb Blvd intersection, the two remaining intersections are projected to operate at or below LOS D with a roundabout option for both AM and PM peaks. A roundabout traffic control at SR 70 and Meadow Dove Ln/ CR 675 is projected to operate at LOS B during 2045 No Build conditions for both AM and PM peaks. A roundabout traffic control at SR 70 and Del Webb Blvd is projected to operate at LOS C and LOS D during 2045 No Build AM and PM conditions, respectively.

3.3.2 Build Alternative – 2045 Conditions

Based on the SIDRA analysis under the Build alternative, with the exception of SR 70 and Uihlein Rd intersection, the three remaining intersections are projected to operate within the target LOS C condition with a roundabout option for both AM and PM peaks. A roundabout traffic control at SR 70 and Uihlein Rd is projected to operate at LOS F and LOS C during 2045 Build conditions for both AM and PM peaks, respectively. **Table 7** illustrates the LOS results for the 2045 traffic conditions with roundabouts.

Table 7: LOS Summary with a Roundabout Option – 2045 Conditions

SR 70 @	No Build		Build	
	AM	PM	AM	PM
Uihlein Rd	F	D	F	C
Del Webb Blvd	C	D	C	C
Bourneside Blvd	F	F	B	C
CR 675	B	B	A	A

The No Build and Build alternative geometries are shown in Figures 10 and 11, respectively. These figures also show the recommended intersection control for both No Build and Build alternatives. SIDRA intersection summary reports are provided in **Appendix K**.

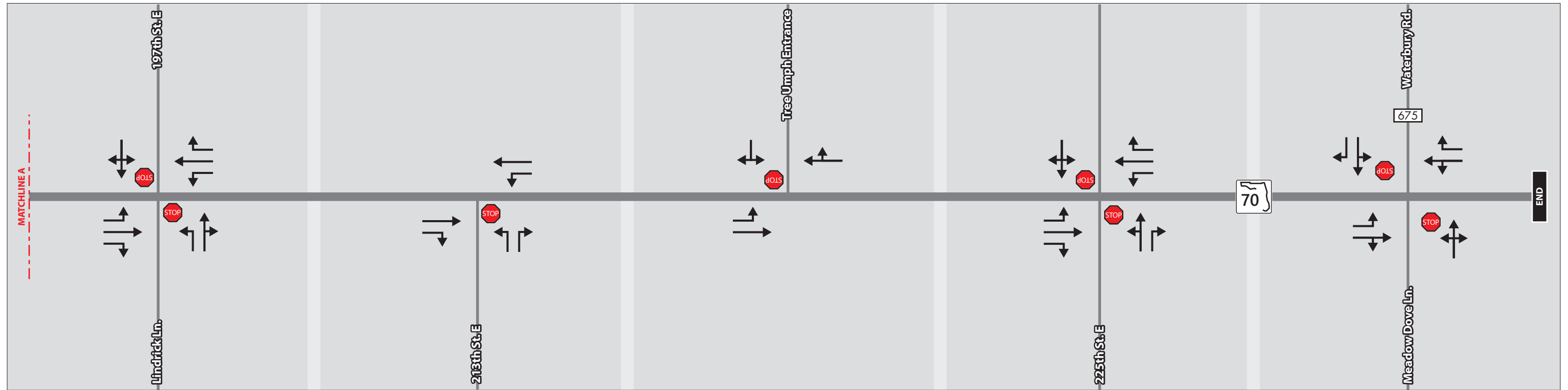
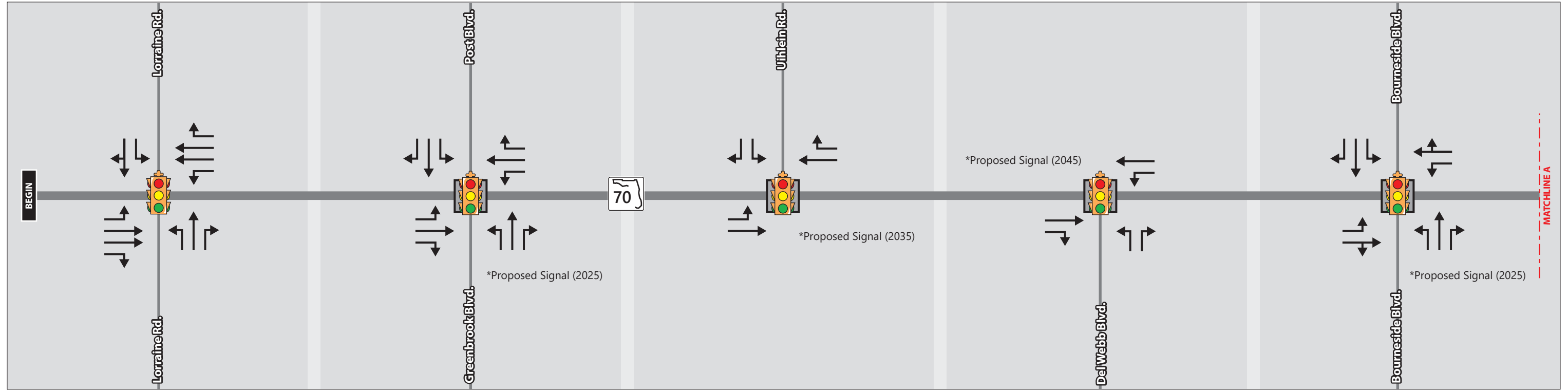
3.4 Air/Noise Analysis



3.4.1 Noise Analysis

The existing, opening year and design year AADT information for No Build and Build conditions are provided in **Appendix L** for Noise Analysis, as per the FDOT Noise Policy (Part 2, Chapter 17, Section 17-4.2 of the PD&E Manual).

3.4.2 Air Quality Analysis

The opening year and design year traffic data for No Build and Build conditions for the intersection of SR 70 & Lorraine Road is provided in **Appendix M** for Air Quality Analysis, as per the FDOT Air Quality Policy (Part 2, Chapter 16, Section 16- 2.2 of the PD&E Manual – Figure 16-4).



-  Lane Geometry
-  Stop-Controlled Intersection



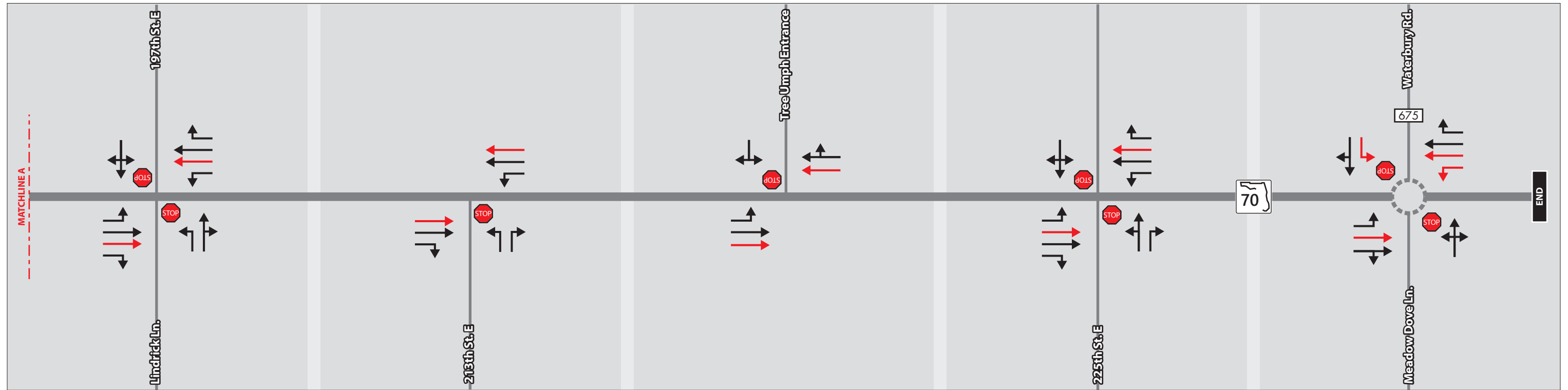
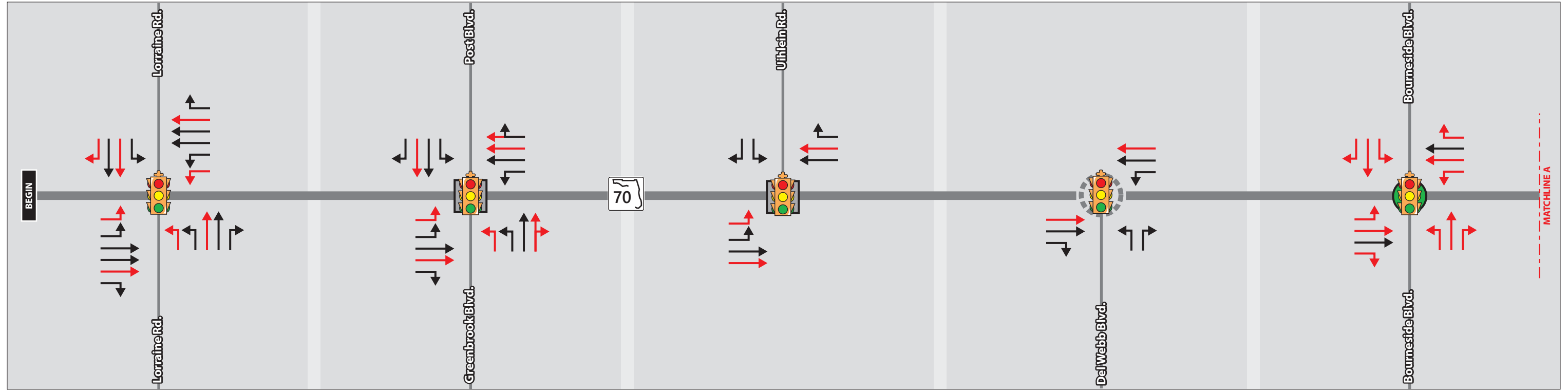







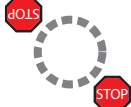

-  Existing Signalized Intersection
-  Proposed Signalized Intersection



Figure 10
Future No Build
Recommended Geometry
 SR 70 Reevaluation



 N.T.S.	 Proposed Lane Geometry	 Existing Signalized Intersection	 Proposed Signalized Intersection (2025)	 Proposed Signalized Intersection (2045) or Roundabout (2025)
	 Lane Geometry	 Proposed Signalized Intersection or Roundabout (2025)	 Stop-Controlled or Roundabout (2025)	
	 Stop-Controlled Intersection			

FDOT **Figure 11**
Future Build
Recommended Geometry
 SR 70 Reevaluation

4 Recommendations

Based on the evaluation of operating conditions for the design year 2045 Build traffic conditions, this study recommends the roadway and intersection capacity improvements as shown in **Section 3.2** and in **Figure 11** to handle the projected traffic volumes within the study corridor.

In addition to the proposed improvements, this study used the 95th percentile queues from the HCM6 intersection analysis, to develop the queue length requirements at the signalized intersections along the study corridor. Queue length calculations are shown in **Appendix N**.

It should be noted that the specific lengths do not include the taper or deceleration distance (refer to FDOT index 301 to determine the appropriate specific taper and deceleration length). These queue lengths are recommended at locations where these lengths can be achieved. Actual design and implementation of these queue length requirements will be a function of design and the physical practicality of their construction.

Table 8: Recommended Queue Storage Lengths for Turn Lanes at Signals – Build Alternative

Intersection	Turn Lane Queue Length (feet)							
	EBL	EBR	WBL	WBR	NBL	NBR	SBL	SBR
SR 70 at Lorraine Rd	150	275	250	125	525	175	300	150
SR 70 at Greenbrook Blvd/Post Blvd	250	175	200	-	325	-	150	725
SR 70 at Uihlein Rd	350	-	-	75	-	-	-	-
SR 70 at Del Webb Blvd	-	50	50	-	-	-	-	-
SR 70 at Bourneside Blvd	125	100	50	150	150	100	150	200

5 Appendices

Appendix A – Reevaluation Memorandum & Responses to Comments

Appendix B - Excerpts from plans

Appendix C – Population Projection Data (BEBR)

Appendix D – Northeast Sector Traffic Impact Analysis Report

Appendix E – TURNS5 Output Sheets

Appendix F – Synchro Intersections Output Sheets- No Build

Appendix G – Synchro Intersections Output Sheets- No Build (After Proposed Signalizations)

Appendix H – Roadway Analysis Outputs- No Build

Appendix I – Synchro Intersections Output Sheets- Build

Appendix J – Roadway Analysis Outputs- Build

Appendix K – SIDRA Roundabout Analysis Outputs

Appendix L – Noise Analysis Spreadsheets

Appendix M – Air Quality

Appendix N – Queue Analysis Spreadsheets

Appendix A

Reevaluation Memorandum



July 6, 2018

Christopher L. Simpron
Systems Planning Office
Florida Department of Transportation, District 1
801 N. Broadway Avenue
Bartow, FL 33830

RE: SR 70 from Lorraine Road to CR 675 - Reevaluation Checklist
Project Traffic for PD&E and Design (FPID No. 414506-2) Manatee County
VHB Project No. 62430.10

Florida Department of Transportation (FDOT) has requested VHB, Inc. (VHB) to conduct a Reevaluation Assessment of the Final Design Traffic Technical Memorandum (DTTM) completed for SR 70 from Lorraine Road to CR 675, in Manatee County, Florida in November of 2016. The main goal of this Reevaluation Assessment Checklist is to determine whether the design traffic developed as part of the previous DTTM needs to be updated. This document was revised to address the comments received on the draft memorandum submitted in May 2018. The responses to comments are included in the attachments section.

A. Existing Year Analysis

Item 1: The previous study was completed in November of 2016. Most of the data utilized was collected in 2016. Therefore, the study is not more than two (2) years old.

Item 2: Annual Average Daily Traffic (AADT) volumes along SR 70 for 2017 obtained from the Florida Traffic Online (FTO) were compared with 2016 AADTs obtained from Table 2 of the Final DTTM. As shown in Table 1 below, the AADT volumes and the corresponding LOS along the majority of the roadways including SR 70 within the study area have not significantly changed between years 2016 and 2017.

Table 1: Historical AADT & LOS Summary

Corridor	Segment	FTI Count Station #	Final DTTM ⁽¹⁾		FDOT Florida Traffic Online (2017) ⁽²⁾			
			YR 2016 AADT	2016 LOS	YR 2016 AADT	2016 LOS ⁽³⁾	YR 2017 AADT	2017 LOS ⁽³⁾
SR 70	Lorraine Rd to Greenbrook Blvd ⁽⁴⁾	135082	15,000	E	14,500	E	15,100	E
	Southeast of CR 675	130030	9,500	C	8,700	B	8,300	B
Lorraine Rd	North of SR 70	134214	6,600	B	6,300	B	6,500	B
	South of SR 70	134018	10,000	C	7,514	C	7,700	C
CR 675	North of SR 70	134016	2,600	B	1,966	B	2,099	B

Notes:

1. Year 2016 AADTs and LOS were obtained from Table 2 of the Final SR 70 DTTM.
2. Year 2016 and 2017 AADTs were obtained from FDOT Florida Traffic Online (2017).
3. Year 2016 LOS were obtained from 2016 FDOT District One LOS ALL Spreadsheet.
4. The LOS for the segment SR 70 Lorraine Rd to Greenbrook Blvd was determined by HIGHPLAN for peak hour peak direction condition.

Item 3: The existing transportation network has not significantly changed.

Item 4: Within the last 3 years, there has not been significant growth in the area.

B. Future Year Analysis

Item 5: Based on a review of the future land uses near the study corridor, it is noted that N. E. Sector, a multi-project, mixed-use development is proposed with a build out year of 2032. With a size of approximately 2,700 acres, this project is bounded by SR 64 to the north, SR 70 to the south, Lorraine Road to the west, and Bourneside Boulevard to the east.

Access will be provided via connections to SR 64, SR 70, and Lorraine Road from thoroughfare roadways that are being constructed within N. E. Sector. These roadways are:

- 4-lane divided extension of 44th Avenue East from Lorraine Road to Bourneside Boulevard.
- 4-lane divided extension of Rangeland Parkway to Bourneside Boulevard.
- 4-lane divided extension of Uihlein Road from current terminus north of SR 70 to SR 64.
- 2-lane undivided extension of Bourneside Boulevard from current terminus north of SR 70 to SR 64.

The future traffic forecasts included in the Final DTTM were developed using the 2040 District One Regional Planning Model (D1RPM). The Final DTTM was completed in 2016 and did not consider the impacts from the N.E. Sector which was approved in **December 2017**. Furthermore, an updated version of the D1RPM to reflect the land use changes (because of the N.E. Sector) reveal significantly higher volumes along SR 70 study corridor. A technical memorandum summarizing the latest modeling effort is also provided along with the responses to comments.

Item 6: Based on a review of the Sarasota-Manatee 2040 Long Range Transportation Plan (LRTP), updated on 04-27-2016, and the FDOT Five Year Work Program (FY 2017/18 – FY 2021/22), only the following project is planned or programmed in the study area:

- SR 70 from Lorraine Road to CR 675: Widening from two (2) lanes to four (4) lanes is identified as a cost feasible improvement in the LRTP. In addition, the FDOT Five Year Work Program (FY 2017/18 – FY 2021/22) identifies that funds are allocated for Preliminary Engineering, Construction and Environmental and the FDOT SIS Cost Feasible Plan 2024-2040 includes funds for preliminary engineering phase for this segment.

Item 7: The regional model (DIRPM) did not undergo any major update since the Final DTTM was completed in 2016. However, it has been recently updated (in May 2018) to include new development (N.E Sector) based on the latest approved Comprehensive Plans. **Table 2** provides a comparison of the year 2040 AADTs, as reported in Tables 15 and 16 of the Final DTTM, against the year 2040 AADTs obtained from the recently updated DIRPM.

Table 2: 2040 Final DTTM vs. Updated 2040 DIRPM Volumes Comparison

Roadway	Segment (From-To)	AADT Year 2040 No-Build condition (SR 70 as 2-Lane)			AADT Year 2040 Build condition (SR 70 as 4-Lane)		
		Final DTTM ¹	Updated DIRPM ⁽²⁾	Percent Difference	Final DTTM ¹	Updated DIRPM ⁽²⁾	Percent Difference
SR 70	West of Lorraine Road	41,600	51,200	23.08%	44,200	55,400	25.34%
	Lorraine Road to Greenbrook Blvd	23,400	28,800	23.08%	29,800	47,300	58.72%
	Greenbrook Blvd to Del Webb Blvd	19,200	32,200	67.71%	26,200	41,900	59.92%
	Del Webb Blvd to Lindrick Lane	12,500	16,200	29.60%	15,500	20,400	31.61%
	Lindrick Lane to 225 th Street E	11,000	14,700	33.64%	13,900	18,100	30.22%
	225 th Street E to CR 675	10,000	12,900	29.00%	12,700	15,800	24.41%
	East of CR 675	7,900	12,300	55.70%	8,600	14,300	66.28%
Lorraine Rd	North of SR 70	14,300	15,100	5.59%	14,300	14,700	2.80%
Lorraine Rd	South of SR 70	23,100	23,500	1.73%	20,600	23,800	15.53%
CR 675	North of SR 70	5,300	4,800	-9.43%	6,100	5,200	-14.75%
Average				25.97%			30.01%

Notes:

1. Year 2040 AADTs were obtained Tables 15 and 16 of the Final SR 70 DTTM submitted during November 2016.

2. 2040 DIRPM Model volumes were obtained by multiplying the Year 2040 DIRPM Cost Feasible Model PSWADTs by a MOCF of 0.91 for Manatee County, obtained from FDOT Florida Traffic Online (2017).

As illustrated in the above table, future year 2040 traffic forecasts for the no build condition from the updated D1RPM are 25.97% (on average) higher than the projections from the Final DTTM. Future year 2040 traffic forecasts for the build scenario from the D1RPM are 30.01% (on average) higher than the projections from the Final DTTM.

C. Recommendations

Based on the above checklist items 1 through 7, it was determined that the design traffic volumes from the Final Design Traffic Technical Memorandum (DTTM) completed for SR 70 from Lorraine Road to CR 675 in November of 2016 are no longer valid because of the following important observations.

- Because of the proposed N.E. Sector Development and new north-south and east-west roadway connections to support this new development bounded by SR 64 to the north, SR 70 to the south, Lorraine Road to the west, and Bourneside Boulevard to the east, a significant change in travel demand projections was observed along SR 70 study corridor between Lorraine Road and CR 675.
- A preliminary review of the revised 2040 travel demand volumes indicates the need for 6 lanes along SR 70 between Lorraine Road and Uihlein Road. It was also noted that the addition of new roadway connections (to SR 70) and the corresponding change in volumes along SR 70 and intersecting roadways will need a reevaluation of previously recommended intersection geometries and queue lengths.

Therefore, it is recommended that a partial reevaluation of the design traffic volumes for SR 70 (from Lorraine Road to CR 675) should be conducted. The reevaluation should be conducted to develop new future traffic forecasts utilizing the 2016 traffic volumes and recommended design traffic characteristics from the Final DTTM completed in November 2016.

We appreciate the opportunity to work with you on this project. Should you have any questions, please feel free to call me at (407) 459-1630.

Sincerely,

VHB

Attachments:

1. Responses to Comments & Traffic Forecast Modeling Technical Memorandum
2. SR 70 Reevaluation Checklist Memorandum
3. FDOT Florida Traffic Online (2017) Historical AADT Reports and Seasonal and MOCF factors
4. Programmed and Planned Improvements
5. Tables 2, 15 and 16 of Final SR 70 Design Traffic Technical Memorandum from Lorraine Road to CR 675, November 2016
6. 2040 Cost Feasible D1RPM Volume Plots (updated 05-15-2018) & N.E. Sector Development Supporting Documentation

Responses to Comments & Traffic Forecast Modeling Technical Memorandum



To: Christopher L. Simpron Date: July 6, 2018

Memorandum

From: Srinivas Kandala, P.E. Re: SR 70 Re-Evaluation Checklist Memorandum
Raj Pemmanaboina, P.E., PTOE Response to Comments

Please see below for the responses to comments received for the Draft SR 70 Re-Evaluation Checklist Memorandum submitted in May 2018.

1. Item 2: It is stated that “study area roadways have not significantly changed.” Lorraine Rd South of SR 70 AADT data from 2017 FTO is 23% less than Final DTTM 2016 AADT. Please consider addressing this because it does appear to be a significant change.

Response: This comment is noted. The sentence “study area roadways have not significantly changed” will be revised to “the majority of the roadways including SR 70 within the study area have not significantly changed” in the text (based on the PD&E Design Traffic reevaluation assessment Checklist - Criteria A-2). Even though the 2016 AADT from the Final DTTM is higher than the 2017 FTO AADT for Lorraine Rd south of SR 70, please note that 2016 and 2017 AADTs from the FTO for this location (7,500 in 2016 and 7,700 in 2017) were comparable. As such, the 2016 traffic volumes from the previous DTTM remain valid.

2. Table 2: The DTTM AADTs are derived from a validated subarea network that has had quite a few significant modifications including TAZ split, changes to centroid connector, facility type and area type changes and modifications to sociodemographic attributes like population and employment. Are the AADTs from the D1RPM from an invalidated model? If so, it may not be a fair comparison. (Table 13 in the DTTM shows how different V/C ratios are before and after validation). However, the differences are still high enough to justify a need for re-evaluation. It may be worthwhile to compare the AADTs from the two invalidated models.

Response: Please refer to the Traffic Forecast Modeling Technical Memorandum (that will also be appended to the SR 70 Re-evaluation Assessment Memo) summarizing the modeling efforts provided at the end of this document.

3. A comparison of the SE data (population and employment) of the adjacent TAZ may be useful to see if the significant difference in AADTs is because of the N.E. Sector development or due to changes in other parts of the model (for example, other developments that are included in the updated D1RPM that use SR 70 as pass through).

Response: Please refer to the Traffic Forecast Modeling Technical Memorandum (that will also be appended to the SR 70 Re-evaluation Assessment Memo) summarizing the modeling efforts provided at the end of this document.

TECHNICAL MEMORANDUM
TRAFFIC FORECAST MODELING

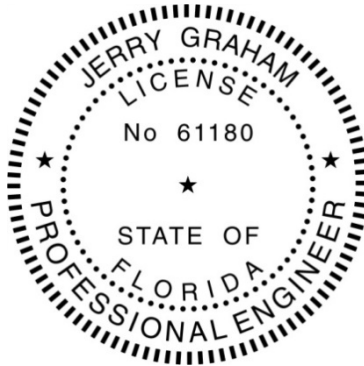
SR 70

FROM LORRAINE ROAD TO CR 675

MANATEE COUNTY, FLORIDA

June 2018





Prepared by Jerry Graham, PE, AICP

A handwritten signature in blue ink, appearing to read "Jerry Graham", with a long horizontal flourish extending to the right.

Traf-O-Data Corporation
June 29th, 2018

Traffic Forecast Modeling Technical Memorandum

SR 70 from Lorraine Rd to CR 675

Manatee County, Florida

Introduction

This Technical Memorandum presents the details of the Model Traffic Forecasts developed in support of the model validation study SR 70 between Lorraine Rd and Waterbury Rd (CR 675) in Manatee County, Florida.

This effort involved conducting a sub-area base year (2010) validation refinement for the study area, as well as development of refined forecast (2040) models.

The traffic model applied for this study was based on the current adopted District 1 Cost Feasible 2040 One Regional Planning Model (D1RPM v1.0.3). The D1RPM is a travel demand forecasting tool developed by FDOT District 1, in conjunction with the six District MPO/TPOs in support of their current 2040 Long Range Transportation Plans (LRTP). This model was adopted by the Lee County MPO for use in developing traffic forecasts within the County.

Model Sub-Area Validation

The original 2010 base year model validation was refined for the project study area to ensure that the base year model is replicating 2010 traffic conditions and counts. The model refinement was performed by using the guidelines identified in "FDOT Project Traffic Forecasting Handbook". Validation criteria including volume over count (v/c) ratios were used to assess the accuracy of the base year model.

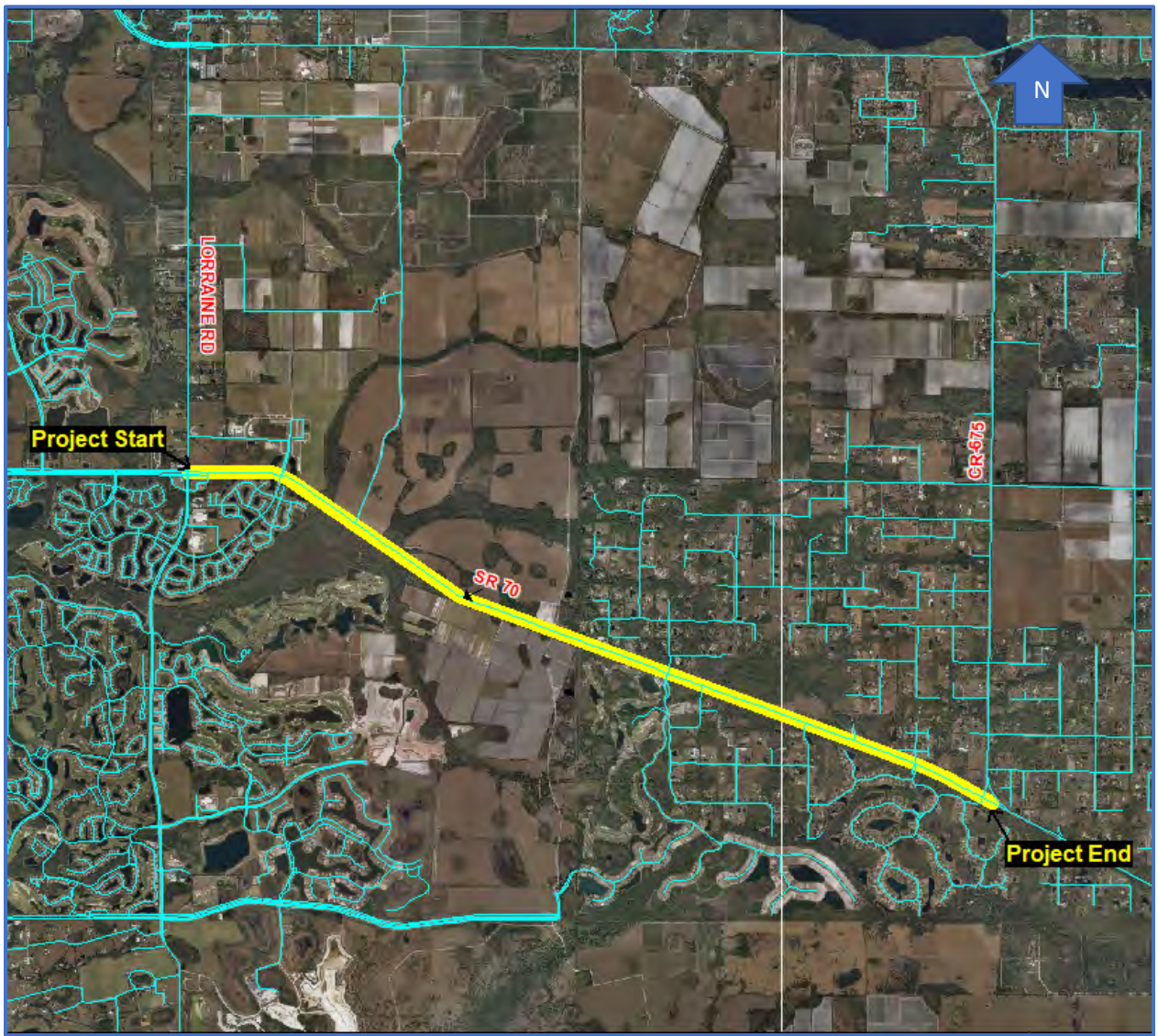
The following network revisions were incorporated as part of the sub-area validation effort:

- Add Screenline 70 for study area
- SR 70 from Post Blvd/Greenbrook Blvd to 112th Ave (DeSoto County) - FT 35 to FT 39 (42mph to 56mph)
- SR 64 from Lorraine Rd to Wachula Rd - FT 35 to FT 39 (42mph to 56mph)

- TAZ 5489 - adjust centroid loading
- TAZ 5479 - adjust centroid loading

These revisions resulted in improved validation performance for SR 70. The following tables and plots show the original 2010 model level of validation, as well as the level of validation after model sub-area refinement.

Study Area Map



ORIGINAL VALIDATION

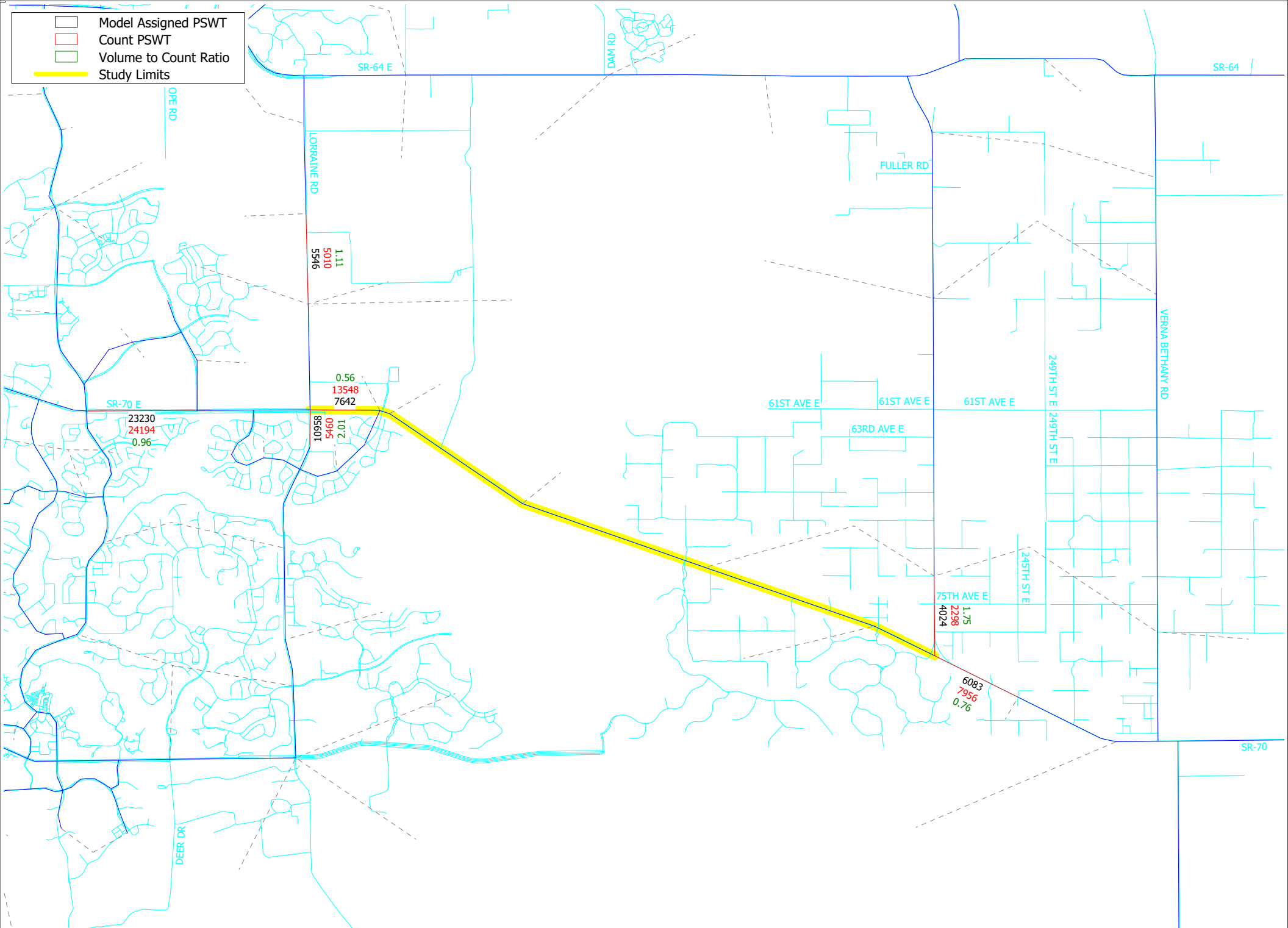
SL	ROADWAY	AT	FT	ANODE	BNODE	VOLUME	COUNT	V/C RATIO
70	CR 675	51	43	16734	16771	2,013	1,149	1.75
70	CR 675	51	43	16771	16734	2,009	1,149	1.75
70	Lorraine	51	43	16900	16953	5,512	2,730	2.02
70	Lorraine	51	43	16953	16900	5,446	2,730	1.99
70	Lorraine	51	46	17105	18885	2,846	2,505	1.14
70	Lorraine	51	46	18885	17105	2,700	2,505	1.08
70	SR 70	51	35	16734	18884	3,045	3,978	0.77
70	SR 70	33	22	16946	16949	11,554	12,097	0.96
70	SR 70	51	31	16948	16953	3,869	6,774	0.57
70	SR 70	33	22	16949	16946	11,676	12,097	0.97
70	SR 70	51	31	16953	16948	3,774	6,774	0.56
70	SR 70	51	35	18884	16734	<u>3,038</u>	<u>3,978</u>	0.76
Study Area						57,482	58,466	0.98
SR 70						36,956	45,698	0.81

REFINED VALIDATION

SL	ROADWAY	AT	FT	ANODE	BNODE	VOLUME	COUNT	V/C RATIO
70	CR 675	51	43	16734	16771	2,277	1,149	1.98
70	CR 675	51	43	16771	16734	2,225	1,149	1.94
70	Lorraine	51	43	16900	16953	3,229	2,730	1.18
70	Lorraine	51	43	16953	16900	2,727	2,730	1
70	Lorraine	51	46	17105	18885	3,025	2,505	1.21
70	Lorraine	51	46	18885	17105	2,972	2,505	1.19
70	SR 70	51	39	16734	18884	4,606	3,978	1.16
70	SR 70	33	22	16946	16949	12,488	12,097	1.03
70	SR 70	51	31	16948	16953	7,255	6,774	1.07
70	SR 70	33	22	16949	16946	12,752	12,097	1.05
70	SR 70	51	31	16953	16948	7,520	6,774	1.11
70	SR 70	51	39	18884	16734	<u>4,611</u>	<u>3,978</u>	1.16
Study Area						65,687	58,466	1.12
SR 70						49,232	45,698	1.07

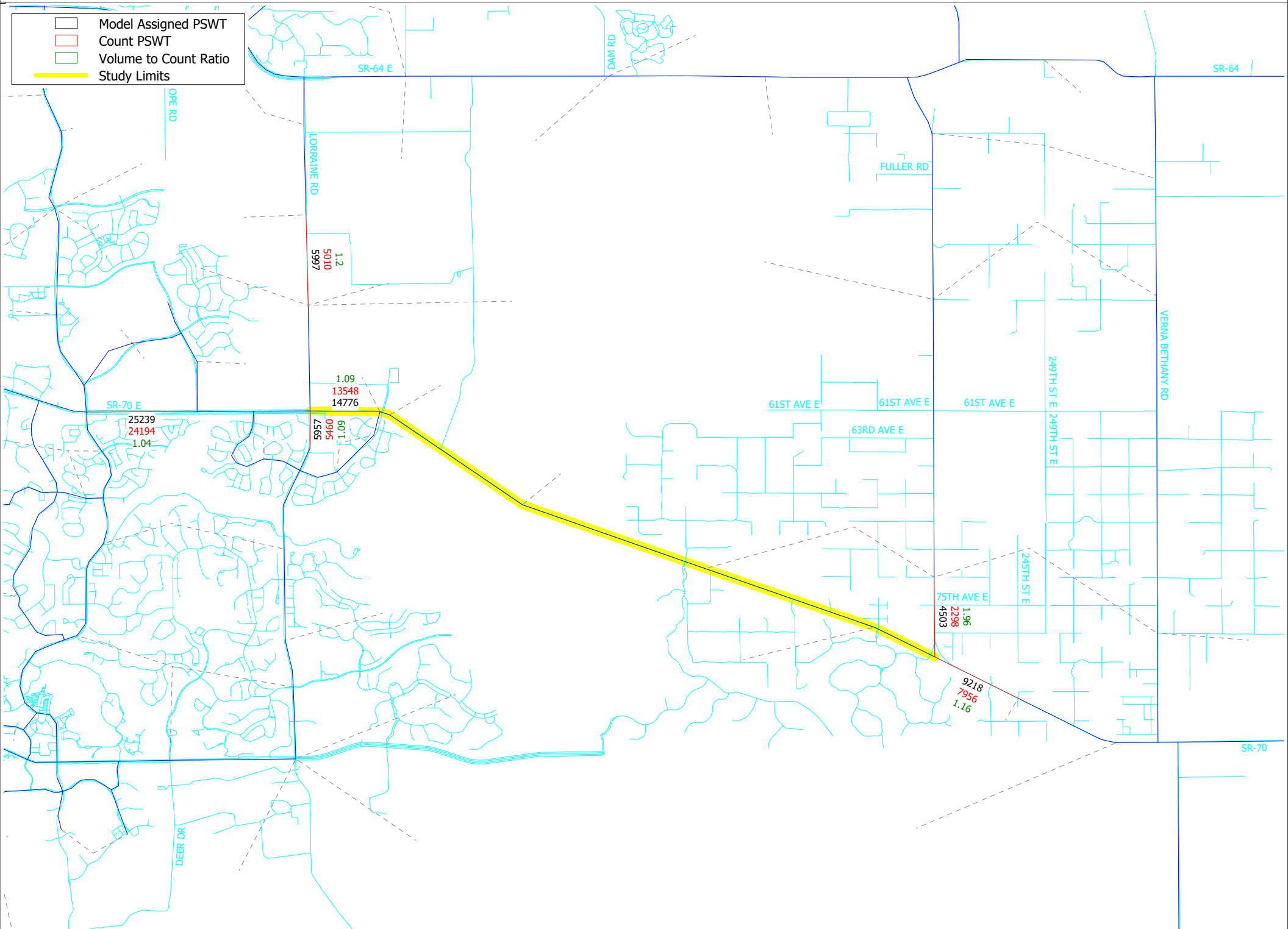
D1RPM v1.0.3 2010 Base Year Validation - Original

- Model Assigned PSWT
- Count PSWT
- Volume to Count Ratio
- Study Limits



D1RPM v1.0.3 2010 Base Year Validation - Refined

- Model Assigned PSWT
- Count PSWT
- Volume to Count Ratio
- Study Limits



Forecast Model Development

Forecast model networks were developed by applying appropriate base year validation refinements to the 2040 LRTP Cost Feasible model network. In addition, the 2040 model network and socioeconomic data was refined to include the following changes as directed:

- Update ZONEDATA to reflect NE Sector TIA SE Data (Stantec, 2nd Revised Draft, December 2017)
- Update 2040 roadway network to reflect future roadways from Manatee County 2035 Future Traffic Circulation Functional Classification Map (April 2015)

The 2040 Socioeconomic data revisions are documented in the following table. The resulting 2040 Peak Season Weekday Traffic (PSWT) for the Build and No-Build conditions are shown in the following plots. These plots also identify the roadways added to reflect the Manatee County 2035 Future Traffic Circulation element.

SR 70 REFINED MODEL - 2040 SE DATA REVISIONS

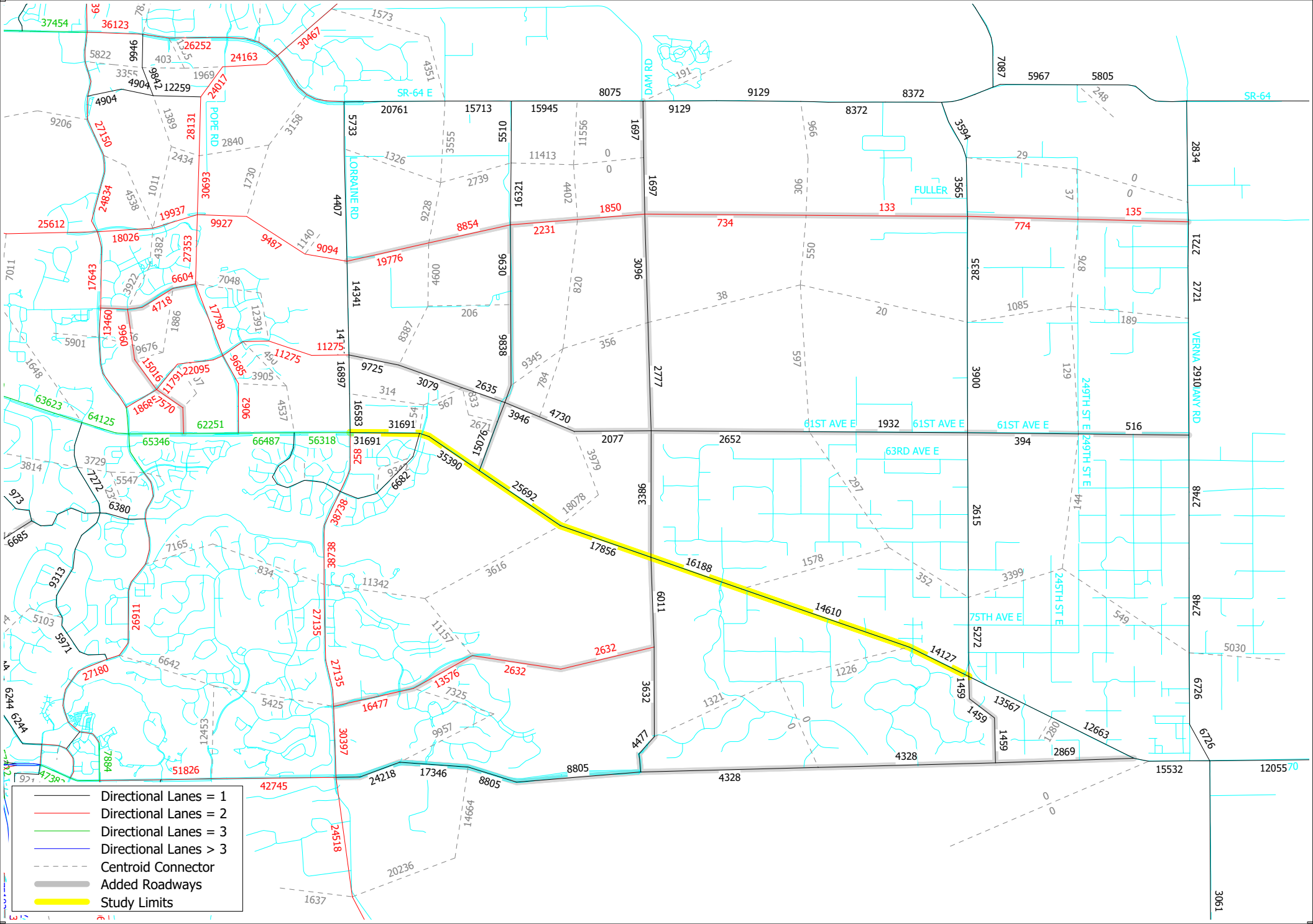
NE Sector TIA Data¹												
ZONE	SFDU	SFPOP	MFDU	MFPOP	IND_EMP	COMM_EMP	SERV_EMP	TOT_EMP	HMDU	K-12	UNIV	NOTES
5470	1689	3202	125	203	15	616	497	1128	78	964	2125	NW Sector DRI
5472	826	1371	89	144	0	200	0	200	0	0	0	NW Sector DRI
5473	277	580	1494	2405	110	2853	2494	5457	0	0	0	Lakewood Center DRI
5474	516	1068	0	0	0	0	70	70	0	691	0	Lakewood Center DRI
5475	2214	4738	162	261	14	180	20	214	0	0	0	NW Sector DRI
5476	707	1484	181	295	66	28	273	367	0	0	0	Lakewood Center DRI
5477	1750	3675	0	0	0	0	0	0	0	0	0	NE Sector - Parcel A
5478	889	1875	1100	1809	0	523	0	523	0	0	0	Other Revised
5490	3058	6304	127	205	10	0	55	65	0	942	0	Other Revised
5536	2040	3407	700	1127	0	1045	0	1045	0	0	0	Other Revised
5537	1535	2563	0	0	0	0	0	0	0	0	0	Other Revised
5539	1604	3314	81	131	563	0	538	1101	0	1884	0	Other Revised
5540	477	792	0	0	0	0	0	0	0	0	0	NE Sector - Parcel D
5542	1120	2341	292	476	0	0	0	0	0	0	0	NE Sector - Parcel B
5543	120	200	0	0	0	314	0	314	0	2826	0	Other Revised
5545	1076	2303	63	103	1	40	0	40	0	0	0	NW Sector DRI
5549	188	314	48	78	0	0	664	664	0	0	0	Lakewood Center DRI
5550	293	486	878	1422	94	40	852	986	0	0	0	Lakewood Center DRI
5552	231	383	331	536	23	1503	108	1634	0	0	0	Lakewood Center DRI
5553	362	605	332	528	46	384	320	750	0	0	0	Lakewood Center DRI
TOTAL	20972	41005	6003	9723	942	7726	5891	14558	78	7307	2125	

Original Adopted 2040 SE Data												
ZONE	SFDU	SFPOP	MFDU	MFPOP	IND_EMP	COMM_EMP	SERV_EMP	TOT_EMP	HMDU	UNIV	UNIV	NOTES
5470	1689	3202	37	60	15	216	497	728	78	964	2125	
5472	346	576	89	144	0	0	0	0	0	0	0	
5473	277	580	0	0	110	275	713	1098	0	0	0	
5474	281	581	0	0	0	0	70	70	0	691	0	
5475	673	1442	18	29	14	0	20	34	0	0	0	
5476	707	1484	27	44	66	28	155	249	0	0	0	
5477	893	1878	46	76	65	17	0	82	0	0	0	
5478	607	1280	24	39	0	0	0	0	0	0	0	
5490	1823	3760	127	205	10	0	55	65	0	942	0	
5536	596	993	154	248	0	0	0	0	0	0	0	
5537	1188	1979	307	495	0	0	0	0	0	0	0	
5539	1154	2387	81	131	563	0	538	1101	0	0	0	
5540	161	268	42	67	0	0	0	0	0	0	0	
5542	598	1250	24	39	1	130	12	143	0	0	0	
5543	218	364	56	91	0	0	7	7	0	0	0	
5545	329	704	11	18	1	0	0	1	0	0	0	
5549	188	314	48	78	0	0	47	47	0	0	0	
5550	237	394	61	99	94	235	610	939	0	0	0	
5552	214	356	55	89	23	17	108	148	0	0	0	
5553	123	206	32	51	46	384	320	750	0	0	0	
TOTAL	12302	23998	1239	2003	1008	1302	3152	5462	78	2597	2125	

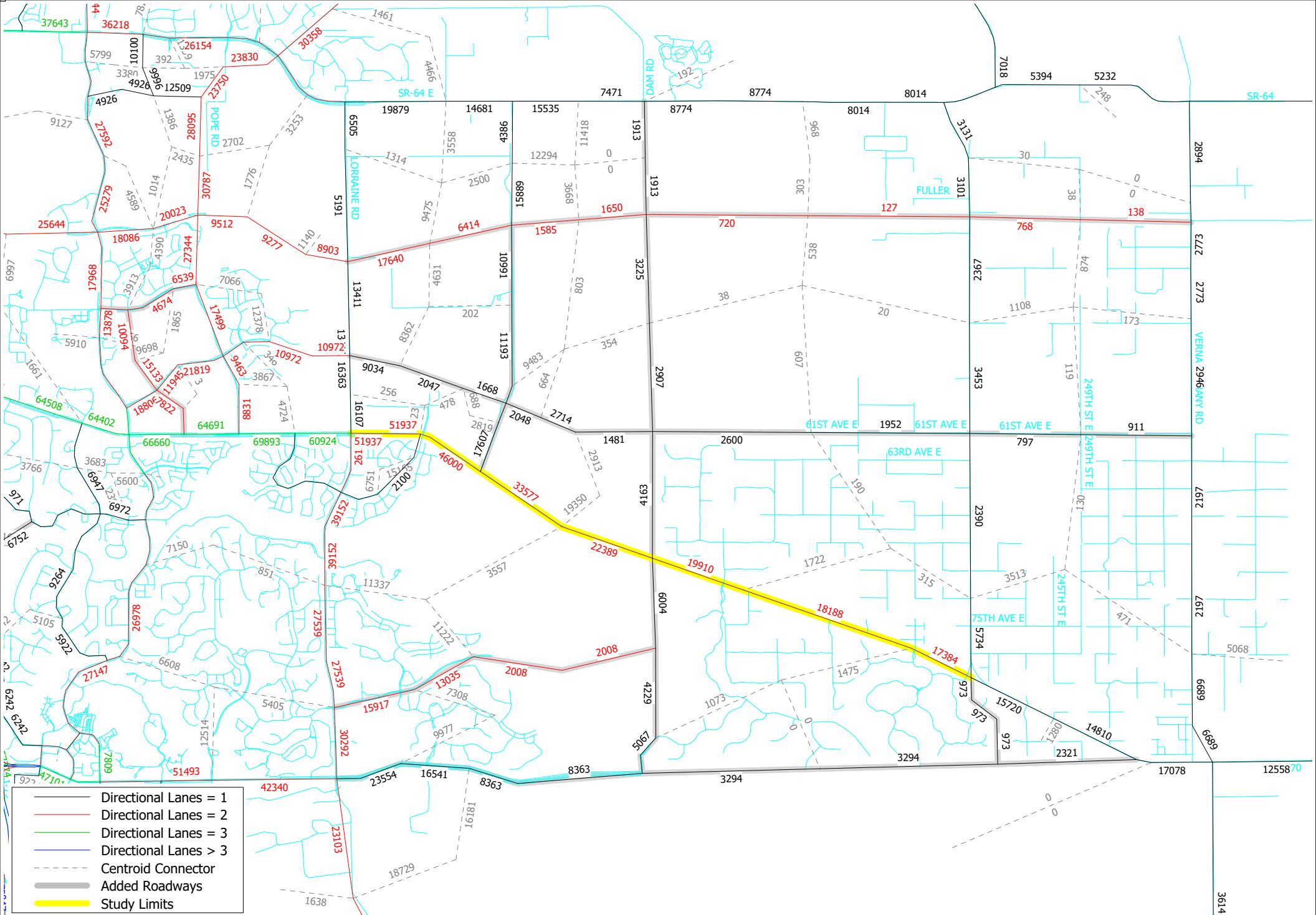
Difference												
SFDU	SFPOP	MFDU	MFPOP	IND_EMP	COMM_EMP	SERV_EMP	TOT_EMP	HMDU	UNIV	UNIV	NOTES	
8670	17007	4764	7720	-66	6424	2739	9096	0	4710	0		

1. Soruce: NE Sector Plan Analysis (second revised draft), December 2017

D1RPM v1.0.3 2040 LRTP CF Model - SR 70 No Build Condition - Peak Season Weekday Traffic Volumes With Planned Roadways and NE Sector TIA Study SE Data Revisions (5-15-18)



D1RPM v1.0.3 2040 LRTP CF Model - SR 70 Build Condition (4LU) - Peak Season Weekday Traffic Volumes With Planned Roadways and NE Sector TIA Study SE Data Revisions (5-15-18)



- Directional Lanes = 1
- Directional Lanes = 2
- Directional Lanes = 3
- Directional Lanes > 3
- - - Centroid Connector
- Added Roadways
- Study Limits

SR 70 Reevaluation Checklist Memorandum



PD&E Design Traffic Reevaluation Assessment Checklist

Florida Department of Transportation (FDOT) District One

Project Name: PD&E for SR 70 from Lorraine Road to CR 765

FPID # No. 414506-2 [redacted]

County: Manatee

Reviewer/s [redacted]

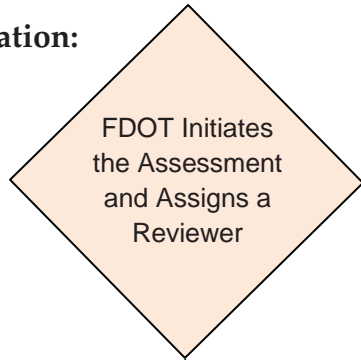
Date 05/30/2018

This checklist is intended to assist the Department in assessing whether or not design traffic developed in the planning stage of a project should be reevaluated as part of the PD&E study or other subsequent project stage. It is suggested that the reviewer investigate the following items and make a recommendation based on the criteria below using professional judgment on a case by case basis.

Criteria	Yes	No	Comments
A. Existing Year Analysis			
1. Is the previous analysis year more than 2 years old?		X	
2. Has the AADT or the LOS in the study area significantly changed on major corridors? <i>Refer to FTI DVD or District One LOS_ALL.</i>		X	
3. Has the transportation network changed significantly in the vicinity of the study area?		X	
4. Has there been significant growth/ land use change in the study area in recent years?		X	
B. Future Year Analysis			
5. Did the adopted future land use for the study area change since the last study?	X		See Reevaluation Checklist Memorandum (Item 5)
6. Did the planned and programmed transportation improvements change in the study area since the last study?		X	
7. Did the regional travel demand model undergo any major update (which reflects major shifts in travel patterns in the region)?		X	See Reevaluation Checklist Memorandum (Item 7)
C. Recommendations			
8. Utilize design traffic from the previous study		X	
9. Partial reevaluation of design traffic recommended	X		
10. Complete reevaluation of design traffic recommended		X	

Review Process

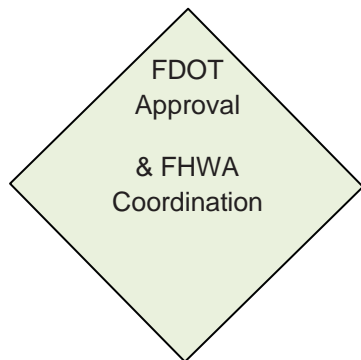
Review Initiation:



Review:

Existing Traffic Reevaluation Necessary?		Yes	No
Future Traffic Reevaluation Necessary?			
Yes		Complete Reevaluation	Partial Reevaluation
No		Partial Reevaluation	No Reevaluation

Approval:



Assigned Reviewer:

VHB

Date: May 21, 2018

Reviewer Recommendation:

Partial Reevaluation of Design Traffic is recommended.

Reviewer Signature:

Date:

FDOT Approver (Signature):

Date:

Note: This Traffic Reevaluation Assessment conducted by the Department is for internal purposes and subject to further discussions with FHWA. FHWA may require traffic reevaluation regardless of the recommendations and approval.

FDOT Florida Traffic Online (2017) Historical AADT Reports and Seasonal and MOCF factors

FLORIDA DEPARTMENT OF TRANSPORTATION
 TRANSPORTATION STATISTICS OFFICE
 2017 HISTORICAL AADT REPORT

COUNTY: 13 - MANATEE

SITE: 5082 - SR 70, EAST OF LORRAINE ROAD

YEAR	AADT		DIRECTION 1		DIRECTION 2	*K FACTOR	D FACTOR	T FACTOR	
2017	15100	C	E	7600	W	7500	9.00	59.00	14.80
2016	14500	C	E	7400	W	7100	9.00	56.80	9.70
2015	12600	C	E	6300	W	6300	9.00	56.10	12.00
2014	12600	C	E	6400	W	6200	9.00	55.60	10.30
2013	11400	C	E	5700	W	5700	9.00	56.40	10.40
2012	11400	C	E	5700	W	5700	9.00	55.80	15.50
2011	12800	F	E	6300	W	6500	9.00	56.90	17.70
2010	12600	C	E	6200	W	6400	13.38	57.76	17.70
2009	11600	C	E	5800	W	5800	13.22	60.14	13.50
2008	11100	C	E	5500	W	5600	10.99	59.34	16.20
2007	11400	C	E	5600	W	5800	10.21	55.66	16.50
2006	10100	C	E	5000	W	5100	10.19	54.91	17.80
2005	10200	C	E	4900	W	5300	10.10	53.40	12.80
2004	8900	C	E	4400	W	4500	10.40	56.00	12.80
2003	9300	C	E	4600	W	4700	10.20	55.90	17.70
2002	8700	C	E	4300	W	4400	10.40	56.10	19.00

AADT FLAGS: C = COMPUTED; E = MANUAL ESTIMATE; F = FIRST YEAR ESTIMATE
 S = SECOND YEAR ESTIMATE; T = THIRD YEAR ESTIMATE; R = FOURTH YEAR ESTIMATE
 V = FIFTH YEAR ESTIMATE; 6 = SIXTH YEAR ESTIMATE; X = UNKNOWN

*K FACTOR: STARTING WITH YEAR 2011 IS STANDARDK, PRIOR YEARS ARE K30 VALUES

FLORIDA DEPARTMENT OF TRANSPORTATION
TRANSPORTATION STATISTICS OFFICE
2017 HISTORICAL AADT REPORT

COUNTY: 13 - MANATEE

SITE: 0030 - SR 70, SOUTHEAST OF CR 675

YEAR	AADT		DIRECTION 1		DIRECTION 2	*K FACTOR	D FACTOR	T FACTOR	
2017	8300	C	E	4100	W	4200	9.50	59.00	23.40
2016	8700	F	E	4300	W	4400	9.50	56.80	23.40
2015	8100	C	E	4000	W	4100	9.50	56.10	23.40
2014	6600	C	E	3300	W	3300	9.50	55.60	19.70
2013	6000	C	E	2900	W	3100	9.50	56.40	19.70
2012	6300	C	E	3200	W	3100	9.50	55.80	25.00
2011	7600	F	E	3700	W	3900	9.50	56.90	25.90
2010	7400	C	E	3600	W	3800	13.38	57.76	25.90
2009	6600	C	E	3200	W	3400	13.22	60.14	23.50
2008	6700	C	E	3300	W	3400	10.99	59.34	25.20
2007	7000	C	E	3400	W	3600	10.21	55.66	22.80
2006	6700	C	E	3300	W	3400	10.19	54.91	24.90
2005	7100	C	E	3500	W	3600	10.10	53.40	27.00
2004	6500	C	E	3300	W	3200	10.40	56.00	27.00
2003	5200	C	E	2600	W	2600	10.20	55.90	20.90
2002	6600	C	E	3200	W	3400	10.40	56.10	25.90

AADT FLAGS: C = COMPUTED; E = MANUAL ESTIMATE; F = FIRST YEAR ESTIMATE
S = SECOND YEAR ESTIMATE; T = THIRD YEAR ESTIMATE; R = FOURTH YEAR ESTIMATE
V = FIFTH YEAR ESTIMATE; 6 = SIXTH YEAR ESTIMATE; X = UNKNOWN

*K FACTOR: STARTING WITH YEAR 2011 IS STANDARDK, PRIOR YEARS ARE K30 VALUES

FLORIDA DEPARTMENT OF TRANSPORTATION
 TRANSPORTATION STATISTICS OFFICE
 2017 HISTORICAL AADT REPORT

COUNTY: 13 - MANATEE

SITE: 4214 - LORRAINE RD, N OF SR 70

YEAR	AADT		DIRECTION 1		DIRECTION 2		*K FACTOR	D FACTOR	T FACTOR
----	-----		-----	-----	-----	-----	-----	-----	-----
2017	6500 S	N	3300		S	3200	9.50	56.50	8.50
2016	6300 F	N	3200		S	3100	9.50	55.90	9.40
2015	6100 C	N	3100		S	3000	9.50	55.90	7.90
2014	4600 S						9.50	55.10	8.20
2013	4500 F		0			0	9.50	55.10	9.10
2012	4400 C	N	0		S	0	9.50	54.60	8.10

AADT FLAGS: C = COMPUTED; E = MANUAL ESTIMATE; F = FIRST YEAR ESTIMATE
 S = SECOND YEAR ESTIMATE; T = THIRD YEAR ESTIMATE; R = FOURTH YEAR ESTIMATE
 V = FIFTH YEAR ESTIMATE; 6 = SIXTH YEAR ESTIMATE; X = UNKNOWN

*K FACTOR: STARTING WITH YEAR 2011 IS STANDARDK, PRIOR YEARS ARE K30 VALUES

FLORIDA DEPARTMENT OF TRANSPORTATION
TRANSPORTATION STATISTICS OFFICE
2017 HISTORICAL AADT REPORT

COUNTY: 13 - MANATEE

SITE: 4018 - LORRAINE RD, 675' S OF SR 70 (RTMS WEST SIDE OF ROAD) PTMS 4752

YEAR	AADT	DIRECTION 1		DIRECTION 2		*K FACTOR	D FACTOR	T FACTOR
2017	7700 F		0		0	9.00	59.80	5.60
2016	7514 C	N	4016	S	3498	9.00	54.90	6.50
2015	6613 C	N	3373	S	3240	9.00	54.90	5.30
2014	6866 C	N	3573	S	3293	9.00	54.90	6.80
2013	6601 C	N	3376	S	3225	9.00	54.40	5.50
2012	6075 C	N	3165	S	2910	9.00	55.20	5.20
2011	5561 C	N	2680	S	2881	9.00	54.50	6.30
2010	5023 C	N	2632	S	2391	20.57	53.94	4.80
2009	4701 C	N	2490	S	2211	19.91	54.78	4.60
2008	4430 C	N	2193	S	2237	11.46	60.10	2.90

AADT FLAGS: C = COMPUTED; E = MANUAL ESTIMATE; F = FIRST YEAR ESTIMATE
S = SECOND YEAR ESTIMATE; T = THIRD YEAR ESTIMATE; R = FOURTH YEAR ESTIMATE
V = FIFTH YEAR ESTIMATE; 6 = SIXTH YEAR ESTIMATE; X = UNKNOWN

*K FACTOR: STARTING WITH YEAR 2011 IS STANDARDK, PRIOR YEARS ARE K30 VALUES

FLORIDA DEPARTMENT OF TRANSPORTATION
 TRANSPORTATION STATISTICS OFFICE
 2017 HISTORICAL AADT REPORT

COUNTY: 13 - MANATEE

SITE: 4016 - CR 675, 1075' SOUTH OF SR 64 MCPR 16

YEAR	AADT	DIRECTION 1		DIRECTION 2		*K FACTOR	D FACTOR	T FACTOR
2017	2099 C	N	1056	S	1043	9.50	58.00	16.70
2016	1966 C	N	1004	S	962	9.50	56.10	16.70
2015	1802 C	N	912	S	890	9.50	54.20	16.70
2014	1665 C	N	840	S	825	9.50	56.60	16.00
2013	1620 C	N	824	S	796	9.50	56.60	16.50
2012	1456 C	N	734	S	722	9.50	56.00	19.60
2011	1545 C	N	779	S	766	9.50	57.00	5.60
2010	1428 C	N	719	S	709	11.20	53.44	16.40
2009	1400 C	N	706	S	694	10.93	56.06	22.20
2008	1519 C	N	763	S	756	23.63	78.81	31.00
2007	1808 C	N	912	S	896	20.02	75.89	20.50

AADT FLAGS: C = COMPUTED; E = MANUAL ESTIMATE; F = FIRST YEAR ESTIMATE
 S = SECOND YEAR ESTIMATE; T = THIRD YEAR ESTIMATE; R = FOURTH YEAR ESTIMATE
 V = FIFTH YEAR ESTIMATE; 6 = SIXTH YEAR ESTIMATE; X = UNKNOWN

*K FACTOR: STARTING WITH YEAR 2011 IS STANDARDK, PRIOR YEARS ARE K30 VALUES

2017 PEAK SEASON FACTOR CATEGORY REPORT - REPORT TYPE: ALL
 CATEGORY: 1300 MANATEE COUNTYWIDE

MOCF: 0.91

WEEK	DATES	SF	PSCF
1	01/01/2017 - 01/07/2017	0.99	1.09
2	01/08/2017 - 01/14/2017	0.98	1.08
3	01/15/2017 - 01/21/2017	0.97	1.07
4	01/22/2017 - 01/28/2017	0.96	1.05
* 5	01/29/2017 - 02/04/2017	0.94	1.03
* 6	02/05/2017 - 02/11/2017	0.92	1.01
* 7	02/12/2017 - 02/18/2017	0.91	1.00
* 8	02/19/2017 - 02/25/2017	0.90	0.99
* 9	02/26/2017 - 03/04/2017	0.90	0.99
*10	03/05/2017 - 03/11/2017	0.89	0.98
*11	03/12/2017 - 03/18/2017	0.88	0.97
*12	03/19/2017 - 03/25/2017	0.89	0.98
*13	03/26/2017 - 04/01/2017	0.90	0.99
*14	04/02/2017 - 04/08/2017	0.91	1.00
*15	04/09/2017 - 04/15/2017	0.92	1.01
*16	04/16/2017 - 04/22/2017	0.93	1.02
*17	04/23/2017 - 04/29/2017	0.94	1.03
18	04/30/2017 - 05/06/2017	0.95	1.04
19	05/07/2017 - 05/13/2017	0.96	1.05
20	05/14/2017 - 05/20/2017	0.97	1.07
21	05/21/2017 - 05/27/2017	1.00	1.10
22	05/28/2017 - 06/03/2017	1.02	1.12
23	06/04/2017 - 06/10/2017	1.04	1.14
24	06/11/2017 - 06/17/2017	1.07	1.18
25	06/18/2017 - 06/24/2017	1.07	1.18
26	06/25/2017 - 07/01/2017	1.07	1.18
27	07/02/2017 - 07/08/2017	1.08	1.19
28	07/09/2017 - 07/15/2017	1.08	1.19
29	07/16/2017 - 07/22/2017	1.08	1.19
30	07/23/2017 - 07/29/2017	1.09	1.20
31	07/30/2017 - 08/05/2017	1.09	1.20
32	08/06/2017 - 08/12/2017	1.10	1.21
33	08/13/2017 - 08/19/2017	1.10	1.21
34	08/20/2017 - 08/26/2017	1.13	1.24
35	08/27/2017 - 09/02/2017	1.17	1.29
36	09/03/2017 - 09/09/2017	1.20	1.32
37	09/10/2017 - 09/16/2017	1.23	1.35
38	09/17/2017 - 09/23/2017	1.18	1.30
39	09/24/2017 - 09/30/2017	1.14	1.25
40	10/01/2017 - 10/07/2017	1.10	1.21
41	10/08/2017 - 10/14/2017	1.05	1.15
42	10/15/2017 - 10/21/2017	1.01	1.11
43	10/22/2017 - 10/28/2017	1.01	1.11
44	10/29/2017 - 11/04/2017	1.01	1.11
45	11/05/2017 - 11/11/2017	1.01	1.11
46	11/12/2017 - 11/18/2017	1.01	1.11
47	11/19/2017 - 11/25/2017	1.01	1.11
48	11/26/2017 - 12/02/2017	1.00	1.10
49	12/03/2017 - 12/09/2017	1.00	1.10
50	12/10/2017 - 12/16/2017	0.99	1.09
51	12/17/2017 - 12/23/2017	0.99	1.09
52	12/24/2017 - 12/30/2017	0.98	1.08
53	12/31/2017 - 12/31/2017	0.97	1.07

* PEAK SEASON

02-MAR-2018 15:35:05

830UPD

1_1300_PKSEASON.TXT

Programmed and Planned Improvements



Florida Department of

TRANSPORTATION

E-Updates | FL511 | Mobile | Site Map

Web Application

- Home
- About FDOT
- Contact Us
- Offices
- Maps & Data
- Performance
- Projects

Office of Work Program and Budget [Lisa Saliba - Director](#)

Five Year Work Program

Selection Criteria	
District 01 (Updated: 2/14/2018-21.15.01) Category:Highways Item Number:414506-2	2018-2023 G1 Manatee County Phase:Construction Description Contains:SR 70

[Display current records in a Report Style](#)
[Display current records in an Excel Document](#)

Project Summary						
Transportation System: INTRASTATE STATE HIGHWAY			District 01 - Manatee County			
Description: SR 70 FROM LORRAINE RD TO CR 675/WATERBURY ROAD						
Type of Work: PD&E/EMO STUDY			View Scheduled Activities			
Item Number: 414506-2			Emerging SIS			
Length: 6.091			View Map of Item			
Project Detail						
Fiscal Year:	2018	2019	2020	2021	2022	2023
Highways/PD & E						<i>(On-Going)</i>
Amount:	\$20,000					
Highways/Preliminary Engineering						<i>(On-Going)</i>
Amount:	\$20,000					
Highways/Right of Way						
Amount:		\$2,165,722	\$3,550,619	\$591,771		
Highways/Construction						
Amount:						\$51,462,112
Highways/Environmental						
Amount:				\$1,420,000		\$50,000
Item Total:	\$40,000	\$2,165,722	\$3,550,619	\$2,011,771		\$51,512,112

This site is maintained by the Office of Work Program and Budget, located at 605 Suwannee Street, MS 21, Tallahassee, Florida 32399. For additional information please e-mail questions or comments to:

Lisa Saliba: Lisa.Saliba@dot.state.fl.us or call 850-414-4622

[View Contact Information for Office of Work Program and Budget](#)

Application Home: [Work Program](#)
Office Home: [Office of Work Program and Budget](#)

- Contact Us
- Employment
- MyFlorida.com
- Performance
- Statement of Agency
- Web Policies & Notices



© 1996-2014 Florida Department of Transportation

Florida Department of Transportation
Consistent, Predictable, Repeatable

Table 3-18: Prioritization of Long-Term Freight Improvement Projects – Manatee County

Rank	County	Description	From	To	Project Type	Roadway, Railroad, Seaport, Airport Improvement?	SIS/ Emerging SIS?	Construction Costs
1	MANATEE	I-75 AT US 301			INTERCHANGE IMPROVEMENT	ROADWAY	YES	\$25,000,000
2	MANATEE	I-75 AT SR 70			INTERCHANGE IMPROVEMENT	ROADWAY	YES	\$25,000,000
2	MANATEE	I-75 AT SR 64			INTERCHANGE IMPROVEMENT	ROADWAY	YES	\$25,000,000
4	MANATEE	I-75 PORT CONNECTOR CORRIDOR	US 41	I-75	NEW 4-LANE FACILITY	ROADWAY/ SEAPORT	NO	\$82,000,000
5	MANATEE	SR 70	LORRAINE ROAD	DESOTO COUNTY LINE	WIDEN TO 4 LANES	ROADWAY	YES	\$82,000,000
5	MANATEE	SR 70 AT 30 TH STREET E			INTERSECTION IMPROVEMENT	ROADWAY	NO	\$1,000,000
7	MANATEE	MOCCASIN WALLOW ROAD	I-75	US 301	WIDEN TO 4 LANES	ROADWAY	NO	\$60,000,000
8	MANATEE	NEW MANATEE RIVER BRIDGE	MANATEE AVENUE	US 301	NEW 4-LANE BRIDGE	ROADWAY	NO	\$162,000,000
9	MANATEE	SR 684	SR 789 (GULF DRIVE)	123 RD STREET W	REPLACE MOVABLE SPAN BRIDGE	ROADWAY	NO	\$10,000,000
9	MANATEE	SR 64	SR 789 (GULF DRIVE)	PERICO BAY BOULEVARD	BRIDGE REPLACEMENT	ROADWAY	NO	\$10,000,000
11	MANATEE	US 301	CR 675	MOCASSIN WALLOW ROAD	WIDEN TO 4 LANES	ROADWAY	NO	\$13,000,000



ID	FACILITY	FROM	TO	Design			District Managed Funds			State Managed Funds			State Managed P3 Funds			Other Funds	IMPRV TYPE	Project Phasing			
				PDE	PE	TOTAL	ROW	CON	TOTAL	ROW	CON	TOTAL	COST	Begin Yr	#Yrs			TOTAL	PDE	PE	ROW
909	I-75	at Fruitville Rd						81,088	81,088	35,693		35,693				M-INCH					
1248	SR 82	Homestead Rd S	Hendry C/L					29,484	29,484							A4-6					
1256	SR 29	Collier C/L	CR 832 (Keri Rd)							11,716		11,716				A2-4					
1257	SR 29	CR 832 (Keri Rd)	Spencer							3,790		3,790				A2-4					
1258	SR 29	Spencer	N of Cowboy Way					38,110	38,110							A2-4					
1259	SR 710	US 441	L-63 Canal					41,825	41,825							NR					
1287	I-75	at Bee Ridge Rd									72,980	72,980				M-INCH					
1288	I-75	at SR 72 (Clark Rd)						98,853	98,853							M-INCH					
1385	SR 29	Bermont Rd (CR 74)	US 27							1,900		1,900				A2-4					
1392	US 27	CR 630A	Presidents Dr					49,968	49,968							A2-6					
1383	SR 29	CR 80-A (Cowboy Way)	Whidden Rd (CR 731)					170,567	170,567							A2-4					
1387	I-75	at SR 951									76,348	76,348				M-INCH					
1391	US 27	Highlands C/L	CR 630A					85,475	85,475							A2-6					
1689	I-4	North Socrum Loop Road	SR 570 (Polk Pkwy)		3,866	3,866					1,262,201	1,262,201				A4-SUL					
969	US 17	Copley Drive	N of CR 74 (Bermont Rd)	1,077	1,031	2,108										A2-6					
1379	SR 29	I-75	Oil Well Rd		6,186	6,186	3,630		3,630							A2-4					
1386	SR 70	Jefferson Ave	CR 29		4,124	4,124										A2-4					
1403	I-4	SR 570 (Polk Pkwy)	US 27 (SR 25)		1,675	1,675	645,421	645,421								A4-SUL					
1589	SR 70	Lorraine Rd	Singletery Rd (Myakka City)		8,764	8,764										A2-4					
1590	SR 70	Singletery Rd (Myakka City)	American Legion Dr (Arcadia)	3,093	10,826	13,919										A2-4					
1591	SR 70	American Legion Dr (Arcadia)	Jefferson Ave	5,155	18,455	23,610										A2-4					
1592	SR 70	CR 29	US 98 (Eagle Bay Dr)	5,155	18,558	23,713										A2-4					
1593	SR 60	CR 630	Kissimmee River Bridge		4,640	4,640										A2-4					
1688	I-4	SR570 (Polk Pkwy)	North Socrum Loop Road		2,578	2,578					973,070	973,070				A4-SUL					

Funded CFP Totals

95,183

1,244,421

2,437,698

LEGEND

FY 2025/2026 - 2029/2030	Mega Projects Phased Over Time
FY 2030/2031 - 2034/2035	Programmed, Planned, or Completed
FY 2035/2036 - 2039/2040	Unfunded Needs Plan

INFLATION FACTORS

FY 2027/2028 - 1.430
FY 2032/2033 - 1.683
FY 2037/2038 - 1.979

NOTES

- (1) Values in thousands of dollars in the year of expenditure, inflated to the middle year in each band.
- (2) All phase costs shown as supplied by each District.
- (3) CON includes both Construction (CON52) and Construction Support (CEI).
- (4) ROW includes both Right-of-Way Acquisition/Mitigation (ROW43/45) and Right-of-Way Support.
- (5) Project costs are subject to change.
- (6) Revenue forecast provides separate values for PDE and PE than for ROW and CON. Therefore these phases have been separated in this table.
- (7) Other Funds- assumed to be toll revenue or partner funded.
- (8) Project Phasing- "COMP"- project underway or complete.

IMPROVEMENT TYPES

- A2-4: Add 2 Lanes to Build 4
- A2-6: Add 2 Lanes to Build 6
- A2-8: Add 2 Lanes to Build 8
- A4-6: Add 4 Lanes to Build 6
- A2-SUL: Add 2 Special Use Lanes
- A4-SUL: Add 4 Special Use Lanes
- BRIDGE: Bridge

- M-INCH: Modify Interchange
- N-INCH: New Interchange
- MGLANE: Managed Lanes
- MCON: Modify Connector
- NR: New Road
- UP: Ultimate Improvement

Tables 2, 15 and 16 of Final SR 70 Design Traffic
Technical Memorandum from Lorraine Road to CR
675, November 2016

Table 2: Existing Year 2016 Traffic Volumes

Roadway / Segment	Date of Count	Source and Type	FDOT Station No.	Measured Characteristics								Axle Adj. ²	Seasonal Adj. ¹	Adjusted AADT ³
				ADT	Peak Hr.	NB/EB	SB/WB	Peak Time	"K"	"D"	"T _{Daily} "			
Mainline Characteristics (SR 70)														
SR 70														
East of Lorraine Road	4/19/2016-													
East of Lorraine Road	4/22/2016	72-hr Classification	-	15,834	1,281	752	529	5:00 - 6:00 PM	8.1%	58.7%	14.2%	-	0.95	15,000
West of Lorraine Road	4/19/2016	24-hr Volume	-	24,223	1,949	999	950	4:45 - 5:45 PM	8.0%	51.3%	-	0.96	0.94	22,000
East of Lorraine Road	2014	FDOT Classification	135082	-	-	-	-	-	9.0%	55.6%	10.3%	-	-	12,600 ⁴
East of Greenbrook Blvd.	4/19/2016	24-hr Volume	-	14,250	1,203	408	795	7:00 - 8:00 AM	8.4%	66.1%	-	0.96	0.94	13,000
East of Lindrick Ln	4/19/2016	24-hr Volume	-	11,710	1,020	308	712	7:00 - 8:00 AM	8.7%	69.8%	-	0.96	0.94	11,000
East of 213th Street (East)	4/19/2016	24-hr Volume	-	11,417	977	282	695	7:00 - 8:00 AM	8.6%	71.1%	-	0.96	0.94	10,000
East of 225th Street (East)	4/19/2016	24-hr Volume	-	10,615	919	289	630	7:00 - 8:00 AM	8.7%	68.6%	-	0.96	0.94	9,600
East of CR-675	4/19/2016	24-hr Volume	-	10,485	925	316	609	7:00 - 8:00 AM	8.8%	65.8%	-	0.96	0.94	9,500
Southeast of CR 675	2014	FDOT Classification	130030	-	-	-	-	-	9.5%	55.6%	19.7%	-	-	6,600 ⁴
Sidestreet Characteristics														
Lorraine Road														
South of SR 70	4/19/2016	24-hr Volume	-	11,468	1,472	649	823	8:00 - 9:00 AM	12.8%	55.9%	-	0.96	0.94	10,000
North of SR 70	4/19/2016	24-hr Volume	-	7,266	824	207	617	7:15 - 8:15 AM	11.3%	74.9%	-	0.96	0.94	6,600
Greenbrook Blvd/Post Blvd														
South of SR 70	4/19/2016	24-hr Volume	-	2,833	287	122	165	8:00 - 9:00 AM	10.1%	57.5%	-	0.96	0.94	2,600
North of SR 70	4/19/2016	24-hr Volume	-	1,716	174	83	91	3:45 - 4:45 PM	10.1%	52.3%	-	0.96	0.94	1,500
Lindrick Ln/197th St E														
South of SR 70	4/19/2016	24-hr Volume	-	1,624	154	36	118	7:45 - 8:45 AM	9.5%	76.6%	-	0.96	0.94	1,500
North of SR 70	4/19/2016	24-hr Volume	-	1,271	110	68	42	3:30 - 4:30 PM	8.7%	61.8%	-	0.96	0.94	1,100
213th St E														
South of SR 70	4/19/2016	24-hr Volume	-	339	34	9	25	4:45 - 5:45 PM	10.0%	73.5%	-	0.96	0.94	310
Tree Umph Adventure Park Entrance														
North of SR 70	4/20/2016	24-hr Volume	-	68	24	24	0	7:45 - 8:45 AM	35.3%	100.0%	-	0.96	0.94	60
225th St E														
South of SR 70	4/19/2016	24-hr Volume	-	895	93	59	34	7:45 - 8:45 AM	10.4%	63.4%	-	0.96	0.94	810
North of SR 70	4/19/2016	24-hr Volume	-	223	27	5	22	7:00 - 8:00 AM	12.1%	81.5%	-	0.96	0.94	200
CR 675														
North of SR 70	4/19/2016	24-hr Volume	-	2,963	263	102	161	7:30 - 8:30 AM	8.9%	61.2%	-	0.94	0.94	2,600

Notes:

1. Most Recent Seasonal Adjustment factors were obtained from Florida Transportation Information 2014
2. Most Recent Axle Adjustment factors were obtained from Florida Transportation Information 2014
3. Adjusted AADT = Measured ADT * Axle Adjustment * Seasonal Adjustment
4. 24-Hour Traffic Count information was provided by FDOT

Table 15: Model Growth Rate Summary (No Build)

Roadway / Segment	No-Build				
	2010 PSWADT	2010 AADT	2040 PSWADT	2040 AADT	Growth Rate (Linear)
Mainline					
SR 70					
W of Lorraine Road	20,062	18,900	44,710	41,600	4.00%
Lorraine Road to Greenbrook Blvd	14,155	13,300	25,150	23,400	2.53%
Greenbrook Blvd to Del Webb Blvd	11,573	10,900	20,691	19,200	2.54%
Del Webb Blvd to Lindrick Ln	11,367	10,700	13,409	12,500	0.56%
Lindrick Ln to 225th Street E	9,878	9,300	11,785	11,000	0.61%
225th Street E to CR 675	8,988	8,400	10,770	10,000	0.63%
E of CR 675	6,082	5,700	8,452	7,900	1.29%
Side Street					
Lorraine Road North of SR 70	6,162	5,700	15,529	14,300	5.03%
Lorraine Road South of SR 70	9,476	8,700	25,152	23,100	5.52%
CR 675 North of SR 70	3,898	3,600	5,803	5,300	1.57%

Note: The associated MOCF factors are provided in Appendix D

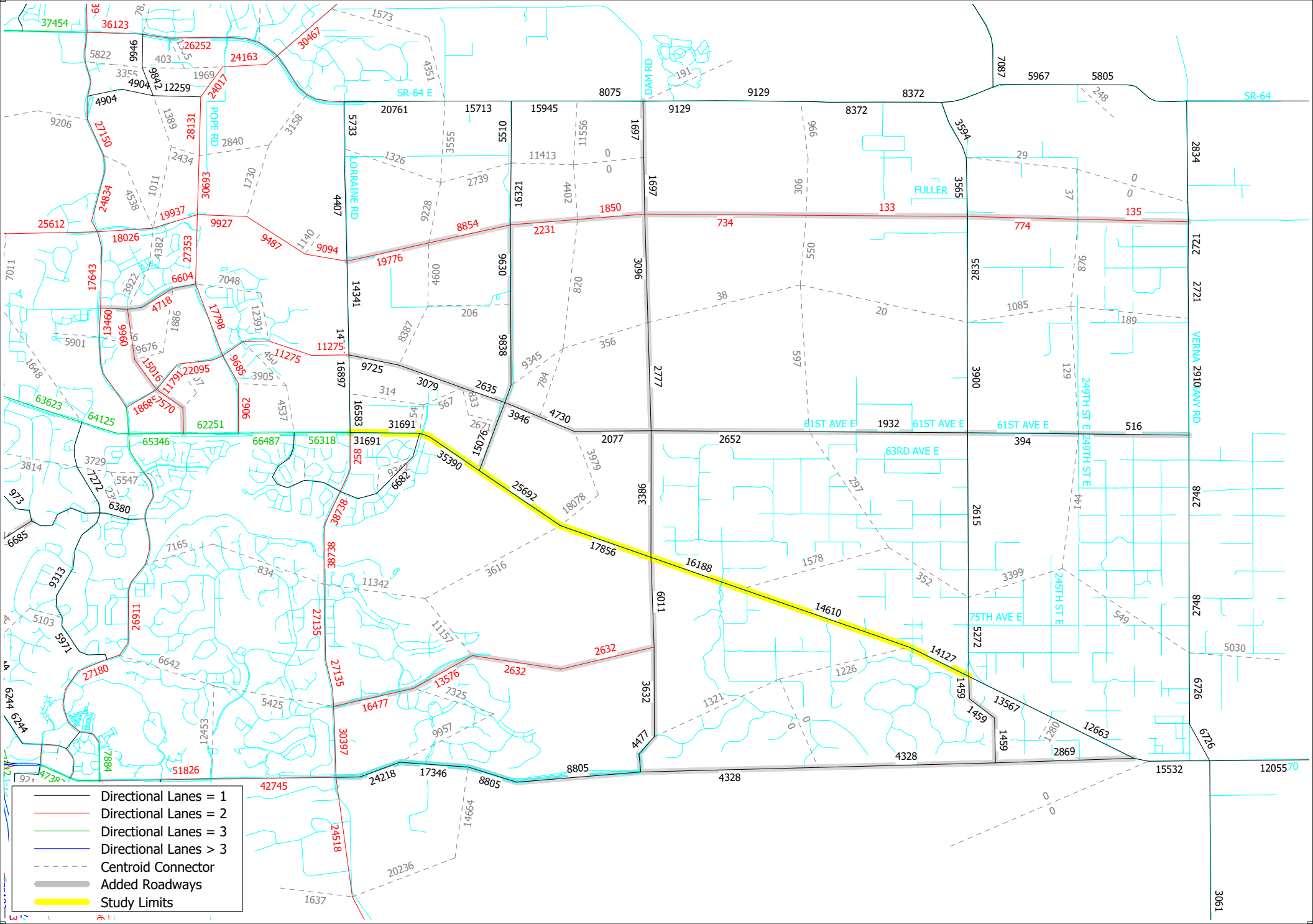
Table 16: Model Growth Rate Summary (Build)

Roadway / Segment	Build				
	2010 PSWADT	2010 AADT	2040 PSWADT	2040 AADT	Growth Rate (Linear)
Mainline					
SR 70					
W of Lorraine Road	20,062	18,900	47,527	44,200	4.46%
Lorraine Road to Greenbrook Blvd	14,155	13,300	32,009	29,800	4.14%
Greenbrook Blvd to Del Webb Blvd	11,573	10,900	28,129	26,200	4.68%
Del Webb Blvd to Lindrick Ln	11,367	10,700	16,647	15,500	1.50%
Lindrick Ln to 225th Street E	9,878	9,300	14,936	13,900	1.65%
225th Street E to CR 675	8,988	8,400	13,686	12,700	1.71%
E of CR 675	6,082	5,700	9,292	8,600	1.70%
Side Street					
Lorraine Road North of SR 70	6,162	5,700	15,545	14,300	5.03%
Lorraine Road South of SR 70	9,476	8,700	22,374	20,600	4.56%
CR 675 North of SR 70	3,898	3,600	6,580	6,100	2.31%

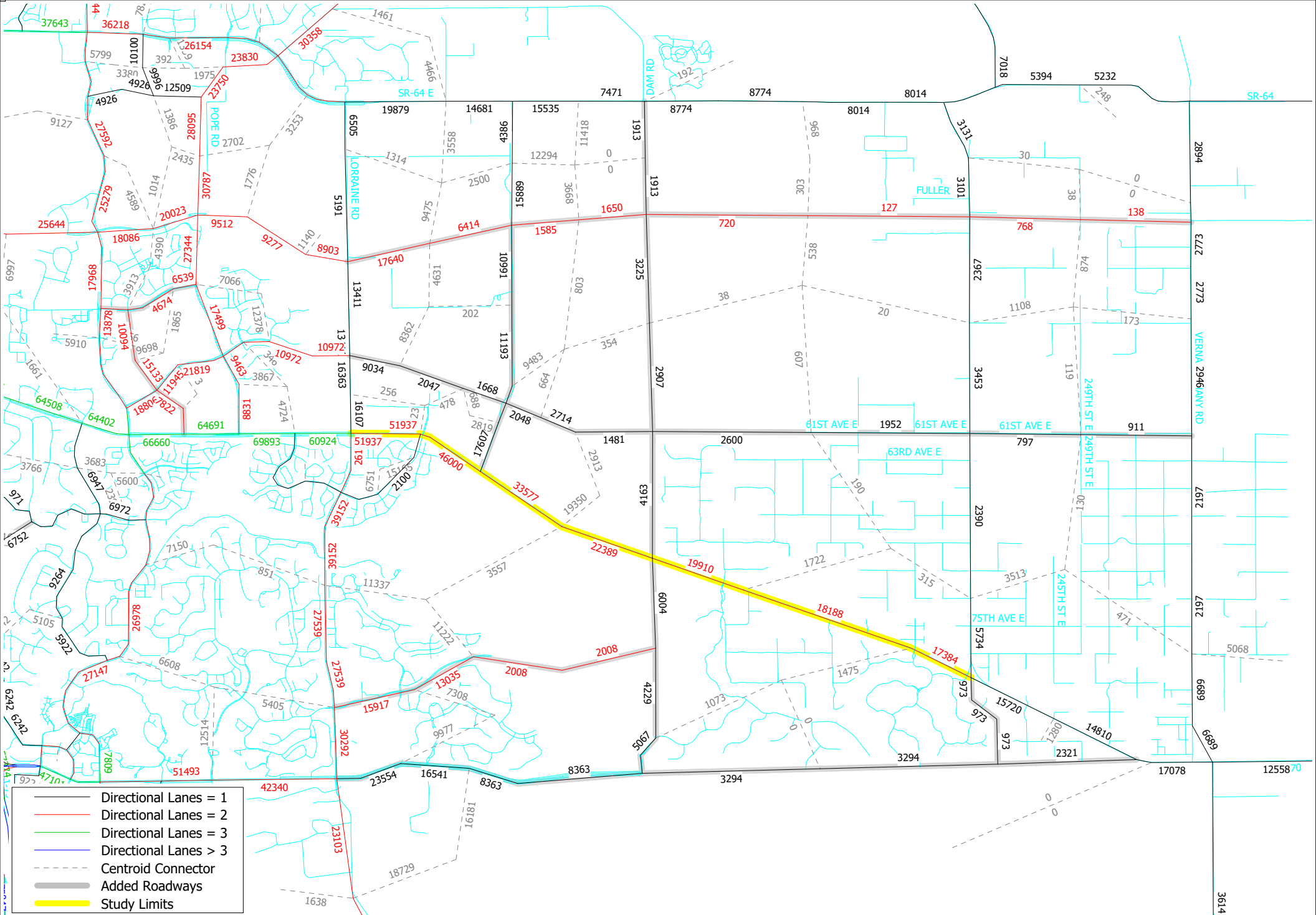
Note: The associated MOCF factors are provided in Appendix D

2040 Cost Feasible D1RPM Volume Plots
(updated 05-15-2018) N.E. Sector Development
Supporting Documentation

D1RPM v1.0.3 2040 LRTP CF Model - SR 70 No Build Condition - Peak Season Weekday Traffic Volumes With Planned Roadways and NE Sector TIA Study SE Data Revisions (5-15-18)

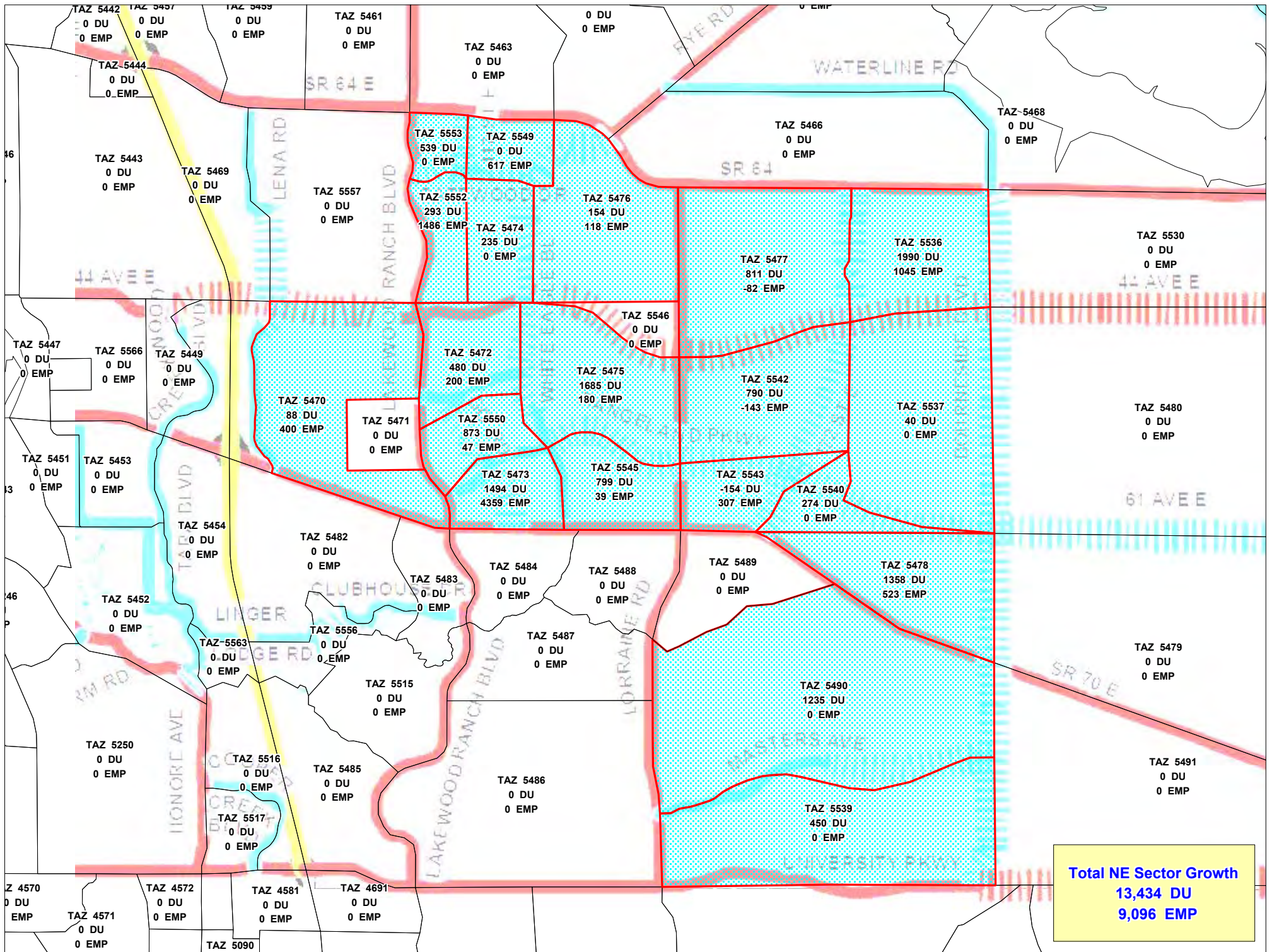


D1RPM v1.0.3 2040 LRTP CF Model - SR 70 Build Condition (4LU) - Peak Season Weekday Traffic Volumes With Planned Roadways and NE Sector TIA Study SE Data Revisions (5-15-18)



- Directional Lanes = 1
- Directional Lanes = 2
- Directional Lanes = 3
- Directional Lanes > 3
- - - Centroid Connector
- Added Roadways
- Study Limits

NORTHEAST SECTOR TIA STUDY (December 2017) - 2040 SOCIOECONOMIC DATA REVISIONS



Total NE Sector Growth
13,434 DU
9,096 EMP

NORTHEAST SECTOR

Land Maps as of August 1, 2017

NOTE: NET AREA ; ACREAGE and UNITS ARE +/-

This document is graphic in nature and not intended to be utilized as a statement of development rights or proposed development.



SR 70 DTTM Draft Reevaluation (dated September 2018)

Responses to Comments

General Review Comments

Comment 1: Page 4, Bullet Points 1 and 2: Please state the version of the D1 RPM used in the forecasting. Also please state the year of the Florida Statistical Abstract used for the BEBR data.

The comment is noted and the report will be updated accordingly.

Comment 2: Page 6, Last Paragraph: Please replace “buildout” with “built out” in the first sentence of the paragraph.

The comment is noted and the report will be updated accordingly.

Comment 3: Page 6, Last Paragraph: The first sentence of the paragraph states that the 2045 model volumes were derived by growing the existing traffic. Should this be “2045 project AADTs”? Please review and revise as necessary.

The comment is noted and the report will be updated accordingly.

Comment 4: Page 16, Paragraph 3, The paragraph describes the intersections that are not expected to meet LOS target based on the analysis presented in Table 2. This description indicates undesirable operation of 225th St starting in 2035; however this intersection does not meet LOS target starting in 2025. Additionally, the paragraph states that CR 675 doesn’t meet LOS target starting in 2045; however, this intersection does not meet LOS target starting in 2035. Please review and revise as necessary.

The comment is noted and the report will be updated accordingly.

Comment 5: Page 19, Table 3: Please provide a note to describe the meaning of the asterisk “*” notation used for the proposed signal at Uihlein Rd.

The Comment is noted. The note describing the asterisk will be included.

Comment 6: Page 23, Table 5: Update 2045 PM LOS for Tree Umph Park to “A/B”.

The comment is noted and the report will be updated accordingly.

Comment 7: Page 24, Table 6: Number of lanes for Uilein Rd to Bournside Blvd should be 4.

The comment is noted and the report will be updated accordingly.

Comment 8: Page 26, Table 7: Update LOS for Bournside Blvd No Build AM to LOS F and Build PM to LOS C.

The comment is noted and the report will be updated accordingly.

Synchro Review Comments

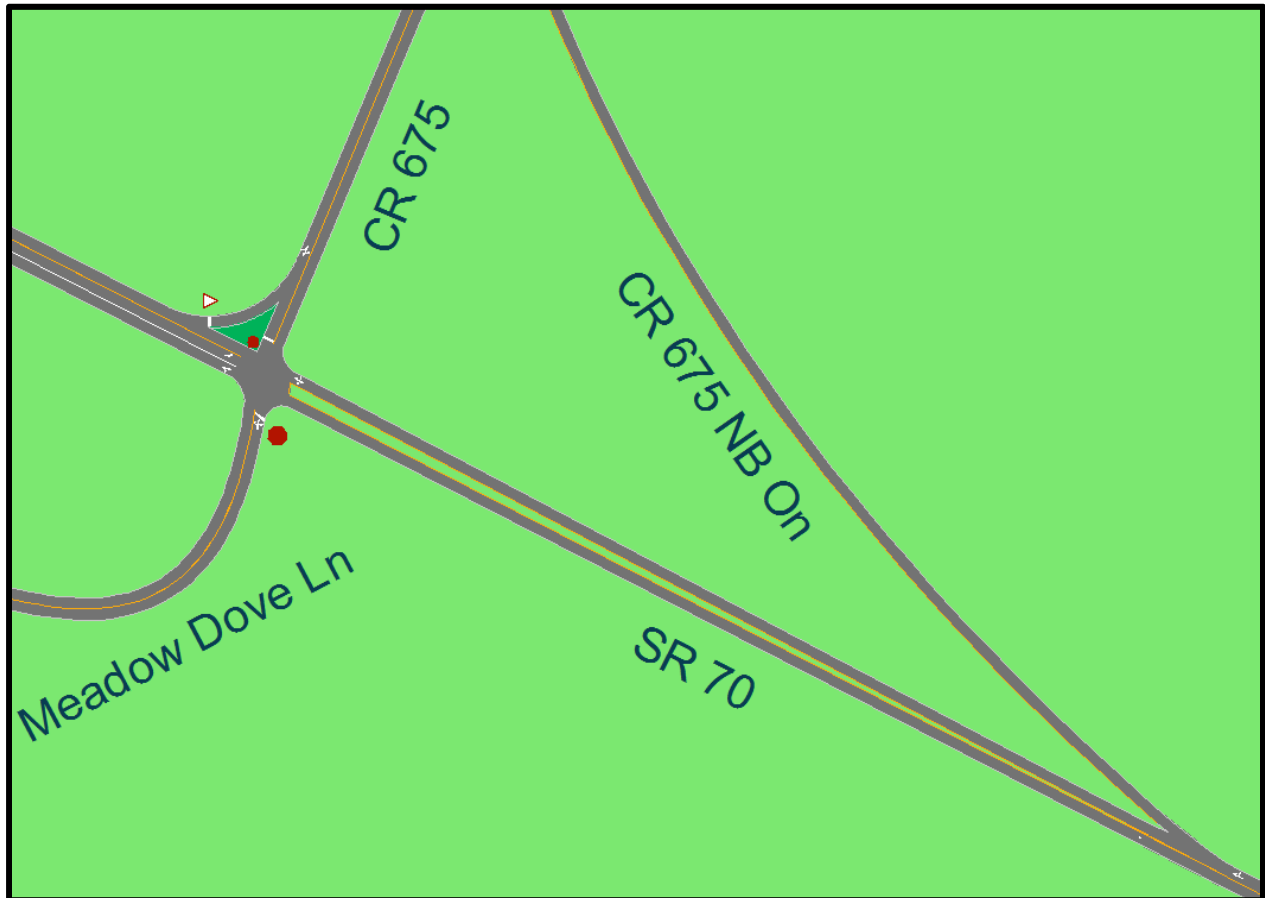
No-Build

Comment 9: Update geometry for Bourneside Blvd & SR 70 EBT movement to shared-through/right and WBT movement to shared-through/right for all analysis years for the AM and PM peak.

The comment is noted and will update the analysis accordingly.

Comment 10: Update geometry for Meadow Dove Ln/CR 675 & SR 70 WB movements to shared-through/ left lane and exclusive right turn lane. Update SB movements to shared-through/left lane and exclusive right turn lane for all analysis years for the AM and PM peak.

The Comment is noted. Please see the below graphic. The geometry used is correct for all analysis years.



Comment 11: Update volume to match volume graphic for WBR movement for Meadow Dove Ln/CR 675 & SR 70 for all analysis years for the AM and PM peak.

The Comment is noted. The WBR traffic was inputted at the node east of Meadow Dove Ln/CR 675 & SR 70 intersection, so there is no need to update the analysis.

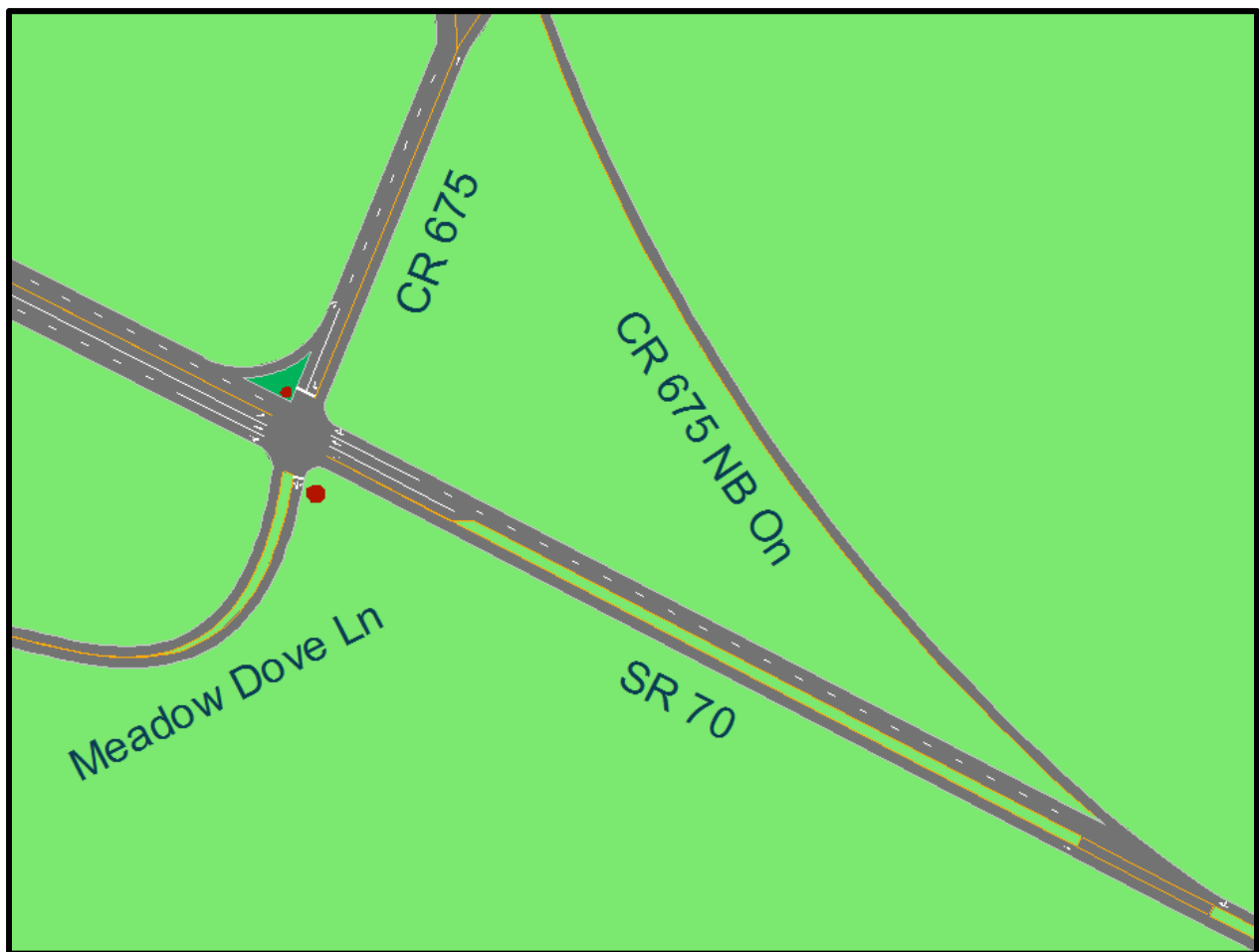
Comment 12: Update volume to 338 vph for NBT movement for Lorraine Rd & SR 70 for year 2025 PM peak.

This comment is noted. For 2025 No Build PM peak, the NBT movement is 275 at Lorraine Rd & SR 70 in both synchro and graphics. We will update NBT movement to 338 for Lorraine Rd & SR 70 for 2035 PM peak synchro analysis.

Build

Comment 13: Update geometry for Meadow Dove Lane/CR 675 & SR 70 WBT/WBR movements to two exclusive WBT lanes and one exclusive WBR lane for all analysis years for the AM and PM peak.

The Comment is noted. Please see the below graphic. The geometry used is correct for all analysis years.

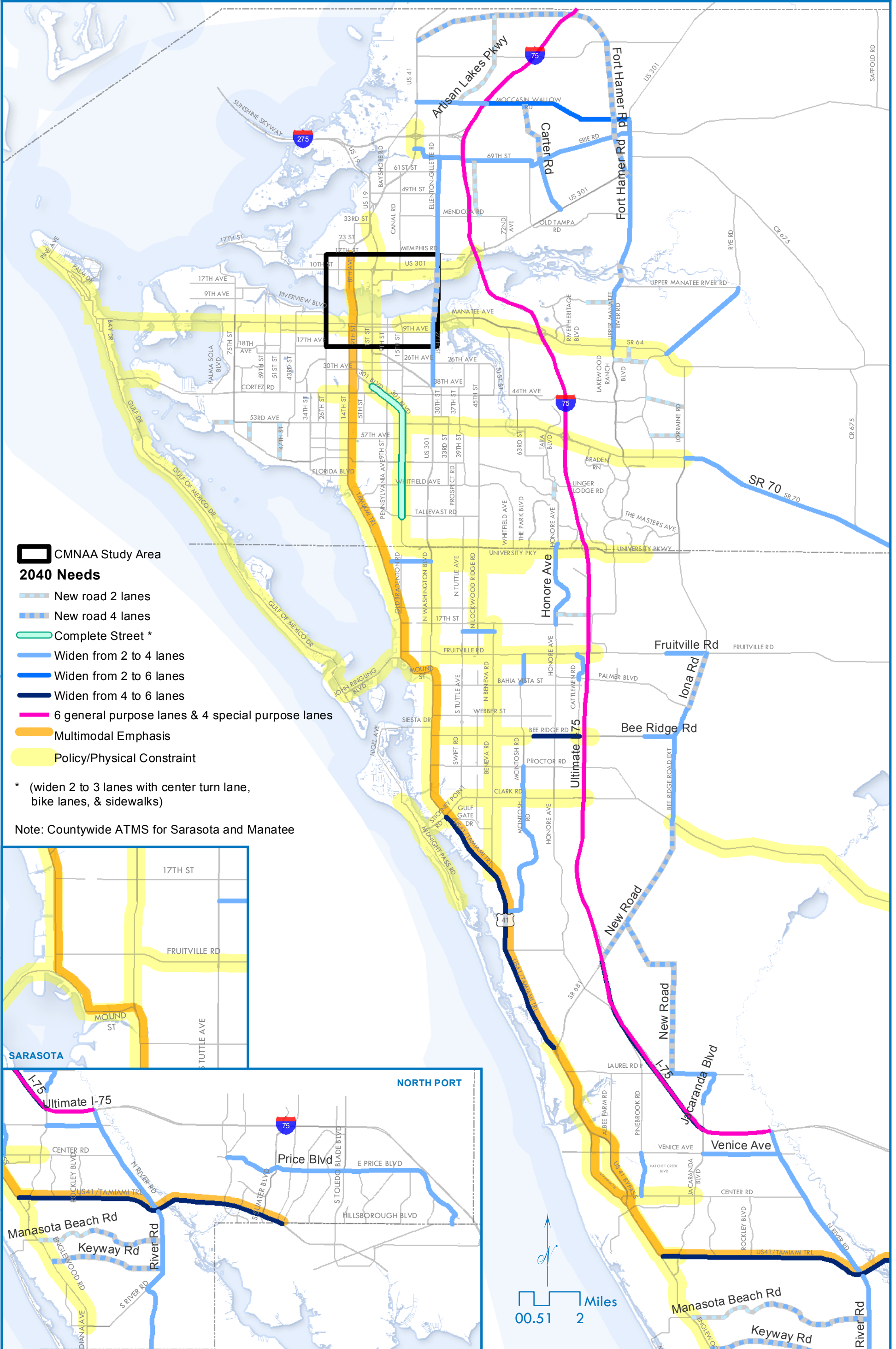


Comment 14: Update volume to match volume graphic for WBR movement for Meadow Dove Ln/CR 675 & SR 70 for all analysis years for the AM and PM peak.

The Comment is noted. The WBR traffic was inputted at the node east of Meadow Dove Ln/CR 675 & SR 70 intersection, so there is no need to update the analysis.

Appendix B

Excerpts from plans



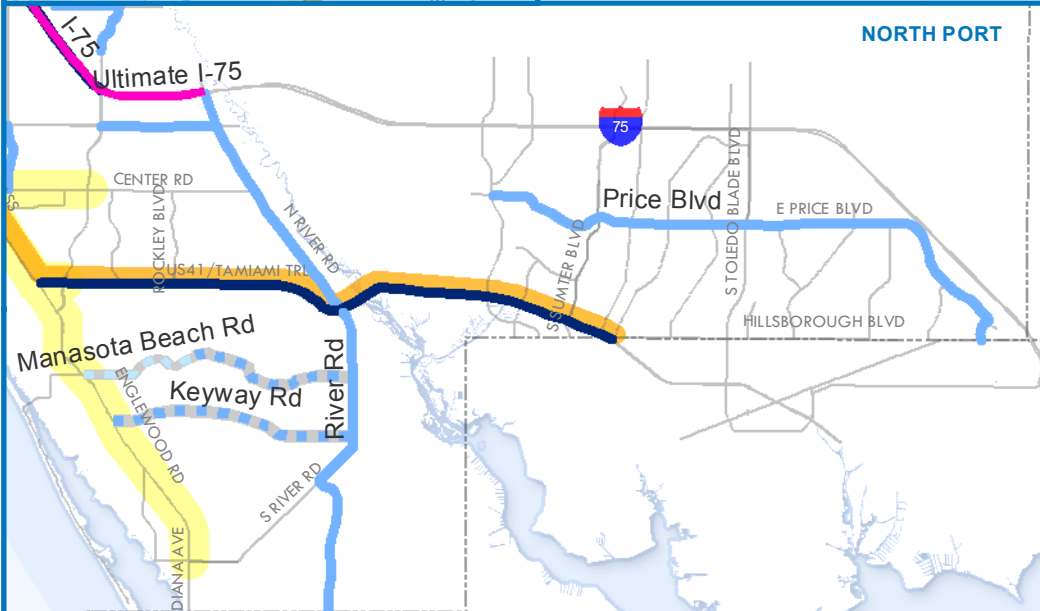
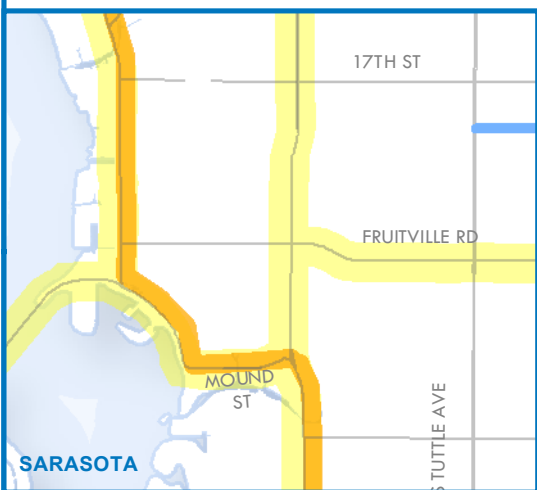
CMNAA Study Area


2040 Needs

- New road 2 lanes
- New road 4 lanes
- Complete Street *
- Widen from 2 to 4 lanes
- Widen from 2 to 6 lanes
- Widen from 4 to 6 lanes
- 6 general purpose lanes & 4 special purpose lanes
- Multimodal Emphasis
- Policy/Physical Constraint

* (widen 2 to 3 lanes with center turn lane, bike lanes, & sidewalks)

Note: Countywide ATMS for Sarasota and Manatee



 **FDOT Emergency Travel Alert:** For information on the current situation, please visit the following page - [Alerts](#).



Florida Department of

TRANSPORTATION

[E-Updates](#) | [FL511](#) | [Mobile](#) | [Site Map](#)

- [Home](#)
- [About FDOT](#)
- [Contact Us](#)
- [Offices](#)
- [Maps & Data](#)
- [Performance](#)
- [Projects](#)

Web Application

Office of Work Program and Budget Lisa Saliba - Director

Five Year Work Program

Selection Criteria	
All in State (Updated: 9/14/2018-00.20.29)	2019-2023 AD Item Number:414506-2

[Display current records in a Report Style](#)
[Display current records in an Excel Document](#)

Project Summary					
Transportation System: INTRASTATE STATE HIGHWAY			District 01 - Manatee County		
Description: SR 70 FROM LORRAINE RD TO CR 675/WATERBURY ROAD					
Type of Work: PD&E/EMO STUDY			View Scheduled Activities		
Item Number: 414506-2			Emerging SIS		
Length: 6.091			View Map of Item		
Project Detail					
Fiscal Year:	2019	2020	2021	2022	2023
Highways/PD & E					<i>(On-Going)</i>
Amount:	\$2,442				
Highways/Preliminary Engineering					<i>(On-Going)</i>
Amount:	\$48,651				
Highways/Right of Way					
Amount:	\$2,165,722	\$3,550,619	\$5,821,560		
Highways/Railroad & Utilities					
Amount:	\$100,000				
Highways/Construction					\$55,505,422
Amount:			\$1,420,000		\$50,000
Highways/Environmental					
Amount:					
Item Total:	\$2,316,815	\$3,550,619	\$7,241,560		\$55,555,422

Table 3-18: Prioritization of Long-Term Freight Improvement Projects – Manatee County

Rank	County	Description	From	To	Project Type	Roadway, Railroad, Seaport, Airport Improvement?	SIS/ Emerging SIS?	Construction Costs
1	MANATEE	I-75 AT US 301			INTERCHANGE IMPROVEMENT	ROADWAY	YES	\$25,000,000
2	MANATEE	I-75 AT SR 70			INTERCHANGE IMPROVEMENT	ROADWAY	YES	\$25,000,000
2	MANATEE	I-75 AT SR 64			INTERCHANGE IMPROVEMENT	ROADWAY	YES	\$25,000,000
4	MANATEE	I-75 PORT CONNECTOR CORRIDOR	US 41	I-75	NEW 4-LANE FACILITY	ROADWAY/ SEAPORT	NO	\$82,000,000
5	MANATEE	SR 70	LORRAINE ROAD	DESOTO COUNTY LINE	WIDEN TO 4 LANES	ROADWAY	YES	\$82,000,000
5	MANATEE	SR 70 AT 30 TH STREET E			INTERSECTION IMPROVEMENT	ROADWAY	NO	\$1,000,000
7	MANATEE	MOCCASIN WALLOW ROAD	I-75	US 301	WIDEN TO 4 LANES	ROADWAY	NO	\$60,000,000
8	MANATEE	NEW MANATEE RIVER BRIDGE	MANATEE AVENUE	US 301	NEW 4-LANE BRIDGE	ROADWAY	NO	\$162,000,000
9	MANATEE	SR 684	SR 789 (GULF DRIVE)	123 RD STREET W	REPLACE MOVABLE SPAN BRIDGE	ROADWAY	NO	\$10,000,000
9	MANATEE	SR 64	SR 789 (GULF DRIVE)	PERICO BAY BOULEVARD	BRIDGE REPLACEMENT	ROADWAY	NO	\$10,000,000
11	MANATEE	US 301	CR 675	MOCASSIN WALLOW ROAD	WIDEN TO 4 LANES	ROADWAY	NO	\$13,000,000

ID	FACILITY	FROM	TO	Design			Right of Way / Construction			P3 Funds			Other Funds	IMPRV TYPE
				PDE	PE	TOTAL	ROW	CON	TOTAL	COST	Begin Yr	#Yrs	TOTAL	
3331	I-4	West of US 27 / SR 25	Polk / Osceola County Line				51,686	347,080	398,766					MGLANE
3330	I-4	West of SR 570 / Polk Parkway (West)	West of US 27 / SR 25		99,360	99,360	249,680	1,656,000	1,905,680					MGLANE
3333	I-75	Collier/Lee County Line	SR 78		136,800	136,800	271,300		271,300					MGLANE
3334	I-75	at North Jones Loop Rd			6,500	6,500								M-INCH
3335	I-75	at US 17/SR 35			7,500	7,500								M-INCH
3336	I-75	at CR 776/Harbor View			6,500	6,500								M-INCH
3337	I-75	at CR 769/Kings Highway			6,500	6,500								M-INCH
3339	I-75	North of University Parkway	CR 6 / Moccasin Wallow Rd.		60,480	60,480	175,240	1,008,000	1,183,240					MGLANE
3338	I-75	South of River Road	SR 681		34,200	34,200	64,538		64,538					MGLANE
3463	I-75	SR 681	North of University Parkway		49,014	49,014	152,341		152,341					MGLANE
3332	I-75	East of SR 951	Collier / Lee County Line		63,245	63,245	145,427		145,427					MGLANE
1379	SR 29	I-75	Oil Well Rd		4,333	4,333								A2-4
3341	SR 29	Oil Well Rd. / CR 658	Sunniland Nursery Rd.				4,548		4,548					A2-4
3342	SR 29	Sunniland Nursery Rd.	South of Agriculture Way				2,378		2,378					A2-4
3343	SR 29	South of Agriculture Way	CR 846				5,628		5,628					A2-4
3346	SR 29	F Rd	North of Cowboy Way					47,899	47,899					A2-4
3348	SR 31	SR 80	SR 78		9,350	9,350								A2-4
3349	SR 31	SR 78	CR 78/River Rd		956	956	4,191	6,376	10,567					A2-4
3350	SR 31	CR 78/River Rd	Cook Brown Rd		3,049	3,049	10,610	20,324	30,934					A2-4
3354	SR 60	East of CR 630	Polk / Osceola County Line				7,830		7,830					A2-4
3352	SR 60	Hillsborough / Polk County Line	CR 555 / Agricola Rd.	2,500	19,500	22,000								A2-6
3353	SR 60	SR 60A / Van Fleet Dr.	SR 25 / US 27	3,000	21,000	24,000								A2-6
3359	SR 64	Hardee / Highlands County Line	US 27	1,600	4,500	6,100								A2-4
3357	SR 64	US 17	SR 636	2,000	10,250	12,250								A2-4
3358	SR 64	Old Town Creek Rd. / CR 671 / Parnell Rd.	Hardee / Highlands County Line	1,750	5,000	6,750								A2-4
3367	SR 70	NW 38th Terrace	US 98	1,200	1,700	2,900								A2-4
3363	SR 70	Jefferson Avenue	US 27		2,879	2,879								A2-4
3364	SR 70	US 27	CR 29		2,456	2,456								A2-4
3365	SR 70	CR 29	Lonesome Island Road		1,083	1,083								A2-4
3362	SR 70	East of SR 31	Jefferson Avenue	3,500	39,000	42,500								A2-4
3361	SR 70	Manatee County Line	West of Peace River (American Legion Rd)	2,500	18,500	21,000								A2-4
3360	SR 70	CR 675	DeSoto County Line	3,000	26,000	29,000								A2-4
3366	SR 70	Lonesome Island Road	NW 38th Terrace	4,000	35,000	39,000								A2-4
3369	SR 710	Sherman Woods Ranch	Okeechobee / Martin County Line				7,399		7,399					A2-4
3370	SR 80	SR 31 / Arcadia Rd.	Buckingham Rd.	1,500	4,500	6,000								A2-6
3371	SR 82	SR 739 / Fowler Ave.	Michigan Link Ave.	2,500	4,500	7,000								HWYCAP
3373	SR 82	Alabama Road	Homestead Blvd.		2,189	2,189								A2-6
3372	SR 82	Michigan Link Ave.	Gateway Blvd	3,000	9,000	12,000								HWYCAP
3374	US 17	Palmetto St.	SR 70 / Hickory St.	750	674	1,424								HWYCAP
3375	US 17	SR 70 / Hickory St.	SR 35 / DeSoto Ave.	750	1,965	2,715								HWYCAP
969	US 17	Copley Drive	N of CR 74 (Bermont Rd)	1,045	2,000	3,045								A2-6
3376	US 17	Mann Rd.	Main St.	1,250	2,500	3,750								A2-6
3377	US 17	Main St.	SR 60A / Auto Zone Ln	1,000	3,000	4,000								A2-6
3378	US 19	I-275 Ramp	Skyway Br. Hillsborough County Line	3,500	4,182	7,682								A2-6
3382	US 27	North of Kokomo Rd.	Polk / Lake County Line		16,320	16,320	6,664		6,664					HWYCAP
3379	US 27	Palm Beach / Hendry County Line	SR 80	2,500	18,000	20,500								FRTCAP
3380	US 27	Glades / Highlands County Line	SR 70	3,000	18,000	21,000								A2-6
3381	US 27	South of Skipper Rd.	US 98	1,250	1,500	2,750								A2-6
3383	US 98 / US 441	18th Terrace	38th Ave.	1,500	2,500	4,000								A2-4

Funded CFP Totals

814,080

4,245,139

Total CFP Funds= 5,059,219

LEGEND

FY 2028/2029 - 2034/2035
FY 2035/2036 - 2039/2040
FY 2040/2041 - 2044/2045
Mega Projects Phased Over Time

NOTES

- (1) All values in thousands of Present Day Dollars (2017).
- (2) All phase costs shown as supplied by each District.
- (3) CON includes both Construction (CON52) and Construction Support (CEI).
- (4) ROW includes both Right-of-Way Acquisition/Mitigation (ROW43/45) and Right-of-Way Support.
- (5) "P3 Funds" - Used to fund Public-Private Partnership projects over a specified number of years.
- (6) Revenue forecast provides separate values for PDE and PE than for ROW and CON.
- (7) Other Funds - assumed to be toll revenue or partner funded.

IMPROVEMENT TYPES

- A1-3: Add 1 Lane to Build 3
- A2-4: Add 2 Lanes to Build 4
- A2-6: Add 2 Lanes to Build 6
- A2-8: Add 2 Lanes to Build 8
- A4-12: Add 4 Lanes to Build 12
- A1-AUX: Add 1 Auxilliary Lane
- A4-SUL: Add 4 Special Use Lanes

- ACCESS: Access
- BRIDGE: Bridge
- FRTCAP: Freight Capacity
- GRASEP: Grade Separation
- HWYCAP: Highway Capacity
- PTERM: Passenger Terminal
- ITS: Intelligent Transp. Sys
- MGLANE: Managed Lanes

- M-INCH: Modify Interchange
- N-INCH: New Interchange
- NR: New Road
- PDE: Project Dev. Env.
- SERVE: Add Svc/Front/CD System
- STUDY: Study
- UP: Ultimate Plan

Long Range Cost Feasible Plan FY 2029-2045

District 1

LEGEND





**Bridge, Interchange, Intersection Improvements
(Project with highest phase funded)**

- Construction & Mega Projects (CON)
- Right of Way (ROW)
- Preliminary Engineering (PE)
- Project Development and Environmental (PDE)




**Add Lanes, New Roads, etc. Improvements
(Project with highest phase funded)**

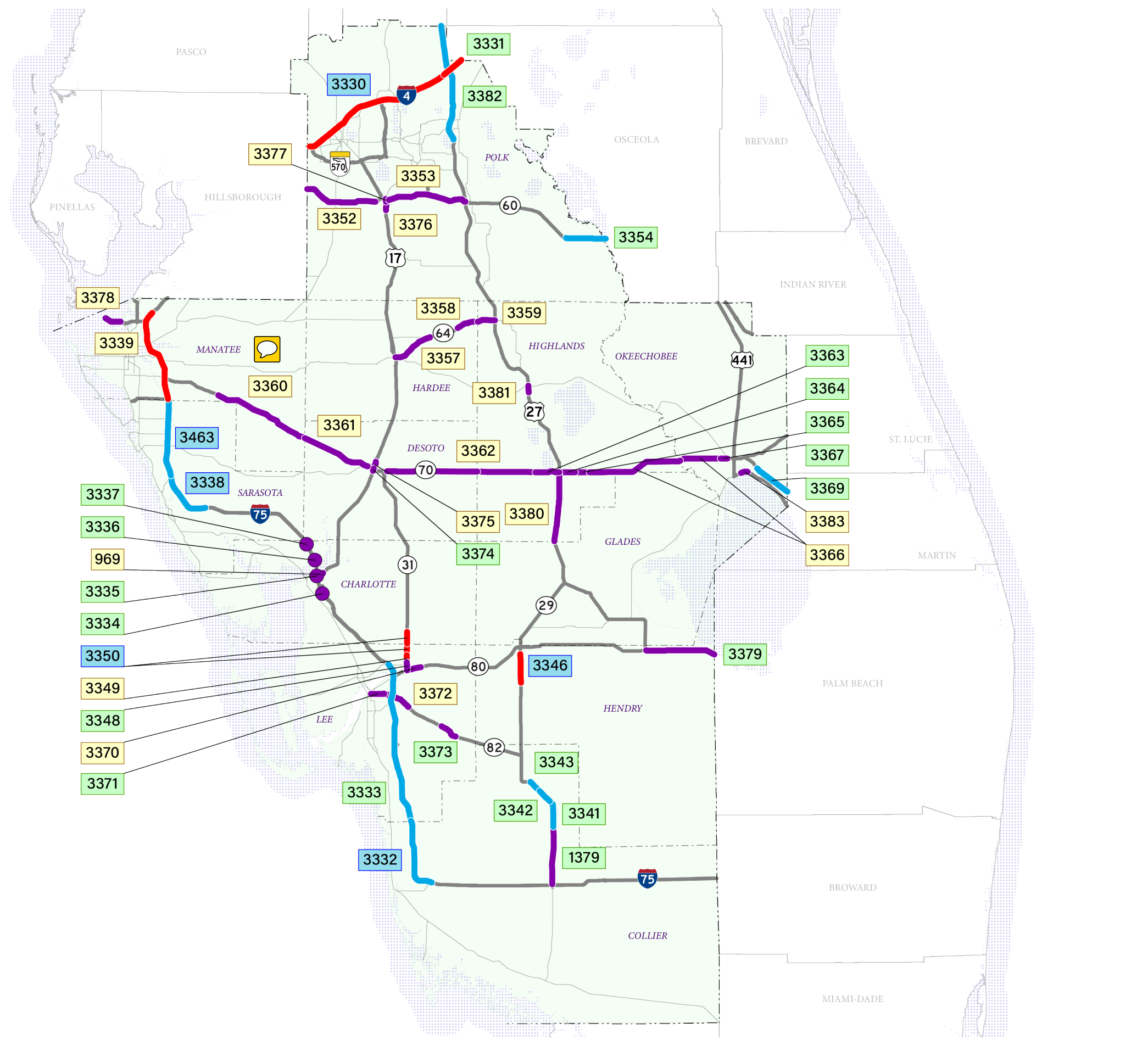
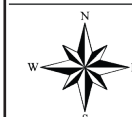
- Construction & Mega Projects (CON)
- Right of Way (ROW)
- Preliminary Engineering (PE)
- Project Development and Environmental (PDE)

- 1234 Green Band - FY 2028/2029 to FY 2034/2035
- 1234 Yellow Band - FY 2035/2036 to FY 2039/2040
- 1234 Blue Band - FY 2040/2041 to FY 2044/2045
- 1234 Mega Projects Phased Over Time

-  Interstate Highway
-  U.S. Highway
-  State Highway
-  Toll Roads

Existing Conditions for SIS Highways

-  SIS Highways
-  Other State roads
-  Planned Add



Appendix C

Population Projection Data (BEBR)

Projections of Florida Population by County, 2020–2045, with Estimates for 2017 (continued)

County and State	Estimates April 1, 2017	Projections, April 1					
		2020	2025	2030	2035	2040	2045
HOLMES	20,210						
Low		19,400	19,000	18,600	18,100	17,700	17,200
Medium		20,500	20,900	21,100	21,300	21,600	21,800
High		21,700	22,800	23,900	24,900	26,000	27,100
INDIAN RIVER	148,962						
Low		147,500	152,200	156,300	159,200	161,000	161,300
Medium		156,500	168,300	178,600	187,800	196,000	203,300
High		165,500	183,300	201,200	218,600	236,100	252,900
JACKSON	50,418						
Low		48,700	47,700	46,700	45,700	44,600	43,400
Medium		51,100	51,700	52,000	52,400	52,600	52,800
High		53,600	55,800	57,800	59,700	61,700	63,500
JEFFERSON	14,611						
Low		14,000	13,700	13,400	13,100	12,700	12,300
Medium		14,800	15,000	15,200	15,400	15,500	15,600
High		15,700	16,500	17,200	18,000	18,700	19,400
LAFAYETTE	8,479						
Low		7,900	7,800	7,800	7,700	7,600	7,500
Medium		8,300	8,600	8,900	9,100	9,300	9,400
High		8,800	9,400	10,000	10,600	11,200	11,700
LAKE	331,724						
Low		335,200	354,500	373,500	387,200	397,700	405,600
Medium		356,000	392,900	427,600	457,300	484,200	509,600
High		376,000	426,500	479,800	529,100	576,300	624,200
LEE	698,468						
Low		705,900	746,200	778,400	805,600	827,100	843,400
Medium		749,600	826,900	891,200	951,500	1,007,100	1,059,900
High		791,800	897,700	999,800	1,100,700	1,198,500	1,298,000
LEON	287,899						
Low		282,800	285,200	287,100	287,100	285,000	282,400
Medium		296,600	309,900	320,900	330,000	337,300	344,100
High		310,900	333,300	354,900	374,600	392,900	411,400
LEVY	41,015						
Low		40,000	40,000	39,900	39,600	39,100	38,500
Medium		42,000	43,400	44,400	45,300	45,900	46,600
High		44,000	46,800	49,300	51,700	54,100	56,400
LIBERTY	8,719						
Low		8,400	8,300	8,300	8,200	8,100	7,900
Medium		9,000	9,400	9,700	10,000	10,300	10,600
High		9,600	10,400	11,100	11,900	12,600	13,400
MADISON	19,377						
Low		18,200	17,700	17,200	16,700	16,200	15,700
Medium		19,300	19,400	19,600	19,700	19,800	19,900
High		20,500	21,300	22,100	23,000	23,800	24,700
MANATEE	368,782						
Low		371,400	392,300	410,100	423,500	431,800	436,500
Medium		394,300	434,700	469,500	500,400	526,800	550,800
High		416,600	471,900	526,800	578,600	625,700	671,800
MARION	349,267						
Low		347,100	355,100	362,400	368,900	372,500	374,700
Medium		364,200	386,100	404,900	423,000	438,500	452,900
High		381,600	415,000	447,900	481,300	513,400	545,900
MARTIN	153,022						
Low		151,000	152,900	154,300	154,800	154,800	154,700
Medium		158,400	165,800	171,700	176,700	181,200	185,700
High		166,100	178,700	190,700	202,300	214,100	226,400

Appendix D

Northeast Sector Traffic Impact Analysis Report



N.E. SECTOR

TRANSPORTATION IMPACT ANALYSIS

**LDA-17-01/MEPS-745
DTS 20170556**

2ND REVISED DRAFT

PREPARED FOR:

LAKWOOD RANCH STEWARDSHIP DISTRICT

PREPARED BY:

**STANTEC CONSULTING SERVICES INC.
777 SOUTH HARBOUR ISLAND BOULEVARD
SUITE 600
TAMPA, FLORIDA 33602**

STANTEC PROJECT NO: 215810685

DECEMBER 2017

N.E. SECTOR

TRANSPORTATION IMPACT ANALYSIS

Table of Contents

Professional Engineer's Certification.....	1
Introduction.....	2
Identification of Study Area.....	4
Level of Service and Service Volumes.....	6
Existing Traffic Conditions.....	7
Scheduled Roadway Improvements.....	10
Project Trip Generation.....	10
2032 Background Traffic Conditions.....	12
2032 Background Traffic Conditions with Improvements.....	17
2032 Total Traffic Conditions.....	19
2032 Total Traffic Conditions with Improvements.....	23
Improvement Summary.....	28
Site Access.....	29
Multi-Modal Transportation.....	31
Project Trips By Roadway Link.....	31
Conclusions.....	31

Figures

Figure 1: Existing Traffic.....	8
Figure 2: Project Traffic.....	11
Figure 3: Project Background Traffic.....	13
Figure 4: Combined Project Traffic.....	14
Figure 5: Total Traffic.....	21
Figure 6: Internal Intersections.....	30

Tables

Table 1: N.E. Sector Land Uses by Project.....	3
Table 2: Socioeconomic Data Revisions.....	4
Table 3: Study Area Determination.....	5
Table 4: Existing Traffic Roadway Conditions.....	7
Table 5: Existing Traffic Intersection Conditions.....	9
Table 6: Background Traffic Roadway Conditions.....	15
Table 7: Background Traffic Intersection Conditions.....	16
Table 8: Background Traffic Roadway Conditions with Improvements.....	17
Table 9: Background Traffic Intersection Conditions with Improvements.....	18
Table 10: Total Traffic Roadway Conditions.....	20
Table 11: Total Traffic Intersection Conditions.....	22
Table 12: Total Traffic Roadway Conditions with Improvements.....	23
Table 13: Roadway Proportionate Fair Share Percentage.....	24
Table 14: Total Traffic Intersection Conditions with Improvements.....	26
Table 15: Intersection Proportionate Fair Share Percentage.....	27
Table 16: Improvement Summary.....	28
Table 17: Internal Intersection Total Traffic Conditions.....	29

PROFESSIONAL ENGINEER'S CERTIFICATION

I hereby certify that I am a Licensed Professional Engineer in the State of Florida practicing with Stantec Consulting Services Inc. and that I have supervised the preparation of and approve the evaluations, findings, opinions, conclusions, and technical advice hereby reported for:

PROJECT: N. E. Sector
215810685

LOCATION: Between SR 64 and SR 70, and Lorraine Road and
Bourneside Blvd, in Manatee County, FL

This document entitled N. E. Sector Transportation Resource Impacts was prepared by Stantec Consulting Services Inc. for the account of Lakewood Ranch Stewardship District. The material in it reflects Stantec's best judgment in light of the information available to it at the time of preparation. Any use which a third party makes of this report, or any reliance on or decisions made based on it, are the responsibilities of such third parties. Stantec Consulting Services Inc. accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.

Prepared by:

Richard Stiles, AICP
Senior Project Manager

Christian Kline, E.I.
Transportation Planner

Reviewed by:

Matthew R. Crim, P.E., PTOE
Transportation Engineer
Florida Licensed Engineer No. 68297

Date

Introduction

N. E. Sector is a multi-project, mixed-use development located in Manatee County. Encompassing approximately 2,700 acres, the project is bounded by SR 64 to the north, SR 70 to the south, Lorraine Road to the west, and Bourneside Boulevard to the east. The location of N. E. Sector and its associated projects is illustrated in **Appendix 1**.

Access will be provided via connections to SR 64, SR 70, and Lorraine Road from thoroughfare roadways that are being constructed within N. E. Sector. These roadways are:

- 4-lane divided extension of 44th Avenue East from Lorraine Road to Bourneside Boulevard
- 4-lane divided extension of Rangeland Parkway to Bourneside Boulevard
- 4-lane divided extension of Uihlein Road from current terminus north of SR 70 to SR 64
- 2-lane undivided extension of Bourneside Boulevard from current terminus north of SR 70 to SR 64.

The connections of these roadways to the existing thoroughfare roadway network (SR 64, SR 70, and Lorraine Road), including the required intersection geometry at these connections, were addressed and are being designed as part of the N.E. Sector Roadway Design Traffic Analysis. However, these internal roadways and intersections have been reviewed with the TIA build out year volumes to confirm the required geometry. The purpose of this analysis is to identify concurrency-related off-site transportation improvements that may be required by the N. E. Sector projects. The build out year for this analysis is 2032.

N. E. Sector comprises fifteen separate projects, as illustrated in **Appendix 1. Table 1** summarizes the land uses for each project. Note that the land uses for Parcel B have been updated since the methodology letter submittal.

Table 1: N.E. Sector Land Uses by Project

Project	Single-Family Detached (Units)	Single-Family Attached (Units)	Sr. Adult Housing-Detached (Units)	Apartment (Units)	Retail (Square Feet)
A	1,450	300			
B	990	510			
C	120				
D	477				
E	675				
F			659		
G	603				
H	1,062				
I	978				
J				700	
COM 1					183,563
COM 2					91,782
COM 3					110,138
COM 4					150,000
COM 5					91,782

This analysis was prepared consistent with the approved transportation methodology. The approved methodology, which reflects agreements reached in the methodology meeting and subsequent agency review, is provided in **Appendix 2**.

Identification of Study Area

The impacts of project traffic on the adjacent roadway network were reviewed following the Manatee County Transportation Planning Division's *Traffic Impact Analysis Requirements and Procedures*. The methodology requires that the transportation analysis include those roadways on which project generated traffic is expected to consume at least five percent of the peak-hour two-way level-of-service standard volume, any roadway segment to which the project has direct access or which the project accesses via local and private roads. Peak-hour service volumes were estimated based on the Manatee County's *Concurrency Transportation Link Sheet Level of Service Analysis Roadway Segments, September 2017*, and the Florida Department of Transportation (FDOT) *2013 Quality/Level of Service Volume Handbook*.

The study network for which the analysis was prepared included existing roadways plus any roadway improvements contained in the first two years of the currently adopted Manatee County Capital Improvement Programs (CIPs), and the Florida Department of Transportation (FDOT) Five Year Work Program.

The roadway network used for modeling purposes was the Year 2018 Existing plus Committed Network of the District 1 Regional Planning Model (D1RPM) Florida Standard Urban Transportation Model Structure (FSUTMS) model. This network was reviewed to ensure that programmed improvements contained within the first two years of the Manatee County and FDOT road improvements programs were included. The 2040 socioeconomic data was modified to include Manatee County's data revisions in the Rye Road and SR 64 area from 04/05/2017. In addition, approved DRIs and developments in the vicinity of the project that are not accurately represented by the socioeconomic data were added into the corresponding transportation analysis zones (TAZs).

Table 2 lists the developments revised in the model and the changes to the socioeconomic data. The distribution of project traffic from each project is provided in **Appendix 3**. Note that a separate distribution plot is provided for each project.

Table 2: Socioeconomic Data Revisions

Development	Parcel	TAZ	SFDU	SF Population	MFDU	MF Population	Residential Units	Residential Population	Industrial Employees	Commercial Employees	Service Employees	Total Employees
NW Sector	--	5470			88	143	88	143		400		400
	--	5472	480	797			480	797		200		200
	--	5475	1,541	3,298	144	232	1,685	3,530		180		180
	--	5545	747	1,599	52	85	799	1,684		40		40
Lakewood Cener	--	5473			1,494	2,405	1,494	2,405		2,578	1,781	4,359
	--	5474	235	486			235	486				
	--	5476			154	251	154	251			118	118
	--	5549									617	617
	--	5550	56	93	817	1,324	873	1,417		-195	242	47
	--	5552	17	28	276	447	293	475		1,486		1,486
	--	5553	239	399	300	477	539	876				
Lakewood National / Polo Run	--	5478	282	595	1,086	1,770	1,368	2,365				
Del Webb	--	5044	1,235	2,544			1,235	2,544				
Toll Brother	--	5043	450	927			450	927	-1			-1

The combined N. E. Sector study area is reported in **Table 3**. This includes all roadway segments significantly impacted from any of the individual projects within the N.E. Sector. The full spreadsheets that document the 5% impact area for each individual project are provided in **Appendix 4**. Regionally significant roadway links on which each project's traffic was estimated to consume five percent or greater of the adopted peak-hour level-of-service volume or in which the projects directly connected to were then subjected to further analyses.

Table 3: Study Area Determination

Roadway Name and Segment	Adopted LOS					In Overall Study Area?
	Area Type (U T R)	Class	Lanes / Median	LOS Standard	Two-Way Service Volume	
SR 64						
CR 675 to Bourneside Blvd	T	UN	2U	C	1,550	N
Bourneside Blvd to Uihlein Rd	T	UN	2U	C	1,550	Y
Uihlein Rd to Lorraine Rd	T	UN	2U	C	1,550	Y
Lorraine Rd to Rye Rd	U	I	4D	D	3,580	Y
Rye Rd to Lakewood Ranch Blvd	U	I	4D	D	3,580	N
Lakewood Ranch Blvd to Lena Rd	U	I	6D	D	5,390	N
Lena Rd to Grand Harbour Pkwy	U	I	6D	D	5,390	N
Grand Harbour Pkwy to I-75	U	I	6D	D	5,390	N
I-75 to 66th St Ct E	U	I	6D	D	5,390	N
SR 70						
CR 675 to Bourneside Blvd	T	UN	2U	D	2,190	Y
Bourneside Blvd to Uihlein Rd	T	UN	2U	D	2,190	Y
Uihlein Rd to Lorraine Rd	T	UN	2U	D	2,190	Y
Lorraine Rd to Lakewood Ranch Blvd	U	I	6D	D	5,390	N
Lakewood Ranch Blvd to River Club Blvd	U	I	6D	D	5,390	N
Lorraine Road						
University Pkwy to SR 70	U	II	4D	D	2,750	N
SR 70 to Rangeland Pkwy	U	UN	2U	D	2,170	Y
Rangeland Pkwy to 44th Ave E	U	UN	2U	D	2,170	Y
44th Ave E to SR 64	U	UN	2U	D	2,170	Y
Lakewood Ranch Boulevard						
University Pkwy to SR 70	U	II	4D	D	2,750	N
SR 70 to Rangeland Pkwy	U	I	4D	D	5,090	N
Rangeland Pkwy to 44th Ave E	U	I	4D	D	3,222	N
44th Ave E to SR 64	U	I	4D	D	3,222	N
I-75						
US 301 to SR 64	U	F	6F	D	10,060	N
SR 64 to SR 70	U	F	6F	D	10,060	N
SR 70 to University Pkwy	U	F	6F	D	10,060	N
44th Ave E						
Lorraine Rd to White Eagle Blvd	U	I	4D	D	3,222	Y
White Eagle Blvd to Lakewood Ranch Blvd	U	I	4D	D	3,222	Y
Rangeland Parkway						
Lorraine Rd to White Eagle Blvd	U	I	4D	D	3,222	N
White Eagle Blvd to Lakewood Ranch Blvd	U	I	4D	D	3,222	N

In addition, intersections at the termini of study area roadway segments were evaluated. As noted previously, these do not include site access intersections internal to N.E. Sector. Thoroughfare intersections internal to N.E. Sector are evaluated in a separate section below. Intersection analyses were performed for the PM peak-hour. The off-site intersections (along with SR 64/Bourneside Boulevard, which is a terminal intersection) that were evaluated are listed below.

1. SR 64/Lorraine Road
2. SR 64/White Eagle Boulevard/Rye Road
3. SR 70/Lorraine Road
4. SR 70/Post Blvd/Greenbrook Boulevard
5. Lakewood Ranch Boulevard/44th Ave. E.
6. 44th Ave E./White Eagle Blvd.
7. SR 64/Bourneside Boulevard

Level of Service Standards and Service Volumes

Applicable level of service standards for roadways within the study area are also summarized in **Table 3**. All roadways within the study area were assigned a performance standard service volume depending on the area type (urbanized, transitional, or rural), roadway classification, number of lanes, and level-of-service adopted by the County or FDOT. Generalized planning peak-hour volumes for the adopted level of service standards were estimated using guidelines published by Manatee County and/or the FDOT.

Existing Traffic Conditions

Existing Traffic Roadway Analysis

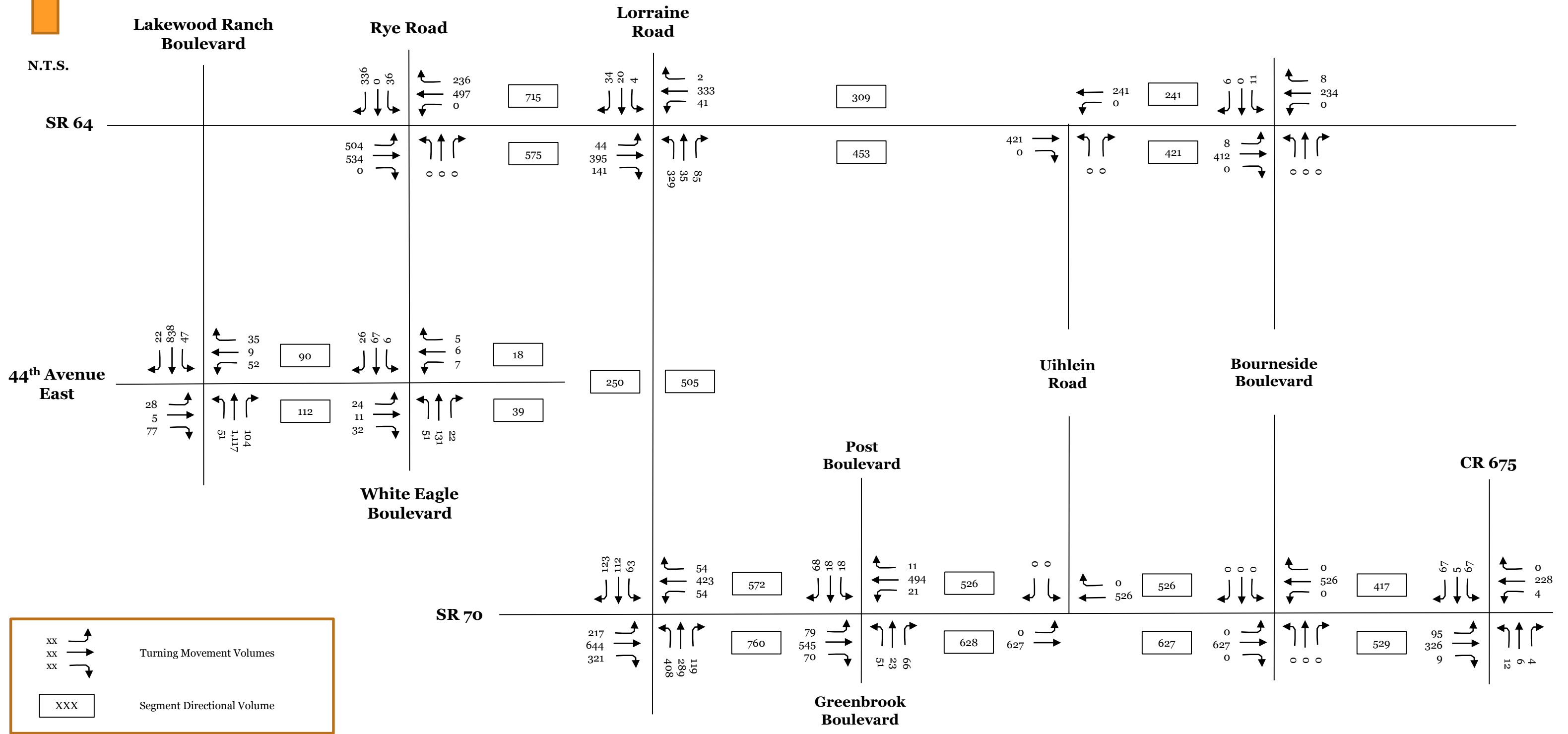
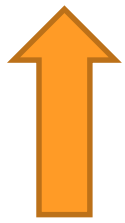
Existing traffic conditions of roadway segments in the study network were evaluated by comparing existing PM peak-hour traffic volumes to their adopted service volumes. Existing PM peak-hour traffic count data on roadways within the study area were obtained from counts undertaken during the past 12 months. Segment volumes were derived by averaging total inbound and outbound turning movements for each adjacent intersection. Summarized in **Table 4** are the existing traffic volumes and levels of service on roadway segments within the study area. Additionally, **Figure 1** illustrates the existing segment and intersection volumes. All existing count volumes were adjusted to reflect peak-season conditions.

As illustrated in **Table 4**, all roadway segments in the study network are operating within acceptable level-of-service standards. The peak-season conversion factors and raw turning movement counts are provided in **Appendix 5**.

Table 4: Existing Traffic Roadway Conditions

Roadway Name and Segment	Direction	Adopted LOS					Existing Directional Volume	Existing Directional LOS
		Area Type (U T R)	Class	Directional Lanes / Median	LOS Standard	Directional Service Volume		
SR 64								
Bourneside Blvd to Uihlein Rd	EB	T	Uninterrupted	1U	C	850	421	B
	WB	T	Uninterrupted	1U	C	850	241	B
Uihlein Rd to Lorraine Rd	EB	T	Uninterrupted	1U	C	850	453	C
	WB	T	Uninterrupted	1U	C	850	309	B
Lorraine Rd to Rye Rd	EB	U	I	2D	D	2,000	575	C
	WB	U	I	2D	D	1,580	715	C
SR 70								
CR 675 to Bourneside Blvd	EB	T	Uninterrupted	1U	D	1,200	529	C
	WB	T	Uninterrupted	1U	D	1,200	417	B
Bourneside Blvd to Uihlein Rd	EB	T	Uninterrupted	1U	D	1,200	627	C
	WB	T	Uninterrupted	1U	D	1,200	526	C
Uihlein Rd to Post Blvd	EB	T	Uninterrupted	1U	D	1,200	628	C
	WB	T	Uninterrupted	1U	D	1,200	526	C
Post Blvd to Lorraine Rd	EB	T	I	1D	D	800	760	D
	WB	T	I	1D	D	632	572	D
Lorraine Rd								
SR 64 to 44th Ave E	NB	T	Uninterrupted	1U	D	1,200	505	C
	SB	T	Uninterrupted	1U	D	1,200	250	B
44th Ave E to Rangeland Pkwy	NB	T	Uninterrupted	1U	D	1,200	505	C
	SB	T	Uninterrupted	1U	D	1,200	250	B
Rangeland Pkwy to SR 70	NB	T	Uninterrupted	1U	D	1,200	505	C
	SB	T	Uninterrupted	1U	D	1,200	250	B
44th Ave E								
Lorraine Rd to White Eagle Blvd	EB	U	I	2D	D	1,800 ^A	39	C
	WB	U	I	2D	D	1,422 ^A	18	C
White Eagle Blvd to Lakewood Ranch Blvd	EB	U	I	2D	D	1,800 ^A	112	C
	WB	U	I	2D	D	1,422 ^A	90	C

^A Non-State Signalized Roadway (-10%)



Northeast Sector
 Traffic Impact Analysis
 215810685
 December 2017

Figure 1
 Existing Traffic
 PM Peak Hour Traffic Volumes



Existing Traffic Intersection Analysis

Existing intersection capacity analyses were performed at study area intersections for the PM peak-hour. This analysis was conducted using the HCM 2010 methodologies in the Synchro Software, except that the intersection of 44th Avenue at White Eagle was analyzed as stop-controlled intersection using HCS7. Per the approved methodology, the performance standard of acceptable intersection operation is all movements must have a volume to capacity (v/c) ratio less than 1.0. **Table 5** summarizes the intersection conditions and indicates that the following intersections are currently operating below the adopted level of service (all v/c ratios less than 1.0):

- SR 64 and Lorraine Road
- SR 64 at White Eagle Boulevard/Rye Road

Table 5: Existing Traffic Intersection Conditions

Intersection	Type	Delay (sec/veh)	Max v/c Ratio	Movement v/c Ratio												
				EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
SR 64 and Dam Rd	Unsignalized	0.4	0.04	0.01	--	--	--	--	--	--	--	--	--	0.04	--	0.04
SR 64 and Lorraine Rd	Unsignalized	147.2	1.95	0.04	--	--	0.04	--	--	1.95	--	--	0.15	--	--	
SR 64 at White Eagle Blvd/Rye Road	Unsignalized	113.6	2.28	0.54	--	--	--	--	--	--	--	--	2.28	--	--	
SR 70 and CR 675	Unsignalized	4.0	0.29	0.08	--	--	0.00	--	--	0.08	0.08	0.08	0.29	0.29	0.29	
SR 70 and Post Blvd/Greenbrook Blvd	Unsignalized	6.9	0.62	0.08	--	--	0.02	--	--	0.62	0.19	0.14	0.23	0.15	0.14	
SR 70 and Lorraine Rd	Signalized	38.4	0.97	0.58	0.57	0.63	0.25	0.49	0.14	0.97	0.37	0.18	0.25	0.00	0.69	
44th Ave E at White Eagle Blvd	Unsignalized	8.3	0.10	0.00	0.00	0.10	0.00	0.00	0.00	0.10	0.10	0.10	0.00	0.10	0.10	
44th Ave E at Lakewood Ranch Blvd	Signalized	19.3	0.79	0.16	0.02	0.79	0.28	0.03	0.32	0.12	0.50	0.10	0.15	0.37	0.02	

-- Not Applicable

The signal timing sheets are provided in **Appendix 6** and the intersection volume tables are provided in **Appendix 7**. The 2017 existing traffic Synchro HCM 2010 and HCS7 intersection worksheets are provided in **Appendix 8** and the electronic files are attached on the accompanying DVD.

Scheduled Roadway Improvements

The identification of scheduled roadway improvements within the study area was performed based upon a review of the current Florida Department of Transportation (FDOT) 5-Year Work Program and the Capital Improvement Program (CIP) for Manatee County. Improvements scheduled for construction in the first two years (current year and following year) were assumed to be in place for the background traffic conditions. Based on this review, the following projects were identified within the project study area:

- FDOT
 - Roundabout at SR 64/Rye Road/White Eagle Boulevard

- Lakewood Ranch Stewardship District
 - Extension of White Eagle Boulevard from 44th Avenue East to SR 64
 - Extension of 44th Avenue East from eastern terminus to Lorraine Road
 - Extension of Rangeland Parkway from eastern terminus to Lorraine Road

The excerpt from the FDOT work program for the roundabout at SR 64/Rye Road/White Eagle Boulevard is included in **Appendix 9**.

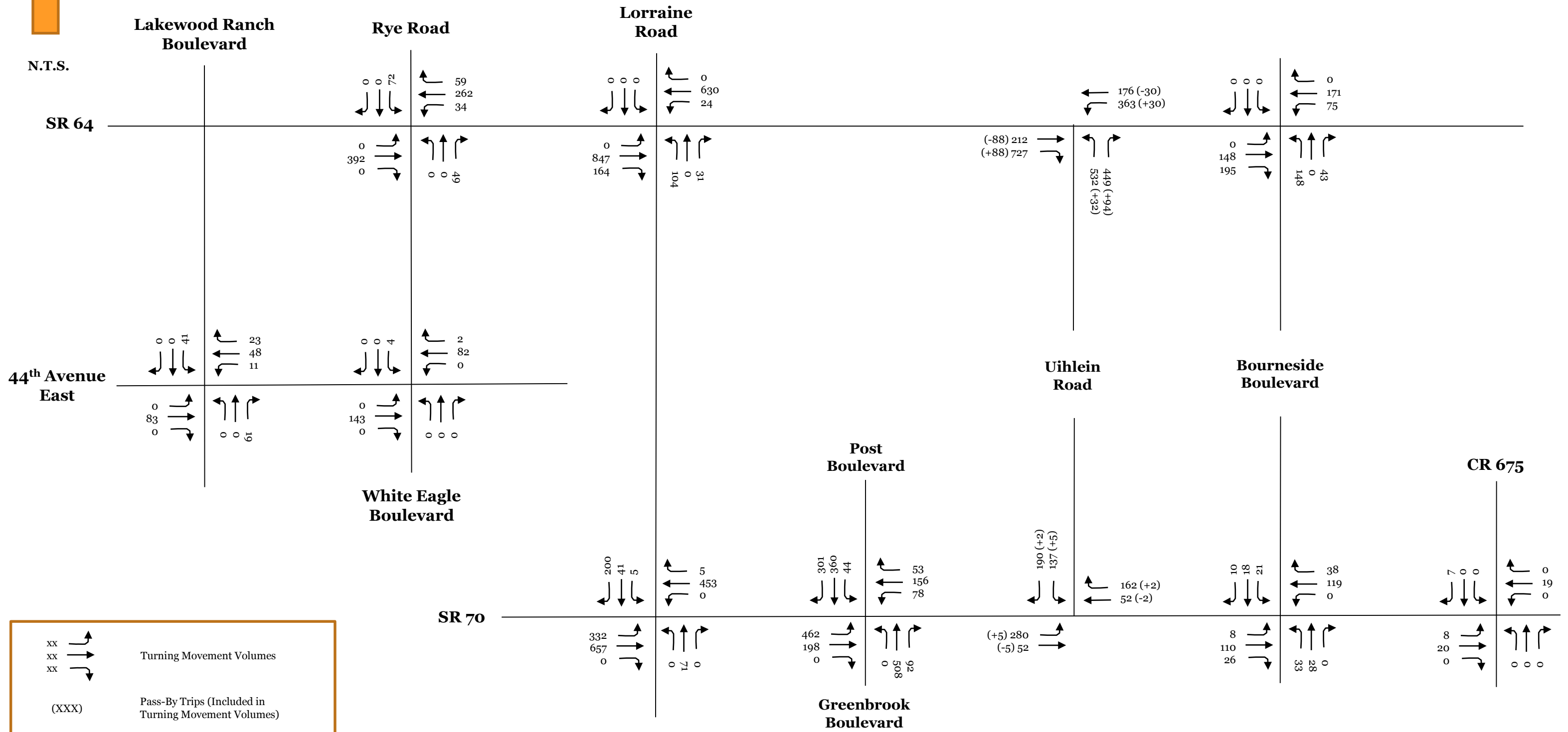
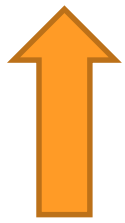
Project Trip Generation

AM and PM peak hour traffic volumes generated by the proposed development were estimated using the Institute of Transportation Engineers (ITE) Rates, *Trip Generation Manual – 9th Edition (2012)*. Tables in **Appendix 10** report the land uses, land use codes, sizes, and trip-ends estimated for the AM and PM peak hours, respectively for each project.

Each project contains one type of land use (residential or commercial) and therefore internal capture within each project was not assumed. Interaction between the residential and commercial projects was accounted for in the trip distribution for each project illustrated in the model trip distribution plots in **Appendix 3**.

The pass-by capture for the commercial land use projects was estimated from Table F.9 on page 242 of the ITE *Trip Generation Handbook*. Pass-by trips were reviewed to ensure they did not exceed ten percent (10%) of future background volumes on the adjacent street. Pass-by capture for these commercial projects is included in the tables in **Appendix 10**.

The project traffic assignment on the study area network and at study area intersections is shown in **Figure 2**.



Northeast Sector
 Traffic Impact Analysis
 215810685
 December 2017

Figure 2
 Project Traffic
 PM Peak Hour Traffic Volumes

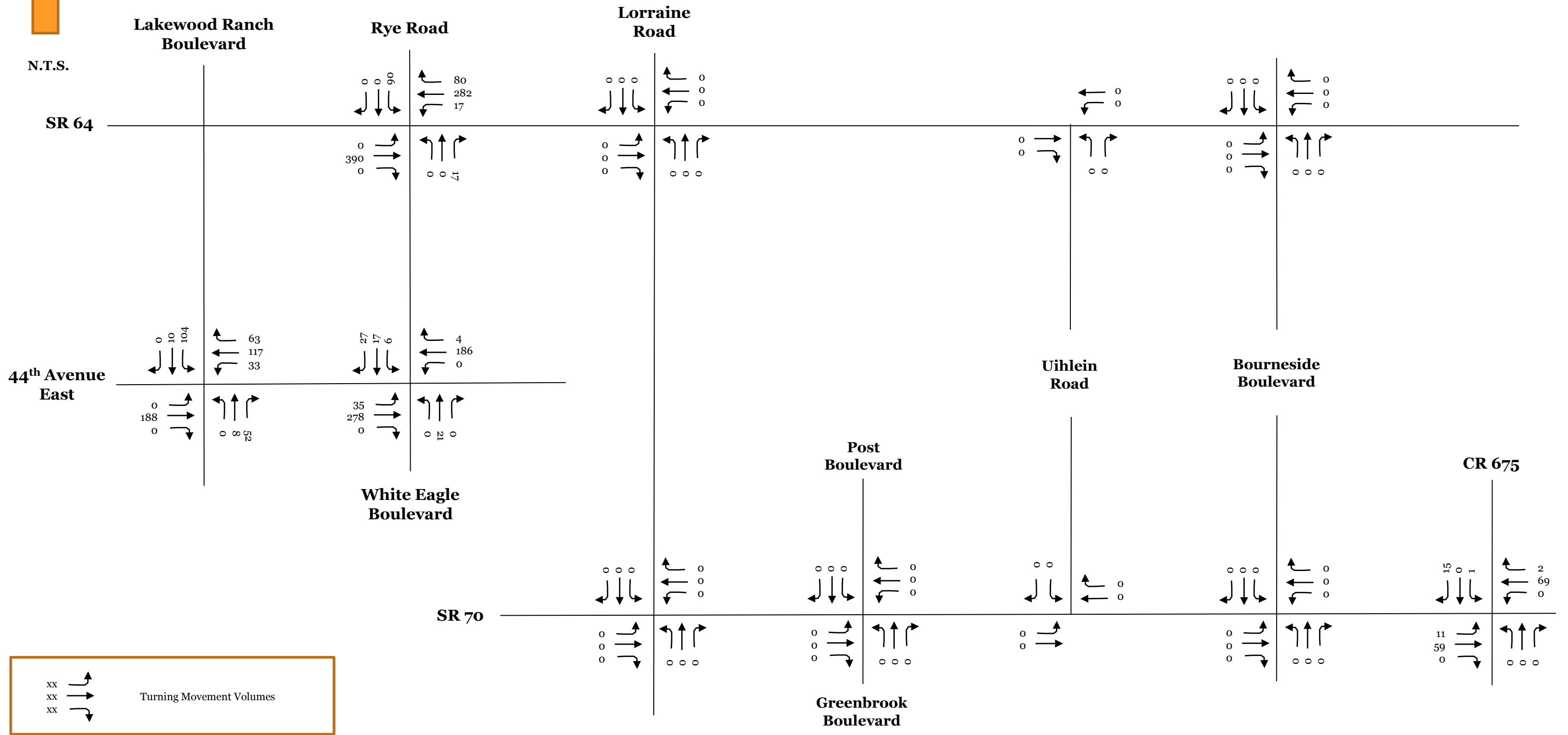
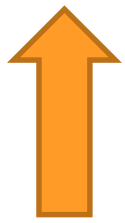


2032 Background Traffic Conditions

Per the approved methodology, future year background traffic consists of an annual growth rate which was developed through the review of 1) DIRPM Year 2040 Model Volumes vs existing volumes; 2) Boxcox volumes for 2032 (where available); and, 3) trend analysis growth rates using 10 years of historical data (where available). A table summarizing the development of the growth rate used in the analysis is provided in **Appendix 11**.

The resulting growth rates were used to increase existing turning movement volumes to 2032 volumes, as documented in the tables in **Appendix 7**.

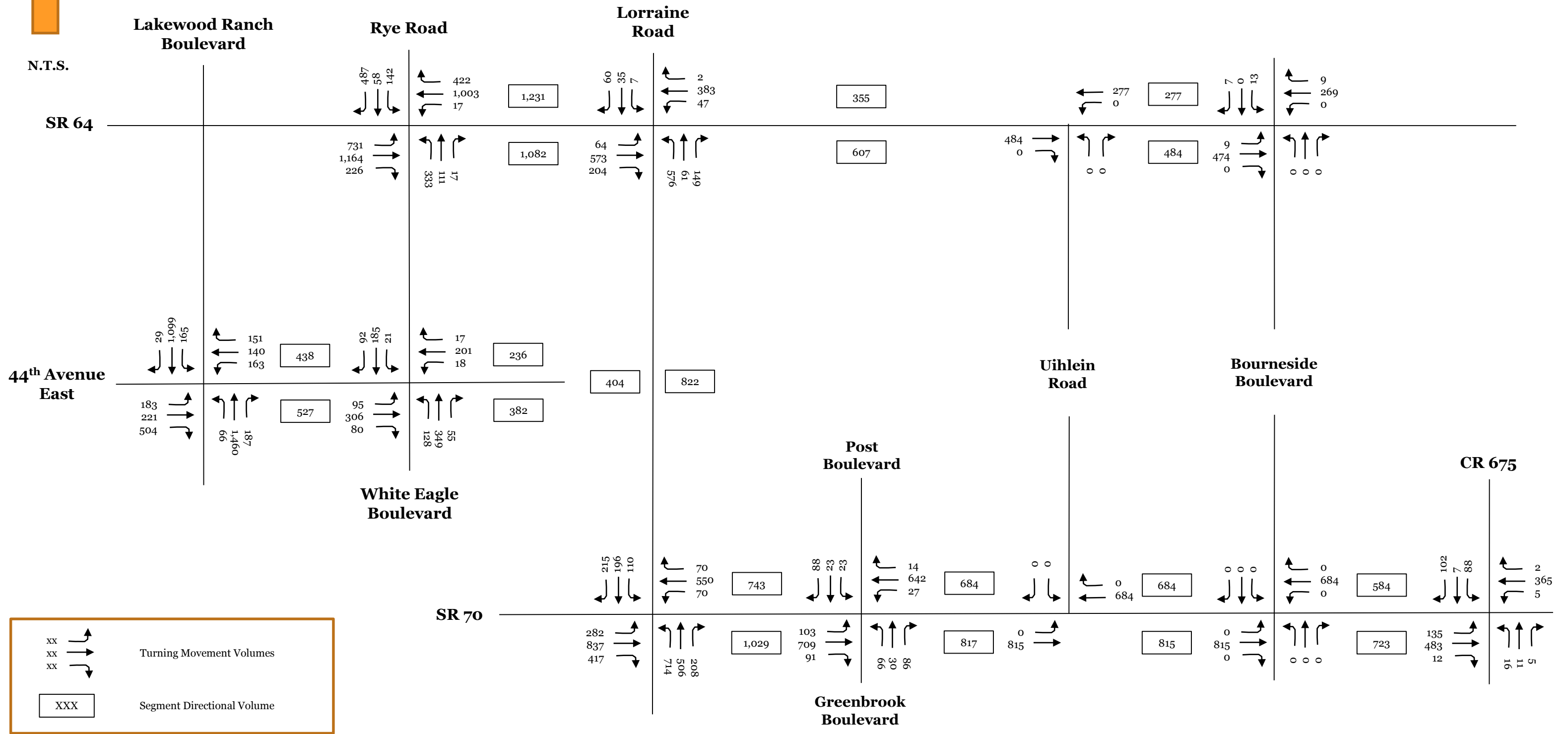
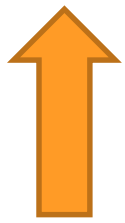
In addition, as requested by the County, non-significant project traffic from each of the projects was added as background traffic for each segment/intersection, using the same distribution as was used for significant project traffic. This was to ensure that all background traffic was accounted for. These non-significant project background trips are included as a separate line item in the intersection tables in **Appendix 7**. The total background traffic for each intersection is then the sum of the growth-rate volumes and the non-significant project traffic. **Figure 3** and **Figure 4** illustrate the project and combined background traffic segment and intersection turning movement volumes, respectively.



Northeast Sector
 Traffic Impact Analysis
 215810685
 December 2017

Figure 3
 Project Background Traffic
 PM Peak Hour Traffic Volumes





Northeast Sector
 Traffic Impact Analysis
 215810685
 December 2017

Figure 4
 Combined Background Traffic
 PM Peak Hour Traffic Volumes



Background Traffic Roadway Analysis

The roadway analysis was conducted for the background only traffic volumes. The scheduled roadway improvements that were identified previously are also reflected in the background only traffic analysis. **Table 6** summarizes the results of the analysis. Note that because of extensions of Rangeland Parkway and 44th Avenue East west of Lorraine Road, and the additional non-project background traffic at these intersections, Lorraine Road is anticipated to be an interrupted roadway under background traffic conditions.

As indicated in **Table 6**, the following roadway segments exceed their maximum service volume:

- SR 70 from Post Boulevard to Lorraine Road
- Lorraine Road from SR 64 to SR 70

Table 6: Background Traffic Roadway Conditions

Roadway Name and Segment	Direction	Adopted LOS					Background Directional Volume	Background LOS
		Area Type (U T R)	Class	Directional Lanes / Median	LOS Standard	Directional Service Volume		
SR 64								
Bourneside Blvd to Uihlein Rd	EB	T	Uninterrupted	1U	C	850	484	C
	WB	T	Uninterrupted	1U	C	850	277	B
Uihlein Rd to Lorraine Rd	EB	T	Uninterrupted	1U	C	850	607	C
	WB	T	Uninterrupted	1U	C	850	355	B
Lorraine Rd to Rye Rd	EB	U	I	2D	D	2,000	1,082	C
	WB	U	I	2D	D	1,580	1,231	C
SR 70								
CR 675 to Bourneside Blvd	EB	T	Uninterrupted	1U	D	1,200	723	C
	WB	T	Uninterrupted	1U	D	1,200	584	C
Bourneside Blvd to Uihlein Rd	EB	T	Uninterrupted	1U	D	1,200	815	C
	WB	T	Uninterrupted	1U	D	1,200	684	C
Uihlein Rd to Post Blvd	EB	T	Uninterrupted	1U	D	1,200	817	C
	WB	T	Uninterrupted	1U	D	1,200	684	C
Post Blvd to Lorraine Rd	EB	T	I	1D	D	800	1,029	F
	WB	T	I	1D	D	632	743	F
Lorraine Rd								
SR 64 to 44th Ave E	NB	T	I	1D	D	720 ^{A,B}	822	F
	SB	T	I	1D	D	569 ^{A,B}	404	C
44th Ave E to Rangeland Pkwy	NB	T	I	1D	D	720 ^{A,B}	822	F
	SB	T	I	1D	D	569 ^{A,B}	404	C
Rangeland Pkwy to SR 70	NB	T	I	1D	D	720 ^{A,B}	822	F
	SB	T	I	1D	D	569 ^{A,B}	404	C
44th Ave E								
Lorraine Rd to White Eagle Blvd	EB	U	I	2D	D	1,800 ^A	382	C
	WB	U	I	2D	D	1,422 ^A	236	C
White Eagle Blvd to Lakewood Ranch Blvd	EB	U	I	2D	D	1,800 ^A	527	C
	WB	U	I	2D	D	1,422 ^A	438	C

^A Non-State Signalized Roadway (-10%)

^B Service Volume Reflects Anticipated Future Signals Along Segment

Background Traffic Intersection Analysis

Background traffic intersection capacity analyses were performed at intersections in the study network for the PM peak-hour. This analysis was conducted using the HCM 2010 methodologies in the Synchro Software, except that SIDRA was used for the roundabout analysis. The performance standard of acceptable intersection operation is the volume to capacity (v/c) ratio for all movements must be less than 1.0. **Table 7** summarizes the intersection conditions and indicates that 4 intersections are expected to operate below the adopted performance standard:

- SR 64 at Lorraine Road
- SR 64 at White Eagle Boulevard/Rye Road
- SR 70 at Lorraine Road
- SR 70 at Post Boulevard
- 44th Avenue East at Lakewood Ranch Boulevard

Table 7: Background Traffic Intersection Conditions

Intersection	Type	Delay (sec/veh)	Max v/c Ratio	Movement v/c Ratio												
				EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
SR 64 and Dam Rd	Unsignalized	0.4	0.05	0.01	--	--	--	--	--	--	--	--	--	0.05	--	0.05
SR 64 and Lorraine Rd	Unsignalized	1019.5	7.06	0.06	--	--	0.06	--	--	7.06	--	--	0.40	--	--	
SR 64 at White Eagle Blvd/Rye Road	Roundabout	195.2	2.04	0.90	0.90	0.15	2.04	2.04	2.04	1.85	1.85	0.12	0.30	0.30	0.32	
SR 70 and CR 675	Unsignalized	4.9	0.51	0.03	--	--	0.01	--	--	0.16	0.16	0.16	0.51	0.51	0.51	
SR 70 and Post Blvd/Greenbrook Blvd	Unsignalized	34.9	2.11	0.13	--	--	0.04	--	--	2.11	0.45	0.23	0.86	0.35	0.22	
SR 70 and Lorraine Rd	Signalized	131.0	2.07	0.99	0.83	0.91	0.46	0.67	0.18	2.07	0.57	0.28	0.44	0.00	0.85	
44th Ave E at White Eagle Blvd	Signalized	24.0	0.54	0.32	0.54	0.32	0.08	0.48	0.09	0.28	0.34	0.12	0.06	0.21	0.24	
44th Ave E at Lakewood Ranch Blvd	Signalized	126.0	2.56	0.71	0.50	2.56	0.78	0.29	0.73	0.24	0.80	0.23	0.87	0.58	0.03	

-- Not Applicable

The intersection volume tables are provided in **Appendix 7**. The 2032 background traffic Synchro HCM 2010 and SIDRA intersection worksheets are provided in **Appendix 12** and the electronic files are attached on the accompanying DVD.

2032 Background Traffic Conditions with Improvements

Background Traffic Roadway Analysis with Improvements

For the roadway segments identified as deficient in **Table 6**, the following improvements were identified to restore the segments to the adopted level-of-service standard:

- SR 70 from CR 675 to Post Boulevard
 - Widen to four-lane roadway

- Lorraine Road from SR 64 to SR 70
 - Widen to four-lane roadway

These improvements are consistent with the Manatee County Comprehensive Plan.

Table 8 summarizes the improved background traffic roadway conditions and indicates that all roadway segments are anticipated to operate at acceptable level-of-service standards with the required background improvements.

Table 8: Background Traffic Roadway Conditions with Improvements

Roadway Name and Segment	Direction	Adopted LOS					Background Directional Volume	Background Directional LOS	Improvement	Improved Directional Service Volume	Improved Directional LOS
		Area Type (U T R)	Class	Directional Lanes / Median	LOS Standard	Directional Service Volume					
SR 70											
Post Blvd to Lorraine Rd	EB	T	I	1D	D	800	1,029	F	2D	1,820	C
	WB	T	I	1D	D	632	743	F	2D	1,438	C
Lorraine Rd											
SR 64 to 44th Ave E	NB	T	I	1D	D	720 ^{A, B}	822	F	2D	1,638	C
	SB	T	I	1D	D	569 ^{A, B}	404	C	2D	1,294	C
44th Ave E to Rangeland Pkwy	NB	T	I	1D	D	720 ^{A, B}	822	F	2D	1,638	C
	SB	T	I	1D	D	569 ^{A, B}	404	C	2D	1,294	C
Rangeland Pkwy to SR 70	NB	T	I	1D	D	720 ^{A, B}	822	F	2D	1,638	C
	SB	T	I	1D	D	569 ^{A, B}	404	C	2D	1,294	C

^A Non-State Signalized Roadway (-10%)

^B Service Volume Reflects Anticipated Future Signals Along Segment

Background Traffic Intersection Analysis with Improvements

For the intersections identified as deficient in **Table 7**, the following intersection specific improvements were identified to restore the intersections to operate within the adopted performance standard. In addition, the additional through laneage identified in the Background Traffic Roadway Analysis with Improvements Section was applied at each intersection, as applicable.

- SR 64 and Lorraine Road
 - Signalize
 - Add 2 NB left-turn lanes

- SR 64 and White Eagle Boulevard/Rye Road
 - Add WB right-turn bypass lane
 - Convert NB right-turn lane to a share left-through-right
 - Add 2nd circulating lane to east side of roundabout
 - Add EB left-turn lane

- SR 70 and Lorraine Road
 - Add 2nd NB left-turn lane
 - Convert SB shared through-right to through-only/add SB right-turn lane

- SR 70 and Post Boulevard
 - Signalize

- Lakewood Ranch Boulevard and 44th Avenue East
 - Add 2nd EB right-turn lane

These improvements are consistent with the Manatee County Comprehensive Plan.

Table 9 summarizes the improved background traffic intersection conditions and indicates that all intersections are expected to operate within the adopted performance standard with the required background improvements.

Table 9: Background Traffic Intersection Conditions with Improvements

Intersection	Type	Delay (sec/veh)	Max v/c Ratio	Movement v/c Ratio											
				EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
SR 64 and Dam Rd	Unsignalized	0.4	0.05	0.01	--	--	--	--	--	--	--	--	0.05	--	0.05
SR 64 and Lorraine Rd	Signalized	34.9	0.86	0.17	0.72	0.72	0.24	0.35	0.00	0.86	0.00	0.34	0.40	0.00	0.00
SR 64 at White Eagle Blvd/Rye Road	Roundabout	16.2	0.94	0.65	0.63	0.15	0.94	0.94	0.67	0.78	0.78	0.78	0.47	0.47	0.32
SR 70 and CR 675	Unsignalized	4.9	0.51	0.03	--	--	0.01	--	--	0.16	0.16	0.16	0.51	0.51	0.51
SR 70 and Post Blvd/Greenbrook Blvd	Signalized	26.8	0.84	0.41	0.84	0.13	0.14	0.79	0.02	0.23	0.11	0.36	0.09	0.09	0.43
SR 70 and Lorraine Rd	Signalized	49.4	0.92	0.82	0.75	0.83	0.44	0.74	0.20	0.92	0.60	0.29	0.63	0.59	0.79
44th Ave E at White Eagle Blvd	Signalized	24.0	0.54	0.32	0.54	0.32	0.08	0.48	0.09	0.28	0.34	0.12	0.06	0.21	0.24
44th Ave E at Lakewood Ranch Blvd	Signalized	50.1	0.95	0.56	0.32	0.95	0.76	0.28	0.71	0.27	0.90	0.26	0.89	0.63	0.04

-- Not Applicable

The intersection volume tables are provided in **Appendix 7**. The 2032 background traffic with improvements Synchro HCM 2010 and SIDRA intersection worksheets are provided in **Appendix 13** and the electronic files are attached on the accompanying DVD.

2032 Total Traffic Conditions

Project Traffic was distributed and assigned to roadways in the study area by application of the trip distribution percentages in **Appendix 3**. Total traffic volumes were calculated for the study network by summing the background volumes reported in **Figure 4** and the net external project volumes reported in **Figure 2**.

Total Traffic Roadway Analysis

The roadway analysis was conducted for the total traffic volumes. As part of this analysis, the improvements required to accommodate background traffic were assumed. **Table 10** summarizes the total traffic roadway conditions and indicates that all roadway segments, except SR 64 from Bourneside Boulevard to Lorraine Road, and from Lorraine Road to Rye Road/White Eagle Boulevard, as well as SR 70 from Bourneside Boulevard to Post Boulevard, are anticipated to operate within the adopted level-of-service standard. Again, as with Lorraine Road in the background analysis, the currently uninterrupted sections of SR 64 and SR 70 were assumed to become interrupted with the introduction of development along those roadways with the traffic associated with the N.E. Sector projects. In additions, with this development, the area type along these roadways changes from Transitioning to Urban. **Figure 5** illustrates the total traffic segment volumes.

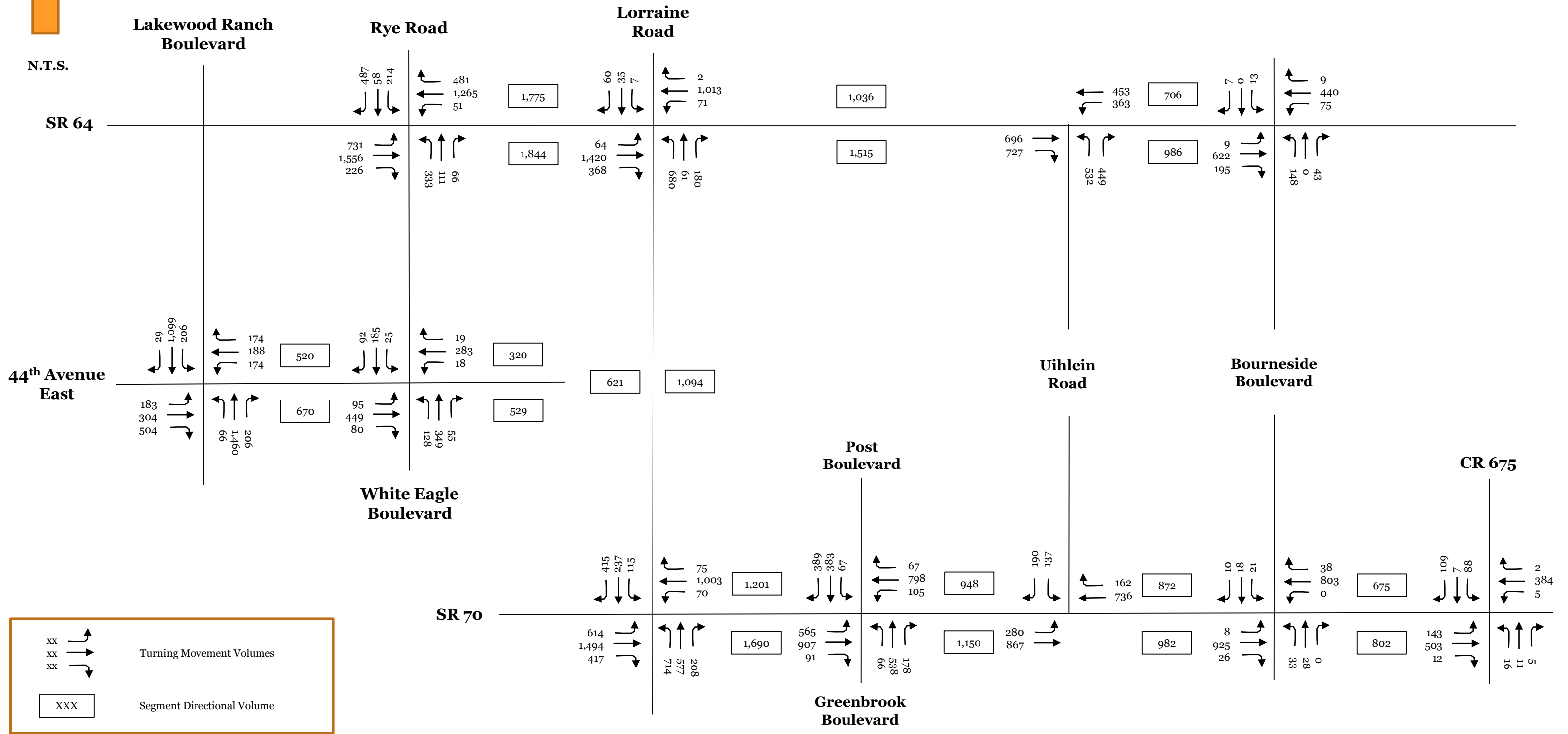
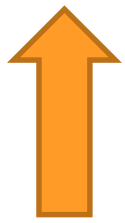
Table 10: Total Traffic Roadway Conditions

Roadway Name and Segment	Direction	Adopted LOS					Total Directional Volume	Directional LOS
		Area Type (U T R)	Class	Directional Lanes / Median	LOS Standard	Directional Service Volume		
SR 64								
Bourneside Blvd to Uihlein Rd	EB	U	I	1D	D ^C	880 ^B	986	F
	WB	U	I	1D	D ^C	720 ^B	706	F
Uihlein Rd to Lorraine Rd	EB	U	I	1D	D ^C	880 ^B	1,515	F
	WB	U	I	1D	D ^C	720 ^B	1,036	F
Lorraine Rd to Rye Rd	EB	U	I	2D	D	2,000	1,775	D
	WB	U	I	2D	D	1,580	1,844	F
SR 70								
CR 675 to Bourneside Blvd	EB	U	I	1D	D ^C	880 ^B	802	D
	WB	U	I	1D	D ^C	720 ^B	675	D
Bourneside Blvd to Uihlein Rd	EB	U	I	1D	D ^C	880 ^B	982	F
	WB	U	I	1D	D ^C	720 ^B	872	F
Uihlein Rd to Post Blvd	EB	U	I	1D	D ^C	880 ^B	1,150	F
	WB	U	I	1D	D ^C	720 ^B	948	F
Post Blvd to Lorraine Rd	EB	U	I	2D	D ^C	2,000 ^B	1,690	C
	WB	U	I	2D	D ^C	1,580 ^B	1,201	C
Lorraine Rd								
SR 64 to 44th Ave E	NB	U	I	2D	D ^C	1,800 ^{A, B}	1,094	C
	SB	U	I	2D	D ^C	1,422 ^{A, B}	621	C
44th Ave E to Rangeland Pkwy	NB	U	I	2D	D ^C	1,800 ^{A, B}	1,094	C
	SB	U	I	2D	D ^C	1,422 ^{A, B}	621	C
Rangeland Pkwy to SR 70	NB	U	I	2D	D ^C	1,800 ^{A, B}	1,094	C
	SB	U	I	2D	D ^C	1,422 ^{A, B}	621	C
44th Ave E								
Lorraine Rd to White Eagle Blvd	EB	U	I	2D	D	1,800 ^A	529	C
	WB	U	I	2D	D	1,422 ^A	320	C
White Eagle Blvd to Lakewood Ranch Blvd	EB	U	I	2D	D	1,800 ^A	670	C
	WB	U	I	2D	D	1,422 ^A	520	C

^A Non-State Signalized Roadway (-10%)

^B Service Volume Reflects Anticipated Future Signals Along Segment

^C Assumes Change of Area Type to Urban



Northeast Sector
 Traffic Impact Analysis
 215810685
 December 2017

Figure 5
 Total Traffic
 PM Peak Hour Traffic Volumes



Total Intersection Analysis

The total traffic intersection capacity analysis used the same geometry identified in the improved background traffic capacity analysis to correct the background traffic deficiencies.

Table 11 summarizes the total traffic intersection conditions and indicates that the following intersections will operate below the adopted standard:

- SR 64 at Lorraine Road
- SR 64 at White Eagle Boulevard/Rye Road
- SR 70 at Lorraine Road

Table 11: Total Traffic Intersection Conditions

Intersection	Type	Delay (sec/veh)	Max v/c Ratio	Movement v/c Ratio											
				EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
SR 64 and Dam Rd/Bourneside Blvd	Unsignalized	43.9	1.73	0.01	--	--	0.11	--	--	1.73	0.00	0.12	0.18	0.18	0.18
SR 64 and Lorraine Rd	Signalized	148.2	1.55	0.41	1.45	1.55	0.61	0.83	0.00	0.91	0.00	0.39	0.50	0.00	0.00
SR 64 at White Eagle Blvd/Rye Road	Roundabout	61.6	1.38	0.83	0.87	0.15	1.27	1.27	0.82	0.63	0.63	0.32	1.38	1.38	1.38
SR 70 and CR 675	Unsignalized	17.4	0.97	0.14	--	--	0.01	--	--	0.27	0.27	0.27	0.97	0.97	0.97
SR 70 and Post Blvd/Greenbrook Blvd	Signalized	291.8	2.51	2.51	0.94	0.11	0.73	0.85	0.08	0.56	2.28	0.88	0.62	1.70	2.03
SR 70 and Lorraine Rd	Signalized	205.1	2.06	2.06	1.41	0.88	0.66	1.45	0.24	0.94	0.72	0.30	0.75	0.78	1.60
44th Ave E at White Eagle Blvd	Signalized	25.6	0.67	0.32	0.67	0.27	0.09	0.53	0.08	0.29	0.36	0.13	0.07	0.22	0.25
44th Ave E at Lakewood Ranch Blvd	Signalized	56.9	0.96	0.60	0.45	0.95	0.89	0.38	0.82	0.27	0.96	0.30	0.94	0.63	0.04

-- Not Applicable

The intersection volume tables are provided in **Appendix 7**. The 2032 total traffic Synchro HCM 2010 and SIDRA intersection worksheets are provided in **Appendix 14** and the electronic files are attached on the accompanying DVD.

2032 Total Traffic Conditions with Project Improvements

Total Traffic Roadway Analysis with Project Improvements

As reported in **Table 10**, SR 64 from Bourneside Boulevard to Lorraine Road, and from Lorraine Road to White Eagle Boulevard/Rye Road will operate below the adopted level of service standard under total traffic conditions. The following roadway improvements are required to maintain the adopted level of service standard:

- SR 64 from Bourneside Boulevard to Lorraine Road
 - Widen to 4 lanes
- SR 64 from Lorraine Road to White Eagle Boulevard
 - Widen to 6 lanes
- SR 70 from Bourneside Boulevard to Post Boulevard
 - Widen to 4-lanes divided

These improvements are consistent with the Manatee County Comprehensive Plan.

Table 12 summarizes the total traffic roadway conditions with improvements will operate within the adopted level-of-service standard.

Table 12: Total Traffic Roadway Conditions with Project Improvements

Roadway Name and Segment	Direction	Adopted LOS					Total Directional Volume	Directional LOS	Improvement	Improved Directional Service Volume	Improved Directional LOS
		Area Type (U T R)	Class	Directional Lanes / Median	LOS Standard	Directional Service Volume					
SR 64											
Bourneside Blvd to Uihlein Rd	EB	U	I	1U	D ^C	880 ^B	986	F	2D	2,000	C
	WB	U	I	1U	D ^C	720 ^B	706	F	2D	1,580	C
Uihlein Rd to Lorraine Rd	EB	U	I	1U	D ^C	880 ^B	1,515	F	2D	2,000	C
	WB	U	I	1U	D ^C	720 ^B	1,036	F	2D	1,580	C
Lorraine Rd to Rye Rd	EB	U	I	2D	D	2,000	1,775	D	3D	3,020	C
	WB	U	I	2D	D	1,580	1,844	F	3D	2,370	C
SR 70											
Bourneside Blvd to Uihlein Rd	EB	U	I	1D	D ^C	880 ^B	982	F	2D	2,000	C
	WB	U	I	1D	D ^C	720 ^B	872	F	2D	1,580	C
Uihlein Rd to Post Blvd	EB	U	I	1D	D ^C	880 ^B	1,150	F	2D	2,000	C
	WB	U	I	1D	D ^C	720 ^B	948	F	2D	1,580	C

^A Non-State Signalized Roadway (-10%)

^B Service Volume Reflects Anticipated Future Signals Along Segment

^C Assumes Change of Area Type to Urban

Roadway Proportionate Share

Project traffic is the cause of the deficiency on these segments of SR 64 and SR 70. Because it is a project related deficiency, the developer will need to mitigate the impacts by paying their Proportionate Fair Share for the roadway improvements. The Proportionate Fair Share percentage was calculated based on the following formula:

$$Proportionate\ Fair\ Share = \sum \frac{Two-Way\ Project\ Trips_i}{Two-Way\ Service\ Volume\ Increase_i}$$

Table 13 reports the overall N.E. Sector proportionate fair share percentages for the required roadway improvements.

Table 13: Roadway Proportionate Fair Share Percentage

Roadway	Project Trips	Background Conditions Capacity	Improved Capacity	Proportionate Fair Share Percentage
SR 64 from Bourneside Blvd to Lorraine Rd	1,672	1,600	3,580	84%
SR 64 from Lorraine Rd to White Eagle Blvd/Rye Rd	867	3,580	5,390	48%
SR 70 from Bourneside Blvd to Post Blvd	1,384	1,600	3,580	70%

Total Traffic Intersection Analysis with Project Improvements

As reported in **Table 11**, certain intersections will operate below the adopted standard under total traffic conditions. The following improvements were identified to restore the intersections to operate within the adopted performance standard.

- SR 64 and Lorraine Road
 - Extend third EB through lane (constructed as part of the project-required six-laning of SR 64 from White/Eagle Boulevard/Rye Road to Lorraine Road) through intersection as drop-off lane
 - Add EB right-turn lane

- SR 64 and Dam Road/Bourneside Boulevard
 - Signalize
 - Extend 2nd EB through lane through intersection as drop-off lane (as part of 4-laning roadway improvement)
 - Extend 2nd WB through lane through intersection as add-on lane (as part of 4-laning roadway improvement)
 - Add EB right-turn lane
 - Add WB left-turn lane

- SR 64 and White Eagle Boulevard/Rye Road
 - Extend 3rd WB through lane (constructed as part of the project-required six-laning of SR 64 from White/Eagle Boulevard/Rye Road to Lorraine Road) through the roundabout as a 3rd circulating lane on the north side and drop west of the roundabout
 - Change the EB left turn lane to a shared left/through to develop the 3rd EB through lane (constructed as part of the project-required six-laning of SR 64 from White/Eagle Boulevard/Rye Road to Lorraine Road) through the roundabout as a 3rd circulating lane on the south side.
 - Add a second NB left-turn lane
 - Convert the NB shared left-through-right (required as part of background conditions) to a shared through-right

- SR 70 and Lorraine Road
 - Extend 3rd WB through lane east of intersection as add-on lane
 - Extend 3rd EB through lane east of intersection as drop-off lane
 - Add 2nd NB right-turn lane
 - Add 2nd EB left-turn lane
 - Change EB right-turn type to permitted + overlap
 - Change SB right-turn type to permitted + overlap

- SR 70 and Post Boulevard
 - Add 2nd EB through lane (included in 4-laning roadway improvement)
 - Add 2nd EB left-turn lane (included in 4-laning roadway improvement)

These improvements are consistent with the Manatee County Comprehensive Plan.

Table 14 summarizes the improved total traffic intersection conditions and indicates that the above intersections are expected to operate within the adopted performance standard. The 2032 total traffic with project improvements Synchro HCM 2010 and SIDRA intersection worksheets are provided in **Appendix 15** and the electronic files are attached on the accompanying DVD.

Table 14: Total Traffic Intersection Conditions with Project Improvements

Intersection	Type	Delay (sec/veh)	Max v/c Ratio	Movement v/c Ratio											
				EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
SR 64 and Dam Rd/Bourneside Blvd	Signalized	16.5	0.61	0.56	0.61	0.41	0.26	0.27	0.27	0.37	0.00	0.11	0.13	0.00	0.00
SR 64 and Lorraine Rd	Signalized	42.2	0.91	0.40	0.80	0.67	0.52	0.81	0.00	0.91	0.00	0.39	0.51	0.00	0.00
SR 64 at White Eagle Blvd/Rye Road	Roundabout	19.4	0.94	0.87	0.87	0.15	0.87	0.87	0.94	0.86	0.62	0.62	0.80	0.80	0.32
SR 70 and CR 675	Unsignalized	17.4	0.97	0.14	--	--	0.01	--	--	0.27	0.27	0.27	0.97	0.97	0.97
SR 70 and Post Blvd/Greenbrook Blvd	Signalized	61.2	0.99	0.99	0.74	0.17	0.54	0.99	0.19	0.37	0.98	0.38	0.61	0.70	0.84
SR 70 and Lorraine Rd	Signalized	60.0	0.99	0.99	0.85	0.48	0.58	0.98	0.24	0.99	0.42	0.34	0.87	0.96	0.84
44th Ave E at White Eagle Blvd	Signalized	25.6	0.67	0.32	0.67	0.27	0.09	0.53	0.08	0.29	0.36	0.13	0.07	0.22	0.25
44th Ave E at Lakewood Ranch Blvd	Signalized	56.9	0.96	0.60	0.45	0.95	0.89	0.38	0.82	0.27	0.96	0.30	0.94	0.63	0.04

-- Not Applicable

Intersection Proportionate Share

Project traffic is the cause of the deficiency at three off-site intersections. Because they are project related deficiencies, the developer will need to mitigate the impacts by paying their Proportionate Fair Share for the intersection improvements. The Proportionate Fair Share percentage was calculated based on the following formula:

$$Proportionate\ Fair\ Share = \frac{\sum Project\ Trips\ Through\ Intersection_i}{Total - Existing\ Trips\ Through\ Intersection_i}$$

Table 15 shows that project traffic proportionate fair share percentage for each improved intersection.

Table 15: Intersection Proportionate Fair Share Percentage

Intersection	Movement	Project Traffic	2017 Existing Traffic	2032 Total Traffic	Proportionate Fair Share Percentage
SR 64 and Lorraine Road	EBL	0	44	64	
	EBT	847	395	1,420	
	EBR	164	141	368	
	WBL	24	41	71	
	WBT	630	333	1,013	
	WBR	0	2	2	
	NBL	104	329	680	
	NBT	0	35	61	
	NBR	31	85	180	
	SBL	0	4	7	
	SBT	0	20	35	
	SBR	0	34	60	
Total	1800	1463	3961	72.1%	
SR 64 and Dam Road/Bourneside Boulevard	EBL	0	8	9	
	EBT	148	412	622	
	EBR	195	0	195	
	WBL	75	0	75	
	WBT	171	234	440	
	WBR	0	8	9	
	NBL	148	0	148	
	NBT	0	0	0	
	NBR	43	0	43	
	SBL	0	11	13	
	SBT	0	0	0	
	SBR	0	6	7	
Total	780	679	1561	88.4%	
SR 64 and White Eagle Boulevard/Rye Road	EBL	0	504	731	
	EBT	392	534	1,556	
	EBR	0	0	226	
	WBL	34	0	51	
	WBT	262	497	1,265	
	WBR	59	236	481	
	NBL	0	0	333	
	NBT	0	0	111	
	NBR	49	0	66	
	SBL	72	36	214	
	SBT	0	0	58	
	SBR	0	336	487	
Total	868	2143	5579	25.3%	
SR 70 and Post Blvd/Greenbrook Blvd	EBL	462	79	565	
	EBT	198	545	907	
	EBR	0	70	91	
	WBL	78	21	105	
	WBT	156	494	798	
	WBR	53	11	67	
	NBL	0	51	66	
	NBT	508	23	538	
	NBR	92	66	178	
	SBL	44	18	67	
	SBT	360	18	383	
	SBR	301	68	389	
Total	2252	1464	4154	83.7%	
SR 70 and Lorraine Road	EBL	332	217	614	
	EBT	657	644	1,494	
	EBR	0	321	417	
	WBL	0	54	70	
	WBT	453	423	1,003	
	WBR	5	54	75	
	NBL	0	408	714	
	NBT	71	289	577	
	NBR	0	119	208	
	SBL	5	63	115	
	SBT	41	112	237	
	SBR	200	123	415	
Total	1764	2827	5939	56.7%	

Improvement Summary

Table 16 summarizes the required improvements as described above.

Table 16: Improvement Summary

Improvement Location	Background Improvements (Not Project Related)	Project Improvements
Roadway Segments		
SR 64 from Bourneside Boulevard to Lorraine Road	N/A	Widen to 4 lane roadway
SR 64 from Lorraine Road to Rye Road/White Eagle Boulevard	N/A	Widen to 6 lane roadway
SR 70 from Bourneside Boulevard to Post Boulevard	N/A	Widen to 4 lane roadway
SR 70 from Post Boulevard to Lorraine Road	Widen to 4 lane roadway	N/A
Lorraine Road from SR 64 to SR 70	Widen to 4 lane roadway	N/A
Intersections		
SR 64 and Dam Road/Bourneside Boulevard	N/A	Signalize; Extend 2nd EB (part of 4-laning roadway improvement) through lane through intersection as drop-off lane; Extend 2nd WB through lane (part of 4-laning roadway improvement) through intersection as add-on lane; Add EB right-turn lane; Add WB left-turn lane
SR 64 and Lorraine Road	Signalize; Add 2 NB left-turn lanes	Extend 3rd EB through lane east of intersection as drop-off lane; Add EB right-turn lane
SR 64 and Rye Road/White Eagle Boulevard	Add WB right-turn bypass lane; Convert NB right-turn lane to a shared left through-right; add 2nd circulating lane to east side; Add EB left-turn lane	Extend 3rd WB through lane (constructed as part of the project-required six-laning of SR 64 from White/Eagle Boulevard/Rye Road to Lorraine Road) through the roundabout as a 3rd circulating lane on the north side and drop west of the roundabout; Change the EB left turn lane to a shared left/through to develop the 3rd EB through lane (constructed as part of the project-required six-laning of SR 64 from White/Eagle Boulevard/Rye Road to Lorraine Road) through the roundabout as a 3rd circulating lane on the south side; Add a second NB left-turn lane; Convert the NB shared left-through-right (required as part of background conditions) to a shared through-right
SR 70 and Post Boulevard	Signalize	Add 2nd EB through lane (included in roadway improvement); Add 2nd WB through lane (included in roadway improvement); Add 2nd EB left-turn lane
SR 70 and Lorraine Road	Add 2nd NB left-turn lane; Convert SB shared through-right lane to through-only lane; Add SB right-turn lane	Extend 3rd EB through lane through intersection as drop-off lane; Extend 3rd WB through lane through intersection as add-on lane; Add 2nd EB left-turn lane; Add 2nd NB right-turn lane; Change EB right turn type to permitted + overlap; Change SB right turn type to permitted + overlap
Lakewood Ranch Boulevard and 44th Avenue East	Add 2nd EB right-turn lane	N/A

Site Access

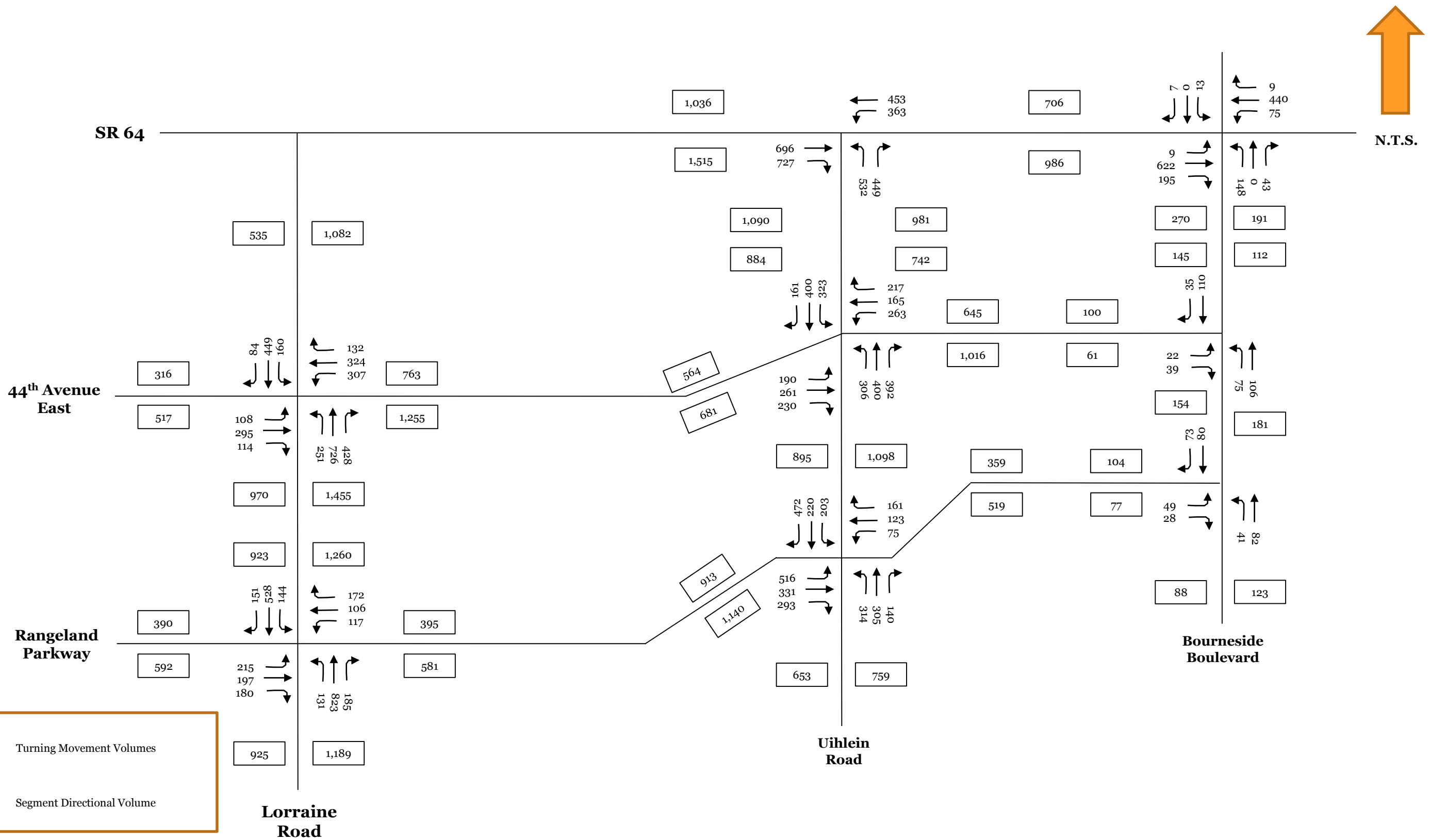
As noted previously, project in the N.E. Sector will access the surrounding thoroughfare network (SR 64, SR 70, Lorraine Road) by way of new thoroughfare roadways that will be constructed within the boundaries of the N.E. Sector. The design of these roadways, and their intersections with the adjacent roadway network, has been guided by the N. E. Sector Design Traffic Study. To demonstrate that the intersection geometries under design will accommodate 2032 TIA traffic, the intersection geometries were analyzed with the 2032 turning movement volumes. These volumes are illustrated in **Figure 6**. **Table 17** summarizes the 2032 total traffic conditions at these intersections.

Table 17: Internal Intersection Total Traffic Conditions

Intersection	Type	Delay (sec/veh)	Max v/c Ratio	Movement v/c Ratio											
				EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lorraine Rd at Rangeland Pkwy	Signalized	32.1	0.85	0.85	0.40	0.82	0.54	0.21	0.78	0.33	0.61	0.61	0.50	0.41	0.41
Uihlein Rd at Rangeland Pkwy	Signalized	49.1	0.97	0.88	0.28	0.56	0.32	0.25	0.73	0.97	0.28	0.28	0.57	0.20	0.96
Bourneside Blvd at Rangeland Pkwy	Unsignalized	3.0	0.08	0.08	--	0.03	--	--	--	0.03	--	--	--	--	--
Lorraine Rd at 44th Ave E	Signalized	41.9	0.97	0.41	0.72	0.62	0.97	0.52	0.47	0.58	0.83	0.84	0.79	0.40	0.41
Uihlein Rd at 44th Ave E	Signalized	41.5	0.90	0.56	0.46	0.90	0.70	0.21	0.62	0.68	0.41	0.90	0.76	0.41	0.37
Bourneside Blvd at 44th Ave E	Unsignalized	3.0	0.06	0.04	--	0.05	--	--	--	0.06	--	--	--	--	--
Uihlein Rd at SR 64	Signalized	40.0	0.94	--	0.84	0.81	0.94	0.27	--	0.90	--	0.85	--	--	--
Bourneside Blvd at SR 64	Signalized	16.5	0.61	0.56	0.61	0.41	0.26	0.27	0.27	0.37	0.00	0.11	0.13	0.00	0.00

-- Not Applicable

As reported in Table 17, all internal intersections will operate acceptably under 2032 total traffic conditions. The tables in **Appendix 16** document the development of total traffic turning movements within the N.E. Sector. **Appendix 16** also provides the Synchro HCM 2010 intersection worksheets, and excerpts from the N.E. Sector Design Traffic Study documenting the intersection geometries under design.



Northeast Sector
 Traffic Impact Analysis
 215810685
 December 2017

Figure 6
 Internal Intersections
 PM Peak Hour Total Traffic Volumes



Multi-Modal Transportation

Multi-modal transportation within the project will primarily be made available through the existing and proposed roadway/sidewalk/trail network. Sidewalks will connect neighborhoods to amenity centers, active and passive recreation and open space areas, and the main roadway network within the project. Pedestrian connections to the non-residential will be made available through the sidewalk network on the main roadways within the project. At time of site design, bicycle racks will be provided for the non-residential, consistent with the requirements of the LDC (LDC Sect. 1005.3 (Table 10-2/Footnote #16). Additionally, at time of site design, bicycle/motorbikes and/or motorcycle parking may be considered for the non-residential to reduce the total number of parking spaces by up to five percent (5%), consistent with the requirements of the LDC.

Project Trips By Roadway Link

The tables in **Appendix 17** provide trips for each project by roadway link.

Conclusion

A traffic impact analysis was completed for the 15 projects in the NE Sector. The analysis finds that the following background and project-related improvements are required:

Background

Roadways

SR 70 from Post Boulevard to Lorraine Road – widen to 4-lanes divided

Lorraine Road from SR 70 to SR 64 – widen to 4-lanes divided

Intersections

- SR 64 and Lorraine Road
 - Signalize
 - Add 2 NB left-turn lanes

- SR 64 and White Eagle Boulevard/Rye Road
 - Add WB right-turn bypass lane
 - Convert NB right-turn lane to a share left-through-right
 - Add 2nd circulating lane to east side of roundabout
 - Add EB left-turn lane

- SR 70 and Lorraine Road
 - Add 2nd NB left-turn lane
 - Convert SB shared through-right to through-only/add SB right-turn lane

- SR 70 and Post Boulevard
 - Signalize

- Lakewood Ranch Boulevard and 44th Avenue East
 - Add 2nd EB right-turn lane

Project-Related

Roadways

SR 70 from Post Boulevard to Bourneside Boulevard – widen to 4-lanes divided

SR 64 from Lorraine Road to Rye Road – widen to 6-lanes divided

SR 64 from Bourneside Boulevard to Lorraine Road – widen to 4-lanes divided

Intersections

- SR 64 and Lorraine Road
 - Extend third EB through lane (constructed as part of the project-required six-laning of SR 64 from White/Eagle Boulevard/Rye Road to Lorraine Road) through intersection as drop-off lane
 - Add EB right-turn lane

- SR 64 and Bourneside Boulevard
 - Signalize
 - Extend 2nd EB through lane through intersection as drop-off lane (as part of 4-laning improvement)
 - Extend 2nd WB through lane through intersection as add-on lane (as part of 4-laning improvement)
 - Add EB right-turn lane
 - Add WB left-turn lane

- SR 64 and White Eagle Boulevard/Rye Road
 - Extend 3rd WB through lane (constructed as part of the project-required six-laning of SR 64 from White/Eagle Boulevard/Rye Road to Lorraine Road) through the roundabout as a 3rd circulating lane on the north side and drop west of the roundabout
 - Change the EB left turn lane to a shared left/through to develop the 3rd EB

through lane (constructed as part of the project-required six-laning of SR 64 from White/Eagle Boulevard/Rye Road to Lorraine Road) through the roundabout as a 3rd circulating lane on the south side.

- Add a second NB left-turn lane
- Convert the NB shared left-through-right (required as part of background conditions) to a shared through-right

- SR 70 and Lorraine Road
 - Extend 3rd WB through lane east of intersection as add-on lane
 - Extend 3rd EB through lane east of intersection as drop-off lane
 - Add 2nd NB right-turn lane
 - Add 2nd EB left-turn lane
 - Change EB right-turn type to permitted + overlap
 - Change SB right-turn type to permitted + overlap

- SR 70 and Post Boulevard
 - Add 2nd EB through lane (included in roadway improvement)
 - Add 2nd WB through lane (included in roadway improvement)
 - Add 2nd EB left-turn lane

In addition, the following internal intersections will have the noted geometry and signal control:

- Uihlein Road/44th Avenue East
 - Signal control
 - EB: 1 left-turn lane, 2 through lanes, 1 right-turn lane
 - WB: 1 left-turn lane, 2 through lanes, 1 right-turn lane
 - NB: 1 left-turn lane, 2 through lanes, 1 right-turn lane
 - SB: 1 left-turn lane, 2 through lanes, 1 right-turn lane

- Uihlein Road/Rangeland Parkway
 - Signal control
 - EB: 1 left-turn lane, 2 through lanes, 1 right-turn lane
 - WB: 1 left-turn lane, 2 through lanes, 1 right-turn lane
 - NB: 1 left-turn lane, 2 through lanes, 1 right-turn lane
 - SB: 1 left-turn lane, 2 through lanes, 1 right-turn lane

The tables on the following pages document the trip for each project by link.

Roadway Name and Segment	Link	Parcel A	Parcel B	Parcel C	Parcel D	Parcel E
		Project Traffic	Project Traffic	Project Traffic	Project Traffic	Project Traffic
SR 64						
Bourneside Blvd to Uihlein Rd	3070	46	20	1	6	5
Uihlein Rd to Lorraine Rd	3070	163	7	74	32	54
Lorriane Rd to Rye Rd	3063	215	155	13	30	51
SR 70						
CR 675 to Bourneside Blvd	3130	17	18	2	24	21
Bourneside Blvd to Uihlein Rd	3130	22	25	3	29	8
Lorraine Road						
SR 70 to Rangeland Pkwy	2650	359	52	60	5	35
Rangeland Pkwy to 44th Ave E	2650	528	24	26	5	24
44th Ave E to SR 64	2650	68	162	14	4	6
44th Ave E						
Bourneside Blvd to Uihlein Rd	N/A	20	18	3	12	10
Uihlein Rd to Lorraine Rd	N/A	855	336	2	14	28
Lorraine Rd to White Eagle Blvd	4280	231	144	8	4	29
White Eagle Blvd to Lakewood Ranch Blvd	4280	226	139	8	4	28
Rangeland Parkway						
Bourneside Blvd to Uihlein Rd	N/A	20	15	2	12	536
Uihlein Rd to Lorraine Rd	N/A	26	532	22	36	384
Uihlein Rd						
SR 70 to Rangeland Parkway	N/A	63	41	3	292	29
Rangeland Parkway to 44th Ave E	N/A	142	54	6	77	111
44th Ave E to SR 64	N/A	255	54	3	51	73
Bourneside Blvd						
SR 70 to Rangeland Parkway	N/A	0	0	0	0	19
Rangeland Parkway to 44th Ave E	N/A	0	0	1	5	32
44th Ave E to SR 64	N/A	0	11	1	5	23

Roadway Name and Segment	Link	Parcel F	Parcel G	Parcel H	Parcel I	Parcel J
		Project Traffic	Project Traffic	Project Traffic	Project Traffic	Project Traffic
SR 64						
Bourneside Blvd to Uihlein Rd	3070	1	5	40	191	366
Uihlein Rd to Lorraine Rd	3070	17	92	231	159	191
Lorriane Rd to Rye Rd	3063	16	89	213	147	183
SR 70						
CR 675 to Bourneside Blvd	3130	7	14	21	44	10
Bourneside Blvd to Uihlein Rd	3130	3	7	34	5	4
Lorraine Road						
SR 70 to Rangeland Pkwy	2650	11	22	34	32	13
Rangeland Pkwy to 44th Ave E	2650	7	62	96	88	25
44th Ave E to SR 64	2650	2	7	12	6	6
44th Ave E						
Bourneside Blvd to Uihlein Rd	N/A	3	487	534	497	1
Uihlein Rd to Lorraine Rd	N/A	9	177	224	242	50
Lorraine Rd to White Eagle Blvd	4280	9	74	98	96	11
White Eagle Blvd to Lakewood Ranch Blvd	4280	9	72	98	94	41
Rangeland Parkway						
Bourneside Blvd to Uihlein Rd	N/A	169	10	16	16	7
Uihlein Rd to Lorraine Rd	N/A	121	148	229	209	72
Uihlein Rd						
SR 70 to Rangeland Parkway	N/A	9	26	41	18	15
Rangeland Parkway to 44th Ave E	N/A	35	198	310	236	104
44th Ave E to SR 64	N/A	23	112	290	2	164
Bourneside Blvd						
SR 70 to Rangeland Parkway	N/A	6	12	17	49	6
Rangeland Parkway to 44th Ave E	N/A	10	12	17	78	6
44th Ave E to SR 64	N/A	7	24	17	244	9

Roadway Name and Segment	Link	Parcel COM 1	Parcel COM 2	Parcel COM 3	Parcel COM 4	Parcel COM 5
		Project Traffic	Project Traffic	Project Traffic	Project Traffic	Project Traffic
SR 64						
Bourneside Blvd to Uihlein Rd	3070	100	50	23	12	293
Uihlein Rd to Lorraine Rd	3070	279	143	78	7	145
Lorriane Rd to Rye Rd	3063	256	131	72	40	132
SR 70						
CR 675 to Bourneside Blvd	3130	30	20	63	86	34
Bourneside Blvd to Uihlein Rd	3130	40	26	83	98	3
Lorraine Road						
SR 70 to Rangeland Pkwy	2650	7	4	10	9	4
Rangeland Pkwy to 44th Ave E	2650	38	23	17	50	13
44th Ave E to SR 64	2650	14	8	9	44	8
44th Ave E						
Bourneside Blvd to Uihlein Rd	N/A	4	7	40	29	3
Uihlein Rd to Lorraine Rd	N/A	86	57	45	27	40
Lorraine Rd to White Eagle Blvd	4280	7	9	15	1	3
White Eagle Blvd to Lakewood Ranch Blvd	4280	25	12	13	1	14
Rangeland Parkway						
Bourneside Blvd to Uihlein Rd	N/A	25	15	16	22	15
Uihlein Rd to Lorraine Rd	N/A	117	75	278	60	53
Uihlein Rd						
SR 70 to Rangeland Parkway	N/A	89	44	87	128	4
Rangeland Parkway to 44th Ave E	N/A	246	153	199	81	59
44th Ave E to SR 64	N/A	364	232	114	25	121
Bourneside Blvd						
SR 70 to Rangeland Parkway	N/A	0	0	0	5	42
Rangeland Parkway to 44th Ave E	N/A	0	0	13	5	70
44th Ave E to SR 64	N/A	23	9	13	5	80

Appendix 1
Project Location

NORTHEAST SECTOR

Land Maps of August 1, 2017

NOTE: NET AREA ; ACREAGE and UNITS ARE +/-

This document is graphic in nature and not intended to be utilized as a statement of development rights or proposed development.

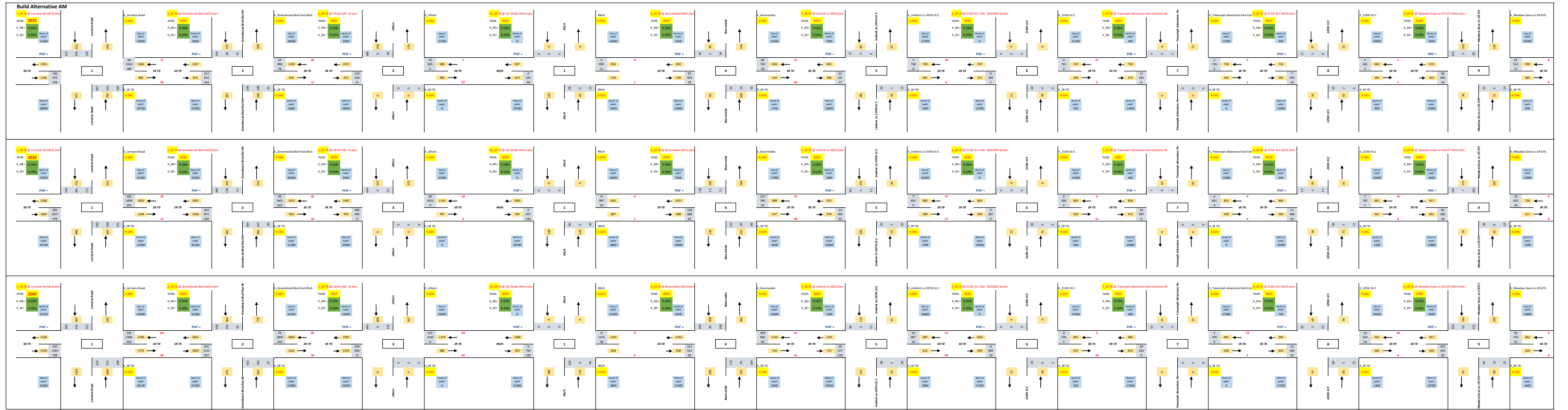


Appendix E

TURNS5 Output Sheets







TURNS5 ANALYSIS SHEET - INPUT

Analyst:

Date: 14-Sep-18

Highway: SR 70

Intersection: Lorraine Road - AM Build

Project: SR 70 DTTM

County: Manatee

Is this a 4 way intersection?

Yes, my intersection has four approaches

If not, which 3 approaches exist in the intersection?

EB, WB, and SB

EB, WB, and NB

EB, SB, and NB

WB, SB, and NB

Is the Mainline Oriented North/South?

Enter Yes or No

Yes

No

K Factors		D Factors	
	Mainline		Mainline
	9.50%	Westbound (WB)	60.5%
	Side street	Eastbound (EB)	39.5%
	9.50%		Side street
		Northbound (NB)	44.1%
		Southbound (SB)	55.9%

Do you have FTSUTMS Model Year traffic from which you would like to interpolate/extrapolate for project years? (Y/N)

Enter Yes or No

Yes

No

If "Yes" go to cell C47

If "No" go to cell C31

Enter Year and Growth Rates from Base Year:

Base	Year	Rate (1.0% = 0.01)	
		Mainline	Side Street
Opening	2016	4.00%	4.00%
Mid	2033		
Design	2043		

Mainline Growth Function

Linear

Exponential

Decaying

Side Street Growth Function

Linear

Exponential

Decaying

Enter Base Year AADTs for Volume Comparison:

(growth rates are used to calculate other project years)

From West:	From East:	From North:	From South:	TOTAL
EB Approach	WB Approach	SB Approach	NB Approach	
22000	15000	6600	10000	53600

Enter Project and Model Years

	Year
Base	2016
Opening	2025
Mid	2035
Design	2045
Model	2045

Enter Base and Model Year AADTs for Volume Comparison:

(volumes for other project years are calculated by interpolation)

	From West:	From East:	From North:	From South:	TOTAL
	EB Approach	WB Approach	SB Approach	NB Approach	
2016	22000	15000	6600	10000	53600
2045	57000	49000	15000	25000	146000

1st Guess Actual/Counted
Turning %'s for Traffic
AADT Balancing for 2016

(EB LT)	West-to-North	15.4%	132
(EB THRU)	West-to-East	42.1%	361
(EB RT)	West-to-South	42.5%	365
(WB LT)	East-to-South	21.5%	127
(WB THRU)	East-to-West	72.1%	425
(WB RT)	East-to-North	6.4%	38
(SB LT)	North-to-East	18.1%	92
(SB THRU)	North-to-South	67.3%	342
(SB RT)	North-to-West	14.6%	74
(NB LT)	South-to-West	60.2%	400
(NB THRU)	South-to-North	30.3%	201
(NB RT)	South-to-East	9.5%	63

Existing Year AADTs

Existing Turning Movement Counts

FSUTMS Model Year AADTs

Desired Closure: 1.00

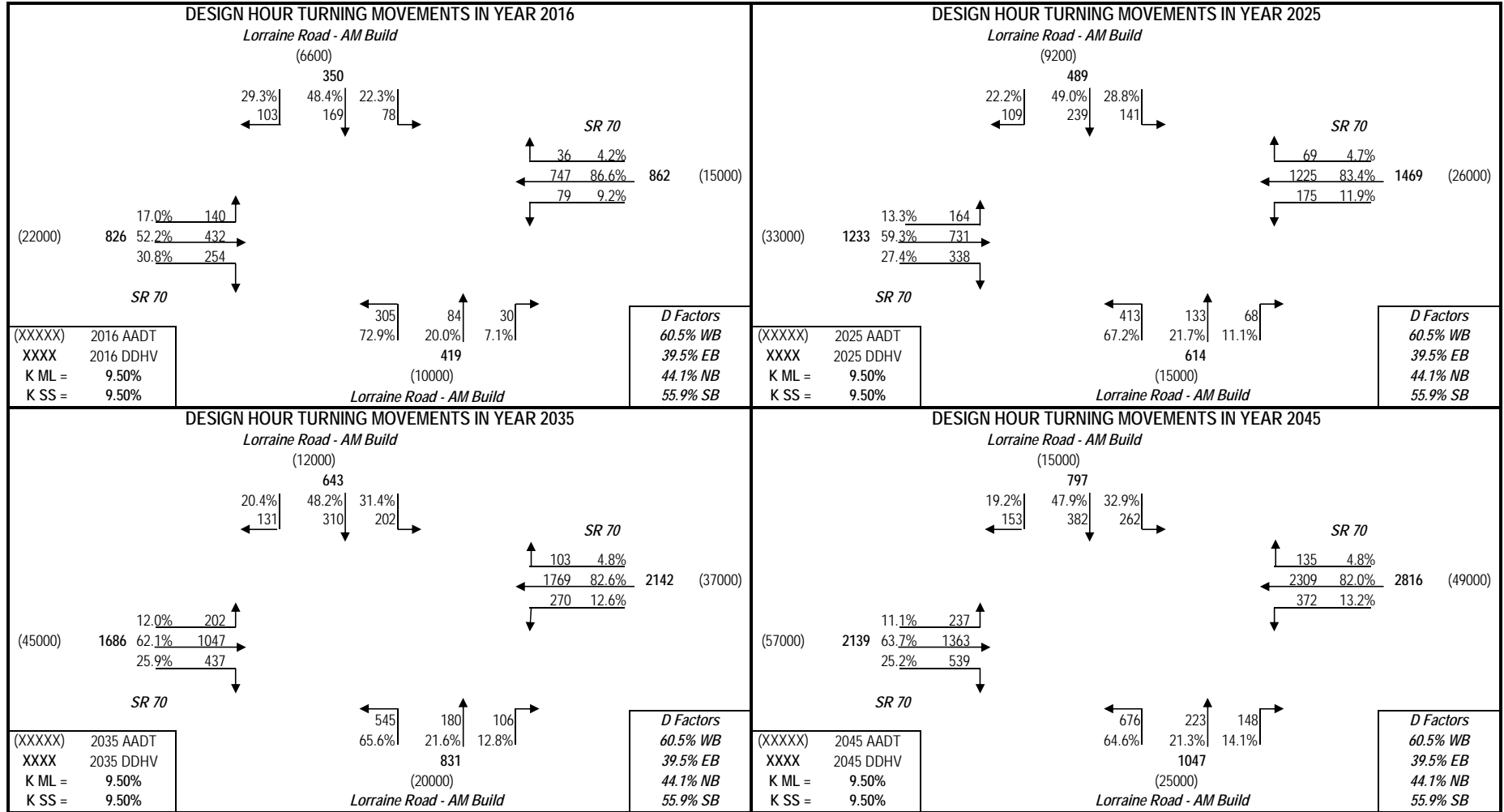
First Guess Turning % Option Used Existing Turning Movement Counts

Only the existing year total departure volumes [AADT*K*(1-D)] will be used to calculate the turning percentages first guess.

The turning percentages first guess is the same as the **actual distribution of turning volumes entered**. No balancing technique is used.

Only the FSUTMS model year departure volumes [AADT*K*(1-D)] will be used to calculate the turning percentages first guess.

PROJECT TRAFFIC FOR SR 70 AT Lorraine Road - AM Build



TURNS5 ANALYSIS SHEET - INPUT

Analyst:

Date: 14-Sep-18

Highway: SR 70

Intersection: Lorraine Road - PM Build

Project: SR 70 DTTM

County: Manatee

Is this a 4 way intersection?

Yes, my intersection has four approaches

If not, which 3 approaches exist in the intersection?

EB, WB, and SB

EB, WB, and NB

EB, SB, and NB

WB, SB, and NB

Is the Mainline Oriented North/South?

Enter Yes or No

Yes

No

K Factors		D Factors	
	Mainline		Mainline
	9.50%	Westbound (WB)	39.5%
		Eastbound (EB)	60.5%
	Side street		Side street
	9.50%	Northbound (NB)	55.9%
		Southbound (SB)	44.1%

Do you have FTSUTMS Model Year traffic from which you would like to interpolate/extrapolate for project years? (Y/N)

Enter Yes or No

Yes

No

If "Yes" go to cell C47

If "No" go to cell C31

Enter Year and Growth Rates from Base Year:

Base	Year	Rate (1.0% = 0.01)	
		Mainline	Side Street
Opening	2016		
Mid	2033	4.00%	4.00%
Design	2043		

Mainline Growth Function

Linear

Exponential

Decaying

Side Street Growth Function

Linear

Exponential

Decaying

Enter Base Year AADTs for Volume Comparison:

(growth rates are used to calculate other project years)

From West:	From East:	From North:	From South:	TOTAL
EB Approach	WB Approach	SB Approach	NB Approach	
22000	15000	6600	10000	53600

Enter Project and Model Years

	Year
Base	2016
Opening	2025
Mid	2035
Design	2045
Model	2045

Enter Base and Model Year AADTs for Volume Comparison:

(volumes for other project years are calculated by interpolation)

	From West:	From East:	From North:	From South:	TOTAL
	EB Approach	WB Approach	SB Approach	NB Approach	
2016	22000	15000	6600	10000	53600
2045	57000	49000	15000	25000	146000

1st Guess Actual/Counted
Turning %'s for Traffic
AADT Balancing for 2016

(EB LT)	West-to-North	20.6%	202
(EB THRU)	West-to-East	58.5%	573
(EB RT)	West-to-South	20.9%	205
(WB LT)	East-to-South	8.3%	43
(WB THRU)	East-to-West	81.1%	423
(WB RT)	East-to-North	10.6%	55
(SB LT)	North-to-East	29.2%	80
(SB THRU)	North-to-South	33.2%	91
(SB RT)	North-to-West	37.6%	103
(NB LT)	South-to-West	50.4%	332
(NB THRU)	South-to-North	33.1%	218
(NB RT)	South-to-East	16.5%	109

Existing Year AADTs

Existing Turning Movement Counts

FSUTMS Model Year AADTs

Desired Closure: 0.01

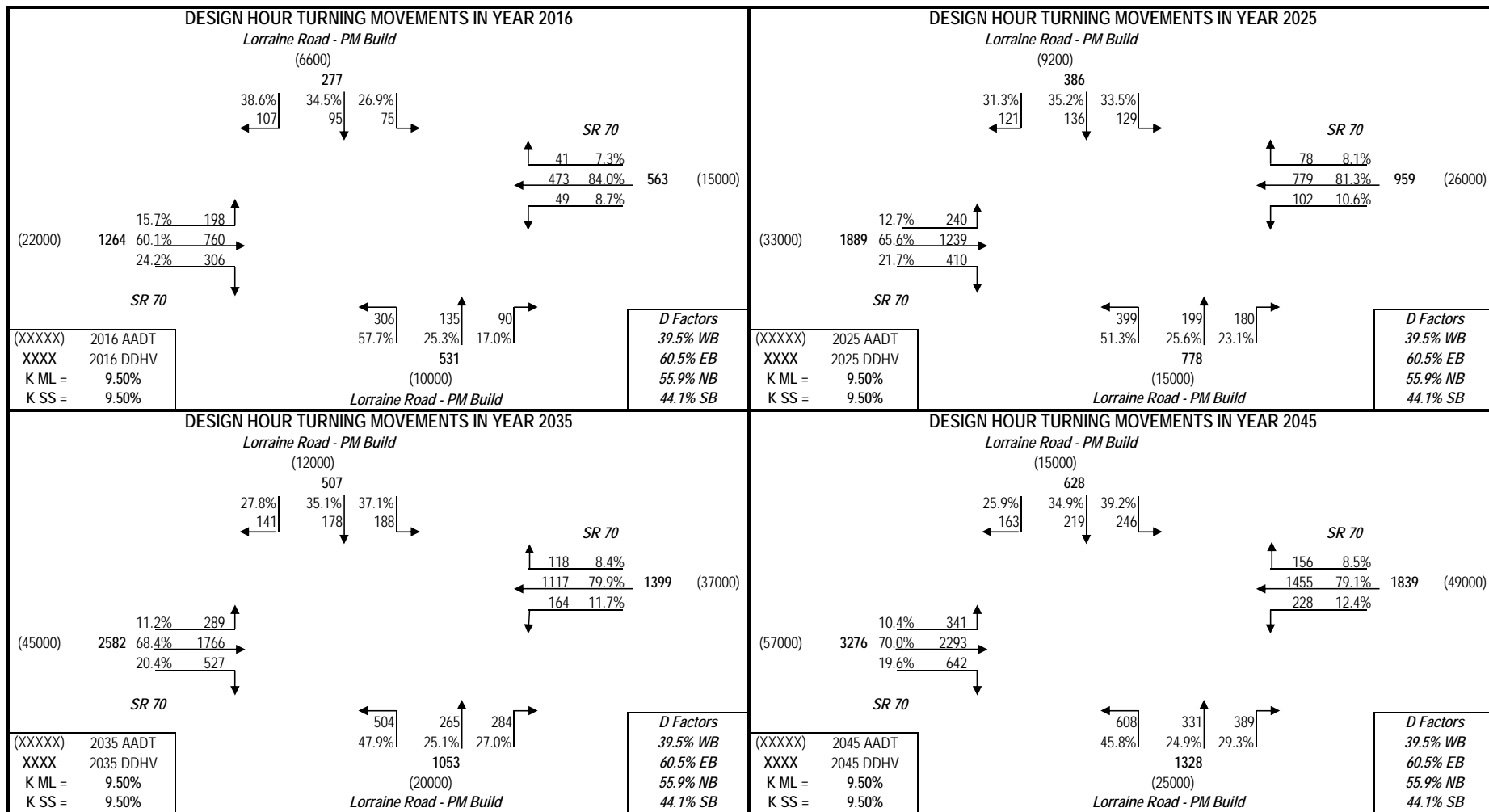
First Guess Turning % Option Used Existing Turning Movement Counts

Only the existing year total departure volumes [AADT*K*(1-D)] will be used to calculate the turning percentages first guess.

The turning percentages first guess is the same as the **actual distribution of turning volumes entered**. No balancing technique is used.

Only the FSUTMS model year departure volumes [AADT*K*(1-D)] will be used to calculate the turning percentages first guess.

PROJECT TRAFFIC FOR SR 70 AT Lorraine Road - PM Build



TURNS5 ANALYSIS SHEET - INPUT

Analyst:
Date: 14-Sep-18
Highway: SR 70
Intersection: Greenbrook Blvd-Post Blvd - AM Build
Project: SR 70 DTTM
County: Manatee

Is this a 4 way intersection?
 Yes, my intersection has four approaches
 If not, which 3 approaches exist in the intersection?
 EB, WB, and SB
 EB, WB, and NB
 EB, SB, and NB
 WB, SB, and NB

Is the Mainline Oriented North/South?
 Enter Yes or No
 Yes
 No

K Factors		D Factors	
	Mainline		Mainline
	9.50%	Westbound (WB)	60.5%
	Side street	Eastbound (EB)	39.5%
	9.50%		Side street
		Northbound (NB)	57.5%
		Southbound (SB)	42.5%

Do you have FTSUTMS Model Year traffic from which you would like to interpolate/extrapolate for project years? (Y/N)

Enter Yes or No
 Yes
 No

If "Yes" go to cell C47

If "No" go to cell C31

Enter Year and Growth Rates from Base Year:

Base	Year	Rate (1.0% = 0.01)	
		Mainline	Side Street
Opening	2016	2.54%	0.60%
Mid	2033		
Design	2043		
	2043		

Mainline Growth Function
 Linear
 Exponential
 Decaying

Side Street Growth Function
 Linear
 Exponential
 Decaying

Enter Base Year AADTs for Volume Comparison:

(growth rates are used to calculate other project years)

From West:	From East:	From North:	From South:	TOTAL
EB Approach	WB Approach	SB Approach	NB Approach	
15000	13000	1500	2600	32100

Enter Project and Model Years

	Year
Base	2016
Opening	2025
Mid	2035
Design	2045
Model	2045

Enter Base and Model Year AADTs for Volume Comparison:

(volumes for other project years are calculated by interpolation)

	From West:	From East:	From North:	From South:	TOTAL
	EB Approach	WB Approach	SB Approach	NB Approach	
2016	15000	13000	1500	2600	32100
2045	49000	34000	14000	16000	113000

1st Guess Actual/Counted
Turning %'s for Traffic
AADT Balancing for 2016

(EB LT)	West-to-North	15.0%	15
(EB THRU)	West-to-East	70.0%	70
(EB RT)	West-to-South	15.0%	15
(WB LT)	East-to-South	15.0%	15
(WB THRU)	East-to-West	70.0%	70
(WB RT)	East-to-North	15.0%	15
(SB LT)	North-to-East	20.0%	20
(SB THRU)	North-to-South	60.0%	60
(SB RT)	North-to-West	20.0%	20
(NB LT)	South-to-West	20.0%	20
(NB THRU)	South-to-North	60.0%	60
(NB RT)	South-to-East	20.0%	20

Existing Year AADTs

Existing Turning Movement Counts

FSUTMS Model Year AADTs

Desired Closure: 2.00

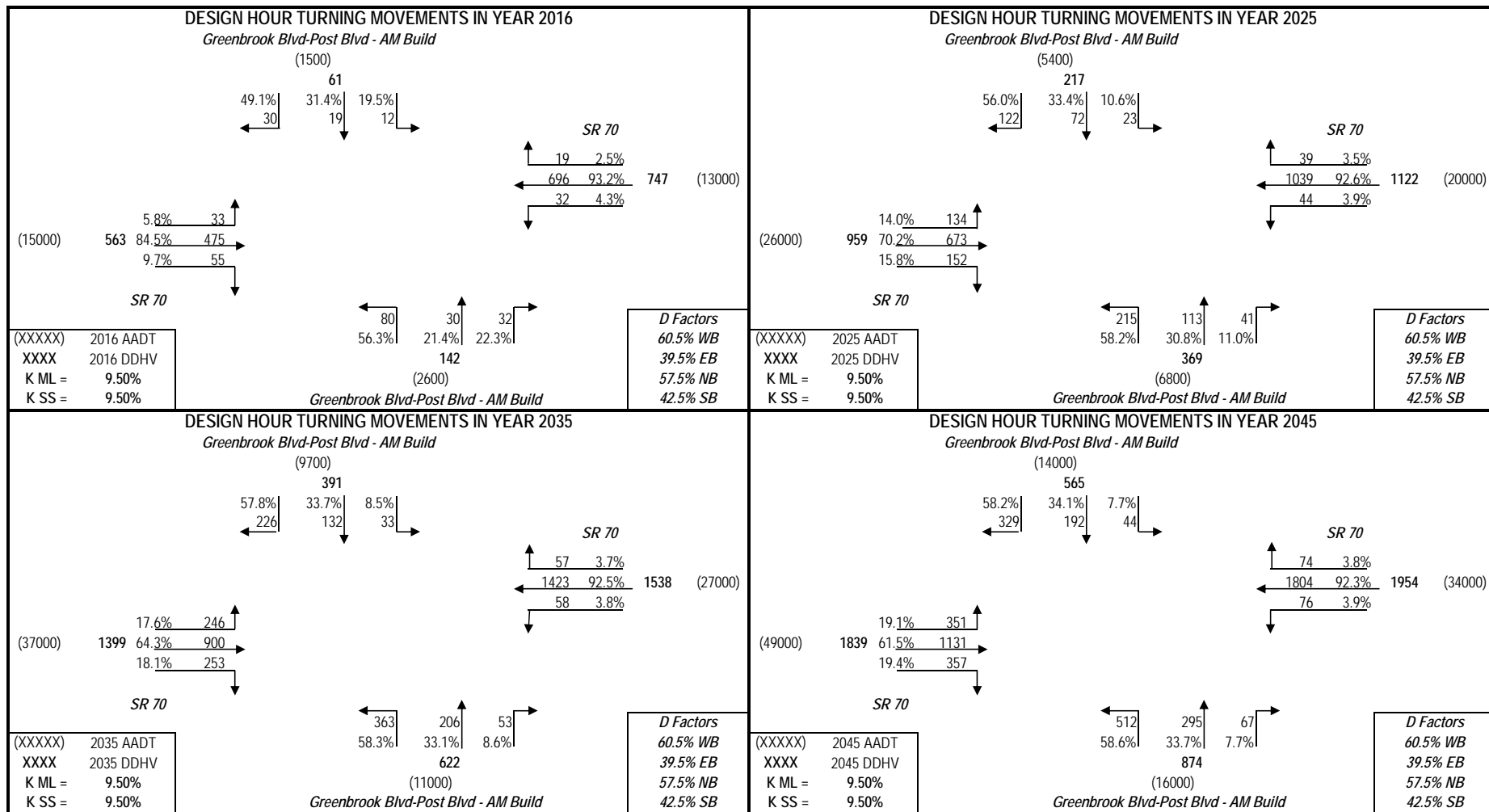
First Guess Turning % Option Used Existing Turning Movement Counts

Only the existing year total departure volumes [AADT*K*(1-D)] will be used to calculate the turning percentages first guess.

The turning percentages first guess is the same as the **actual distribution of turning volumes entered**. No balancing technique is used.

Only the FSUTMS model year departure volumes [AADT*K*(1-D)] will be used to calculate the turning percentages first guess.

PROJECT TRAFFIC FOR SR 70 AT Greenbrook Blvd-Post Blvd - AM Build



TURNS5 ANALYSIS SHEET - INPUT

Analyst:

Date: 14-Sep-18

Highway: SR 70

Intersection: Greenbrook Blvd-Post Blvd - PM Build

Project: SR 70 DTTM

County: Manatee

Is this a 4 way intersection?

Yes, my intersection has four approaches

If not, which 3 approaches exist in the intersection?

EB, WB, and SB

EB, WB, and NB

EB, SB, and NB

WB, SB, and NB

Is the Mainline Oriented North/South?

Enter Yes or No

Yes

No

K Factors		D Factors	
	Mainline		Mainline
	9.50%	Westbound (WB)	39.5%
	Side street	Eastbound (EB)	60.5%
	9.50%		Side street
		Northbound (NB)	42.5%
		Southbound (SB)	57.5%

Do you have FTSUTMS Model Year traffic from which you would like to interpolate/extrapolate for project years? (Y/N)

Enter Yes or No

Yes

No

If "Yes" go to cell C47

If "No" go to cell C31

Enter Year and Growth Rates from Base Year:

Base	Year	Rate (1.0% = 0.01)	
		Mainline	Side Street
Opening	2016	2.54%	0.60%
Mid	2033		
Design	2043		
	2043		

Mainline Growth Function

Linear

Exponential

Decaying

Side Street Growth Function

Linear

Exponential

Decaying

Enter Base Year AADTs for Volume Comparison:

(growth rates are used to calculate other project years)

From West:	From East:	From North:	From South:	TOTAL
EB Approach	WB Approach	SB Approach	NB Approach	
15000	13000	1500	2600	32100

Enter Project and Model Years

	Year
Base	2016
Opening	2025
Mid	2035
Design	2045
Model	2045

Enter Base and Model Year AADTs for Volume Comparison:

(volumes for other project years are calculated by interpolation)

	From West:	From East:	From North:	From South:	TOTAL
	EB Approach	WB Approach	SB Approach	NB Approach	
2016	15000	13000	1500	2600	32100
2045	49000	34000	14000	16000	113000

1st Guess Actual/Counted
Turning %'s for Traffic
AADT Balancing for 2016

(EB LT)	West-to-North	15.0%	15
(EB THRU)	West-to-East	70.0%	70
(EB RT)	West-to-South	15.0%	15
(WB LT)	East-to-South	15.0%	15
(WB THRU)	East-to-West	70.0%	70
(WB RT)	East-to-North	15.0%	15
(SB LT)	North-to-East	20.0%	20
(SB THRU)	North-to-South	60.0%	60
(SB RT)	North-to-West	20.0%	20
(NB LT)	South-to-West	20.0%	20
(NB THRU)	South-to-North	60.0%	60
(NB RT)	South-to-East	20.0%	20

Existing Year AADTs

Existing Turning Movement Counts

FSUTMS Model Year AADTs

Desired Closure: 0.01

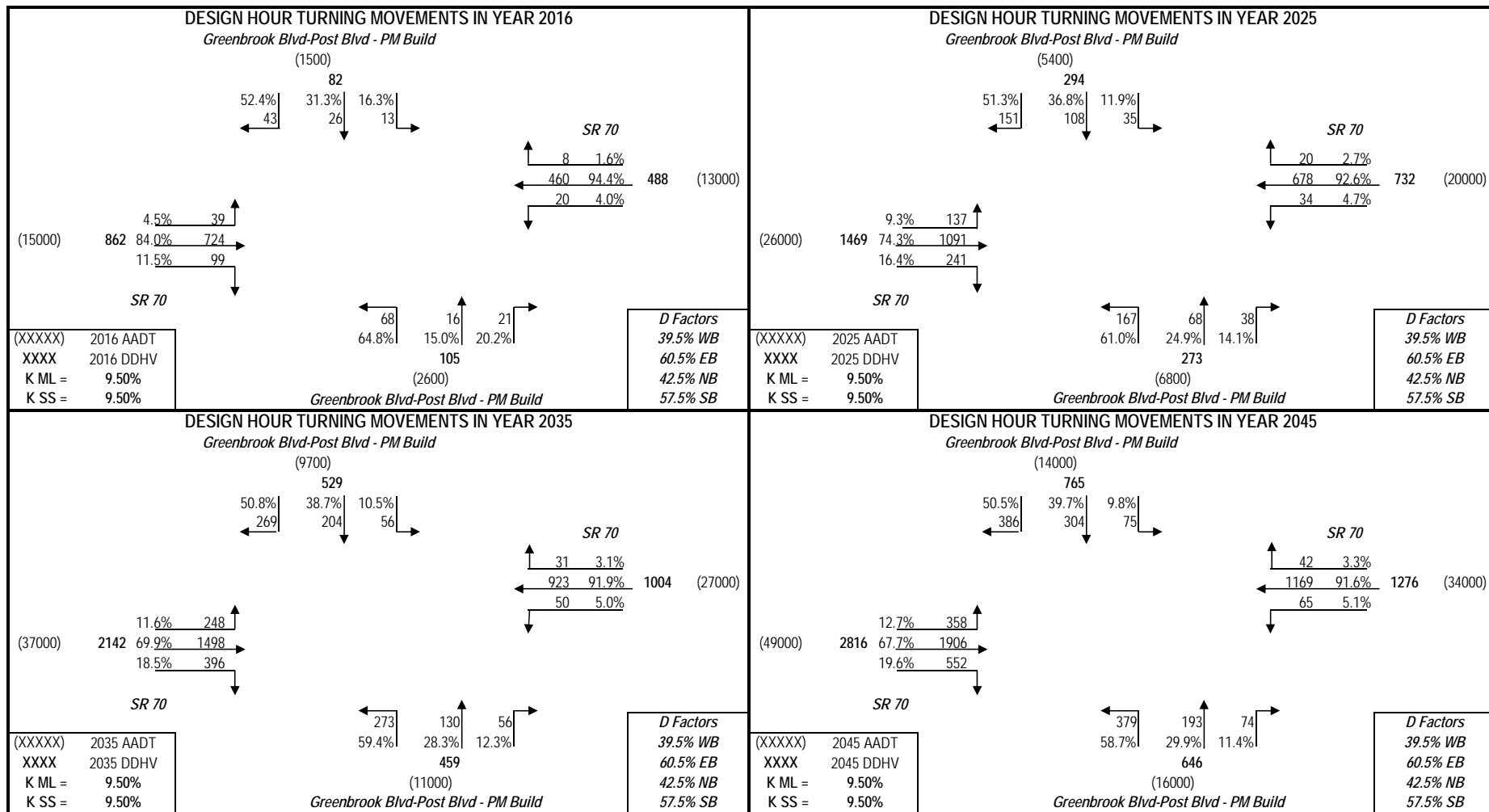
First Guess Turning % Option Used Existing Turning Movement Counts

Only the existing year total departure volumes [AADT*K*(1-D)] will be used to calculate the turning percentages first guess.

The turning percentages first guess is the same as the **actual distribution of turning volumes entered**. No balancing technique is used.

Only the FSUTMS model year departure volumes [AADT*K*(1-D)] will be used to calculate the turning percentages first guess.

PROJECT TRAFFIC FOR SR 70 AT Greenbrook Blvd-Post Blvd - PM Build



TURNS5 ANALYSIS SHEET - INPUT

Analyst:

Date: 14-Sep-18

Highway: SR 70

Intersection: Uihlein Rd - AM Build

Project: SR 70 DTTM

County: Manatee

Is this a 4 way intersection?

Yes, my intersection has four approaches

If not, which 3 approaches exist in the intersection?

EB, WB, and SB

EB, WB, and NB

EB, SB, and NB

WB, SB, and NB

Is the Mainline Oriented North/South?

Enter Yes or No

Yes

No

K Factors		D Factors	
	Mainline		Mainline
	9.50%	Westbound (WB)	60.5%
		Eastbound (EB)	39.5%
	Side street		Side street
	9.50%	Northbound (NB)	0.0%
		Southbound (SB)	60.5%

Do you have FTSUTMS Model Year traffic from which you would like to interpolate/extrapolate for project years? (Y/N)

Enter Yes or No

Yes

No

If "Yes" go to cell C47 If "No" go to cell C31

Enter Year and Growth Rates from Base Year:

Base	Year	Rate (1.0% = 0.01)	
		Mainline	Side Street
Opening	2016	0.60%	0.60%
Mid	2033		
Design	2043		
	2043		

Mainline Growth Function

Linear

Exponential

Decaying

Side Street Growth Function

Linear

Exponential

Decaying

Enter Base Year AADTs for Volume Comparison:
(growth rates are used to calculate other project years)

From West:	From East:	From North:	From South:	TOTAL
EB Approach	WB Approach	SB Approach	NB Approach	
11000	10000	0	310	21310

Enter Project and Model Years

	Year
Base	2016
Opening	2025
Mid	2035
Design	2045
Model	2045

Enter Base and Model Year AADTs for Volume Comparison:
(volumes for other project years are calculated by interpolation)

	From West:	From East:	From North:	From South:	TOTAL
	EB Approach	WB Approach	SB Approach	NB Approach	
2016	10000	10000	2000	0	22000
2045	34000	24000	14000	0	72000

1st Guess Actual/Counted Turning %'s for Traffic AADT Balancing for 2016

		1st Guess	Actual/Counted
(EB LT)	West-to-North	36.8%	137
(EB THRU)	West-to-East	63.2%	736
(EB RT)	West-to-South	0.0%	0
(WB LT)	East-to-South	0.0%	0
(WB THRU)	East-to-West	78.8%	867
(WB RT)	East-to-North	21.2%	190
(SB LT)	North-to-East	31.5%	162
(SB THRU)	North-to-South	0.0%	0
(SB RT)	North-to-West	68.5%	280
(NB LT)	South-to-West	0.0%	0
(NB THRU)	South-to-North	0.0%	0
(NB RT)	South-to-East	0.0%	0

Existing Year AADTs

Existing Turning Movement Counts

FSUTMS Model Year AADTs

Desired Closure: 3.00

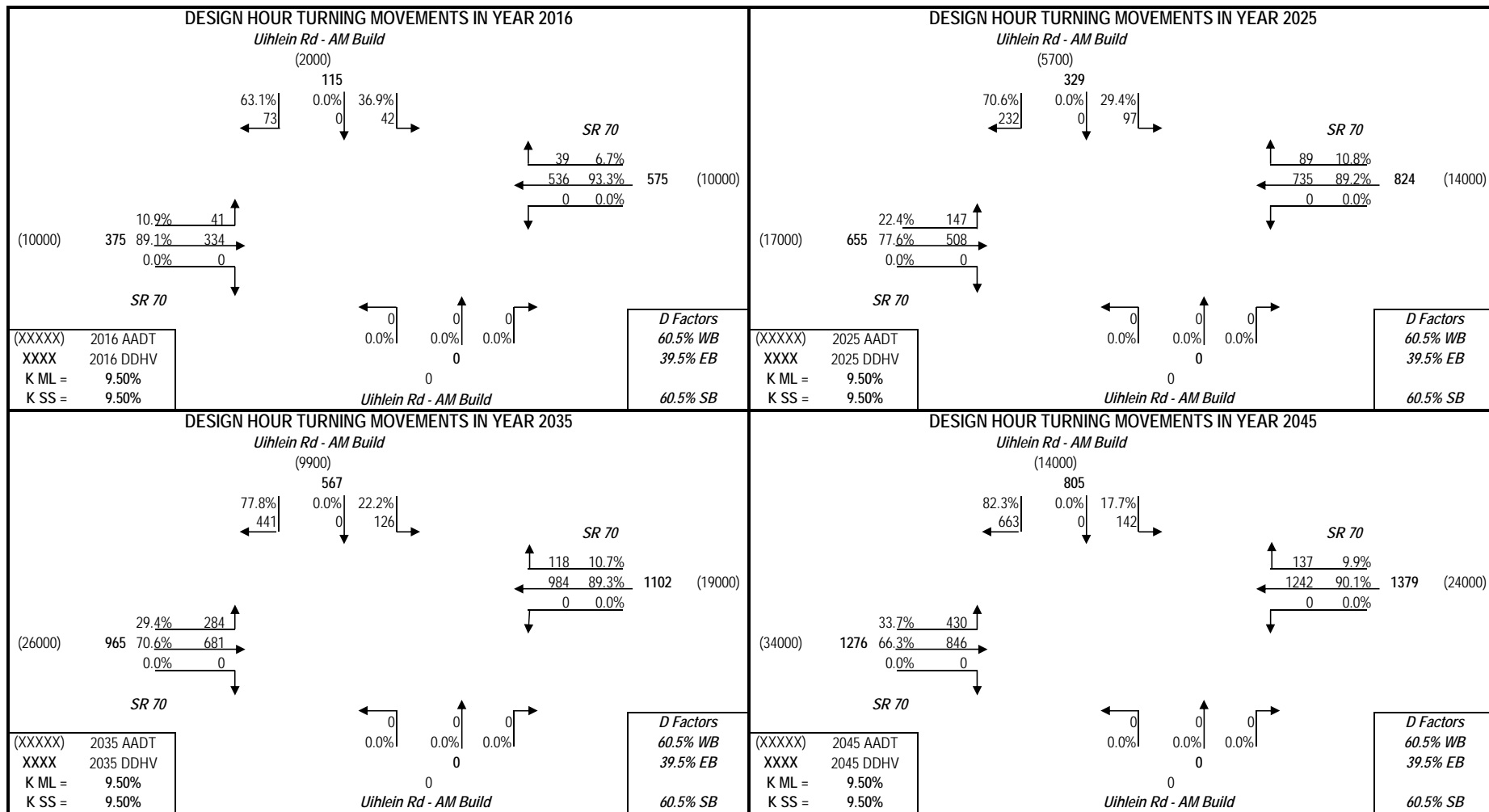
First Guess Turning % Option Used FSUTMS Model Year AADTs

Only the existing year total departure volumes [AADT*K*(1-D)] will be used to calculate the turning percentages first guess.

The turning percentages first guess is the same as the actual distribution of turning volumes entered. No balancing technique is used.

Only the FSUTMS model year departure volumes [AADT*K*(1-D)] will be used to calculate the turning percentages first guess.

PROJECT TRAFFIC FOR SR 70 AT Uihlein Rd - AM Build



TURNS5 ANALYSIS SHEET - INPUT

Analyst:

Date: 14-Sep-18

Highway: SR 70

Intersection: Uihlein Rd - PM Build

Project: SR 70 DTTM

County: Manatee

Is this a 4 way intersection?

Yes, my intersection has four approaches

If not, which 3 approaches exist in the intersection?

EB, WB, and SB

EB, WB, and NB

EB, SB, and NB

WB, SB, and NB

Is the Mainline Oriented North/South?

Enter Yes or No

Yes

No

K Factors		D Factors	
	Mainline		Mainline
	9.50%	Westbound (WB)	39.5%
	Side street	Eastbound (EB)	60.5%
	9.50%		Side street
		Northbound (NB)	0.0%
		Southbound (SB)	39.5%

Do you have FTSUTMS Model Year traffic from which you would like to interpolate/extrapolate for project years? (Y/N)

Enter Yes or No

Yes

No

If "Yes" go to cell C47 If "No" go to cell C31

Enter Year and Growth Rates from Base Year:

Base	Year	Rate (1.0% = 0.01)	
		Mainline	Side Street
Opening	2016	0.60%	0.60%
Mid	2033		
Design	2043		
	2043		

Mainline Growth Function

Linear

Exponential

Decaying

Side Street Growth Function

Linear

Exponential

Decaying

Enter Base Year AADTs for Volume Comparison:
(growth rates are used to calculate other project years)

From West:	From East:	From North:	From South:	TOTAL
EB Approach	WB Approach	SB Approach	NB Approach	
11000	10000	0	310	21310

Enter Project and Model Years

	Year
Base	2016
Opening	2025
Mid	2035
Design	2045
Model	2045

Enter Base and Model Year AADTs for Volume Comparison:
(volumes for other project years are calculated by interpolation)

	From West:	From East:	From North:	From South:	TOTAL
	EB Approach	WB Approach	SB Approach	NB Approach	
2016	10000	10000	2000	0	22000
2045	34000	24000	14000	0	72000

1st Guess Actual/Counted Turning %'s for Traffic AADT Balancing for 2016

(EB LT)	West-to-North	36.8%	137
(EB THRU)	West-to-East	63.2%	736
(EB RT)	West-to-South	0.0%	0
(WB LT)	East-to-South	0.0%	0
(WB THRU)	East-to-West	61.3%	867
(WB RT)	East-to-North	38.7%	190
(SB LT)	North-to-East	51.9%	162
(SB THRU)	North-to-South	0.0%	0
(SB RT)	North-to-West	48.1%	280
(NB LT)	South-to-West	0.0%	0
(NB THRU)	South-to-North	0.0%	0
(NB RT)	South-to-East	0.0%	0

Existing Year AADTs

Existing Turning Movement Counts

FSUTMS Model Year AADTs

Desired Closure: 1.00

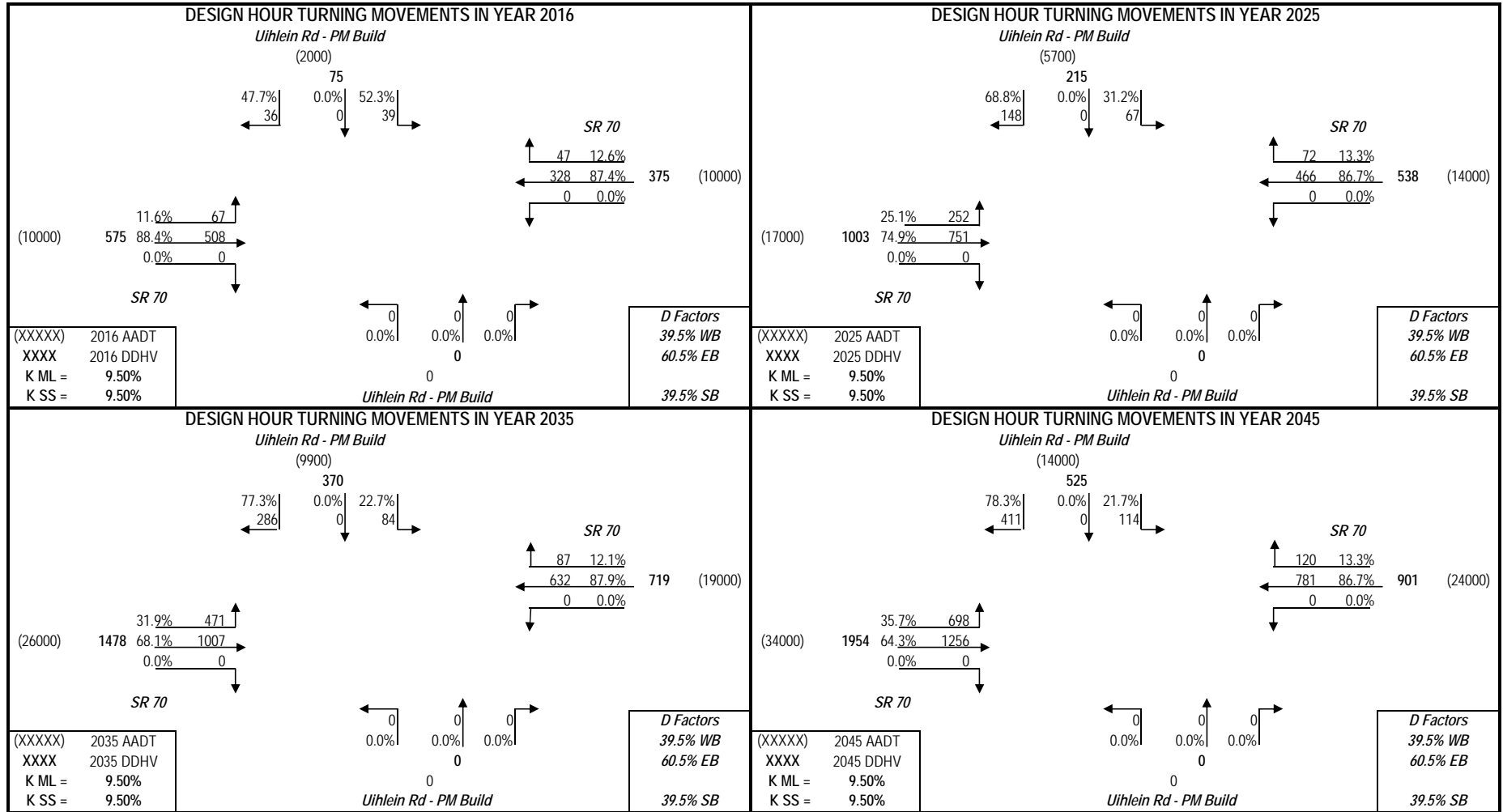
First Guess Turning % Option Used
FSUTMS Model Year AADTs

Only the existing year total departure volumes [AADT*K*(1-D)] will be used to calculate the turning percentages first guess.

The turning percentages first guess is the same as the actual distribution of turning volumes entered. No balancing technique is used.

Only the FSUTMS model year departure volumes [AADT*K*(1-D)] will be used to calculate the turning percentages first guess.

PROJECT TRAFFIC FOR SR 70 AT Uihlein Rd - PM Build



TURNS5 ANALYSIS SHEET - INPUT

Analyst:
Date: 17-Oct-18
Highway: SR 70
Intersection: Del Webb - AM B
Project: SR 70 DTTM
County: Manatee

Is this a 4 way intersection?
 Yes, my intersection has four approaches
 If not, which 3 approaches exist in the intersection?
 EB, WB, and SB
 EB, WB, and NB
 EB, SB, and NB
 WB, SB, and NB

Is the Mainline Oriented North/South?
 Yes
 No

K Factors		D Factors	
	Mainline		Mainline
	9.50%	Westbound (WB)	60.5%
		Eastbound (EB)	39.5%
	Side street		Side street
	9.50%	Northbound (NB)	39.5%
		Southbound (SB)	0.0%

Do you have FTSUTMS Model Year traffic from which you would like to interpolate/extrapolate for project years? (Y/N)

Yes
 No

If "Yes" go to cell C47 If "No" go to cell C31

Enter Year and Growth Rates from Base Year:

Base	Year	Rate (1.0% = 0.01)	
		Mainline	Side Street
Opening	2016	0.60%	0.60%
Mid	2033		
Design	2043		

Mainline Growth Function
 Linear
 Exponential
 Decaying

Side Street Growth Function
 Linear
 Exponential
 Decaying

Enter Base Year AADTs for Volume Comparison:
(growth rates are used to calculate other project years)

From West:	From East:	From North:	From South:	TOTAL
EB Approach	WB Approach	SB Approach	NB Approach	
11000	10000	0	310	21310

Enter Project and Model Years

	Year
Base	2018
Opening	2025
Mid	2035
Design	2045
Model	2045

Enter Base and Model Year AADTs for Volume Comparison:
(volumes for other project years are calculated by interpolation)

	From West:	From East:	From North:	From South:	TOTAL
	EB Approach	WB Approach	SB Approach	NB Approach	
2018	13000	13000	0	2200	28200
2045	24000	21000	0	3000	48000

1st Guess Actual/Counted
Turning %'s for Traffic
AADT Balancing for 2018

(EB LT)	West-to-North	0.0%	0
(EB THRU)	West-to-East	76.0%	257
(EB RT)	West-to-South	24.0%	81
(WB LT)	East-to-South	0.2%	1
(WB THRU)	East-to-West	99.8%	655
(WB RT)	East-to-North	0.0%	0
(SB LT)	North-to-East	0.0%	0
(SB THRU)	North-to-South	0.0%	0
(SB RT)	North-to-West	0.0%	0
(NB LT)	South-to-West	92.3%	48
(NB THRU)	South-to-North	0.0%	0
(NB RT)	South-to-East	7.7%	4

Existing Year AADTs

Existing Turning Movement Counts

FSUTMS Model Year AADTs

Desired Closure: 0.10

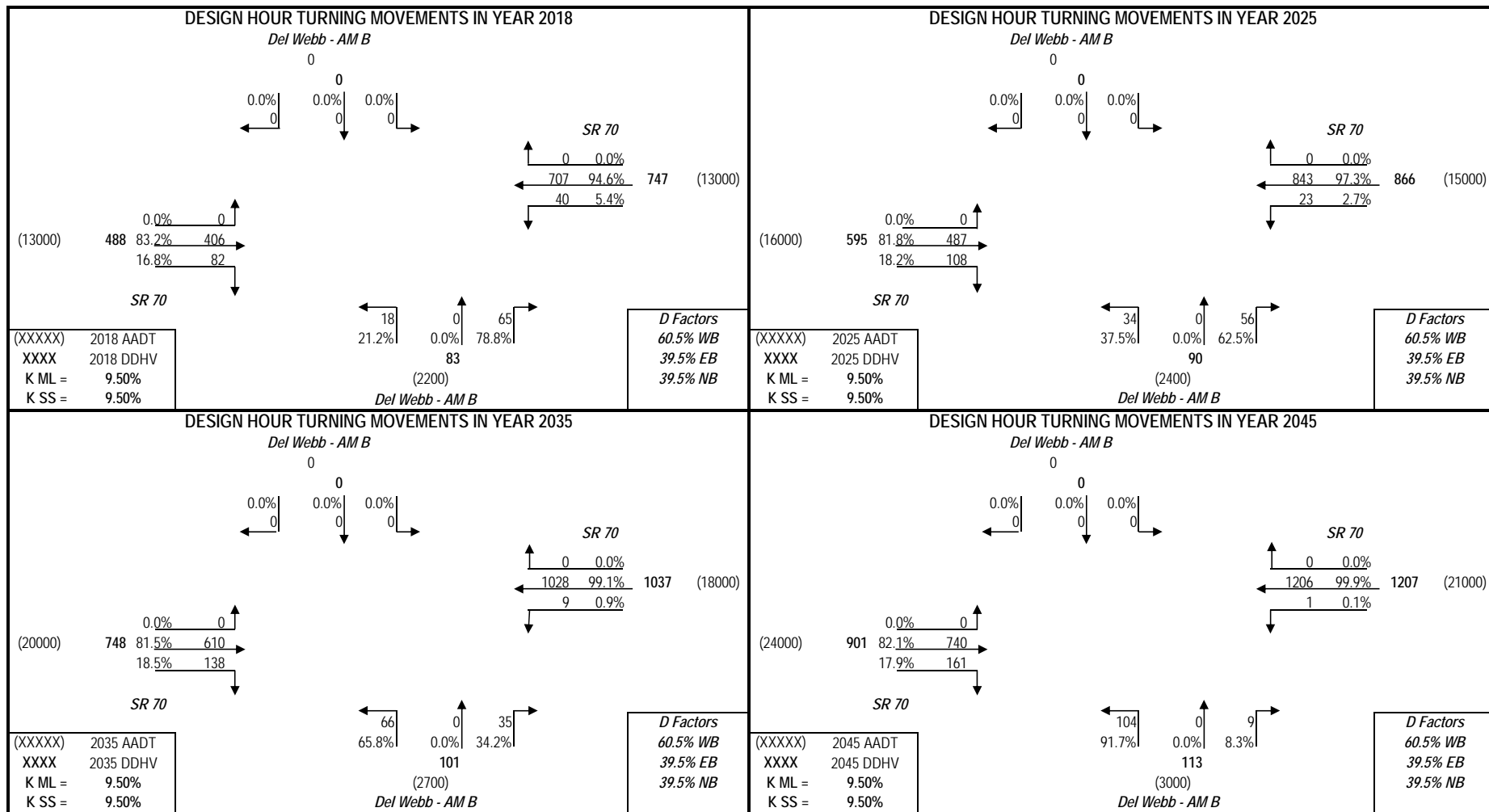
First Guess Turning % Option Used Existing Turning Movement Counts

Only the existing year total departure volumes [AADT*K*(1-D)] will be used to calculate the turning percentages first guess.

The turning percentages first guess is the same as the **actual distribution of turning volumes entered**. No balancing technique is used.

Only the FSUTMS model year departure volumes [AADT*K*(1-D)] will be used to calculate the turning percentages first guess.

PROJECT TRAFFIC FOR SR 70 AT Del Webb - AM B



TURNS5 ANALYSIS SHEET - INPUT

Analyst:
Date: 17-Oct-18
Highway: SR 70
Intersection: Del Webb - PM B
Project: SR 70 DTTM
County: Manatee

Is this a 4 way intersection?
 Yes, my intersection has four approaches
 If not, which 3 approaches exist in the intersection?
 EB, WB, and SB
 EB, WB, and NB
 EB, SB, and NB
 WB, SB, and NB

Is the Mainline Oriented North/South?
 Yes
 No

K Factors		D Factors	
	Mainline		Mainline
	9.50%	Westbound (WB)	39.5%
		Eastbound (EB)	60.5%
	Side street		Side street
	9.50%	Northbound (NB)	60.5%
		Southbound (SB)	0.0%

Do you have FTSUTMS Model Year traffic from which you would like to interpolate/extrapolate for project years? (Y/N)

Yes
 No

If "Yes" go to cell C47 If "No" go to cell C31

Enter Year and Growth Rates from Base Year:

Base	Year	Rate (1.0% = 0.01)	
		Mainline	Side Street
Opening	2016	0.60%	0.60%
Mid	2033		
Design	2043		

Mainline Growth Function
 Linear
 Exponential
 Decaying

Side Street Growth Function
 Linear
 Exponential
 Decaying

Enter Base Year AADTs for Volume Comparison:
 (growth rates are used to calculate other project years)

From West:	From East:	From North:	From South:	
EB Approach	WB Approach	SB Approach	NB Approach	TOTAL
11000	10000	0	310	21310

Enter Project and Model Years

	Year
Base	2018
Opening	2025
Mid	2035
Design	2045
Model	2045

Enter Base and Model Year AADTs for Volume Comparison:
 (volumes for other project years are calculated by interpolation)

	From West:	From East:	From North:	From South:	
	EB Approach	WB Approach	SB Approach	NB Approach	TOTAL
2018	13000	13000	0	2200	28200
2045	24000	21000	0	3000	48000

1st Guess Actual/Counted
Turning %'s for Traffic
AADT Balancing for 2018

(EB LT)	West-to-North	0.0%	0
(EB THRU)	West-to-East	89.6%	578
(EB RT)	West-to-South	10.4%	67
(WB LT)	East-to-South	0.6%	2
(WB THRU)	East-to-West	99.4%	323
(WB RT)	East-to-North	0.0%	0
(SB LT)	North-to-East	0.0%	0
(SB THRU)	North-to-South	0.0%	0
(SB RT)	North-to-West	0.0%	0
(NB LT)	South-to-West	97.2%	69
(NB THRU)	South-to-North	0.0%	0
(NB RT)	South-to-East	2.8%	2

Existing Year AADTs

Existing Turning Movement Counts

FSUTMS Model Year AADTs

Desired Closure: 3.00

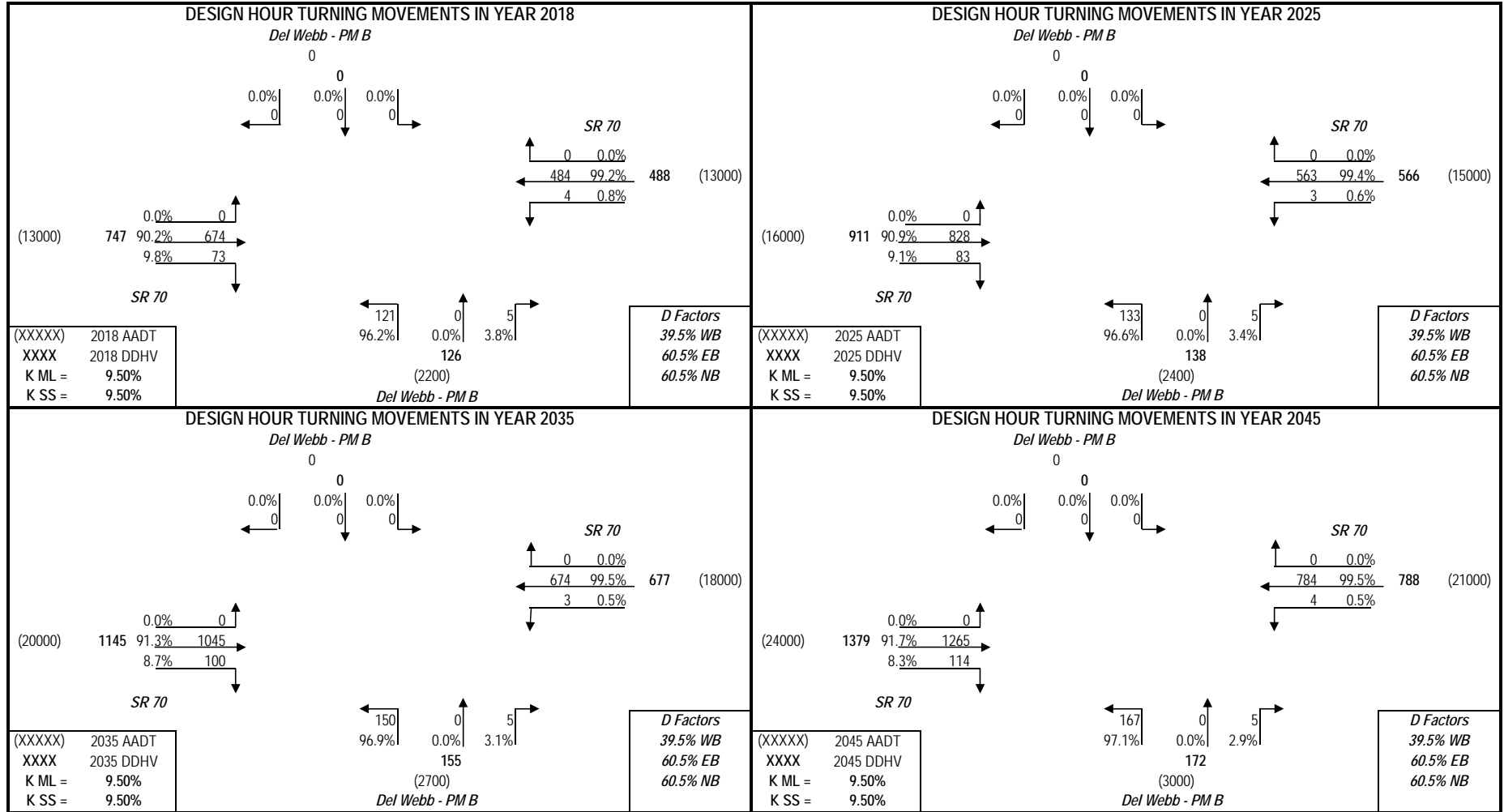
First Guess Turning % Option Used
Existing Turning Movement Counts

Only the existing year total departure volumes [AADT*K*(1-D)] will be used to calculate the turning percentages first guess.

The turning percentages first guess is the same as the **actual distribution of turning volumes entered**. No balancing technique is used.

Only the FSUTMS model year departure volumes [AADT*K*(1-D)] will be used to calculate the turning percentages first guess.

PROJECT TRAFFIC FOR SR 70 AT Del Webb - PM B



TURNS5 ANALYSIS SHEET - INPUT

Analyst:

Date: 14-Sep-18

Highway: SR 70

Intersection: Bournside Blvd - AM Build

Project: SR 70 DTTM

County: Manatee

Is this a 4 way intersection?

Yes, my intersection has four approaches

If not, which 3 approaches exist in the intersection?

EB, WB, and SB

EB, WB, and NB

EB, SB, and NB

WB, SB, and NB

Is the Mainline Oriented North/South?

Enter Yes or No

Yes

No

K Factors		D Factors	
	Mainline		Mainline
	9.50%	Westbound (WB)	60.5%
		Eastbound (EB)	39.5%
	Side street		Side street
	9.50%	Northbound (NB)	60.5%
		Southbound (SB)	39.5%

Do you have FTSUTMS Model Year traffic from which you would like to interpolate/extrapolate for project years? (Y/N)

Enter Yes or No

Yes

No

If "Yes" go to cell C47

If "No" go to cell C31

Enter Year and Growth Rates from Base Year:

Base	Year	Rate (1.0% = 0.01)	
		Mainline	Side Street
Opening	2016		
Mid	2033	2.54%	0.60%
Design	2043		

Mainline Growth Function

Linear

Exponential

Decaying

Side Street Growth Function

Linear

Exponential

Decaying

Enter Base Year AADTs for Volume Comparison:

(growth rates are used to calculate other project years)

From West:	From East:	From North:	From South:	TOTAL
EB Approach	WB Approach	SB Approach	NB Approach	
15000	13000	1500	2600	32100

Enter Project and Model Years

	Year
Base	2016
Opening	2025
Mid	2035
Design	2045
Model	2045

Enter Base and Model Year AADTs for Volume Comparison:

(volumes for other project years are calculated by interpolation)

	From West:	From East:	From North:	From South:	TOTAL
	EB Approach	WB Approach	SB Approach	NB Approach	
2016	14000	13000	2000	1500	30500
2045	21000	19000	8200	5600	53800

1st Guess Actual/Counted
Turning %'s for Traffic
AADT Balancing for 2016

		1st Guess	Actual/Counted
(EB LT)	West-to-North	33.8%	12
(EB THRU)	West-to-East	51.1%	379
(EB RT)	West-to-South	15.1%	47
(WB LT)	East-to-South	11.1%	57
(WB THRU)	East-to-West	63.9%	636
(WB RT)	East-to-North	25.0%	2
(SB LT)	North-to-East	33.5%	11
(SB THRU)	North-to-South	9.8%	9
(SB RT)	North-to-West	56.7%	10
(NB LT)	South-to-West	50.5%	103
(NB THRU)	South-to-North	19.7%	2
(NB RT)	South-to-East	29.8%	15

Existing Year AADTs

Existing Turning Movement Counts

FSUTMS Model Year AADTs

Desired Closure: 2.00

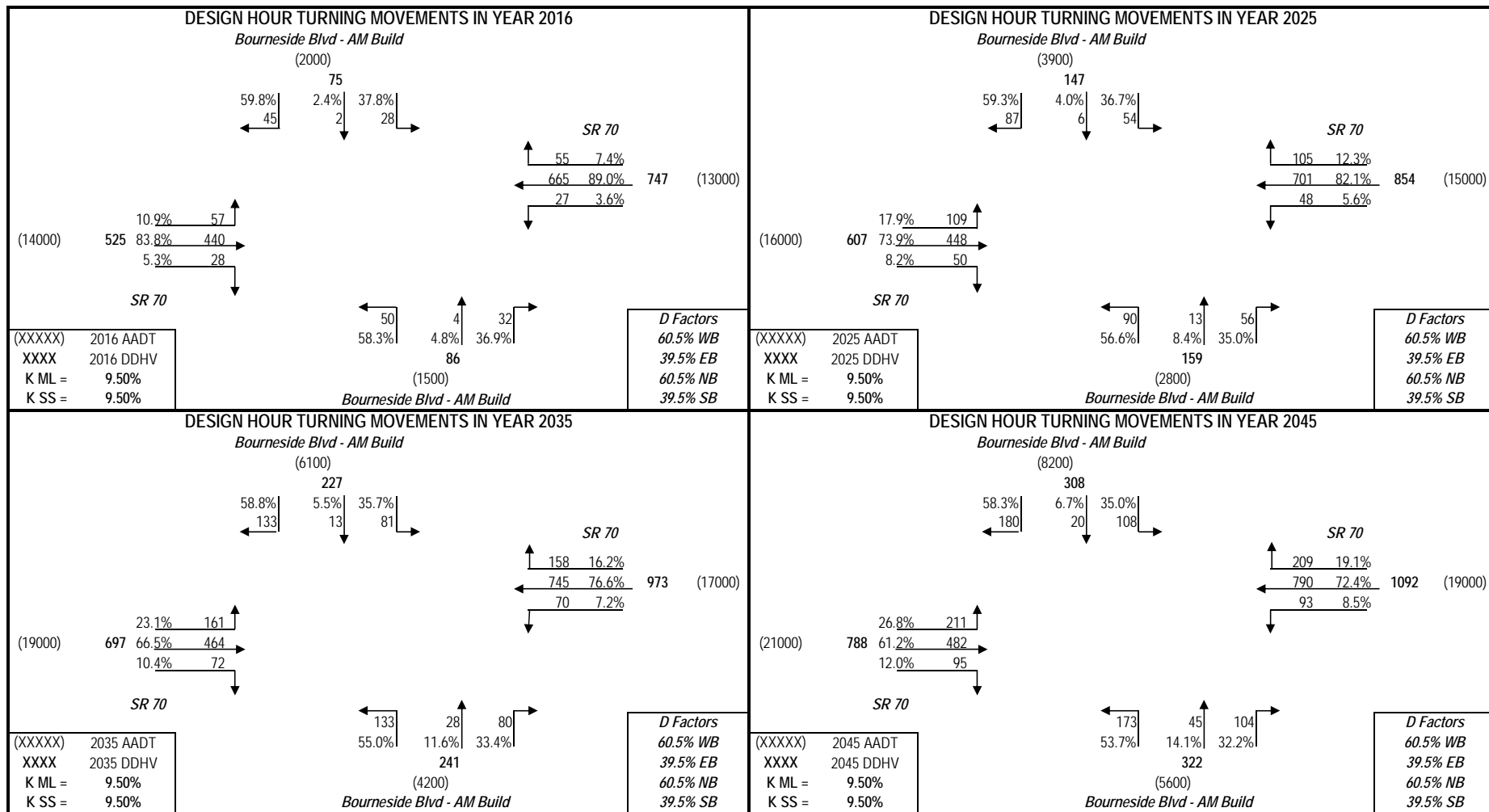
First Guess Turning % Option Used
FSUTMS Model Year AADTs

Only the existing year total departure volumes [AADT*K*(1-D)] will be used to calculate the turning percentages first guess.

The turning percentages first guess is the same as the **actual distribution of turning volumes entered**. No balancing technique is used.

Only the FSUTMS model year departure volumes [AADT*K*(1-D)] will be used to calculate the turning percentages first guess.

PROJECT TRAFFIC FOR SR 70 AT Bourneside Blvd - AM Build



TURNS5 ANALYSIS SHEET - INPUT

Analyst:
Date: 14-Sep-18
Highway: SR 70
Intersection: Bournside Blvd - PM Build
Project: SR 70 DTTM
County: Manatee

Is this a 4 way intersection?
 Yes, my intersection has four approaches
 If not, which 3 approaches exist in the intersection?
 EB, WB, and SB
 EB, WB, and NB
 EB, SB, and NB
 WB, SB, and NB

Is the Mainline Oriented North/South?
 Enter Yes or No
 Yes
 No

K Factors		D Factors	
	Mainline		Mainline
	9.50%	Westbound (WB)	39.5%
		Eastbound (EB)	60.5%
	Side street		Side street
	9.50%	Northbound (NB)	39.5%
		Southbound (SB)	60.5%

Do you have FTSUTMS Model Year traffic from which you would like to interpolate/extrapolate for project years? (Y/N)

Enter Yes or No
 Yes
 No

If "Yes" go to cell C47 If "No" go to cell C31

Enter Year and Growth Rates from Base Year:

Base	Year	Rate (1.0% = 0.01)	
		Mainline	Side Street
Opening	2016		
Mid	2033	2.54%	0.60%
Design	2043		

Mainline Growth Function
 Linear
 Exponential
 Decaying

Side Street Growth Function
 Linear
 Exponential
 Decaying

Enter Base Year AADTs for Volume Comparison:
(growth rates are used to calculate other project years)

From West:	From East:	From North:	From South:	
EB Approach	WB Approach	SB Approach	NB Approach	TOTAL
15000	13000	1500	2600	32100

Enter Project and Model Years

	Year
Base	2016
Opening	2025
Mid	2035
Design	2045
Model	2045

Enter Base and Model Year AADTs for Volume Comparison:
(volumes for other project years are calculated by interpolation)

	From West:	From East:	From North:	From South:	
	EB Approach	WB Approach	SB Approach	NB Approach	TOTAL
2016	14000	13000	2000	1500	30500
2045	21000	19000	8200	5600	53800

1st Guess Actual/Counted
Turning %'s for Traffic
AADT Balancing for 2016

(EB LT)	West-to-North	17.9%	59
(EB THRU)	West-to-East	63.4%	611
(EB RT)	West-to-South	18.7%	114
(WB LT)	East-to-South	22.7%	8
(WB THRU)	East-to-West	55.6%	430
(WB RT)	East-to-North	21.7%	6
(SB LT)	North-to-East	49.6%	6
(SB THRU)	North-to-South	14.6%	7
(SB RT)	North-to-West	35.8%	28
(NB LT)	South-to-West	36.0%	67
(NB THRU)	South-to-North	14.1%	19
(NB RT)	South-to-East	49.9%	21

Existing Year AADTs

Existing Turning Movement Counts

FSUTMS Model Year AADTs

Desired Closure: 0.01

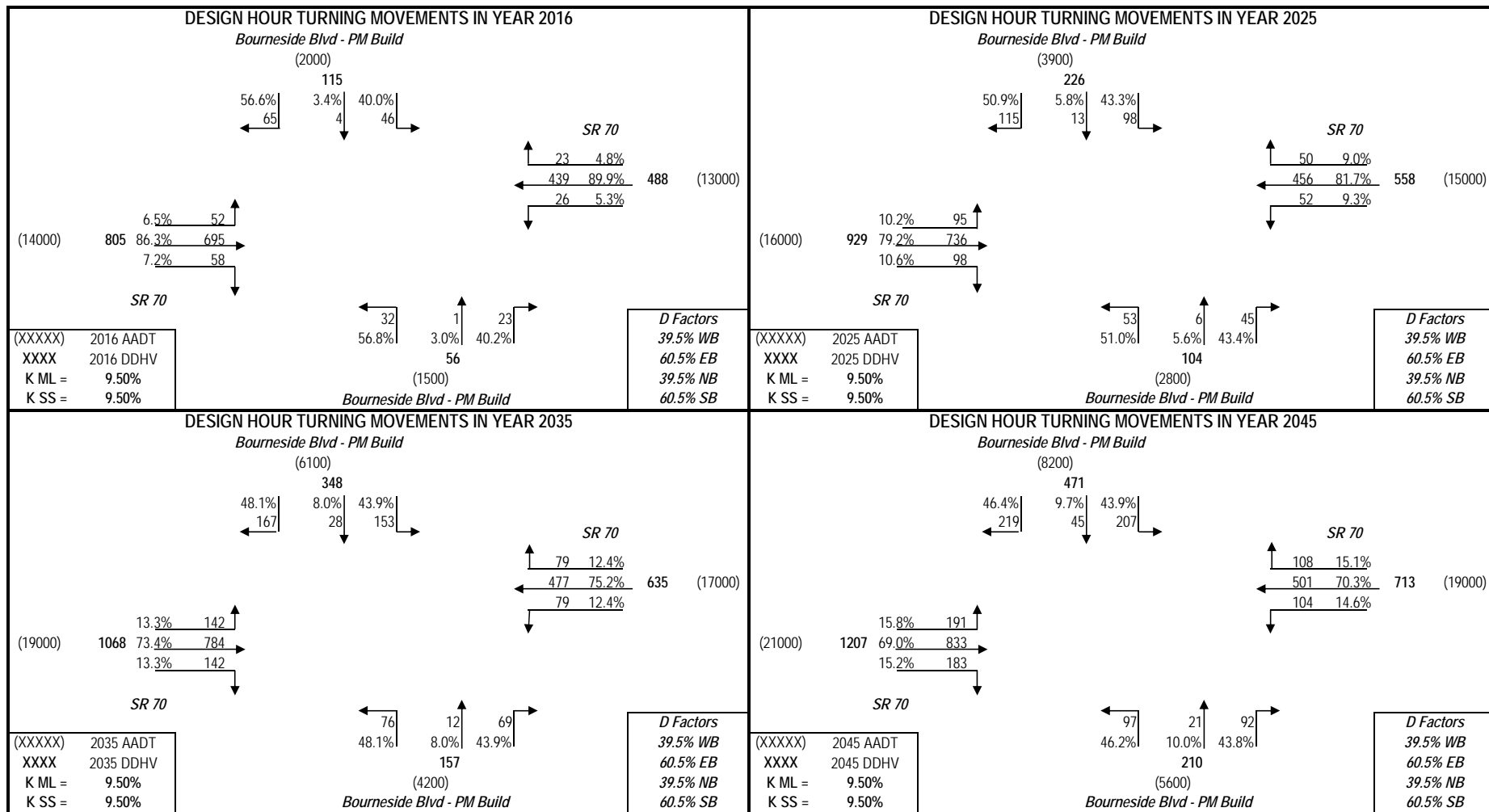
First Guess Turning % Option Used
 FSUTMS Model Year AADTs

Only the existing year total departure volumes [AADT*K*(1-D)] will be used to calculate the turning percentages first guess.

The turning percentages first guess is the same as the **actual distribution of turning volumes entered**. No balancing technique is used.

Only the FSUTMS model year departure volumes [AADT*K*(1-D)] will be used to calculate the turning percentages first guess.

PROJECT TRAFFIC FOR SR 70 AT Bourneside Blvd - PM Build



TURNS5 ANALYSIS SHEET - INPUT

Analyst:
Date: 14-Sep-18
Highway: SR 70
Intersection: Lindrick Ln-197th St E - AM Build
Project: SR 70 DTTM
County: Manatee

Is this a 4 way intersection?
 Yes, my intersection has four approaches
 If not, which 3 approaches exist in the intersection?
 EB, WB, and SB
 EB, WB, and NB
 EB, SB, and NB
 WB, SB, and NB

Is the Mainline Oriented North/South?
 Enter Yes or No
 Yes
 No

K Factors		D Factors	
	Mainline		Mainline
	9.50%	Westbound (WB)	60.5%
	Side street	Eastbound (EB)	39.5%
	9.50%		Side street
		Northbound (NB)	23.4%
		Southbound (SB)	76.6%

Do you have FTSUTMS Model Year traffic from which you would like to interpolate/extrapolate for project years? (Y/N)

Enter Yes or No
 Yes
 No

If "Yes" go to cell C47

If "No" go to cell C31

Enter Year and Growth Rates from Base Year:

	Year	Rate (1.0% = 0.01)	
		Mainline	Side Street
Base	2016		
Opening	2023		
Mid	2033	0.60%	0.60%
Design	2043		

Mainline Growth Function
 Linear
 Exponential
 Decaying

Side Street Growth Function
 Linear
 Exponential
 Decaying

Enter Base Year AADTs for Volume Comparison:

(growth rates are used to calculate other project years)

From West:	From East:	From North:	From South:	TOTAL
EB Approach	WB Approach	SB Approach	NB Approach	
13000	11000	1100	1500	26600

Enter Project and Model Years

	Year
Base	2016
Opening	2025
Mid	2035
Design	2045
Model	2045

Enter Base and Model Year AADTs for Volume Comparison:

(volumes for other project years are calculated by interpolation)

	From West:	From East:	From North:	From South:	TOTAL
	EB Approach	WB Approach	SB Approach	NB Approach	
2016	13000	11000	1100	1500	26600
2045	19000	17000	1300	1800	39100

1st Guess Actual/Counted
Turning %'s for Traffic
AADT Balancing for 2016

(EB LT)	West-to-North	6.2%	20
(EB THRU)	West-to-East	74.7%	243
(EB RT)	West-to-South	19.1%	62
(WB LT)	East-to-South	1.1%	7
(WB THRU)	East-to-West	98.9%	635
(WB RT)	East-to-North	0.0%	0
(SB LT)	North-to-East	2.8%	2
(SB THRU)	North-to-South	2.8%	2
(SB RT)	North-to-West	94.4%	68
(NB LT)	South-to-West	87.1%	27
(NB THRU)	South-to-North	0.0%	0
(NB RT)	South-to-East	12.9%	4

Existing Year AADTs

Existing Turning Movement Counts

FSUTMS Model Year AADTs

Desired Closure: 1.00

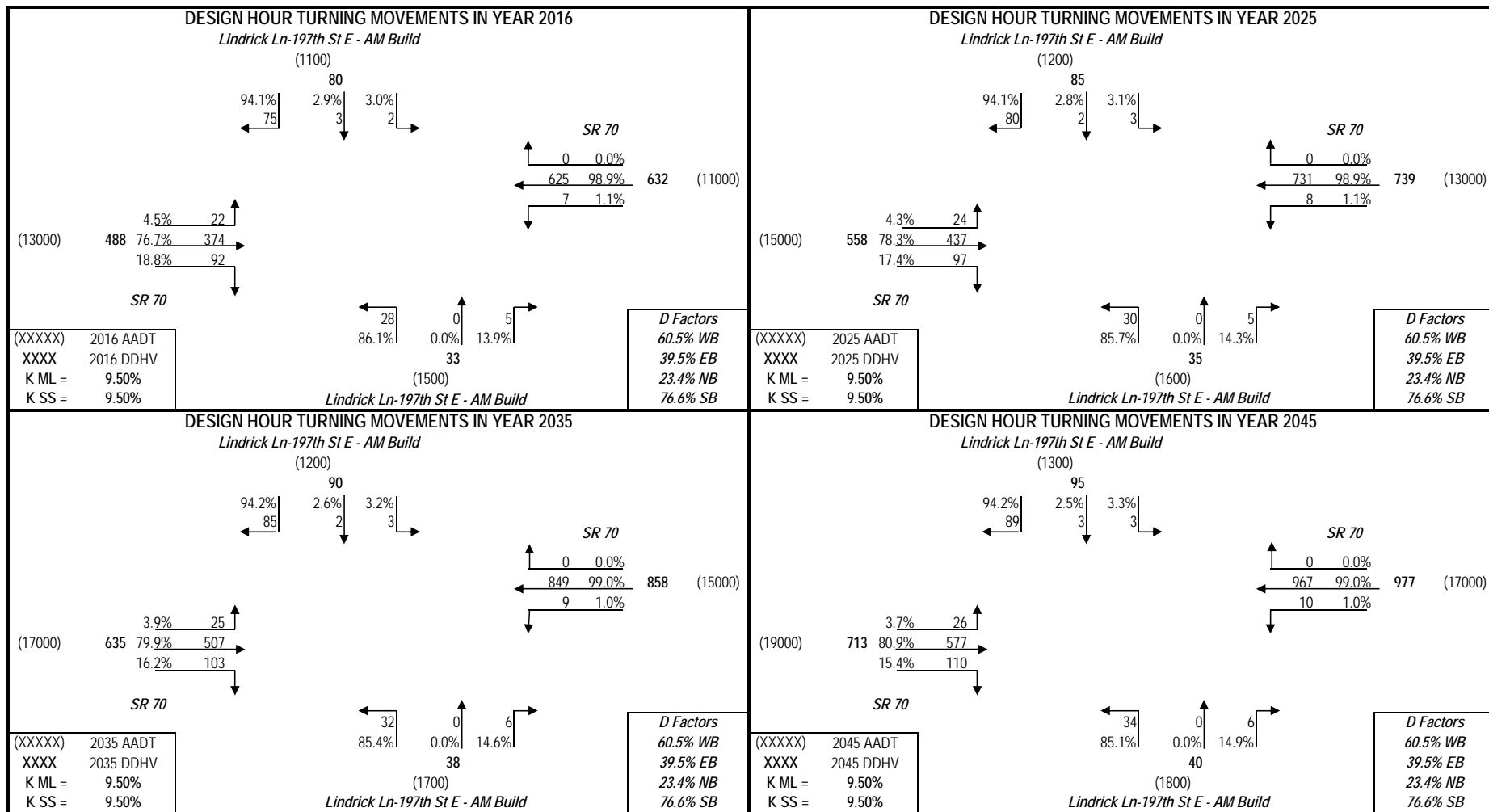
First Guess Turning % Option Used Existing Turning Movement Counts

Only the existing year total departure volumes [AADT*K*(1-D)] will be used to calculate the turning percentages first guess.

The turning percentages first guess is the same as the **actual distribution of turning volumes entered**. No balancing technique is used.

Only the FSUTMS model year departure volumes [AADT*K*(1-D)] will be used to calculate the turning percentages first guess.

PROJECT TRAFFIC FOR SR 70 AT Lindrick Ln-197th St E - AM Build



TURNS5 ANALYSIS SHEET - INPUT

Analyst:

Date: 14-Sep-18

Highway: SR 70

Intersection: Lindrick Ln-197th St E - PM Build

Project: SR 70 DTTM

County: Manatee

Is this a 4 way intersection?

Yes, my intersection has four approaches

If not, which 3 approaches exist in the intersection?

EB, WB, and SB

EB, WB, and NB

EB, SB, and NB

WB, SB, and NB

Is the Mainline Oriented North/South?

Enter Yes or No

Yes

No

K Factors		D Factors	
	Mainline		Mainline
	9.50%	Westbound (WB)	39.5%
	Side street	Eastbound (EB)	60.5%
	9.50%		Side street
		Northbound (NB)	76.6%
		Southbound (SB)	23.4%

Do you have FTSUTMS Model Year traffic from which you would like to interpolate/extrapolate for project years? (Y/N)

Enter Yes or No

Yes

No

If "Yes" go to cell C47 If "No" go to cell C31

Enter Year and Growth Rates from Base Year:

Base	Year	Rate (1.0% = 0.01)	
		Mainline	Side Street
Opening	2016	0.60%	0.60%
Mid	2033		
Design	2043		
	2043		

Mainline Growth Function

Linear

Exponential

Decaying

Side Street Growth Function

Linear

Exponential

Decaying

Enter Base Year AADTs for Volume Comparison:
(growth rates are used to calculate other project years)

From West:	From East:	From North:	From South:	
EB Approach	WB Approach	SB Approach	NB Approach	TOTAL
13000	11000	1100	1500	26600

Enter Project and Model Years

	Year
Base	2016
Opening	2025
Mid	2035
Design	2045
Model	2045

Enter Base and Model Year AADTs for Volume Comparison:
(volumes for other project years are calculated by interpolation)

	From West:	From East:	From North:	From South:	
	EB Approach	WB Approach	SB Approach	NB Approach	TOTAL
2016	13000	11000	1100	1500	26600
2045	19000	17000	1300	1800	39100

**1st Guess Actual/Counted
Turning %'s for Traffic
AADT Balancing for 2016**

(EB LT)	West-to-North	9.1%	61
(EB THRU)	West-to-East	84.6%	568
(EB RT)	West-to-South	6.3%	42
(WB LT)	East-to-South	1.7%	5
(WB THRU)	East-to-West	98.0%	295
(WB RT)	East-to-North	0.3%	1
(SB LT)	North-to-East	3.1%	1
(SB THRU)	North-to-South	0.0%	0
(SB RT)	North-to-West	96.9%	31
(NB LT)	South-to-West	85.7%	54
(NB THRU)	South-to-North	0.0%	0
(NB RT)	South-to-East	14.3%	9

Existing Year AADTs

Existing Turning Movement Counts

FSUTMS Model Year AADTs

Desired Closure: 0.01

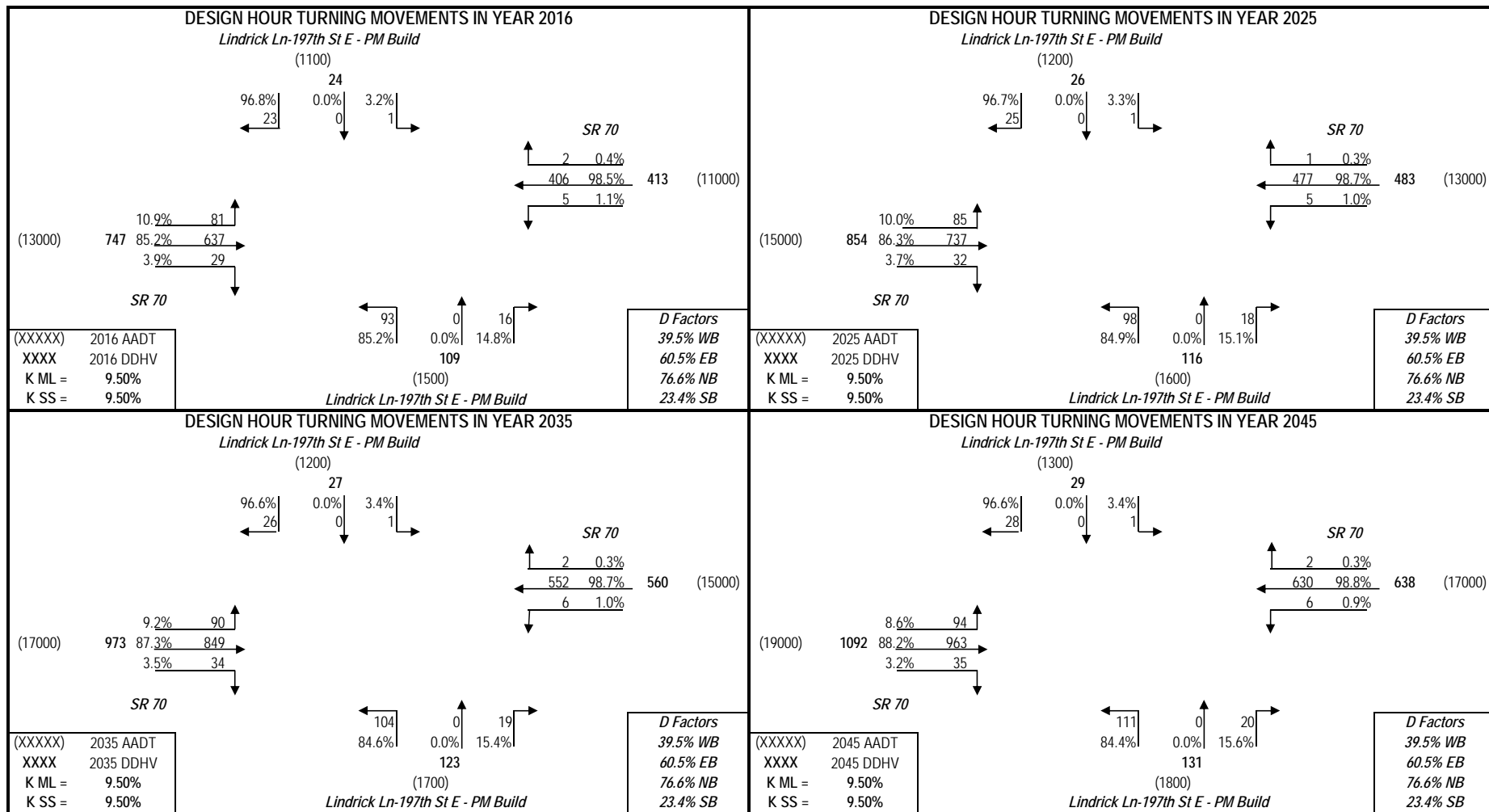
First Guess Turning % Option Used Existing Turning Movement Counts

Only the existing year total departure volumes [AADT*K*(1-D)] will be used to calculate the turning percentages first guess.

The turning percentages first guess is the same as the **actual distribution of turning volumes entered**. No balancing technique is used.

Only the FSUTMS model year departure volumes [AADT*K*(1-D)] will be used to calculate the turning percentages first guess.

PROJECT TRAFFIC FOR SR 70 AT Lindrick Ln-197th St E - PM Build



TURNS5 ANALYSIS SHEET - INPUT

Analyst:

Date: 14-Sep-18

Highway: SR 70

Intersection: 213th St E - AM Build

Project: SR 70 DTTM

County: Manatee

Is this a 4 way intersection?

Yes, my intersection has four approaches

If not, which 3 approaches exist in the intersection?

EB, WB, and SB

EB, WB, and NB

EB, SB, and NB

WB, SB, and NB

Is the Mainline Oriented North/South?

Enter Yes or No

Yes

No

K Factors		D Factors	
	Mainline		Mainline
	9.50%	Westbound (WB)	60.5%
	Side street	Eastbound (EB)	39.5%
	9.50%		Side street
		Northbound (NB)	73.5%
		Southbound (SB)	0.0%

Do you have FTSUTMS Model Year traffic from which you would like to interpolate/extrapolate for project years? (Y/N)

Enter Yes or No

Yes

No

If "Yes" go to cell C47

If "No" go to cell C31

Enter Year and Growth Rates from Base Year:

	Year	Rate (1.0% = 0.01)	
		Mainline	Side Street
Base	2016		
Opening	2023		
Mid	2033	0.60%	0.60%
Design	2043		

Mainline Growth Function

Linear

Exponential

Decaying

Side Street Growth Function

Linear

Exponential

Decaying

Enter Base Year AADTs for Volume Comparison:

(growth rates are used to calculate other project years)

From West:	From East:	From North:	From South:	TOTAL
EB Approach	WB Approach	SB Approach	NB Approach	
11000	10000	0	310	21310

Enter Project and Model Years

	Year
Base	2016
Opening	2025
Mid	2035
Design	2045
Model	2045

Enter Base and Model Year AADTs for Volume Comparison:

(volumes for other project years are calculated by interpolation)

	From West:	From East:	From North:	From South:	TOTAL
	EB Approach	WB Approach	SB Approach	NB Approach	
2016	10000	10000	0	310	20310
2045	17000	17000	0	370	34370

1st Guess Actual/Counted
Turning %'s for Traffic
AADT Balancing for 2016

(EB LT)	West-to-North	0.0%	0
(EB THRU)	West-to-East	97.6%	245
(EB RT)	West-to-South	2.4%	6
(WB LT)	East-to-South	0.2%	1
(WB THRU)	East-to-West	99.8%	617
(WB RT)	East-to-North	0.0%	0
(SB LT)	North-to-East	0.0%	0
(SB THRU)	North-to-South	0.0%	0
(SB RT)	North-to-West	0.0%	0
(NB LT)	South-to-West	85.0%	17
(NB THRU)	South-to-North	0.0%	0
(NB RT)	South-to-East	15.0%	3

Existing Year AADTs

Existing Turning Movement Counts

FSUTMS Model Year AADTs

Desired Closure: 3.00

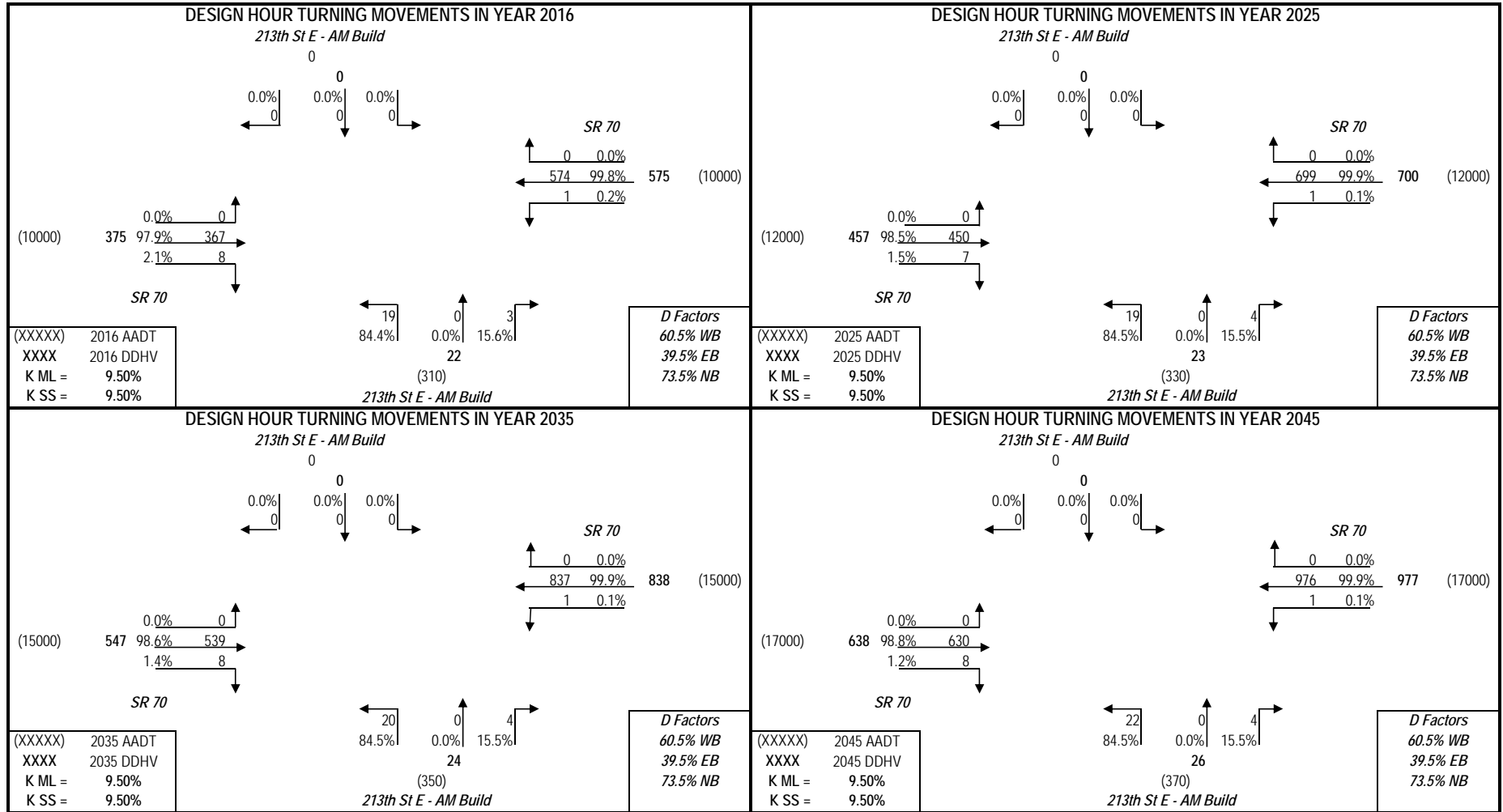
First Guess Turning % Option Used Existing Turning Movement Counts

Only the existing year total departure volumes [AADT*K*(1-D)] will be used to calculate the turning percentages first guess.

The turning percentages first guess is the same as the **actual distribution of turning volumes entered**. No balancing technique is used.

Only the FSUTMS model year departure volumes [AADT*K*(1-D)] will be used to calculate the turning percentages first guess.

PROJECT TRAFFIC FOR SR 70 AT 213th St E - AM Build



TURNS5 ANALYSIS SHEET - INPUT

Analyst:

Date: 14-Sep-18

Highway: SR 70

Intersection: 213th St E - PM Build

Project: SR 70 DTTM

County: Manatee

Is this a 4 way intersection?

Yes, my intersection has four approaches

If not, which 3 approaches exist in the intersection?

EB, WB, and SB

EB, WB, and NB

EB, SB, and NB

WB, SB, and NB

Is the Mainline Oriented North/South?

Enter Yes or No

Yes

No

K Factors		D Factors	
	Mainline		Mainline
	9.50%	Westbound (WB)	39.5%
	Side street	Eastbound (EB)	60.5%
	9.50%		Side street
		Northbound (NB)	26.5%
		Southbound (SB)	0.0%

Do you have FTSUTMS Model Year traffic from which you would like to interpolate/extrapolate for project years? (Y/N)

Enter Yes or No

Yes

No

If "Yes" go to cell C47 If "No" go to cell C31

Enter Year and Growth Rates from Base Year:

Base	Year	Rate (1.0% = 0.01)	
		Mainline	Side Street
Opening	2016	0.60%	0.60%
Mid	2033		
Design	2043		

Mainline Growth Function

Linear

Exponential

Decaying

Side Street Growth Function

Linear

Exponential

Decaying

Enter Base Year AADTs for Volume Comparison:
(growth rates are used to calculate other project years)

From West:	From East:	From North:	From South:	TOTAL
EB Approach	WB Approach	SB Approach	NB Approach	
11000	10000	0	310	21310

Enter Project and Model Years

	Year
Base	2016
Opening	2025
Mid	2035
Design	2045
Model	2045

Enter Base and Model Year AADTs for Volume Comparison:
(volumes for other project years are calculated by interpolation)

	From West:	From East:	From North:	From South:	TOTAL
	EB Approach	WB Approach	SB Approach	NB Approach	
2016	11000	11000	0	310	22310
2045	17000	17000	0	370	34370

**1st Guess Actual/Counted
Turning %'s for Traffic
AADT Balancing for 2016**

(EB LT)	West-to-North	0.0%	0
(EB THRU)	West-to-East	97.2%	562
(EB RT)	West-to-South	2.8%	16
(WB LT)	East-to-South	0.3%	1
(WB THRU)	East-to-West	99.7%	294
(WB RT)	East-to-North	0.0%	0
(SB LT)	North-to-East	0.0%	0
(SB THRU)	North-to-South	0.0%	0
(SB RT)	North-to-West	0.0%	0
(NB LT)	South-to-West	100.0%	10
(NB THRU)	South-to-North	0.0%	0
(NB RT)	South-to-East	0.0%	0

Existing Year AADTs

Existing Turning Movement Counts

FSUTMS Model Year AADTs

Desired Closure: 3.00

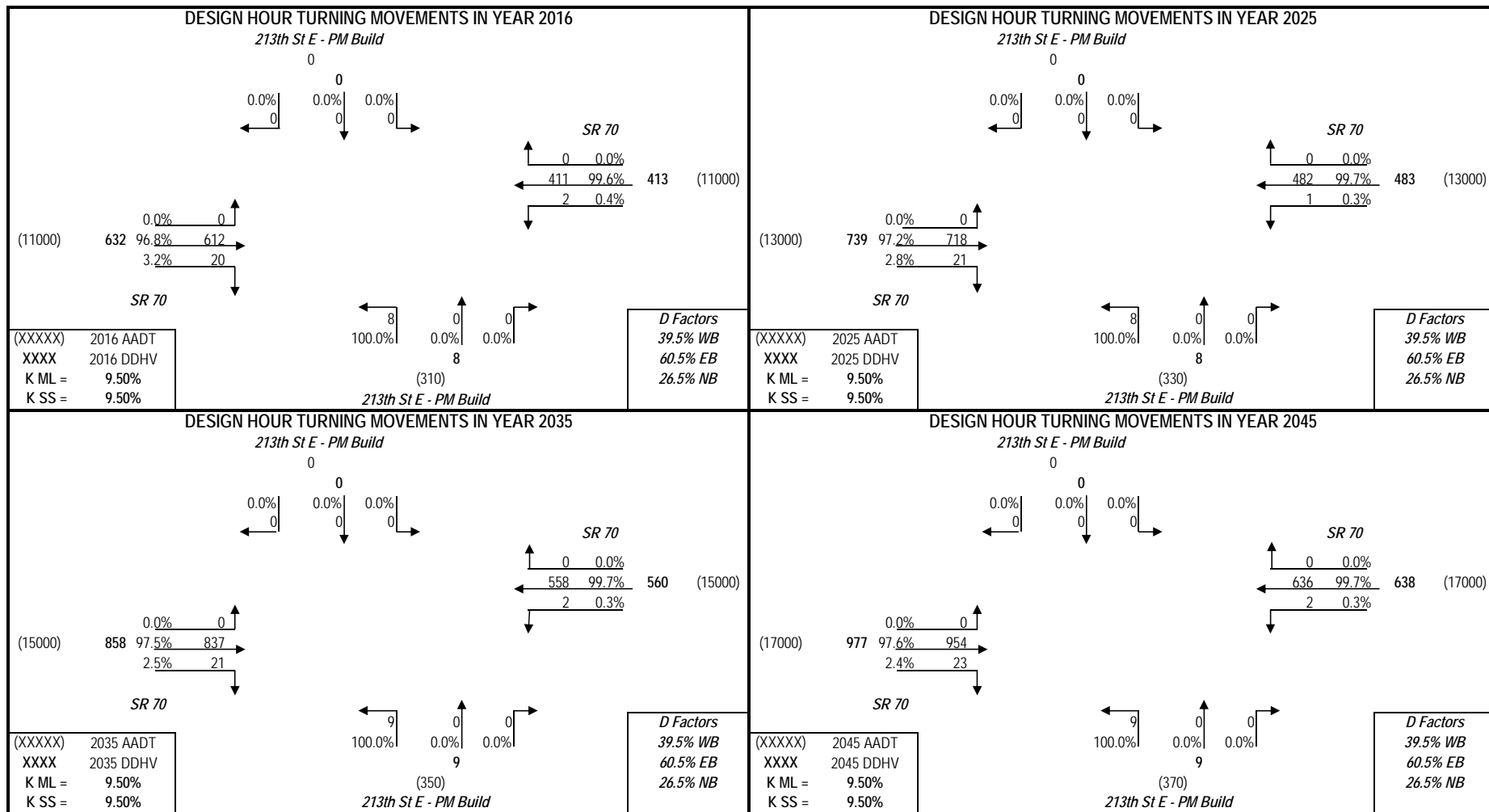
First Guess Turning % Option Used Existing Turning Movement Counts

Only the existing year total departure volumes [AADT*K*(1-D)] will be used to calculate the turning percentages first guess.

The turning percentages first guess is the same as the **actual distribution of turning volumes entered**. No balancing technique is used.

Only the FSUTMS model year departure volumes [AADT*K*(1-D)] will be used to calculate the turning percentages first guess.

PROJECT TRAFFIC FOR SR 70 AT 213th St E - PM Build



TURNS5 ANALYSIS SHEET - INPUT

Analyst:
Date: 14-Sep-18
Highway: SR 70
Intersection: Treeumph Adventure Park Entr - AM Build
Project: SR 70 DTTM
County: Manatee

Is this a 4 way intersection?
 Yes, my intersection has four approaches
 If not, which 3 approaches exist in the intersection?
 EB, WB, and SB
 EB, WB, and NB
 EB, SB, and NB
 WB, SB, and NB

Is the Mainline Oriented North/South?
 Enter Yes or No
 Yes
 No

K Factors		D Factors	
	Mainline		Mainline
	9.50%	Westbound (WB)	60.5%
	Side street	Eastbound (EB)	39.5%
	9.50%		Side street
		Northbound (NB)	0.0%
		Southbound (SB)	10.0%

Do you have FTSUTMS Model Year traffic from which you would like to interpolate/extrapolate for project years? (Y/N)

Enter Yes or No
 Yes
 No

If "Yes" go to cell C47

If "No" go to cell C31

Enter Year and Growth Rates from Base Year:

Year	Rate (1.0% = 0.01)	
	Mainline	Side Street
Base 2016		
Opening 2023		
Mid 2033	0.60%	0.60%
Design 2043		

Mainline Growth Function
 Linear
 Exponential
 Decaying

Side Street Growth Function
 Linear
 Exponential
 Decaying

Enter Base Year AADTs for Volume Comparison:
(growth rates are used to calculate other project years)

From West:	From East:	From North:	From South:	TOTAL
EB Approach	WB Approach	SB Approach	NB Approach	
10000	9600	60	0	19660

Enter Project and Model Years

Year
Base 2016
Opening 2025
Mid 2035
Design 2045
Model 2045

Enter Base and Model Year AADTs for Volume Comparison:
(volumes for other project years are calculated by interpolation)

	From West:	From East:	From North:	From South:	TOTAL
	EB Approach	WB Approach	SB Approach	NB Approach	
2016	10000	9600	60	0	19660
2045	17000	17000	70	0	34070

1st Guess Actual/Counted
Turning %'s for Traffic
AADT Balancing for 2016

(EB LT)	West-to-North	2.8%	7
(EB THRU)	West-to-East	97.2%	240
(EB RT)	West-to-South	0.0%	0
(WB LT)	East-to-South	0.0%	0
(WB THRU)	East-to-West	99.8%	614
(WB RT)	East-to-North	0.2%	1
(SB LT)	North-to-East	0.0%	0
(SB THRU)	North-to-South	0.0%	0
(SB RT)	North-to-West	100.0%	2
(NB LT)	South-to-West	0.0%	0
(NB THRU)	South-to-North	0.0%	0
(NB RT)	South-to-East	0.0%	0

Existing Year AADTs

Existing Turning Movement Counts

FSUTMS Model Year AADTs

Desired Closure: 1.00

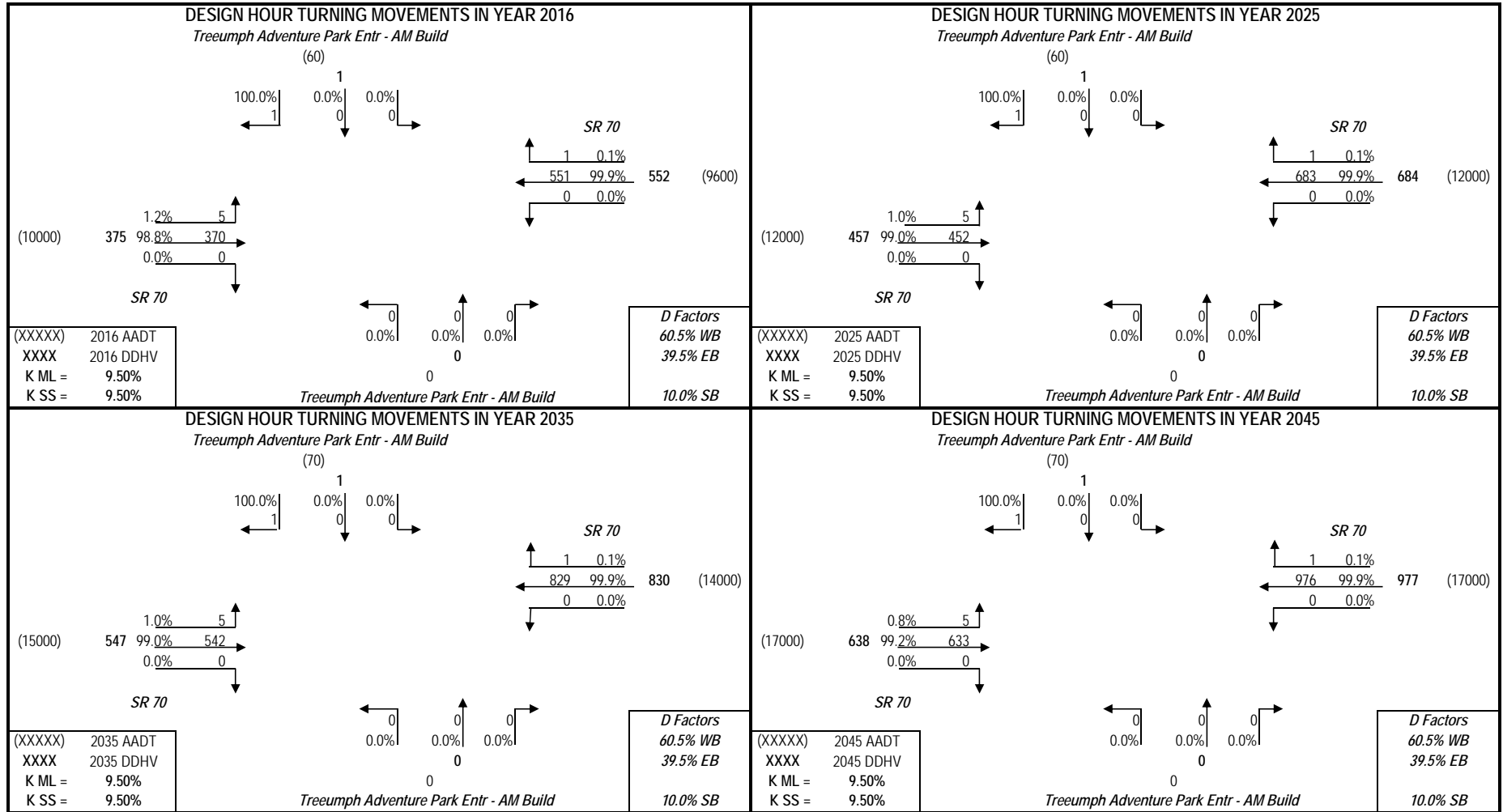
First Guess Turning % Option Used Existing Turning Movement Counts

Only the existing year total departure volumes [AADT*K*(1-D)] will be used to calculate the turning percentages first guess.

The turning percentages first guess is the same as the **actual distribution of turning volumes entered**. No balancing technique is used.

Only the FSUTMS model year departure volumes [AADT*K*(1-D)] will be used to calculate the turning percentages first guess.

PROJECT TRAFFIC FOR SR 70 AT Treumph Adventure Park Entr - AM Build



TURNS5 ANALYSIS SHEET - INPUT

Analyst:

Date: 14-Sep-18

Highway: SR 70

Intersection: Treeumph Adventure Park Entr - PM Build

Project: SR 70 DTTM

County: Manatee

Is this a 4 way intersection?

Yes, my intersection has four approaches

If not, which 3 approaches exist in the intersection?

EB, WB, and SB

EB, WB, and NB

EB, SB, and NB

WB, SB, and NB

Is the Mainline Oriented North/South?

Enter Yes or No

Yes

No

K Factors		D Factors	
	Mainline		Mainline
	9.50%	Westbound (WB)	39.5%
	Side street	Eastbound (EB)	60.5%
	9.50%		Side street
		Northbound (NB)	0.0%
		Southbound (SB)	99.0%

Do you have FTSUTMS Model Year traffic from which you would like to interpolate/extrapolate for project years? (Y/N)

Enter Yes or No

Yes

No

If "Yes" go to cell C47 If "No" go to cell C31

Enter Year and Growth Rates from Base Year:

Base	Year	Rate (1.0% = 0.01)	
		Mainline	Side Street
Opening	2016	0.60%	0.60%
Mid	2033		
Design	2043		
	2043		

Mainline Growth Function

Linear

Exponential

Decaying

Side Street Growth Function

Linear

Exponential

Decaying

Enter Base Year AADTs for Volume Comparison:
(growth rates are used to calculate other project years)

From West:	From East:	From North:	From South:	TOTAL
EB Approach	WB Approach	SB Approach	NB Approach	
10000	9600	60	0	19660

Enter Project and Model Years

	Year
Base	2016
Opening	2025
Mid	2035
Design	2045
Model	2045

Enter Base and Model Year AADTs for Volume Comparison:
(volumes for other project years are calculated by interpolation)

	From West:	From East:	From North:	From South:	TOTAL
	EB Approach	WB Approach	SB Approach	NB Approach	
2016	10000	9600	60	0	19660
2045	17000	17000	70	0	34070

**1st Guess Actual/Counted
Turning %'s for Traffic
AADT Balancing for 2016**

(EB LT)	West-to-North	0.4%	2
(EB THRU)	West-to-East	99.6%	550
(EB RT)	West-to-South	0.0%	0
(WB LT)	East-to-South	0.0%	0
(WB THRU)	East-to-West	100.0%	295
(WB RT)	East-to-North	0.0%	0
(SB LT)	North-to-East	0.0%	0
(SB THRU)	North-to-South	0.0%	0
(SB RT)	North-to-West	100.0%	0
(NB LT)	South-to-West	0.0%	0
(NB THRU)	South-to-North	0.0%	0
(NB RT)	South-to-East	0.0%	0

Existing Year AADTs

Existing Turning Movement Counts

FSUTMS Model Year AADTs

Desired Closure: 1.00

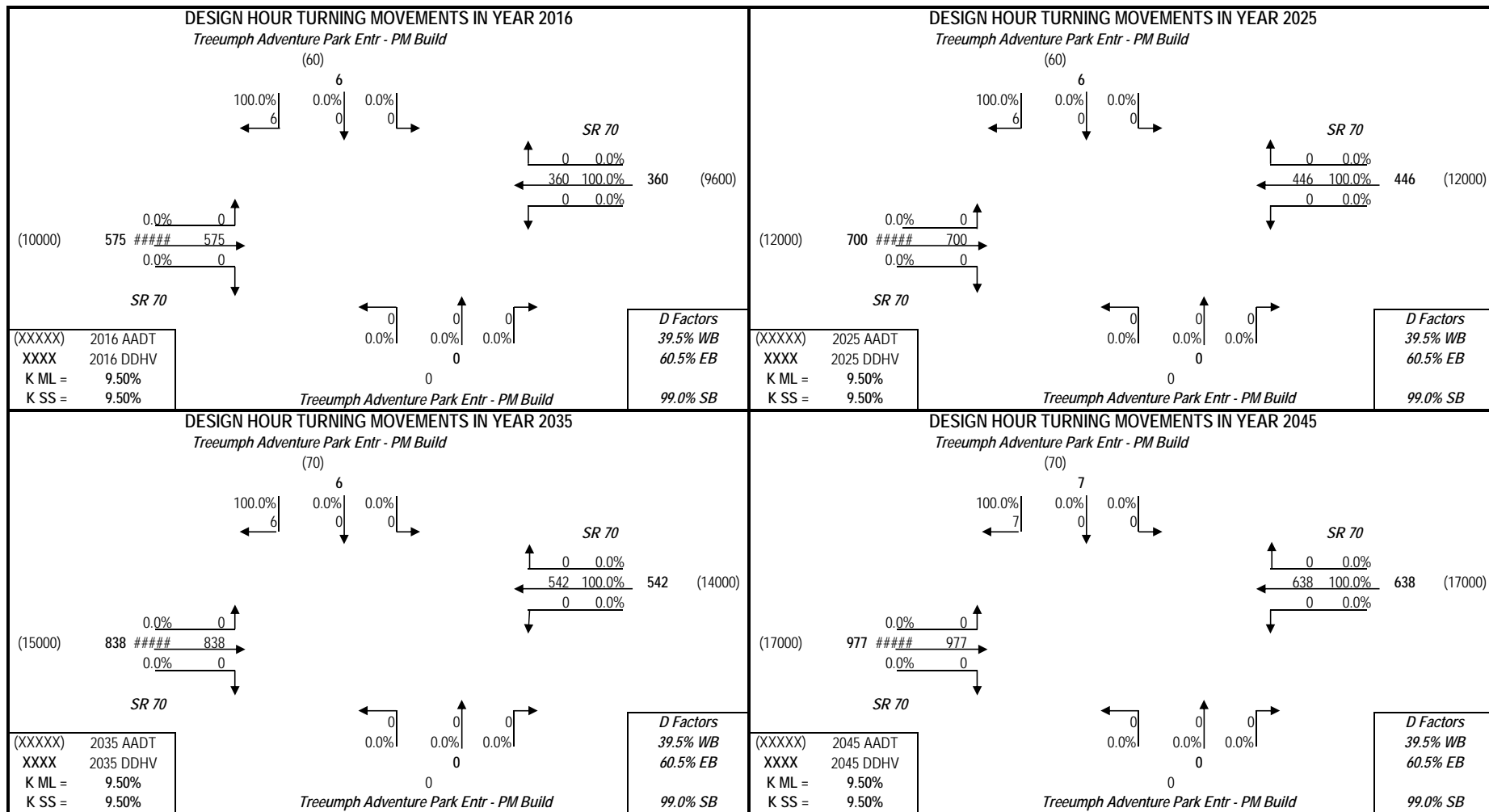
First Guess Turning % Option Used Existing Turning Movement Counts

Only the existing year total departure volumes [AADT*K*(1-D)] will be used to calculate the turning percentages first guess.

The turning percentages first guess is the same as the **actual distribution of turning volumes entered**. No balancing technique is used.

Only the FSUTMS model year departure volumes [AADT*K*(1-D)] will be used to calculate the turning percentages first guess.

PROJECT TRAFFIC FOR SR 70 AT Treumph Adventure Park Entr - PM Build



TURNS5 ANALYSIS SHEET - INPUT

Analyst:

Date: 14-Sep-18

Highway: SR 70

Intersection: 225th St E - AM Build

Project: SR 70 DTTM

County: Manatee

Is this a 4 way intersection?

Yes, my intersection has four approaches

If not, which 3 approaches exist in the intersection?

EB, WB, and SB

EB, WB, and NB

EB, SB, and NB

WB, SB, and NB

Is the Mainline Oriented North/South?

Enter Yes or No

Yes

No

K Factors		D Factors	
	Mainline		Mainline
	9.50%	Westbound (WB)	60.5%
		Eastbound (EB)	39.5%
	Side street		Side street
	9.50%	Northbound (NB)	63.4%
		Southbound (SB)	36.6%

Do you have FTSUTMS Model Year traffic from which you would like to interpolate/extrapolate for project years? (Y/N)

Enter Yes or No

Yes

No

If "Yes" go to cell C47 If "No" go to cell C31

Enter Year and Growth Rates from Base Year:

Base	Year	Rate (1.0% = 0.01)	
		Mainline	Side Street
Opening	2016	0.60%	0.60%
Mid	2033		
Design	2043		
	2043		

Mainline Growth Function

Linear

Exponential

Decaying

Side Street Growth Function

Linear

Exponential

Decaying

Enter Base Year AADTs for Volume Comparison:
(growth rates are used to calculate other project years)

From West:	From East:	From North:	From South:	TOTAL
EB Approach	WB Approach	SB Approach	NB Approach	
10000	9600	200	810	20610

Enter Project and Model Years

	Year
Base	2016
Opening	2025
Mid	2035
Design	2045
Model	2045

Enter Base and Model Year AADTs for Volume Comparison:
(volumes for other project years are calculated by interpolation)

	From West:	From East:	From North:	From South:	TOTAL
	EB Approach	WB Approach	SB Approach	NB Approach	
2016	10000	9600	200	810	20610
2045	17000	16000	240	970	34210

**1st Guess Actual/Counted
Turning %'s for Traffic
AADT Balancing for 2016**

(EB LT)	West-to-North	1.3%	3
(EB THRU)	West-to-East	93.7%	225
(EB RT)	West-to-South	5.0%	12
(WB LT)	East-to-South	0.2%	1
(WB THRU)	East-to-West	99.4%	547
(WB RT)	East-to-North	0.4%	2
(SB LT)	North-to-East	22.7%	5
(SB THRU)	North-to-South	4.6%	1
(SB RT)	North-to-West	72.7%	16
(NB LT)	South-to-West	96.4%	53
(NB THRU)	South-to-North	0.0%	0
(NB RT)	South-to-East	3.6%	2

Existing Year AADTs

Existing Turning Movement Counts

FSUTMS Model Year AADTs

Desired Closure:

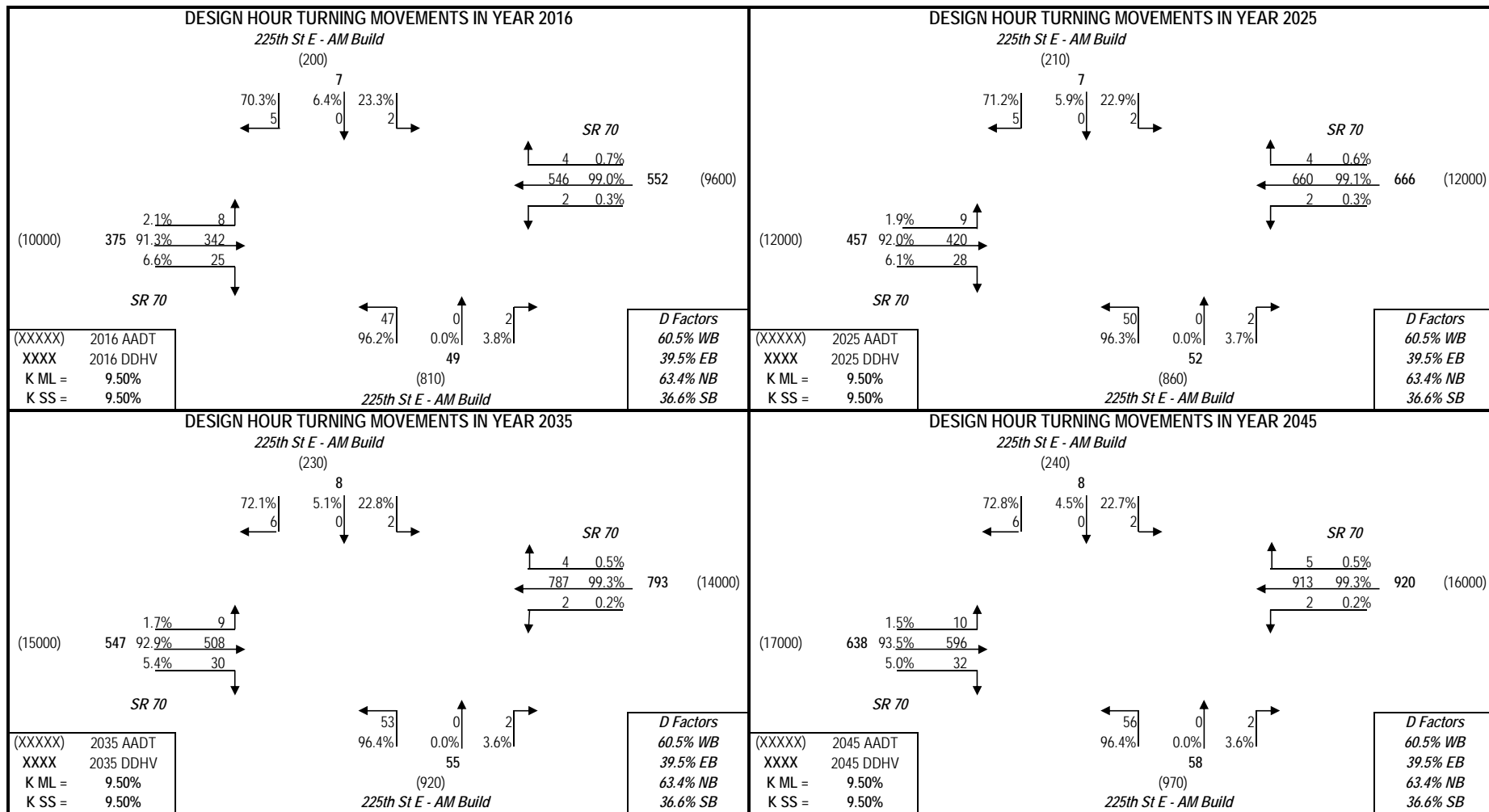
First Guess Turning % Option Used Existing Turning Movement Counts

Only the existing year total departure volumes [AADT*K*(1-D)] will be used to calculate the turning percentages first guess.

The turning percentages first guess is the same as the **actual distribution of turning volumes entered**. No balancing technique is used.

Only the FSUTMS model year departure volumes [AADT*K*(1-D)] will be used to calculate the turning percentages first guess.

PROJECT TRAFFIC FOR SR 70 AT 225th St E - AM Build



TURNS5 ANALYSIS SHEET - INPUT

Analyst:

Date: 14-Sep-18

Highway: SR 70

Intersection: 225th St E - PM Build

Project: SR 70 DTTM

County: Manatee

Is this a 4 way intersection?

Yes, my intersection has four approaches

If not, which 3 approaches exist in the intersection?

EB, WB, and SB

EB, WB, and NB

EB, SB, and NB

WB, SB, and NB

Is the Mainline Oriented North/South?

Enter Yes or No

Yes

No

K Factors		D Factors	
	Mainline		Mainline
	9.50%	Westbound (WB)	39.5%
		Eastbound (EB)	60.5%
	Side street		Side street
	9.50%	Northbound (NB)	63.4%
		Southbound (SB)	36.6%

Do you have FTSUTMS Model Year traffic from which you would like to interpolate/extrapolate for project years? (Y/N)

Enter Yes or No

Yes

No

If "Yes" go to cell C47

If "No" go to cell C31

Enter Year and Growth Rates from Base Year:

Base	Year	Rate (1.0% = 0.01)	
		Mainline	Side Street
Opening	2016	0.60%	0.60%
Mid	2033		
Design	2043		

Mainline Growth Function

Linear

Exponential

Decaying

Side Street Growth Function

Linear

Exponential

Decaying

Enter Base Year AADTs for Volume Comparison:

(growth rates are used to calculate other project years)

From West:	From East:	From North:	From South:	TOTAL
EB Approach	WB Approach	SB Approach	NB Approach	
10000	9600	200	810	20610

Enter Project and Model Years

	Year
Base	2016
Opening	2025
Mid	2035
Design	2045
Model	2045

Enter Base and Model Year AADTs for Volume Comparison:

(volumes for other project years are calculated by interpolation)

	From West:	From East:	From North:	From South:	TOTAL
	EB Approach	WB Approach	SB Approach	NB Approach	
2016	10000	9600	200	810	20610
2045	17000	16000	240	970	34210

1st Guess Actual/Counted
Turning %'s for Traffic
AADT Balancing for 2016

(EB LT)	West-to-North	1.4%	8
(EB THRU)	West-to-East	89.2%	496
(EB RT)	West-to-South	9.4%	52
(WB LT)	East-to-South	0.4%	1
(WB THRU)	East-to-West	99.2%	256
(WB RT)	East-to-North	0.4%	1
(SB LT)	North-to-East	0.0%	0
(SB THRU)	North-to-South	0.0%	0
(SB RT)	North-to-West	100.0%	10
(NB LT)	South-to-West	88.5%	23
(NB THRU)	South-to-North	3.8%	1
(NB RT)	South-to-East	7.7%	2

Existing Year AADTs

Existing Turning Movement Counts

FSUTMS Model Year AADTs

Desired Closure: 0.01

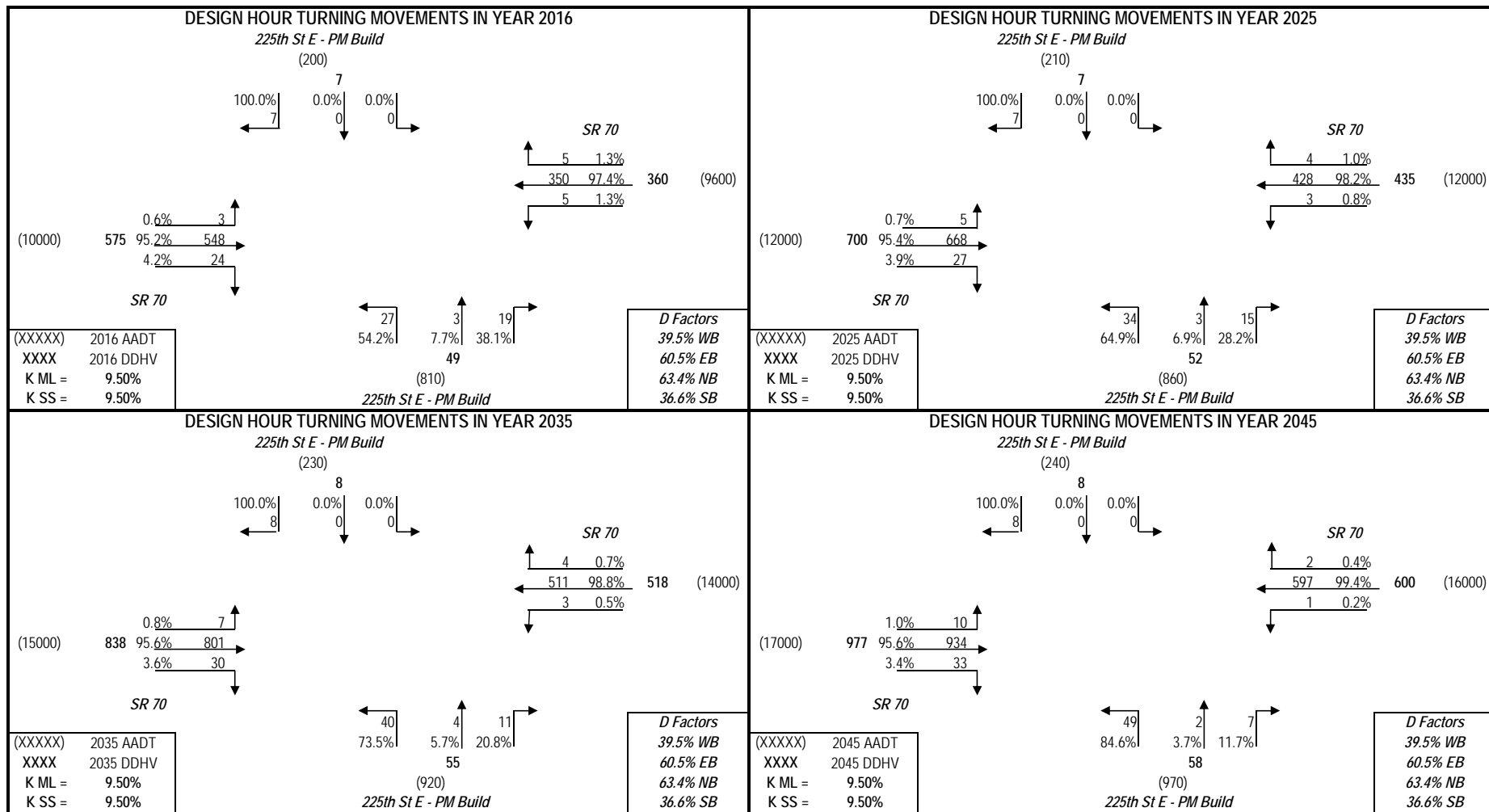
First Guess Turning % Option Used Existing Turning Movement Counts

Only the existing year total departure volumes [AADT*K*(1-D)] will be used to calculate the turning percentages first guess.

The turning percentages first guess is the same as the **actual distribution of turning volumes entered**. No balancing technique is used.

Only the FSUTMS model year departure volumes [AADT*K*(1-D)] will be used to calculate the turning percentages first guess.

PROJECT TRAFFIC FOR SR 70 AT 225th St E - PM Build



TURNS5 ANALYSIS SHEET - INPUT

Analyst:

Date: 14-Sep-18

Highway: SR 70

Intersection: Meadow Dove Ln-CR 675 - AM Build

Project: SR 70 DTTM

County: Manatee

Is this a 4 way intersection?

Yes, my intersection has four approaches

If not, which 3 approaches exist in the intersection?

EB, WB, and SB

EB, WB, and NB

EB, SB, and NB

WB, SB, and NB

Is the Mainline Oriented North/South?

Enter Yes or No

Yes

No

K Factors		D Factors	
	Mainline		Mainline
	9.50%	Westbound (WB)	60.5%
	Side street	Eastbound (EB)	39.5%
	9.50%		Side street
		Northbound (NB)	38.8%
		Southbound (SB)	61.2%

Do you have FTSUTMS Model Year traffic from which you would like to interpolate/extrapolate for project years? (Y/N)

Enter Yes or No

Yes

No

If "Yes" go to cell C47 If "No" go to cell C31

Enter Year and Growth Rates from Base Year:

Base	Year	Rate (1.0% = 0.01)	
		Mainline	Side Street
Opening	2016	0.60%	0.60%
Mid	2033		
Design	2043		
	2043		

Mainline Growth Function

Linear

Exponential

Decaying

Side Street Growth Function

Linear

Exponential

Decaying

Enter Base Year AADTs for Volume Comparison:
(growth rates are used to calculate other project years)

From West:	From East:	From North:	From South:	TOTAL
EB Approach	WB Approach	SB Approach	NB Approach	
10000	9600	200	810	20610

Enter Project and Model Years

	Year
Base	2016
Opening	2025
Mid	2035
Design	2045
Model	2045

Enter Base and Model Year AADTs for Volume Comparison:
(volumes for other project years are calculated by interpolation)

	From West:	From East:	From North:	From South:	TOTAL
	EB Approach	WB Approach	SB Approach	NB Approach	
2016	9600	9500	2600	360	22060
2045	16000	15000	5400	910	37310

**1st Guess Actual/Counted
Turning %'s for Traffic
AADT Balancing for 2016**

		1st Guess	Actual/Counted
(EB LT)	West-to-North	16.1%	37
(EB THRU)	West-to-East	83.9%	193
(EB RT)	West-to-South	0.0%	0
(WB LT)	East-to-South	0.2%	1
(WB THRU)	East-to-West	89.7%	419
(WB RT)	East-to-North	10.1%	47
(SB LT)	North-to-East	38.4%	66
(SB THRU)	North-to-South	0.0%	0
(SB RT)	North-to-West	61.6%	106
(NB LT)	South-to-West	64.9%	24
(NB THRU)	South-to-North	10.8%	4
(NB RT)	South-to-East	24.3%	9

Existing Year AADTs

Existing Turning Movement Counts

FSUTMS Model Year AADTs

First Guess Turning % Option Used Existing Turning Movement Counts

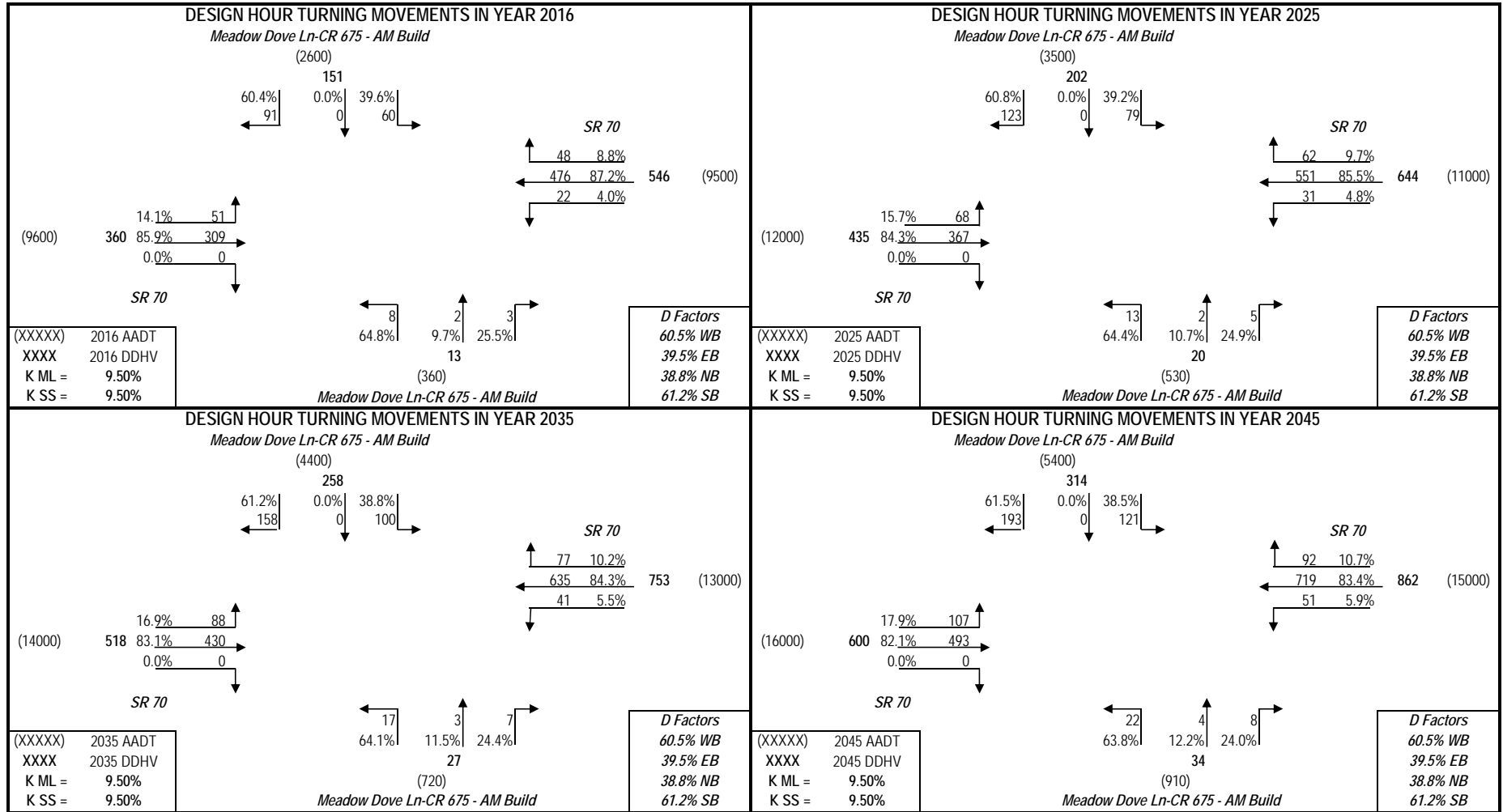
Only the existing year total departure volumes [AADT*K*(1-D)] will be used to calculate the turning percentages first guess.

The turning percentages first guess is the same as the **actual distribution of turning volumes entered**. No balancing technique is used.

Only the FSUTMS model year departure volumes [AADT*K*(1-D)] will be used to calculate the turning percentages first guess.

Desired Closure:

PROJECT TRAFFIC FOR SR 70 AT Meadow Dove Ln-CR 675 - AM Build



TURNS5 ANALYSIS SHEET - INPUT

Analyst:

Date: 14-Sep-18

Highway: SR 70

Intersection: Meadow Dove Ln-CR 675 - PM Build

Project: SR 70 DTTM

County: Manatee

Is this a 4 way intersection?

Yes, my intersection has four approaches

If not, which 3 approaches exist in the intersection?

EB, WB, and SB

EB, WB, and NB

EB, SB, and NB

WB, SB, and NB

Is the Mainline Oriented North/South?

Enter Yes or No

Yes

No

K Factors		D Factors	
	Mainline		Mainline
	9.50%	Westbound (WB)	39.5%
		Eastbound (EB)	60.5%
	Side street		Side street
	9.50%	Northbound (NB)	61.2%
		Southbound (SB)	38.8%

Do you have FTSUTMS Model Year traffic from which you would like to interpolate/extrapolate for project years? (Y/N)

Enter Yes or No

Yes

No

If "Yes" go to cell C47

If "No" go to cell C31

Enter Year and Growth Rates from Base Year:

Base	Year	Rate (1.0% = 0.01)	
		Mainline	Side Street
Opening	2016	0.60%	0.60%
Mid	2033		
Design	2043		

Mainline Growth Function

Linear

Exponential

Decaying

Side Street Growth Function

Linear

Exponential

Decaying

Enter Base Year AADTs for Volume Comparison:

(growth rates are used to calculate other project years)

From West:	From East:	From North:	From South:	
EB Approach	WB Approach	SB Approach	NB Approach	TOTAL
10000	9600	200	810	20610

Enter Project and Model Years

	Year
Base	2016
Opening	2025
Mid	2035
Design	2045
Model	2045

Enter Base and Model Year AADTs for Volume Comparison:

(volumes for other project years are calculated by interpolation)

	From West:	From East:	From North:	From South:	
	EB Approach	WB Approach	SB Approach	NB Approach	TOTAL
2016	9600	9500	2600	360	22060
2045	16000	15000	5400	910	37310

1st Guess Actual/Counted
Turning %'s for Traffic
AADT Balancing for 2016

		1st Guess	Actual/Counted
(EB LT)	West-to-North	19.9%	99
(EB THRU)	West-to-East	78.5%	391
(EB RT)	West-to-South	1.6%	8
(WB LT)	East-to-South	2.2%	6
(WB THRU)	East-to-West	77.9%	211
(WB RT)	East-to-North	19.9%	54
(SB LT)	North-to-East	59.8%	55
(SB THRU)	North-to-South	3.2%	3
(SB RT)	North-to-West	37.0%	34
(NB LT)	South-to-West	75.0%	15
(NB THRU)	South-to-North	10.0%	2
(NB RT)	South-to-East	15.0%	3

Existing Year AADTs

Existing Turning Movement Counts

FSUTMS Model Year AADTs

Desired Closure: 1.00

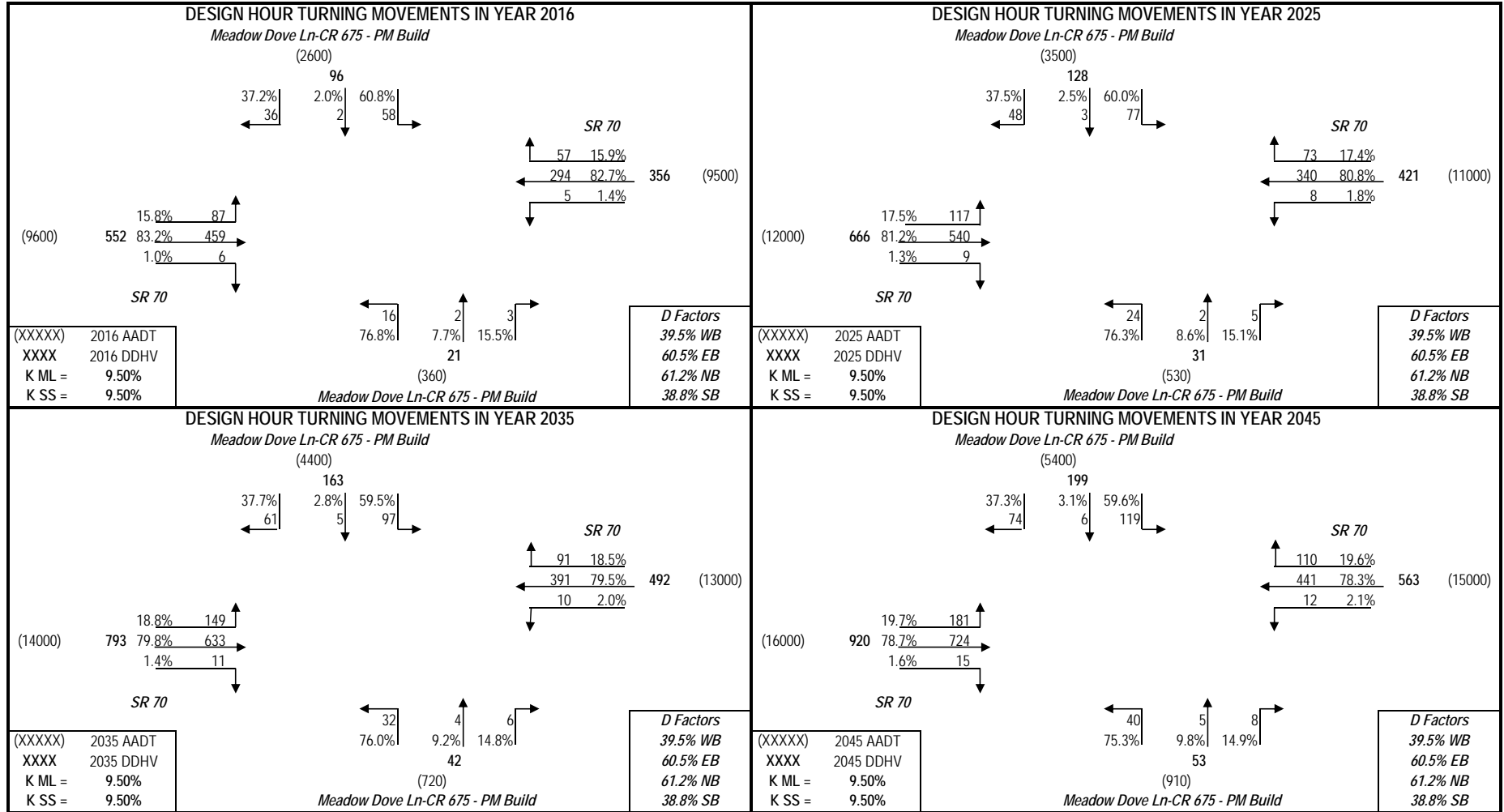
First Guess Turning % Option Used Existing Turning Movement Counts

Only the existing year total departure volumes [AADT*K*(1-D)] will be used to calculate the turning percentages first guess.

The turning percentages first guess is the same as the **actual distribution of turning volumes entered**. No balancing technique is used.

Only the FSUTMS model year departure volumes [AADT*K*(1-D)] will be used to calculate the turning percentages first guess.

PROJECT TRAFFIC FOR SR 70 AT Meadow Dove Ln-CR 675 - PM Build



TURNS5 ANALYSIS SHEET - INPUT

Analyst:

Date: 14-Sep-18

Highway: SR 70

Intersection: Lorraine Road - AM NB

Project: SR 70 DTTM

County: Manatee

Is this a 4 way intersection?

Yes, my intersection has four approaches

If not, which 3 approaches exist in the intersection?

EB, WB, and SB

EB, WB, and NB

EB, SB, and NB

WB, SB, and NB

Is the Mainline Oriented North/South?

Enter Yes or No

Yes

No

K Factors		D Factors	
	Mainline		Mainline
	9.50%	Westbound (WB)	60.5%
	Side street	Eastbound (EB)	39.5%
	9.50%		Side street
		Northbound (NB)	44.1%
		Southbound (SB)	55.9%

Do you have FTSUTMS Model Year traffic from which you would like to interpolate/extrapolate for project years? (Y/N)

Enter Yes or No

Yes

No

If "Yes" go to cell C47

If "No" go to cell C31

Enter Year and Growth Rates from Base Year:

Base	Year	Rate (1.0% = 0.01)	
		Mainline	Side Street
Opening	2016	4.00%	4.00%
Mid	2033		
Design	2043		

Mainline Growth Function

Linear

Exponential

Decaying

Side Street Growth Function

Linear

Exponential

Decaying

Enter Base Year AADTs for Volume Comparison:

(growth rates are used to calculate other project years)

From West:	From East:	From North:	From South:	TOTAL
EB Approach	WB Approach	SB Approach	NB Approach	
22000	15000	6600	10000	53600

Enter Project and Model Years

	Year
Base	2016
Opening	2025
Mid	2035
Design	2045
Model	2045

Enter Base and Model Year AADTs for Volume Comparison:

(volumes for other project years are calculated by interpolation)

	From West:	From East:	From North:	From South:	TOTAL
	EB Approach	WB Approach	SB Approach	NB Approach	
2016	22000	15000	6600	10000	53600
2045	52000	44000	15000	25000	136000

1st Guess Actual/Counted
Turning %'s for Traffic
AADT Balancing for 2016

(EB LT)	West-to-North	15.4%	132
(EB THRU)	West-to-East	42.1%	361
(EB RT)	West-to-South	42.5%	365
(WB LT)	East-to-South	21.5%	127
(WB THRU)	East-to-West	72.1%	425
(WB RT)	East-to-North	6.4%	38
(SB LT)	North-to-East	18.1%	92
(SB THRU)	North-to-South	67.3%	342
(SB RT)	North-to-West	14.6%	74
(NB LT)	South-to-West	60.2%	400
(NB THRU)	South-to-North	30.3%	201
(NB RT)	South-to-East	9.5%	63

Existing Year AADTs

Existing Turning Movement Counts

FSUTMS Model Year AADTs

Desired Closure: 1.00

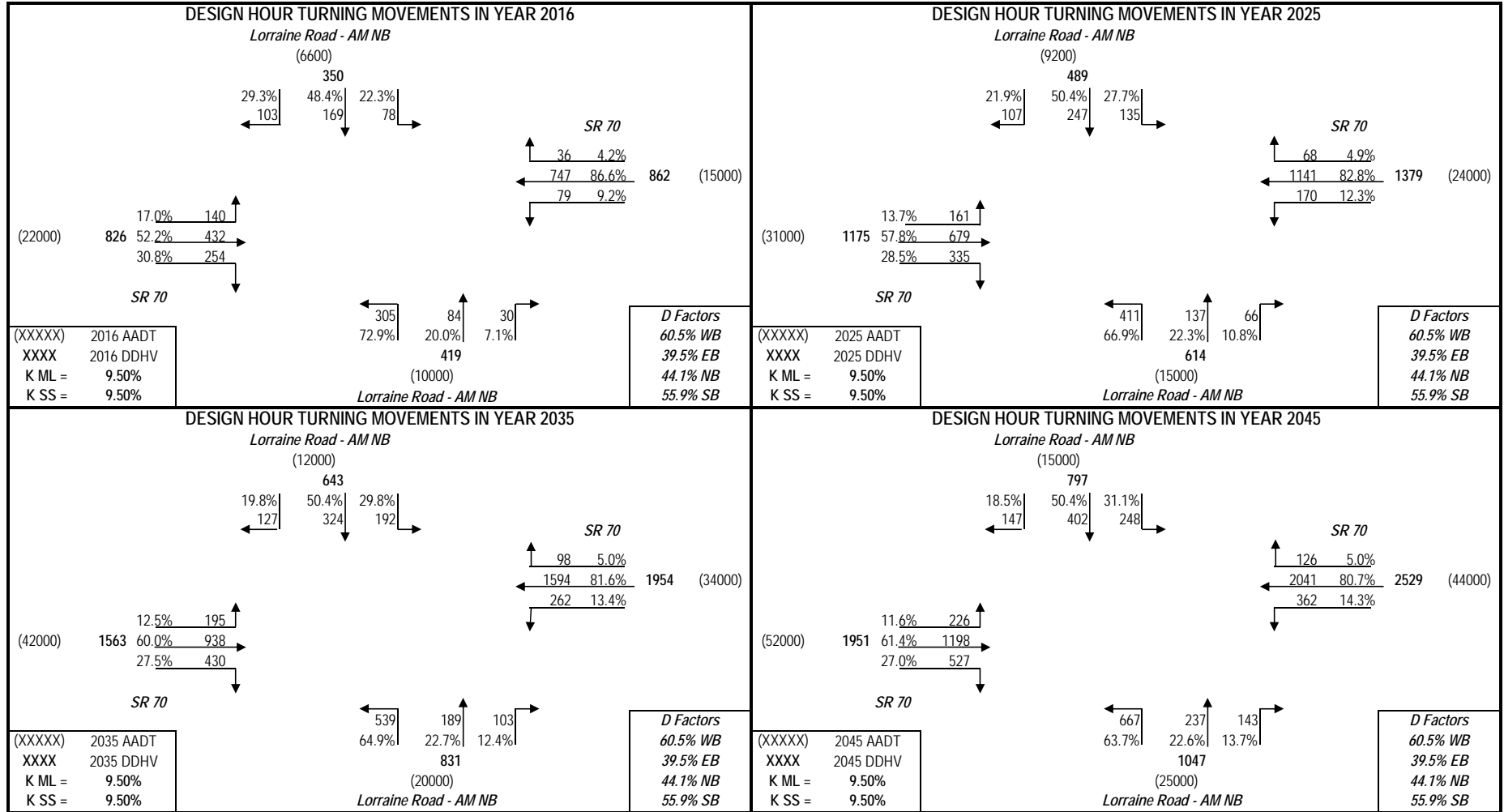
First Guess Turning % Option Used Existing Turning Movement Counts

Only the existing year total departure volumes [AADT*K*(1-D)] will be used to calculate the turning percentages first guess.

The turning percentages first guess is the same as the **actual distribution of turning volumes entered**. No balancing technique is used.

Only the FSUTMS model year departure volumes [AADT*K*(1-D)] will be used to calculate the turning percentages first guess.

PROJECT TRAFFIC FOR SR 70 AT Lorraine Road - AM NB



TURNS5 ANALYSIS SHEET - INPUT

Analyst:

Date: 14-Sep-18

Highway: SR 70

Intersection: Lorraine Road - PM NB

Project: SR 70 DTTM

County: Manatee

Is this a 4 way intersection?

Yes, my intersection has four approaches

If not, which 3 approaches exist in the intersection?

EB, WB, and SB

EB, WB, and NB

EB, SB, and NB

WB, SB, and NB

Is the Mainline Oriented North/South?

Enter Yes or No

Yes

No

K Factors	Mainline	D Factors	Mainline
	9.50%	Westbound (WB)	39.5%
	Side street	Eastbound (EB)	60.5%
	9.50%		Side street
		Northbound (NB)	55.9%
		Southbound (SB)	44.1%

Do you have FTSUTMS Model Year traffic from which you would like to interpolate/extrapolate for project years? (Y/N)

Enter Yes or No

Yes

No

If "Yes" go to cell C47

If "No" go to cell C31

Enter Year and Growth Rates from Base Year:

Base	Year	Rate (1.0% = 0.01)	
		Mainline	Side Street
Opening	2016	4.00%	4.00%
Mid	2033		
Design	2043		

Mainline Growth Function

Linear

Exponential

Decaying

Side Street Growth Function

Linear

Exponential

Decaying

Enter Base Year AADTs for Volume Comparison:

(growth rates are used to calculate other project years)

From West:	From East:	From North:	From South:	TOTAL
EB Approach	WB Approach	SB Approach	NB Approach	
22000	15000	6600	10000	53600

Enter Project and Model Years

	Year
Base	2016
Opening	2025
Mid	2035
Design	2045
Model	2045

Enter Base and Model Year AADTs for Volume Comparison:

(volumes for other project years are calculated by interpolation)

	From West:	From East:	From North:	From South:	TOTAL
	EB Approach	WB Approach	SB Approach	NB Approach	
2016	22000	15000	6600	10000	53600
2045	52000	44000	15000	25000	136000

1st Guess Actual/Counted
Turning %'s for Traffic
AADT Balancing for 2016

(EB LT)	West-to-North	20.6%	202
(EB THRU)	West-to-East	58.5%	573
(EB RT)	West-to-South	20.9%	205
(WB LT)	East-to-South	8.3%	43
(WB THRU)	East-to-West	81.1%	423
(WB RT)	East-to-North	10.6%	55
(SB LT)	North-to-East	29.2%	80
(SB THRU)	North-to-South	33.2%	91
(SB RT)	North-to-West	37.6%	103
(NB LT)	South-to-West	50.4%	332
(NB THRU)	South-to-North	33.1%	218
(NB RT)	South-to-East	16.5%	109

Existing Year AADTs

Existing Turning Movement Counts

FSUTMS Model Year AADTs

Desired Closure: 0.01

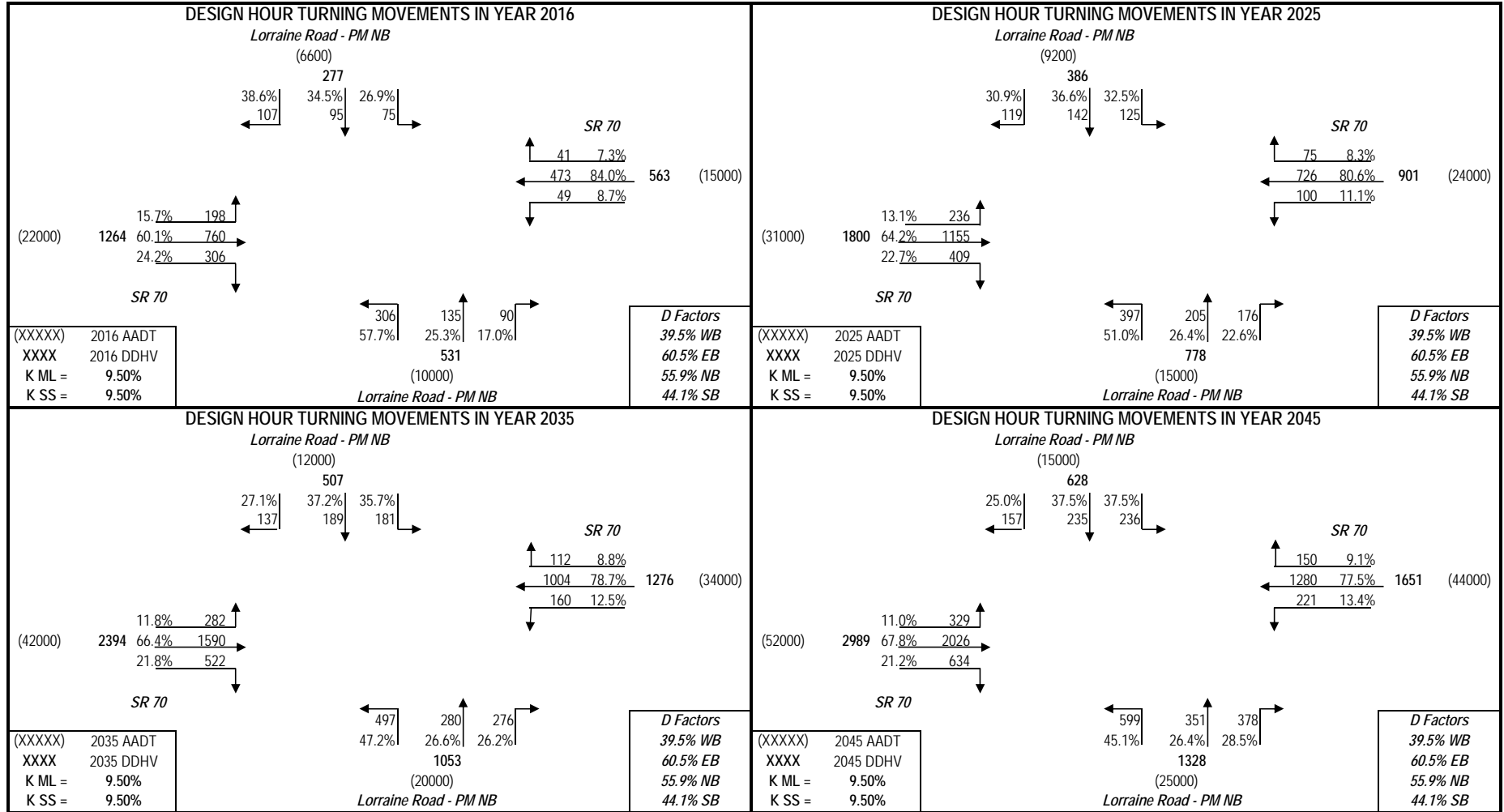
First Guess Turning % Option Used Existing Turning Movement Counts

Only the existing year total departure volumes [AADT*K*(1-D)] will be used to calculate the turning percentages first guess.

The turning percentages first guess is the same as the **actual distribution of turning volumes entered**. No balancing technique is used.

Only the FSUTMS model year departure volumes [AADT*K*(1-D)] will be used to calculate the turning percentages first guess.

PROJECT TRAFFIC FOR SR 70 AT Lorraine Road - PM NB



TURNS5 ANALYSIS SHEET - INPUT

Analyst:
Date: 14-Sep-18
Highway: SR 70
Intersection: Greenbrook Blvd-Post Blvd - AM NB
Project: SR 70 DTTM
County: Manatee

Is this a 4 way intersection?
 Yes, my intersection has four approaches
 If not, which 3 approaches exist in the intersection?
 EB, WB, and SB
 EB, WB, and NB
 EB, SB, and NB
 WB, SB, and NB

Is the Mainline Oriented North/South?
 Enter Yes or No
 Yes
 No

K Factors	Mainline	D Factors	Mainline
	9.50%	Westbound (WB)	60.5%
	Side street	Eastbound (EB)	39.5%
	9.50%		Side street
		Northbound (NB)	57.5%
		Southbound (SB)	42.5%

Do you have FTSUTMS Model Year traffic from which you would like to interpolate/extrapolate for project years? (Y/N)

Enter Yes or No
 Yes
 No

If "Yes" go to cell C47

If "No" go to cell C31

Enter Year and Growth Rates from Base Year:

	Year	Rate (1.0% = 0.01)	
		Mainline	Side Street
Base	2016		
Opening	2023		
Mid	2033	2.54%	0.60%
Design	2043		

Mainline Growth Function
 Linear
 Exponential
 Decaying

Side Street Growth Function
 Linear
 Exponential
 Decaying

Enter Base Year AADTs for Volume Comparison:

(growth rates are used to calculate other project years)

From West:	From East:	From North:	From South:	TOTAL
EB Approach	WB Approach	SB Approach	NB Approach	
15000	13000	1500	2600	32100

Enter Project and Model Years

	Year
Base	2016
Opening	2025
Mid	2035
Design	2045
Model	2045

Enter Base and Model Year AADTs for Volume Comparison:

(volumes for other project years are calculated by interpolation)

	From West:	From East:	From North:	From South:	TOTAL
	EB Approach	WB Approach	SB Approach	NB Approach	
2016	15000	13000	1500	2600	32100
2045	44000	29000	14000	16000	103000

1st Guess Actual/Counted
Turning %'s for Traffic
AADT Balancing for 2016

(EB LT)	West-to-North	15.0%	15
(EB THRU)	West-to-East	70.0%	70
(EB RT)	West-to-South	15.0%	15
(WB LT)	East-to-South	15.0%	15
(WB THRU)	East-to-West	70.0%	70
(WB RT)	East-to-North	15.0%	15
(SB LT)	North-to-East	20.0%	20
(SB THRU)	North-to-South	60.0%	60
(SB RT)	North-to-West	20.0%	20
(NB LT)	South-to-West	20.0%	20
(NB THRU)	South-to-North	60.0%	60
(NB RT)	South-to-East	20.0%	20

Existing Year AADTs

Existing Turning Movement Counts

FSUTMS Model Year AADTs

Desired Closure: 2.00

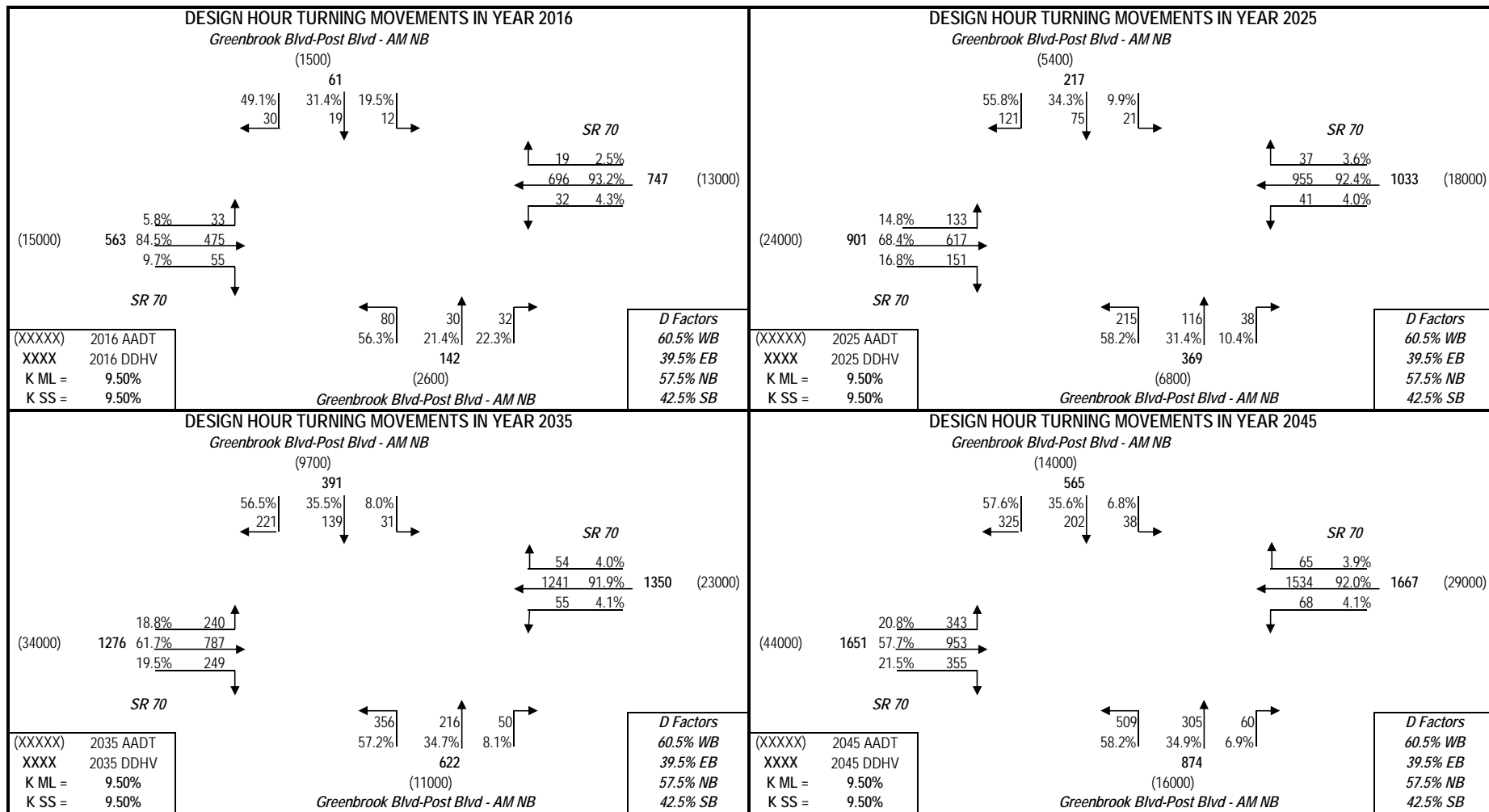
First Guess Turning % Option Used Existing Turning Movement Counts

Only the existing year total departure volumes [AADT*K*(1-D)] will be used to calculate the turning percentages first guess.

The turning percentages first guess is the same as the **actual distribution of turning volumes entered**. No balancing technique is used.

Only the FSUTMS model year departure volumes [AADT*K*(1-D)] will be used to calculate the turning percentages first guess.

PROJECT TRAFFIC FOR SR 70 AT Greenbrook Blvd-Post Blvd - AM NB



TURNS5 ANALYSIS SHEET - INPUT

Analyst:

Date: 14-Sep-18

Highway: SR 70

Intersection: Greenbrook Blvd-Post Blvd - PM NB

Project: SR 70 DTTM

County: Manatee

Is this a 4 way intersection?

Yes, my intersection has four approaches

If not, which 3 approaches exist in the intersection?

EB, WB, and SB

EB, WB, and NB

EB, SB, and NB

WB, SB, and NB

Is the Mainline Oriented North/South?

Enter Yes or No

Yes

No

K Factors	Mainline	D Factors	Mainline
	9.50%	Westbound (WB)	39.5%
	Side street	Eastbound (EB)	60.5%
	9.50%		Side street
		Northbound (NB)	42.5%
		Southbound (SB)	57.5%

Do you have FTSUTMS Model Year traffic from which you would like to interpolate/extrapolate for project years? (Y/N)

Enter Yes or No

Yes

No

If "Yes" go to cell C47 If "No" go to cell C31

Enter Year and Growth Rates from Base Year:

Base	Year	Rate (1.0% = 0.01)	
		Mainline	Side Street
Opening	2016	2.54%	0.60%
Mid	2033		
Design	2043		
	2043		

Mainline Growth Function

Linear

Exponential

Decaying

Side Street Growth Function

Linear

Exponential

Decaying

Enter Base Year AADTs for Volume Comparison:
(growth rates are used to calculate other project years)

From West:	From East:	From North:	From South:	TOTAL
EB Approach	WB Approach	SB Approach	NB Approach	
15000	13000	1500	2600	32100

Enter Project and Model Years

	Year
Base	2016
Opening	2025
Mid	2035
Design	2045
Model	2045

Enter Base and Model Year AADTs for Volume Comparison:
(volumes for other project years are calculated by interpolation)

	From West:	From East:	From North:	From South:	TOTAL
	EB Approach	WB Approach	SB Approach	NB Approach	
2016	15000	13000	1500	2600	32100
2045	44000	29000	14000	16000	103000

1st Guess Actual/Counted Turning %'s for Traffic AADT Balancing for 2016

		1st Guess	Actual/Counted
(EB LT)	West-to-North	15.0%	15
(EB THRU)	West-to-East	70.0%	70
(EB RT)	West-to-South	15.0%	15
(WB LT)	East-to-South	15.0%	15
(WB THRU)	East-to-West	70.0%	70
(WB RT)	East-to-North	15.0%	15
(SB LT)	North-to-East	20.0%	20
(SB THRU)	North-to-South	60.0%	60
(SB RT)	North-to-West	20.0%	20
(NB LT)	South-to-West	20.0%	20
(NB THRU)	South-to-North	60.0%	60
(NB RT)	South-to-East	20.0%	20

Existing Year AADTs

Existing Turning Movement Counts

FSUTMS Model Year AADTs

Desired Closure: 0.01

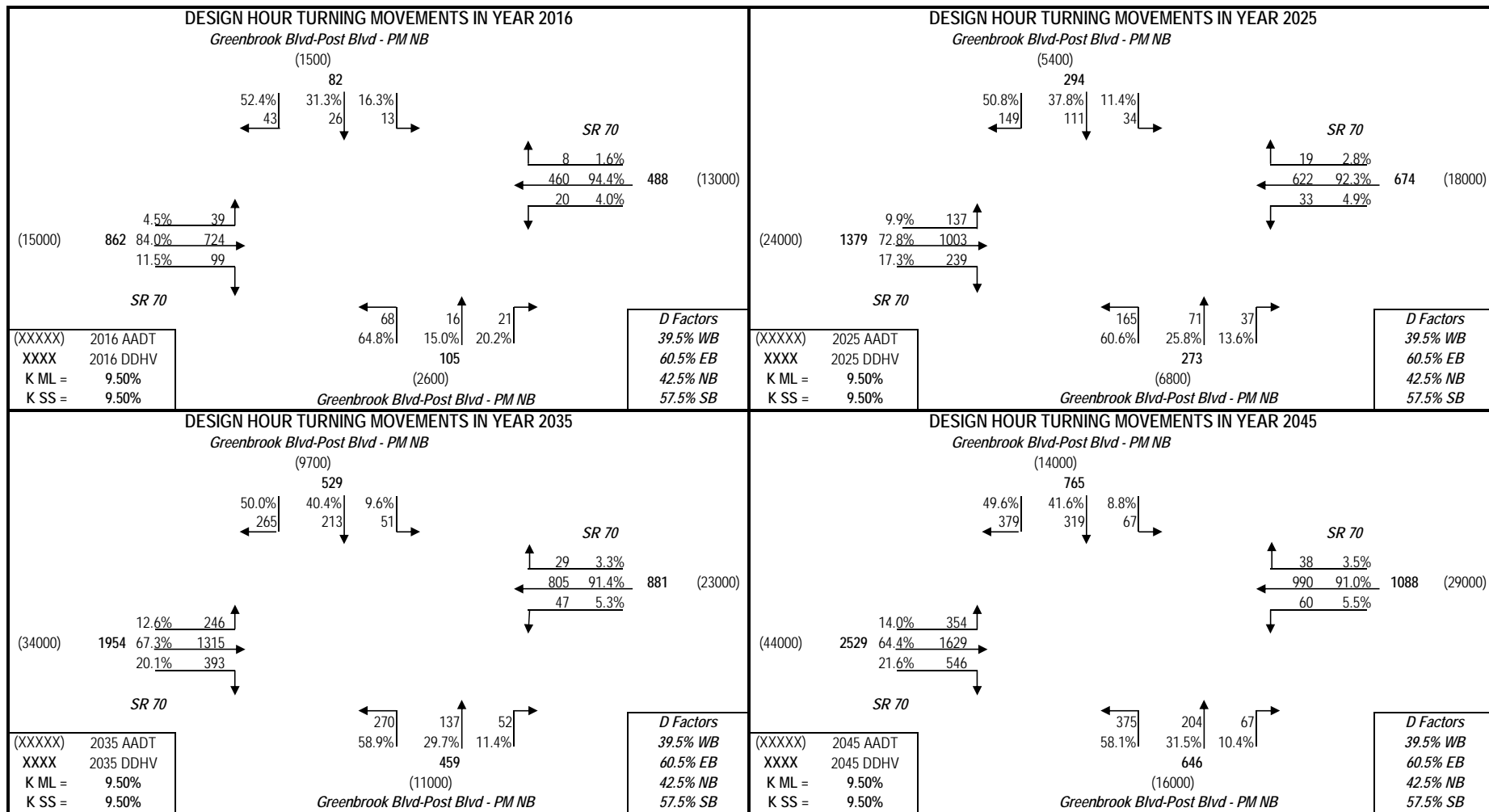
First Guess Turning % Option Used Existing Turning Movement Counts

Only the existing year total departure volumes [AADT*K*(1-D)] will be used to calculate the turning percentages first guess.

The turning percentages first guess is the same as the **actual distribution of turning volumes entered**. No balancing technique is used.

Only the FSUTMS model year departure volumes [AADT*K*(1-D)] will be used to calculate the turning percentages first guess.

PROJECT TRAFFIC FOR SR 70 AT Greenbrook Blvd-Post Blvd - PM NB



TURNS5 ANALYSIS SHEET - INPUT

Analyst:

Date: 14-Sep-18

Highway: SR 70

Intersection: Uihlein Rd - AM NB

Project: SR 70 DTTM

County: Manatee

Is this a 4 way intersection?

Yes, my intersection has four approaches

If not, which 3 approaches exist in the intersection?

EB, WB, and SB

EB, WB, and NB

EB, SB, and NB

WB, SB, and NB

Is the Mainline Oriented North/South?

Enter Yes or No

Yes

No

K Factors		D Factors	
	Mainline		Mainline
	9.50%	Westbound (WB)	60.5%
	Side street	Eastbound (EB)	39.5%
	9.50%		Side street
		Northbound (NB)	0.0%
		Southbound (SB)	60.5%

Do you have FTSUTMS Model Year traffic from which you would like to interpolate/extrapolate for project years? (Y/N)

Enter Yes or No

Yes

No

If "Yes" go to cell C47 If "No" go to cell C31

Enter Year and Growth Rates from Base Year:

	Year	Rate (1.0% = 0.01)	
		Mainline	Side Street
Base	2016		
Opening	2023		
Mid	2033	0.60%	0.60%
Design	2043		

Mainline Growth Function

Linear

Exponential

Decaying

Side Street Growth Function

Linear

Exponential

Decaying

Enter Base Year AADTs for Volume Comparison:
(growth rates are used to calculate other project years)

From West:	From East:	From North:	From South:	TOTAL
EB Approach	WB Approach	SB Approach	NB Approach	
11000	10000	0	310	21310

Enter Project and Model Years

	Year
Base	2016
Opening	2025
Mid	2035
Design	2045
Model	2045

Enter Base and Model Year AADTs for Volume Comparison:
(volumes for other project years are calculated by interpolation)

	From West:	From East:	From North:	From South:	TOTAL
	EB Approach	WB Approach	SB Approach	NB Approach	
2016	10000	10000	2000	0	22000
2045	29000	19000	14000	0	62000

1st Guess Actual/Counted Turning %'s for Traffic AADT Balancing for 2016

		1st Guess	Actual/Counted
(EB LT)	West-to-North	42.4%	137
(EB THRU)	West-to-East	57.6%	736
(EB RT)	West-to-South	0.0%	0
(WB LT)	East-to-South	0.0%	0
(WB THRU)	East-to-West	76.0%	867
(WB RT)	East-to-North	24.0%	190
(SB LT)	North-to-East	30.0%	162
(SB THRU)	North-to-South	0.0%	0
(SB RT)	North-to-West	70.0%	280
(NB LT)	South-to-West	0.0%	0
(NB THRU)	South-to-North	0.0%	0
(NB RT)	South-to-East	0.0%	0

Existing Year AADTs

Existing Turning Movement Counts

FSUTMS Model Year AADTs

Desired Closure: 3.00

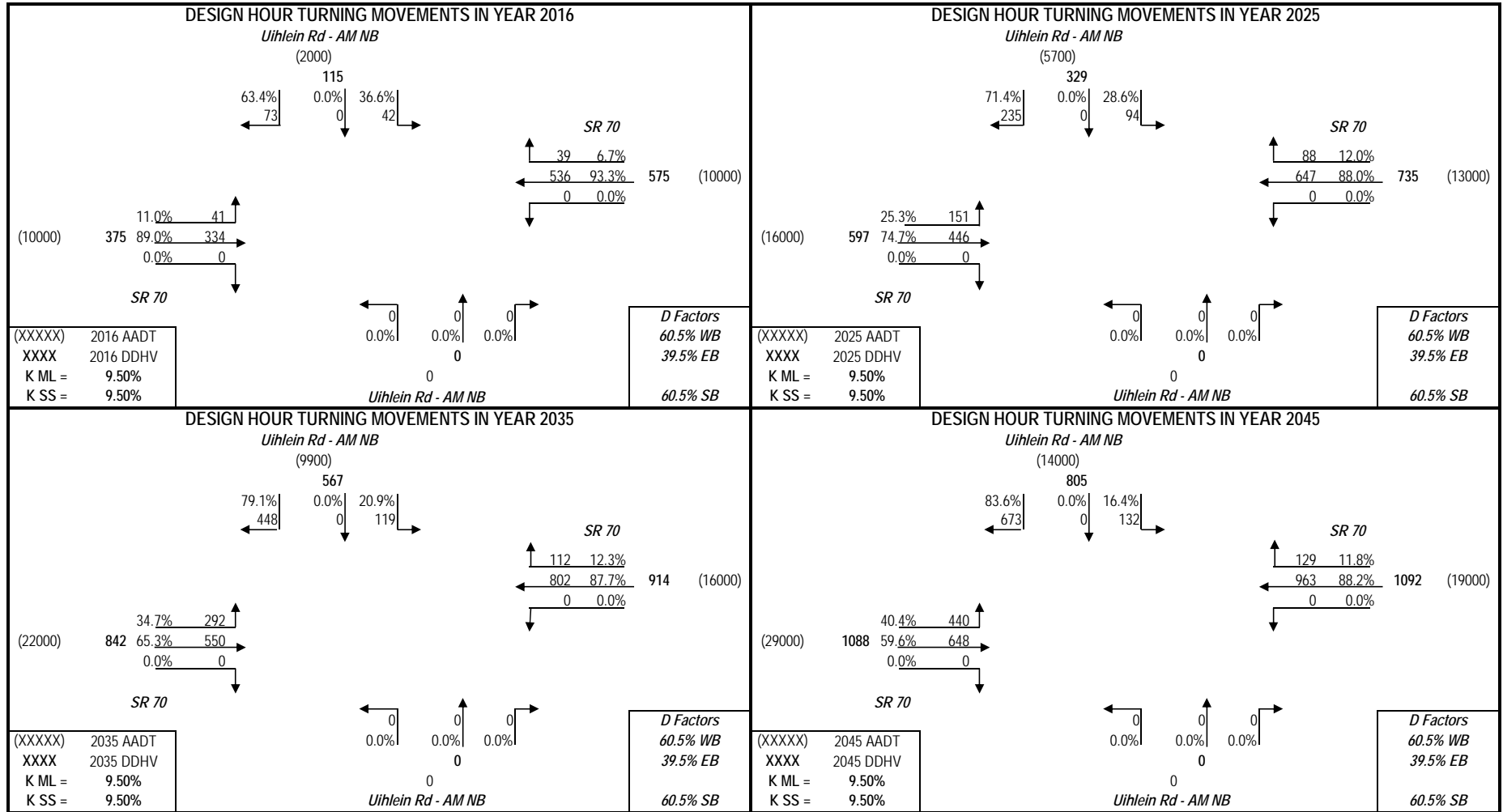
First Guess Turning % Option Used FSUTMS Model Year AADTs

Only the existing year total departure volumes [AADT*K*(1-D)] will be used to calculate the turning percentages first guess.

The turning percentages first guess is the same as the actual distribution of turning volumes entered. No balancing technique is used.

Only the FSUTMS model year departure volumes [AADT*K*(1-D)] will be used to calculate the turning percentages first guess.

PROJECT TRAFFIC FOR SR 70 AT Uihlein Rd - AM NB



TURNS5 ANALYSIS SHEET - INPUT

Analyst:

Date: 14-Sep-18

Highway: SR 70

Intersection: Uihlein Rd - PM NB

Project: SR 70 DTTM

County: Manatee

Is this a 4 way intersection?

Yes, my intersection has four approaches

If not, which 3 approaches exist in the intersection?

EB, WB, and SB

EB, WB, and NB

EB, SB, and NB

WB, SB, and NB

Is the Mainline Oriented North/South?

Enter Yes or No

Yes

No

K Factors		D Factors	
	Mainline		Mainline
	9.50%	Westbound (WB)	39.5%
	Side street	Eastbound (EB)	60.5%
	9.50%		Side street
		Northbound (NB)	0.0%
		Southbound (SB)	39.5%

Do you have FTSUTMS Model Year traffic from which you would like to interpolate/extrapolate for project years? (Y/N)

Enter Yes or No

Yes

No

If "Yes" go to cell C47

If "No" go to cell C31

Enter Year and Growth Rates from Base Year:

Base	Year	Rate (1.0% = 0.01)	
		Mainline	Side Street
Opening	2016	0.60%	0.60%
Mid	2033		
Design	2043		
	2043		

Mainline Growth Function

Linear

Exponential

Decaying

Side Street Growth Function

Linear

Exponential

Decaying

Enter Base Year AADTs for Volume Comparison:

(growth rates are used to calculate other project years)

From West:	From East:	From North:	From South:	TOTAL
EB Approach	WB Approach	SB Approach	NB Approach	
11000	10000	0	310	21310

Enter Project and Model Years

	Year
Base	2016
Opening	2025
Mid	2035
Design	2045
Model	2045

Enter Base and Model Year AADTs for Volume Comparison:

(volumes for other project years are calculated by interpolation)

	From West:	From East:	From North:	From South:	TOTAL
	EB Approach	WB Approach	SB Approach	NB Approach	
2016	10000	10000	2000	0	22000
2045	29000	19000	14000	0	62000

1st Guess Actual/Counted
Turning %'s for Traffic
AADT Balancing for 2016

(EB LT)	West-to-North	30.0%	30
(EB THRU)	West-to-East	70.0%	70
(EB RT)	West-to-South	0.0%	0
(WB LT)	East-to-South	0.0%	0
(WB THRU)	East-to-West	90.0%	90
(WB RT)	East-to-North	10.0%	10
(SB LT)	North-to-East	30.0%	30
(SB THRU)	North-to-South	0.0%	0
(SB RT)	North-to-West	70.0%	70
(NB LT)	South-to-West	0.0%	0
(NB THRU)	South-to-North	0.0%	0
(NB RT)	South-to-East	0.0%	0

Existing Year AADTs

Existing Turning Movement Counts

FSUTMS Model Year AADTs

Desired Closure: 5.00

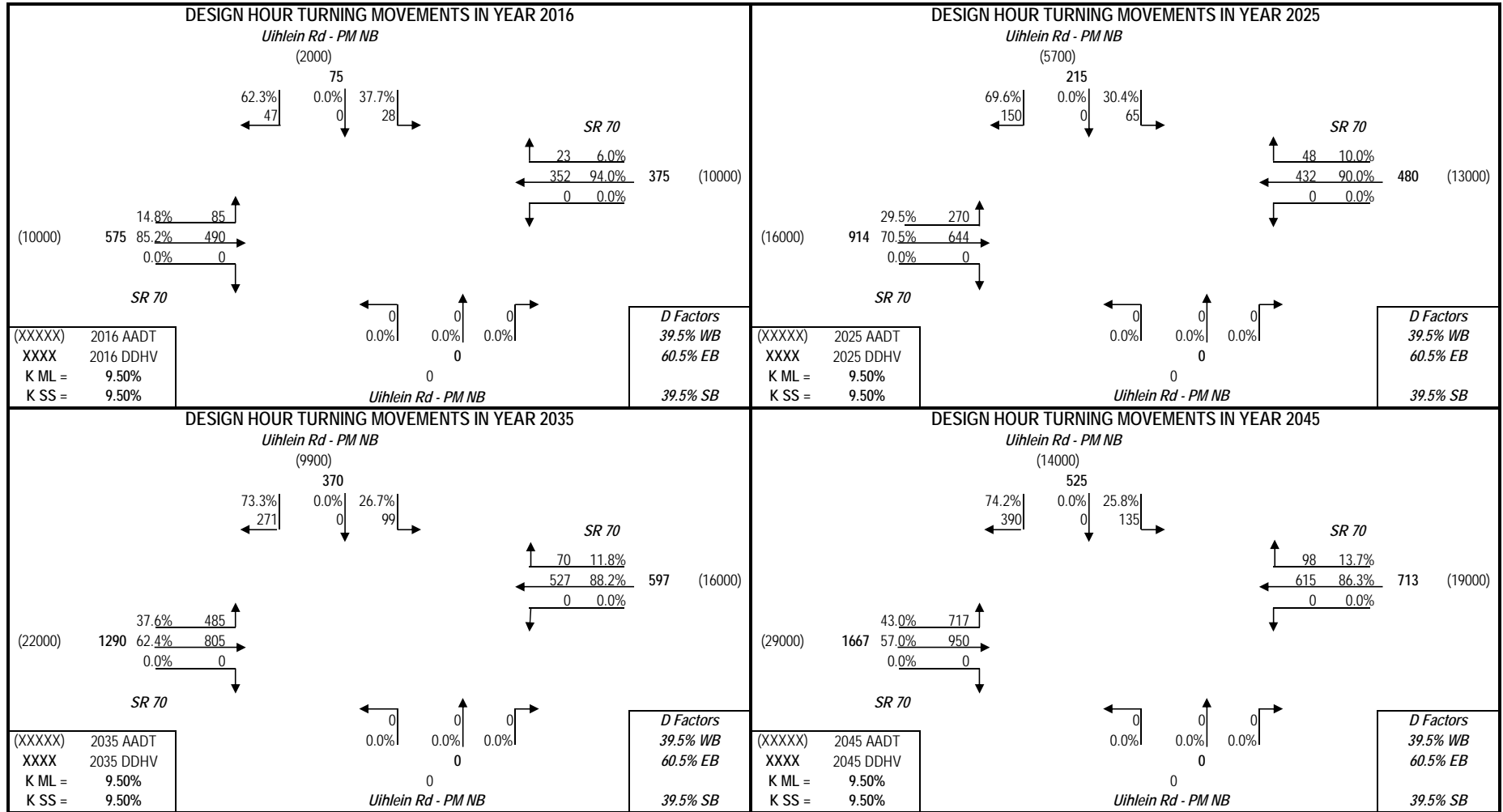
First Guess Turning % Option Used Existing Turning Movement Counts

Only the existing year total departure volumes [AADT*K*(1-D)] will be used to calculate the turning percentages first guess.

The turning percentages first guess is the same as the **actual distribution of turning volumes entered**. No balancing technique is used.

Only the FSUTMS model year departure volumes [AADT*K*(1-D)] will be used to calculate the turning percentages first guess.

PROJECT TRAFFIC FOR SR 70 AT Uihlein Rd - PM NB



TURNS5 ANALYSIS SHEET - INPUT

Analyst:
Date: 17-Oct-18
Highway: SR 70
Intersection: Del Webb - AM NB
Project: SR 70 DTTM
County: Manatee

Is this a 4 way intersection?
 Yes, my intersection has four approaches
 If not, which 3 approaches exist in the intersection?
 EB, WB, and SB
 EB, WB, and NB
 EB, SB, and NB
 WB, SB, and NB

Is the Mainline Oriented North/South?
 Yes
 No

K Factors		D Factors	
	Mainline		Mainline
	9.50%	Westbound (WB)	60.5%
	Side street	Eastbound (EB)	39.5%
	9.50%		Side street
		Northbound (NB)	39.5%
		Southbound (SB)	0.0%

Do you have FTSUTMS Model Year traffic from which you would like to interpolate/extrapolate for project years? (Y/N)

Yes
 No

If "Yes" go to cell C47

If "No" go to cell C31

Enter Year and Growth Rates from Base Year:

Base	Year	Rate (1.0% = 0.01)	
		Mainline	Side Street
Opening	2016	0.60%	0.60%
Mid	2033		
Design	2043		

Mainline Growth Function
 Linear
 Exponential
 Decaying

Side Street Growth Function
 Linear
 Exponential
 Decaying

Enter Base Year AADTs for Volume Comparison:

(growth rates are used to calculate other project years)

From West:	From East:	From North:	From South:	TOTAL
EB Approach	WB Approach	SB Approach	NB Approach	
11000	10000	0	310	21310

Enter Project and Model Years

	Year
Base	2018
Opening	2025
Mid	2035
Design	2045
Model	2045

Enter Base and Model Year AADTs for Volume Comparison:

(volumes for other project years are calculated by interpolation)

	From West:	From East:	From North:	From South:	TOTAL
	EB Approach	WB Approach	SB Approach	NB Approach	
2018	13000	13000	0	2200	28200
2045	19000	17000	0	3000	39000

1st Guess Actual/Counted
Turning %'s for Traffic
AADT Balancing for 2018

(EB LT)	West-to-North	0.0%	0
(EB THRU)	West-to-East	78.7%	257
(EB RT)	West-to-South	21.3%	81
(WB LT)	East-to-South	13.6%	1
(WB THRU)	East-to-West	86.4%	655
(WB RT)	East-to-North	0.0%	0
(SB LT)	North-to-East	0.0%	0
(SB THRU)	North-to-South	0.0%	0
(SB RT)	North-to-West	0.0%	0
(NB LT)	South-to-West	63.1%	48
(NB THRU)	South-to-North	0.0%	0
(NB RT)	South-to-East	36.9%	4

Existing Year AADTs

Existing Turning Movement Counts

FSUTMS Model Year AADTs

Desired Closure: 0.10

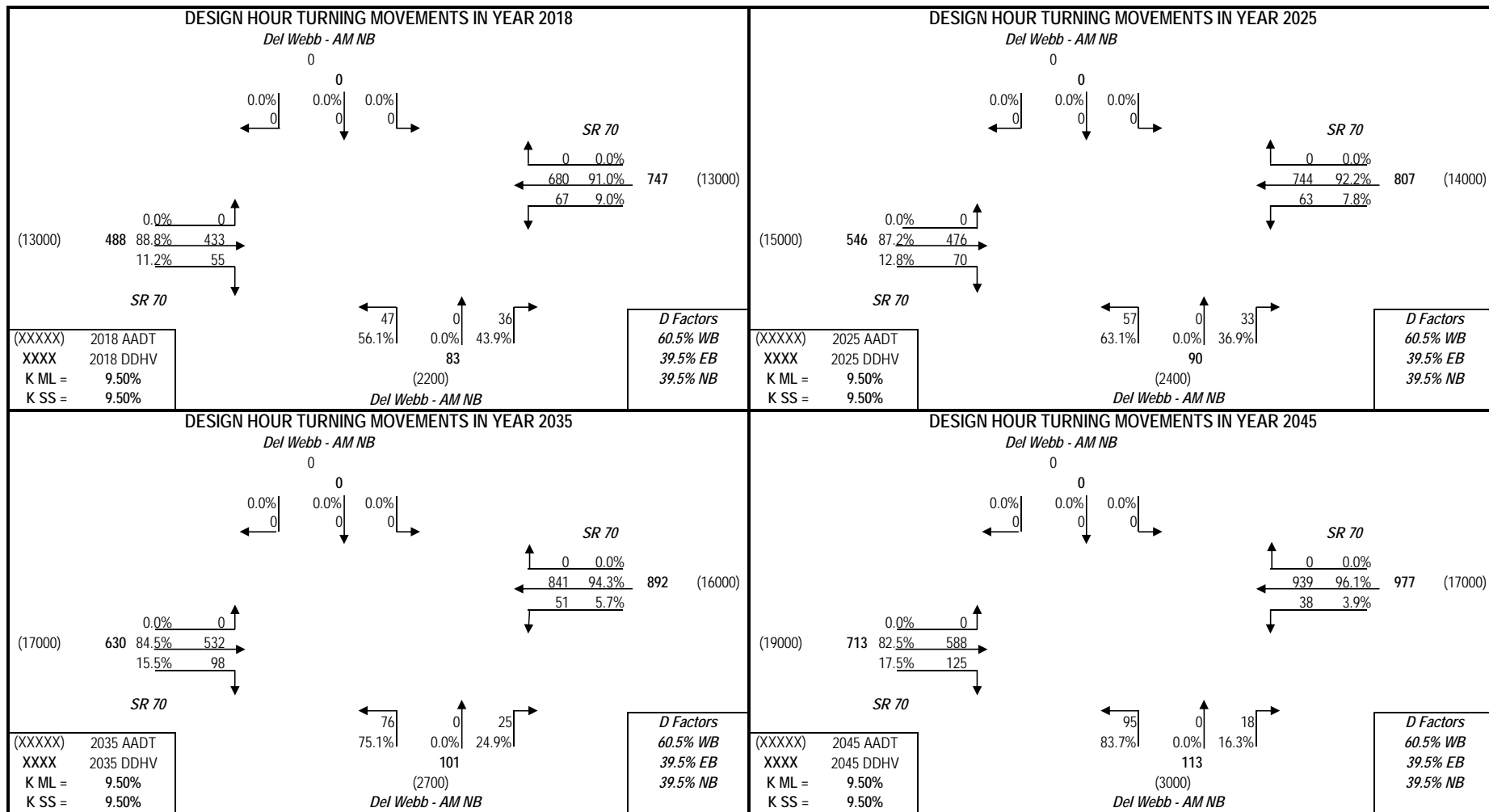
First Guess Turning % Option Used FSUTMS Model Year AADTs

Only the existing year total departure volumes [AADT*K*(1-D)] will be used to calculate the turning percentages first guess.

The turning percentages first guess is the same as the **actual distribution of turning volumes entered**. No balancing technique is used.

Only the FSUTMS model year departure volumes [AADT*K*(1-D)] will be used to calculate the turning percentages first guess.

PROJECT TRAFFIC FOR SR 70 AT Del Webb - AM NB



TURNS5 ANALYSIS SHEET - INPUT

Analyst:

Date: 17-Oct-18

Highway: SR 70

Intersection: Del Webb - PM NB

Project: SR 70 DTTM

County: Manatee

Is this a 4 way intersection?

Yes, my intersection has four approaches

If not, which 3 approaches exist in the intersection?

EB, WB, and SB

EB, WB, and NB

EB, SB, and NB

WB, SB, and NB

Is the Mainline Oriented North/South?

Enter Yes or No

Yes

No

K Factors		D Factors	
	Mainline		Mainline
	9.50%	Westbound (WB)	39.5%
		Eastbound (EB)	60.5%
	Side street		Side street
	9.50%	Northbound (NB)	60.5%
		Southbound (SB)	0.0%

Do you have FTSUTMS Model Year traffic from which you would like to interpolate/extrapolate for project years? (Y/N)

Enter Yes or No

Yes

No

If "Yes" go to cell C47 If "No" go to cell C31

Enter Year and Growth Rates from Base Year:

Base	Year	Rate (1.0% = 0.01)	
		Mainline	Side Street
Opening	2016	0.60%	0.60%
Mid	2033		
Design	2043		
	2043		

Mainline Growth Function

Linear

Exponential

Decaying

Side Street Growth Function

Linear

Exponential

Decaying

Enter Base Year AADTs for Volume Comparison:
(growth rates are used to calculate other project years)

From West:	From East:	From North:	From South:	TOTAL
EB Approach	WB Approach	SB Approach	NB Approach	
11000	10000	0	310	21310

Enter Project and Model Years

	Year
Base	2018
Opening	2025
Mid	2035
Design	2045
Model	2045

Enter Base and Model Year AADTs for Volume Comparison:
(volumes for other project years are calculated by interpolation)

	From West:	From East:	From North:	From South:	TOTAL
	EB Approach	WB Approach	SB Approach	NB Approach	
2018	13000	13000	0	2200	28200
2045	19000	17000	0	3000	39000

**1st Guess Actual/Counted
Turning %'s for Traffic
AADT Balancing for 2018**

(EB LT)	West-to-North	0.0%	0
(EB THRU)	West-to-East	89.6%	578
(EB RT)	West-to-South	10.4%	67
(WB LT)	East-to-South	0.6%	2
(WB THRU)	East-to-West	99.4%	323
(WB RT)	East-to-North	0.0%	0
(SB LT)	North-to-East	0.0%	0
(SB THRU)	North-to-South	0.0%	0
(SB RT)	North-to-West	0.0%	0
(NB LT)	South-to-West	97.2%	69
(NB THRU)	South-to-North	0.0%	0
(NB RT)	South-to-East	2.8%	2

Existing Year AADTs

Existing Turning Movement Counts

FSUTMS Model Year AADTs

Desired Closure: 3.00

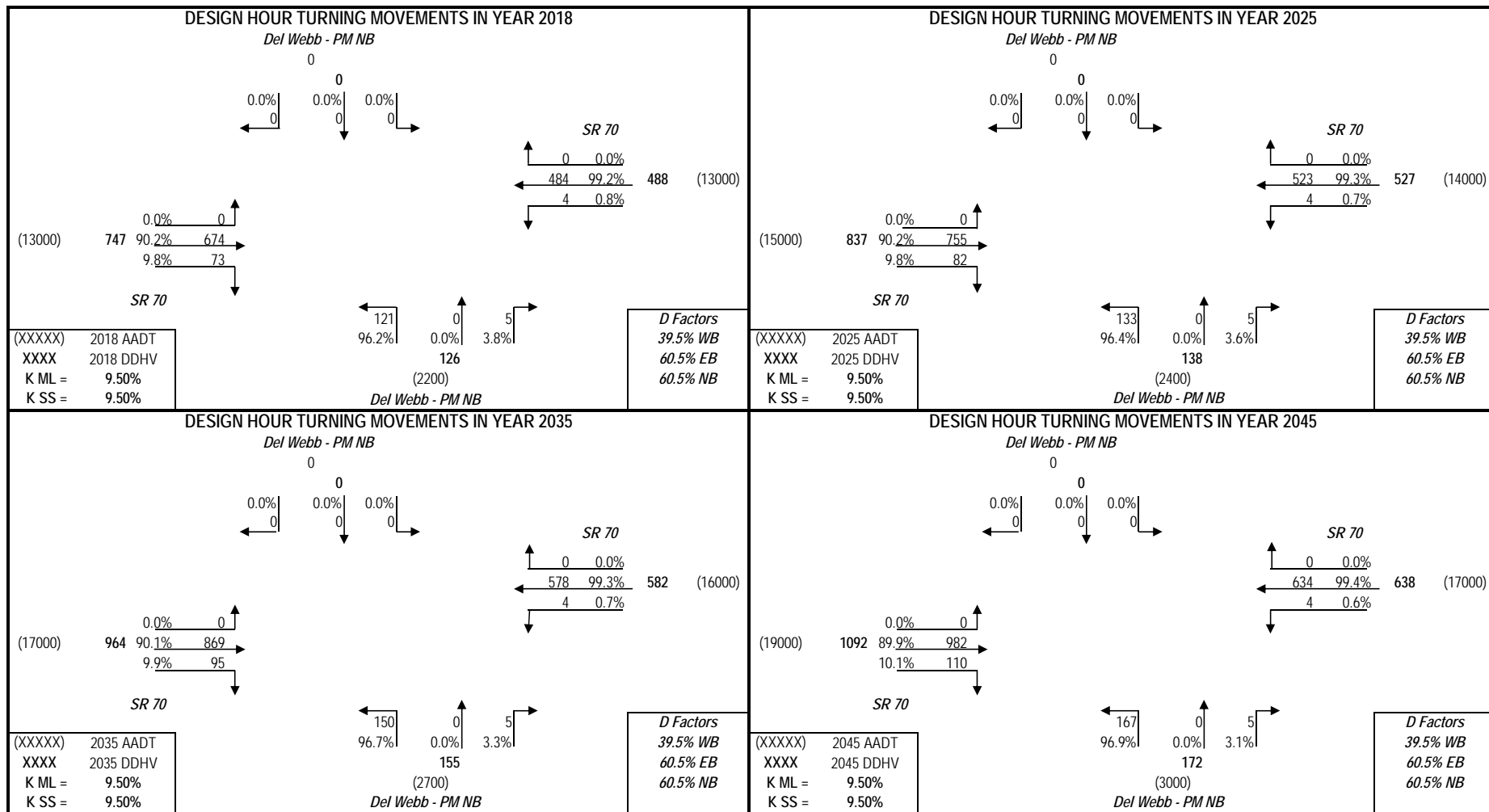
First Guess Turning % Option Used Existing Turning Movement Counts

Only the existing year total departure volumes [AADT*K*(1-D)] will be used to calculate the turning percentages first guess.

The turning percentages first guess is the same as the **actual distribution of turning volumes entered**. No balancing technique is used.

Only the FSUTMS model year departure volumes [AADT*K*(1-D)] will be used to calculate the turning percentages first guess.

PROJECT TRAFFIC FOR SR 70 AT Del Webb - PM NB



TURNS5 ANALYSIS SHEET - INPUT

Analyst:

Date: 14-Sep-18

Highway: SR 70

Intersection: Bourneside Blvd - AM NB

Project: SR 70 DTTM

County: Manatee

Is this a 4 way intersection?

Yes, my intersection has four approaches

If not, which 3 approaches exist in the intersection?

EB, WB, and SB

EB, WB, and NB

EB, SB, and NB

WB, SB, and NB

Is the Mainline Oriented North/South?

Enter Yes or No

Yes

No

K Factors		D Factors	
	Mainline		Mainline
	9.50%	Westbound (WB)	60.5%
		Eastbound (EB)	39.5%
	Side street		Side street
	9.50%	Northbound (NB)	60.5%
		Southbound (SB)	39.5%

Do you have FTSUTMS Model Year traffic from which you would like to interpolate/extrapolate for project years? (Y/N)

Enter Yes or No

Yes

No

If "Yes" go to cell C47

If "No" go to cell C31

Enter Year and Growth Rates from Base Year:

Base	Year		Rate (1.0% = 0.01)	
	2016		Mainline	Side Street
Opening	2023		2.54%	0.60%
Mid	2033			
Design	2043			

Mainline Growth Function

Linear

Exponential

Decaying

Side Street Growth Function

Linear

Exponential

Decaying

Enter Base Year AADTs for Volume Comparison:

(growth rates are used to calculate other project years)

From West:	From East:	From North:	From South:	TOTAL
EB Approach	WB Approach	SB Approach	NB Approach	
15000	13000	1500	2600	32100

Enter Project and Model Years

	Year
Base	2016
Opening	2025
Mid	2035
Design	2045
Model	2045

Enter Base and Model Year AADTs for Volume Comparison:

(volumes for other project years are calculated by interpolation)

	From West:	From East:	From North:	From South:	TOTAL
	EB Approach	WB Approach	SB Approach	NB Approach	
2016	14000	13000	2000	1500	30500
2045	17000	15000	8200	5600	45800

1st Guess Actual/Counted
Turning %'s for Traffic
AADT Balancing for 2016

(EB LT)	West-to-North	37.9%	12
(EB THRU)	West-to-East	45.2%	379
(EB RT)	West-to-South	16.9%	47
(WB LT)	East-to-South	12.7%	57
(WB THRU)	East-to-West	58.9%	636
(WB RT)	East-to-North	28.4%	2
(SB LT)	North-to-East	32.2%	11
(SB THRU)	North-to-South	12.0%	9
(SB RT)	North-to-West	55.8%	10
(NB LT)	South-to-West	48.6%	103
(NB THRU)	South-to-North	23.4%	2
(NB RT)	South-to-East	28.0%	15

Existing Year AADTs

Existing Turning Movement Counts

FSUTMS Model Year AADTs

Desired Closure: 2.00

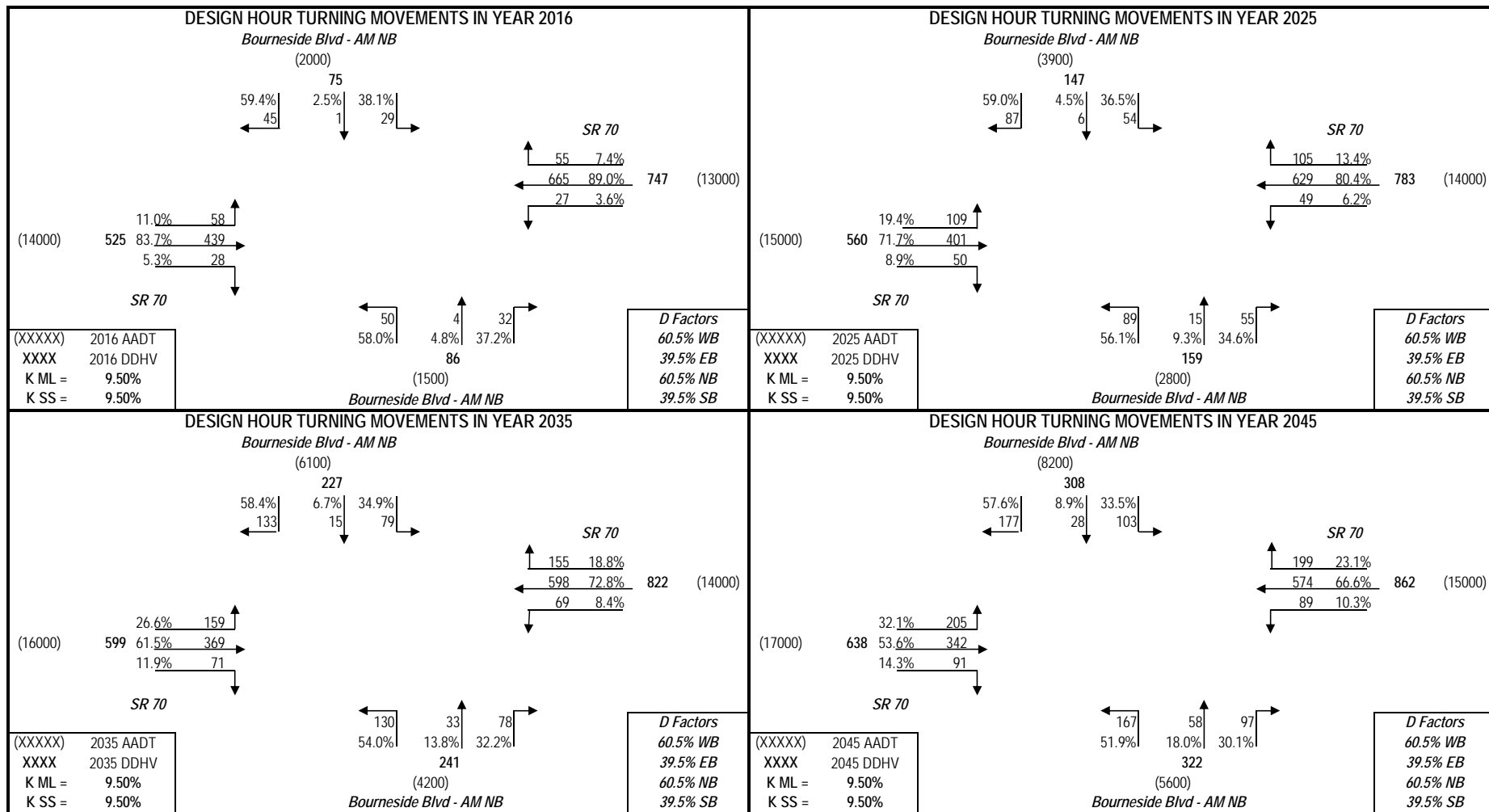
First Guess Turning % Option Used
FSUTMS Model Year AADTs

Only the existing year total departure volumes [AADT*K*(1-D)] will be used to calculate the turning percentages first guess.

The turning percentages first guess is the same as the **actual distribution of turning volumes entered**. No balancing technique is used.

Only the FSUTMS model year departure volumes [AADT*K*(1-D)] will be used to calculate the turning percentages first guess.

PROJECT TRAFFIC FOR SR 70 AT Bourneside Blvd - AM NB



TURNS5 ANALYSIS SHEET - INPUT

Analyst:

Date: 14-Sep-18

Highway: SR 70

Intersection: Bourneside Blvd - PM NB

Project: SR 70 DTTM

County: Manatee

Is this a 4 way intersection?

Yes, my intersection has four approaches

If not, which 3 approaches exist in the intersection?

EB, WB, and SB

EB, WB, and NB

EB, SB, and NB

WB, SB, and NB

Is the Mainline Oriented North/South?

Enter Yes or No

Yes

No

K Factors		D Factors	
	Mainline		Mainline
	9.50%	Westbound (WB)	39.5%
	Side street	Eastbound (EB)	60.5%
	9.50%		Side street
		Northbound (NB)	39.5%
		Southbound (SB)	60.5%

Do you have FTSUTMS Model Year traffic from which you would like to interpolate/extrapolate for project years? (Y/N)

Enter Yes or No

Yes

No

If "Yes" go to cell C47

If "No" go to cell C31

Enter Year and Growth Rates from Base Year:

Base	Year	Rate (1.0% = 0.01)	
		Mainline	Side Street
Opening	2016	2.54%	0.60%
Mid	2033		
Design	2043		
	2043		

Mainline Growth Function

Linear

Exponential

Decaying

Side Street Growth Function

Linear

Exponential

Decaying

Enter Base Year AADTs for Volume Comparison:

(growth rates are used to calculate other project years)

From West:	From East:	From North:	From South:	TOTAL
EB Approach	WB Approach	SB Approach	NB Approach	
15000	13000	1500	2600	32100

Enter Project and Model Years

	Year
Base	2016
Opening	2025
Mid	2035
Design	2045
Model	2045

Enter Base and Model Year AADTs for Volume Comparison:

(volumes for other project years are calculated by interpolation)

	From West:	From East:	From North:	From South:	TOTAL
	EB Approach	WB Approach	SB Approach	NB Approach	
2016	14000	13000	2000	1500	30500
2045	17000	15000	8200	5600	45800

1st Guess Actual/Counted
Turning %'s for Traffic
AADT Balancing for 2016

(EB LT)	West-to-North	20.6%	59
(EB THRU)	West-to-East	57.8%	611
(EB RT)	West-to-South	21.6%	114
(WB LT)	East-to-South	25.4%	8
(WB THRU)	East-to-West	50.3%	430
(WB RT)	East-to-North	24.3%	6
(SB LT)	North-to-East	47.3%	6
(SB THRU)	North-to-South	17.7%	7
(SB RT)	North-to-West	35.0%	28
(NB LT)	South-to-West	35.3%	67
(NB THRU)	South-to-North	17.0%	19
(NB RT)	South-to-East	47.7%	21

Existing Year AADTs

Existing Turning Movement Counts

FSUTMS Model Year AADTs

Desired Closure: 0.01

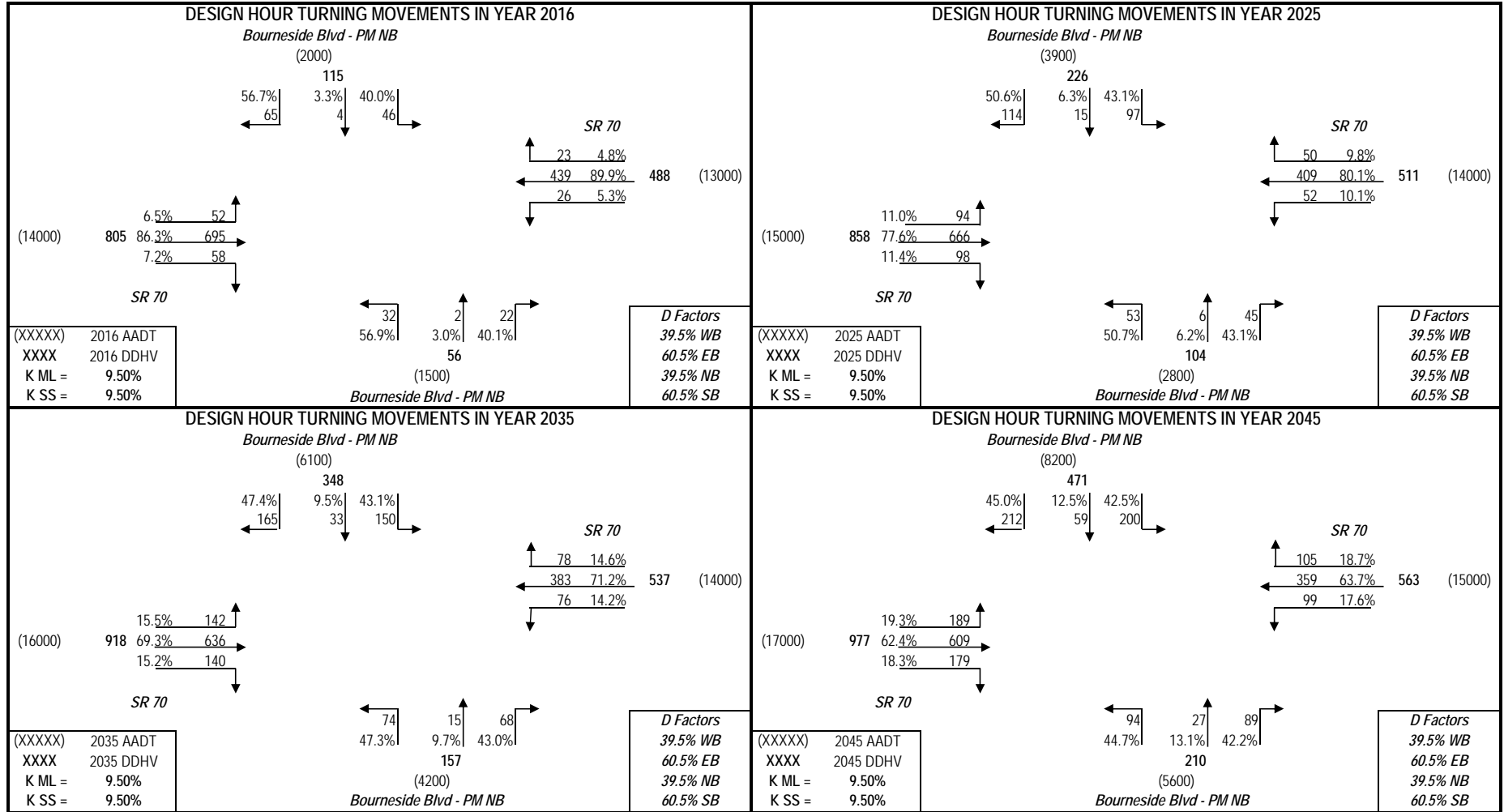
First Guess Turning % Option Used
FSUTMS Model Year AADTs

Only the existing year total departure volumes [AADT*K*(1-D)] will be used to calculate the turning percentages first guess.

The turning percentages first guess is the same as the **actual distribution of turning volumes entered**. No balancing technique is used.

Only the FSUTMS model year departure volumes [AADT*K*(1-D)] will be used to calculate the turning percentages first guess.

PROJECT TRAFFIC FOR SR 70 AT Bourneside Blvd - PM NB



TURNS5 ANALYSIS SHEET - INPUT

Analyst:

Date: 14-Sep-18

Highway: SR 70

Intersection: Lindrick Ln-197th St E - AM NB

Project: SR 70 DTTM

County: Manatee

Is this a 4 way intersection?

Yes, my intersection has four approaches

If not, which 3 approaches exist in the intersection?

EB, WB, and SB

EB, WB, and NB

EB, SB, and NB

WB, SB, and NB

Is the Mainline Oriented North/South?

Enter Yes or No

Yes

No

K Factors		D Factors	
	Mainline		Mainline
	9.50%	Westbound (WB)	60.5%
		Eastbound (EB)	39.5%
	Side street		Side street
	9.50%	Northbound (NB)	23.4%
		Southbound (SB)	76.6%

Do you have FTSUTMS Model Year traffic from which you would like to interpolate/extrapolate for project years? (Y/N)

Enter Yes or No

Yes

No

If "Yes" go to cell C47

If "No" go to cell C31

Enter Year and Growth Rates from Base Year:

Year	Rate (1.0% = 0.01)	
	Mainline	Side Street
Base 2016		
Opening 2023		
Mid 2033	0.60%	0.60%
Design 2043		

Mainline Growth Function

Linear

Exponential

Decaying

Side Street Growth Function

Linear

Exponential

Decaying

Enter Base Year AADTs for Volume Comparison:

(growth rates are used to calculate other project years)

From West:	From East:	From North:	From South:	TOTAL
EB Approach	WB Approach	SB Approach	NB Approach	
13000	11000	1100	1500	26600

Enter Project and Model Years

Year
Base 2016
Opening 2025
Mid 2035
Design 2045
Model 2045

Enter Base and Model Year AADTs for Volume Comparison:

(volumes for other project years are calculated by interpolation)

	From West:	From East:	From North:	From South:	TOTAL
	EB Approach	WB Approach	SB Approach	NB Approach	
2016	13000	11000	1100	1500	26600
2045	15000	14000	1300	1800	32100

1st Guess Actual/Counted
Turning %'s for Traffic
AADT Balancing for 2016

(EB LT)	West-to-North	6.2%	20
(EB THRU)	West-to-East	74.7%	243
(EB RT)	West-to-South	19.1%	62
(WB LT)	East-to-South	1.1%	7
(WB THRU)	East-to-West	98.9%	635
(WB RT)	East-to-North	0.0%	0
(SB LT)	North-to-East	2.8%	2
(SB THRU)	North-to-South	2.8%	2
(SB RT)	North-to-West	94.4%	68
(NB LT)	South-to-West	87.1%	27
(NB THRU)	South-to-North	0.0%	0
(NB RT)	South-to-East	12.9%	4

Existing Year AADTs

Existing Turning Movement Counts

FSUTMS Model Year AADTs

Desired Closure: 1.00

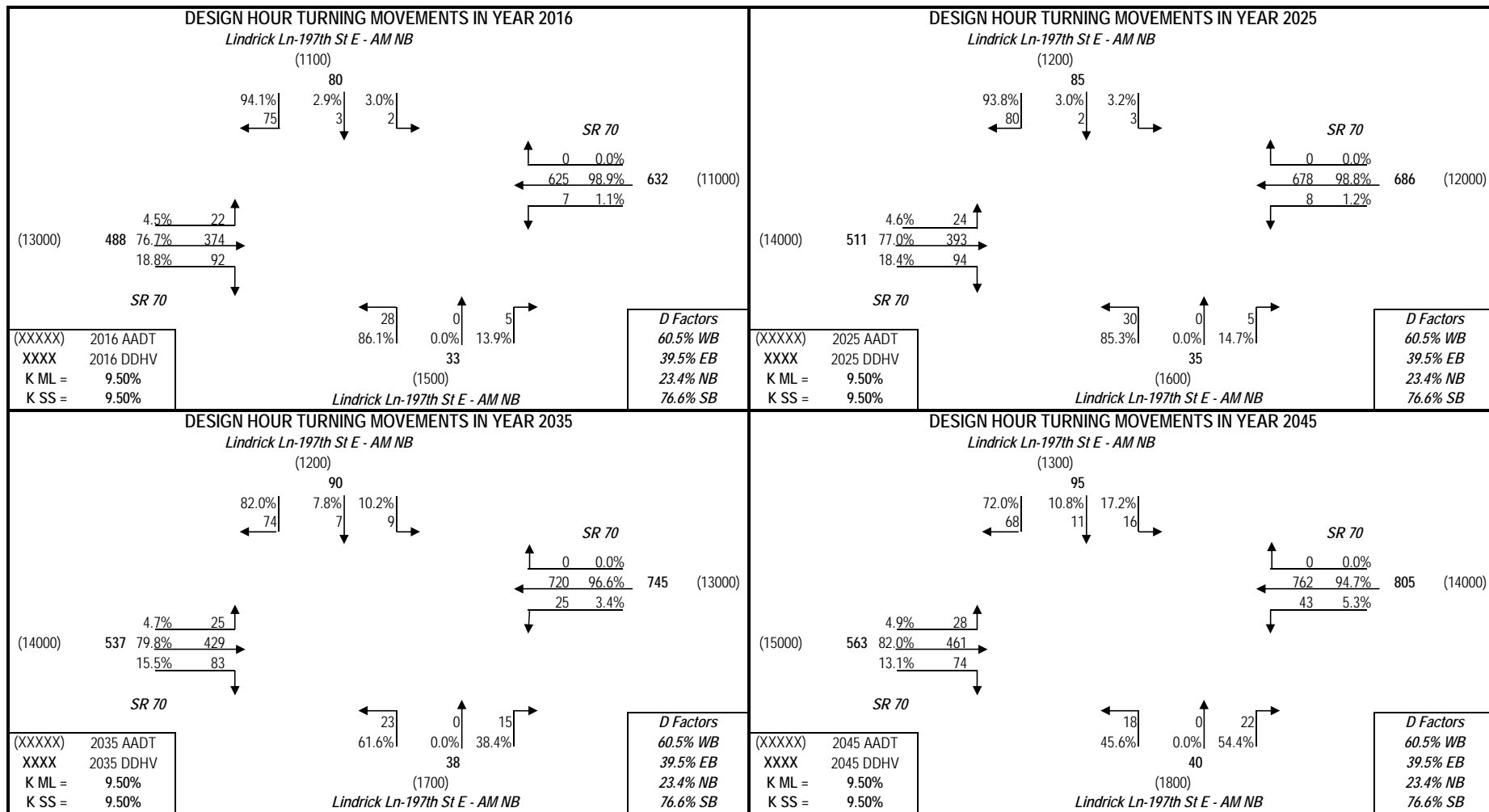
First Guess Turning % Option Used Existing Turning Movement Counts

Only the existing year total departure volumes [AADT*K*(1-D)] will be used to calculate the turning percentages first guess.

The turning percentages first guess is the same as the **actual distribution of turning volumes entered**. No balancing technique is used.

Only the FSUTMS model year departure volumes [AADT*K*(1-D)] will be used to calculate the turning percentages first guess.

PROJECT TRAFFIC FOR SR 70 AT Lindrick Ln-197th St E - AM NB



TURNS5 ANALYSIS SHEET - INPUT

Analyst:

Date: 14-Sep-18

Highway: SR 70

Intersection: Lindrick Ln-197th St E - PM NB

Project: SR 70 DTTM

County: Manatee

Is this a 4 way intersection?

Yes, my intersection has four approaches

If not, which 3 approaches exist in the intersection?

EB, WB, and SB

EB, WB, and NB

EB, SB, and NB

WB, SB, and NB

Is the Mainline Oriented North/South?

Enter Yes or No

Yes

No

K Factors		D Factors	
	Mainline		Mainline
	9.50%	Westbound (WB)	39.5%
	Side street	Eastbound (EB)	60.5%
	9.50%		Side street
		Northbound (NB)	76.6%
		Southbound (SB)	23.4%

Do you have FTSUTMS Model Year traffic from which you would like to interpolate/extrapolate for project years? (Y/N)

Enter Yes or No

Yes

No

If "Yes" go to cell C47 If "No" go to cell C31

Enter Year and Growth Rates from Base Year:

Base	Year	Rate (1.0% = 0.01)	
		Mainline	Side Street
Opening	2016	0.60%	0.60%
Mid	2033		
Design	2043		
	2043		

Mainline Growth Function

Linear

Exponential

Decaying

Side Street Growth Function

Linear

Exponential

Decaying

Enter Base Year AADTs for Volume Comparison:
(growth rates are used to calculate other project years)

From West:	From East:	From North:	From South:	TOTAL
EB Approach	WB Approach	SB Approach	NB Approach	
13000	11000	1100	1500	26600

Enter Project and Model Years

	Year
Base	2016
Opening	2025
Mid	2035
Design	2045
Model	2045

Enter Base and Model Year AADTs for Volume Comparison:
(volumes for other project years are calculated by interpolation)

	From West:	From East:	From North:	From South:	TOTAL
	EB Approach	WB Approach	SB Approach	NB Approach	
2016	13000	11000	1100	1500	26600
2045	15000	14000	1300	1800	32100

1st Guess Actual/Counted Turning %'s for Traffic AADT Balancing for 2016

(EB LT)	West-to-North	9.1%	61
(EB THRU)	West-to-East	84.6%	568
(EB RT)	West-to-South	6.3%	42
(WB LT)	East-to-South	1.7%	5
(WB THRU)	East-to-West	98.0%	295
(WB RT)	East-to-North	0.3%	1
(SB LT)	North-to-East	3.1%	1
(SB THRU)	North-to-South	0.0%	0
(SB RT)	North-to-West	96.9%	31
(NB LT)	South-to-West	85.7%	54
(NB THRU)	South-to-North	0.0%	0
(NB RT)	South-to-East	14.3%	9

Existing Year AADTs

Existing Turning Movement Counts

FSUTMS Model Year AADTs

Desired Closure: 0.01

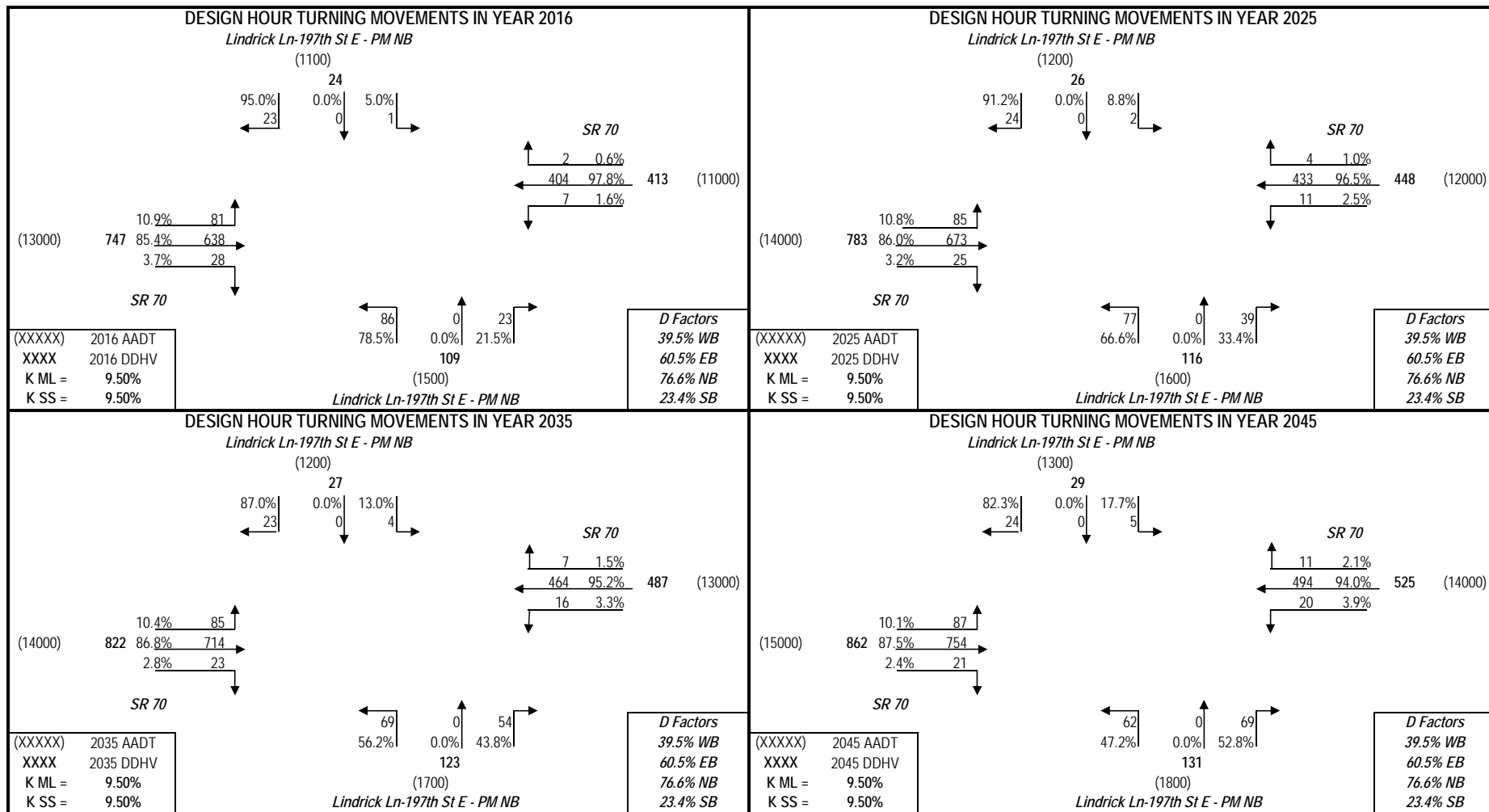
First Guess Turning % Option Used Existing Turning Movement Counts

Only the existing year total departure volumes [AADT*K*(1-D)] will be used to calculate the turning percentages first guess.

The turning percentages first guess is the same as the **actual distribution of turning volumes entered**. No balancing technique is used.

Only the FSUTMS model year departure volumes [AADT*K*(1-D)] will be used to calculate the turning percentages first guess.

PROJECT TRAFFIC FOR SR 70 AT Lindrick Ln-197th St E - PM NB



TURNS5 ANALYSIS SHEET - INPUT

Analyst:

Date: 14-Sep-18

Highway: SR 70

Intersection: 213th St E - AM NB

Project: SR 70 DTTM

County: Manatee

Is this a 4 way intersection?

Yes, my intersection has four approaches

If not, which 3 approaches exist in the intersection?

EB, WB, and SB

EB, WB, and NB

EB, SB, and NB

WB, SB, and NB

Is the Mainline Oriented North/South?

Enter Yes or No

Yes

No

K Factors		D Factors	
	Mainline		Mainline
	9.50%	Westbound (WB)	60.5%
		Eastbound (EB)	39.5%
	Side street		Side street
	9.50%	Northbound (NB)	73.5%
		Southbound (SB)	0.0%

Do you have FTSUTMS Model Year traffic from which you would like to interpolate/extrapolate for project years? (Y/N)

Enter Yes or No

Yes

No

If "Yes" go to cell C47

If "No" go to cell C31

Enter Year and Growth Rates from Base Year:

Base	Year	Rate (1.0% = 0.01)	
		Mainline	Side Street
Opening	2016	0.60%	0.60%
Mid	2033		
Design	2043		

Mainline Growth Function

Linear

Exponential

Decaying

Side Street Growth Function

Linear

Exponential

Decaying

Enter Base Year AADTs for Volume Comparison:

(growth rates are used to calculate other project years)

From West:	From East:	From North:	From South:	TOTAL
EB Approach	WB Approach	SB Approach	NB Approach	
11000	10000	0	310	21310

Enter Project and Model Years

	Year
Base	2016
Opening	2025
Mid	2035
Design	2045
Model	2045

Enter Base and Model Year AADTs for Volume Comparison:

(volumes for other project years are calculated by interpolation)

	From West:	From East:	From North:	From South:	TOTAL
	EB Approach	WB Approach	SB Approach	NB Approach	
2016	10000	10000	0	310	20310
2045	14000	14000	0	370	28370

1st Guess Actual/Counted
Turning %'s for Traffic
AADT Balancing for 2016

(EB LT)	West-to-North	0.0%	0
(EB THRU)	West-to-East	97.6%	245
(EB RT)	West-to-South	2.4%	6
(WB LT)	East-to-South	0.2%	1
(WB THRU)	East-to-West	99.8%	617
(WB RT)	East-to-North	0.0%	0
(SB LT)	North-to-East	0.0%	0
(SB THRU)	North-to-South	0.0%	0
(SB RT)	North-to-West	0.0%	0
(NB LT)	South-to-West	85.0%	17
(NB THRU)	South-to-North	0.0%	0
(NB RT)	South-to-East	15.0%	3

Existing Year AADTs

Existing Turning Movement Counts

FSUTMS Model Year AADTs

Desired Closure: 0.10

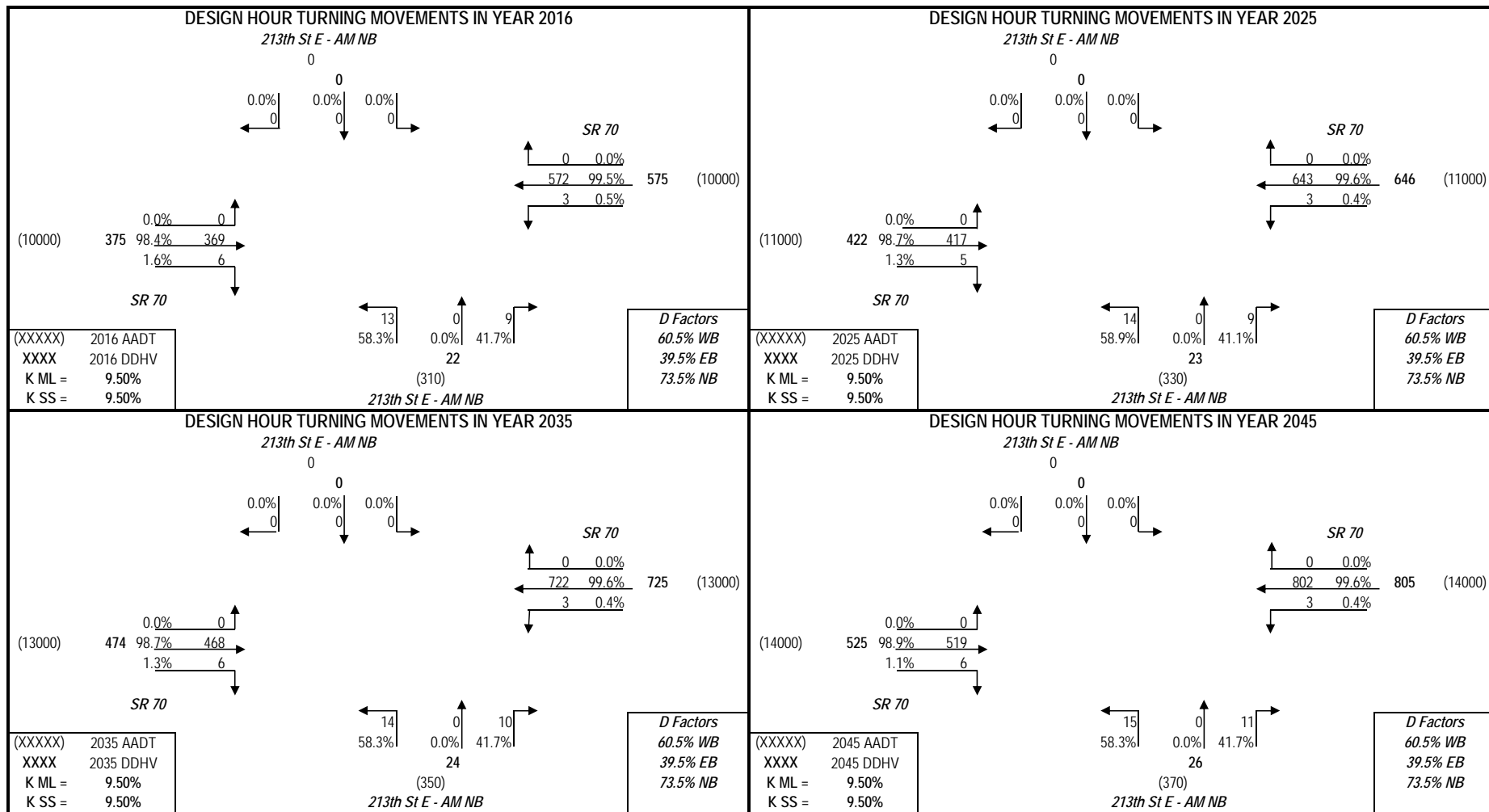
First Guess Turning % Option Used Existing Turning Movement Counts

Only the existing year total departure volumes [AADT*K*(1-D)] will be used to calculate the turning percentages first guess.

The turning percentages first guess is the same as the **actual distribution of turning volumes entered**. No balancing technique is used.

Only the FSUTMS model year departure volumes [AADT*K*(1-D)] will be used to calculate the turning percentages first guess.

PROJECT TRAFFIC FOR SR 70 AT 213th St E - AM NB



TURNS5 ANALYSIS SHEET - INPUT

Analyst:

Date: 14-Sep-18

Highway: SR 70

Intersection: 213th St E - PM NB

Project: SR 70 DTTM

County: Manatee

Is this a 4 way intersection?

Yes, my intersection has four approaches

If not, which 3 approaches exist in the intersection?

EB, WB, and SB

EB, WB, and NB

EB, SB, and NB

WB, SB, and NB

Is the Mainline Oriented North/South?

Enter Yes or No

Yes

No

K Factors	Mainline	D Factors	Mainline
	9.50%	Westbound (WB)	39.5%
	Side street	Eastbound (EB)	60.5%
	9.50%		Side street
		Northbound (NB)	26.5%
		Southbound (SB)	0.0%

Do you have FTSUTMS Model Year traffic from which you would like to interpolate/extrapolate for project years? (Y/N)

Enter Yes or No

Yes

No

If "Yes" go to cell C47

If "No" go to cell C31

Enter Year and Growth Rates from Base Year:

Base	Year	Rate (1.0% = 0.01)	
		Mainline	Side Street
Opening	2016	0.60%	0.60%
Mid	2033		
Design	2043		
	2043		

Mainline Growth Function

Linear

Exponential

Decaying

Side Street Growth Function

Linear

Exponential

Decaying

Enter Base Year AADTs for Volume Comparison:

(growth rates are used to calculate other project years)

From West:	From East:	From North:	From South:	TOTAL
EB Approach	WB Approach	SB Approach	NB Approach	
11000	10000	0	310	21310

Enter Project and Model Years

	Year
Base	2016
Opening	2025
Mid	2035
Design	2045
Model	2045

Enter Base and Model Year AADTs for Volume Comparison:

(volumes for other project years are calculated by interpolation)

	From West:	From East:	From North:	From South:	TOTAL
	EB Approach	WB Approach	SB Approach	NB Approach	
2016	11000	11000	0	310	22310
2045	14000	14000	0	370	28370

1st Guess Actual/Counted
Turning %'s for Traffic
AADT Balancing for 2016

(EB LT)	West-to-North	0.0%	0
(EB THRU)	West-to-East	97.2%	562
(EB RT)	West-to-South	2.8%	16
(WB LT)	East-to-South	0.3%	1
(WB THRU)	East-to-West	99.7%	294
(WB RT)	East-to-North	0.0%	0
(SB LT)	North-to-East	0.0%	0
(SB THRU)	North-to-South	0.0%	0
(SB RT)	North-to-West	0.0%	0
(NB LT)	South-to-West	100.0%	10
(NB THRU)	South-to-North	0.0%	0
(NB RT)	South-to-East	0.0%	0

Existing Year AADTs

Existing Turning Movement Counts

FSUTMS Model Year AADTs

Desired Closure: 3.00

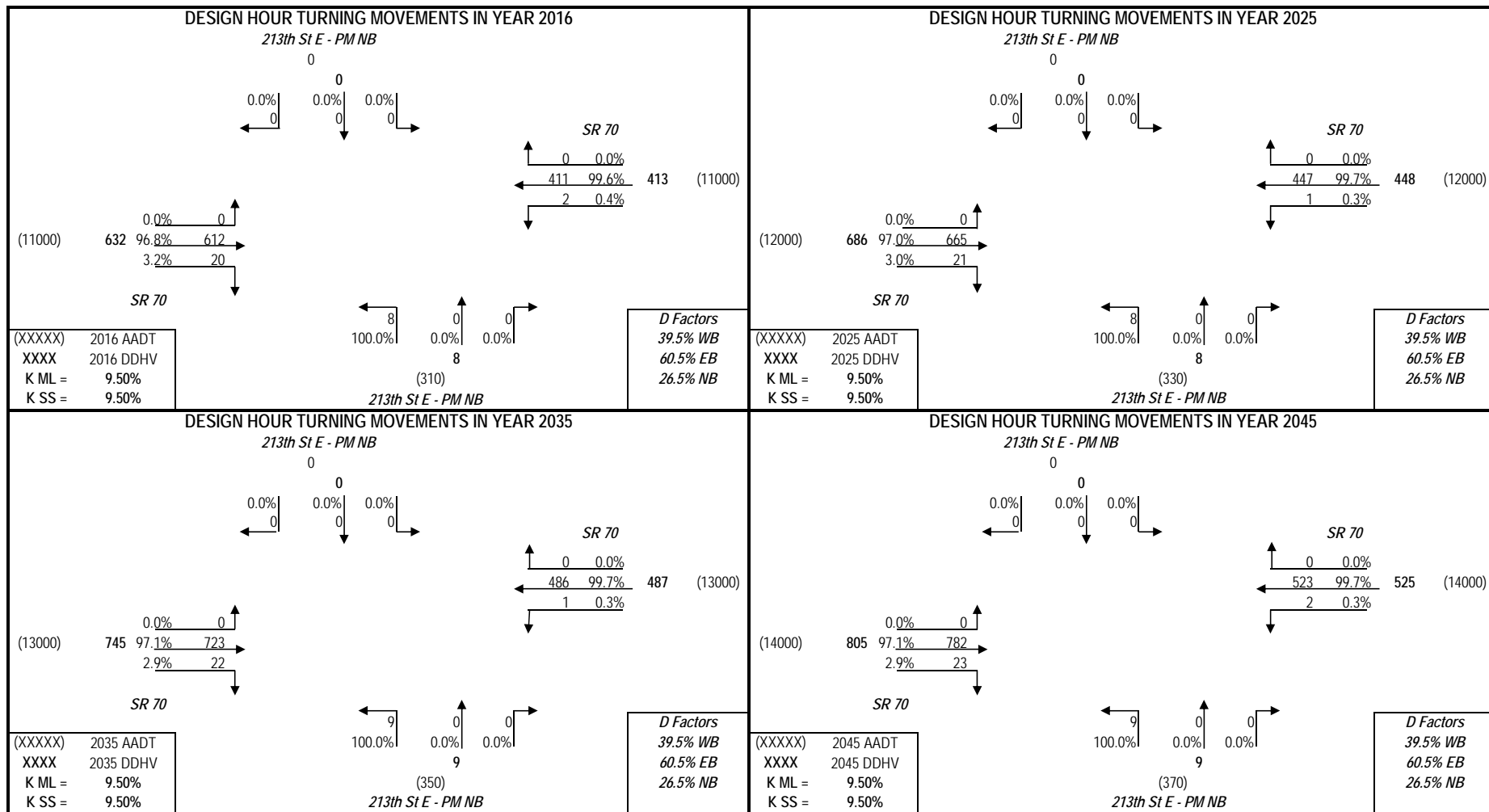
First Guess Turning % Option Used Existing Turning Movement Counts

Only the existing year total departure volumes [AADT*K*(1-D)] will be used to calculate the turning percentages first guess.

The turning percentages first guess is the same as the **actual distribution of turning volumes entered**. No balancing technique is used.

Only the FSUTMS model year departure volumes [AADT*K*(1-D)] will be used to calculate the turning percentages first guess.

PROJECT TRAFFIC FOR SR 70 AT 213th St E - PM NB



TURNS5 ANALYSIS SHEET - INPUT

Analyst:

Date: 14-Sep-18

Highway: SR 70

Intersection: Triumph Adventure Park Entrance - AM NE

Project: SR 70 DTTM

County: Manatee

Is this a 4 way intersection?

Yes, my intersection has four approaches

If not, which 3 approaches exist in the intersection?

EB, WB, and SB

EB, WB, and NB

EB, SB, and NB

WB, SB, and NB

Is the Mainline Oriented North/South?

Enter Yes or No

Yes

No

K Factors		D Factors	
	Mainline		Mainline
	9.50%	Westbound (WB)	60.5%
	Side street	Eastbound (EB)	39.5%
	9.50%		Side street
		Northbound (NB)	0.0%
		Southbound (SB)	10.0%

Do you have FTSUTMS Model Year traffic from which you would like to interpolate/extrapolate for project years? (Y/N)

Enter Yes or No

Yes

No

If "Yes" go to cell C47

If "No" go to cell C31

Enter Year and Growth Rates from Base Year:

Base	Year	Rate (1.0% = 0.01)	
		Mainline	Side Street
Opening	2016	0.60%	0.60%
Mid	2033		
Design	2043		

Mainline Growth Function

Linear

Exponential

Decaying

Side Street Growth Function

Linear

Exponential

Decaying

Enter Base Year AADTs for Volume Comparison:

(growth rates are used to calculate other project years)

From West:	From East:	From North:	From South:	TOTAL
EB Approach	WB Approach	SB Approach	NB Approach	
10000	9600	60	0	19660

Enter Project and Model Years

	Year
Base	2016
Opening	2025
Mid	2035
Design	2045
Model	2045

Enter Base and Model Year AADTs for Volume Comparison:

(volumes for other project years are calculated by interpolation)

	From West:	From East:	From North:	From South:	TOTAL
	EB Approach	WB Approach	SB Approach	NB Approach	
2016	10000	9600	60	0	19660
2045	14000	14000	70	0	28070

1st Guess Actual/Counted
Turning %'s for Traffic
AADT Balancing for 2016

(EB LT)	West-to-North	2.8%	7
(EB THRU)	West-to-East	97.2%	240
(EB RT)	West-to-South	0.0%	0
(WB LT)	East-to-South	0.0%	0
(WB THRU)	East-to-West	99.8%	614
(WB RT)	East-to-North	0.2%	1
(SB LT)	North-to-East	0.0%	0
(SB THRU)	North-to-South	0.0%	0
(SB RT)	North-to-West	100.0%	2
(NB LT)	South-to-West	0.0%	0
(NB THRU)	South-to-North	0.0%	0
(NB RT)	South-to-East	0.0%	0

Existing Year AADTs

Existing Turning Movement Counts

FSUTMS Model Year AADTs

Desired Closure: 1.00

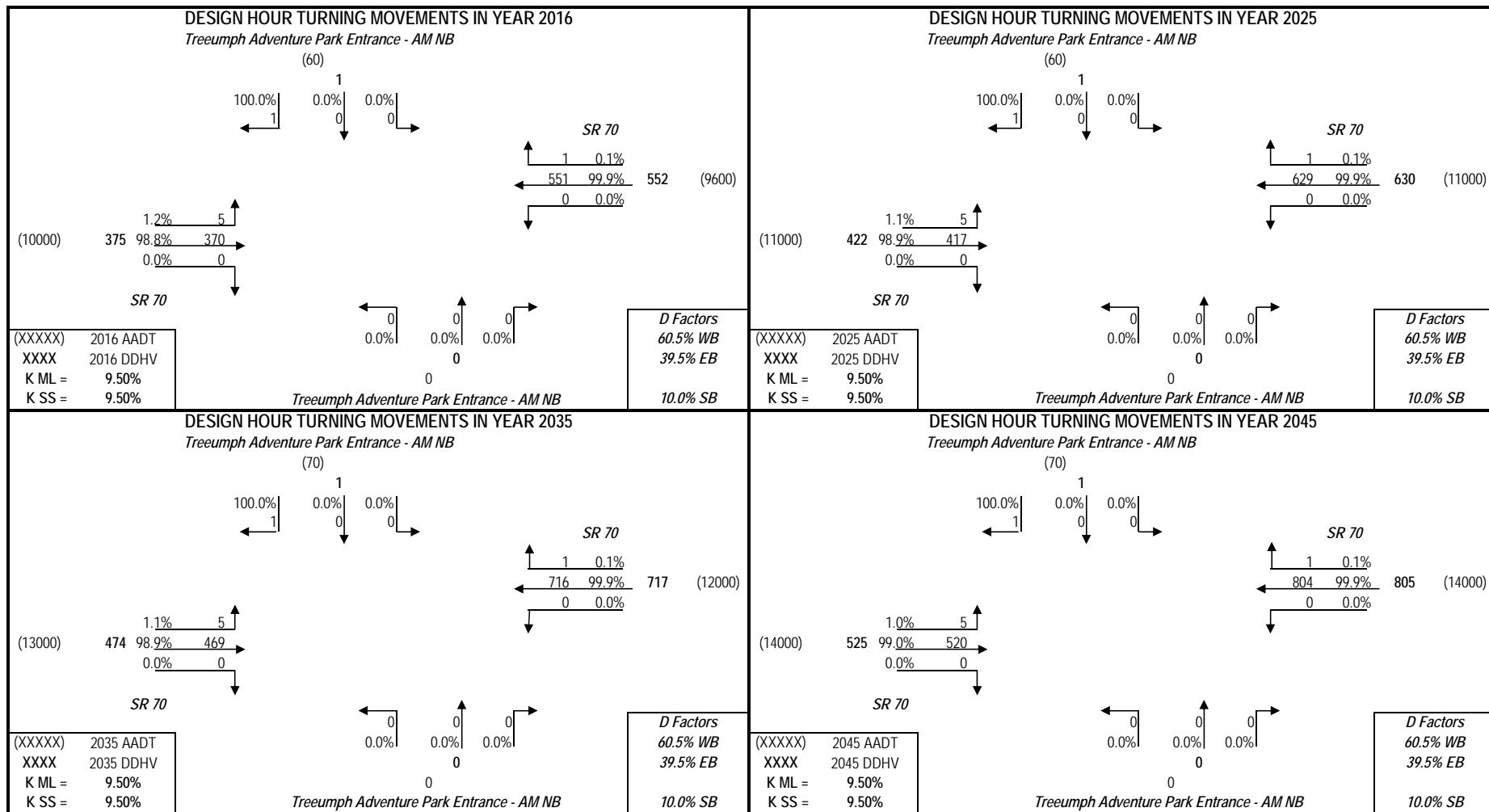
First Guess Turning % Option Used Existing Turning Movement Counts

Only the existing year total departure volumes [AADT*K*(1-D)] will be used to calculate the turning percentages first guess.

The turning percentages first guess is the same as the **actual distribution of turning volumes entered**. No balancing technique is used.

Only the FSUTMS model year departure volumes [AADT*K*(1-D)] will be used to calculate the turning percentages first guess.

PROJECT TRAFFIC FOR SR 70 AT Treeumph Adventure Park Entrance - AM NB



TURNS5 ANALYSIS SHEET - INPUT

Analyst:

Date: 14-Sep-18

Highway: SR 70

Intersection: Triumph Adventure Park Entrance - PM NE

Project: SR 70 DTTM

County: Manatee

Is this a 4 way intersection?

Yes, my intersection has four approaches

If not, which 3 approaches exist in the intersection?

EB, WB, and SB

EB, WB, and NB

EB, SB, and NB

WB, SB, and NB

Is the Mainline Oriented North/South?

Enter Yes or No

Yes

No

K Factors		D Factors	
	Mainline		Mainline
	9.50%	Westbound (WB)	39.5%
	Side street	Eastbound (EB)	60.5%
	9.50%		Side street
		Northbound (NB)	0.0%
		Southbound (SB)	99.0%

Do you have FTSUTMS Model Year traffic from which you would like to interpolate/extrapolate for project years? (Y/N)

Enter Yes or No

Yes

No

If "Yes" go to cell C47 If "No" go to cell C31

Enter Year and Growth Rates from Base Year:

Base	Year	Rate (1.0% = 0.01)	
		Mainline	Side Street
Opening	2016	0.60%	0.60%
Mid	2033		
Design	2043		
	2043		

Mainline Growth Function

Linear

Exponential

Decaying

Side Street Growth Function

Linear

Exponential

Decaying

Enter Base Year AADTs for Volume Comparison:
(growth rates are used to calculate other project years)

From West:	From East:	From North:	From South:	TOTAL
EB Approach	WB Approach	SB Approach	NB Approach	
10000	9600	60	0	19660

Enter Project and Model Years

	Year
Base	2016
Opening	2025
Mid	2035
Design	2045
Model	2045

Enter Base and Model Year AADTs for Volume Comparison:
(volumes for other project years are calculated by interpolation)

	From West:	From East:	From North:	From South:	TOTAL
	EB Approach	WB Approach	SB Approach	NB Approach	
2016	10000	9600	60	0	19660
2045	14000	14000	70	0	28070

**1st Guess Actual/Counted
Turning %'s for Traffic
AADT Balancing for 2016**

(EB LT)	West-to-North	0.4%	2
(EB THRU)	West-to-East	99.6%	550
(EB RT)	West-to-South	0.0%	0
(WB LT)	East-to-South	0.0%	0
(WB THRU)	East-to-West	100.0%	295
(WB RT)	East-to-North	0.0%	0
(SB LT)	North-to-East	0.0%	0
(SB THRU)	North-to-South	0.0%	0
(SB RT)	North-to-West	100.0%	0
(NB LT)	South-to-West	0.0%	0
(NB THRU)	South-to-North	0.0%	0
(NB RT)	South-to-East	0.0%	0

Existing Year AADTs

Existing Turning Movement Counts

FSUTMS Model Year AADTs

Desired Closure: 1.00

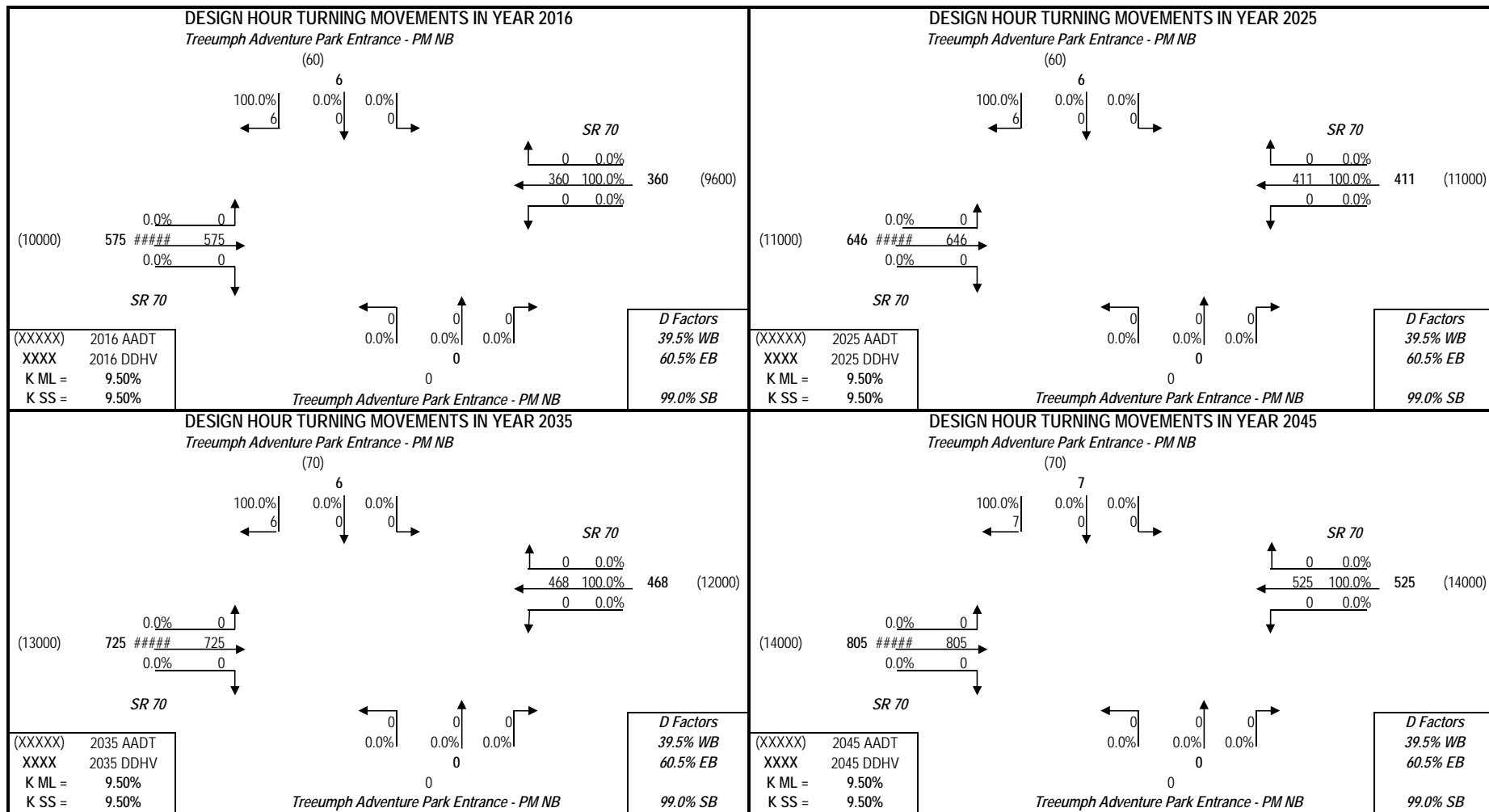
First Guess Turning % Option Used Existing Turning Movement Counts

Only the existing year total departure volumes [AADT*K*(1-D)] will be used to calculate the turning percentages first guess.

The turning percentages first guess is the same as the **actual distribution of turning volumes entered**. No balancing technique is used.

Only the FSUTMS model year departure volumes [AADT*K*(1-D)] will be used to calculate the turning percentages first guess.

PROJECT TRAFFIC FOR SR 70 AT Treumph Adventure Park Entrance - PM NB



TURNS5 ANALYSIS SHEET - INPUT

Analyst:

Date: 14-Sep-18

Highway: SR 70

Intersection: 225th St E - AM NB

Project: SR 70 DTTM

County: Manatee

Is this a 4 way intersection?

Yes, my intersection has four approaches

If not, which 3 approaches exist in the intersection?

EB, WB, and SB

EB, WB, and NB

EB, SB, and NB

WB, SB, and NB

Is the Mainline Oriented North/South?

Enter Yes or No

Yes

No

K Factors		D Factors	
	Mainline		Mainline
	9.50%	Westbound (WB)	60.5%
		Eastbound (EB)	39.5%
	Side street		Side street
	9.50%	Northbound (NB)	63.4%
		Southbound (SB)	36.6%

Do you have FTSUTMS Model Year traffic from which you would like to interpolate/extrapolate for project years? (Y/N)

Enter Yes or No

Yes

No

If "Yes" go to cell C47 If "No" go to cell C31

Enter Year and Growth Rates from Base Year:

Base	Year	Rate (1.0% = 0.01)	
		Mainline	Side Street
Opening	2016	0.60%	0.60%
Mid	2033		
Design	2043		

Mainline Growth Function

Linear

Exponential

Decaying

Side Street Growth Function

Linear

Exponential

Decaying

Enter Base Year AADTs for Volume Comparison:
(growth rates are used to calculate other project years)

From West:	From East:	From North:	From South:	TOTAL
EB Approach	WB Approach	SB Approach	NB Approach	
10000	9600	200	810	20610

Enter Project and Model Years

	Year
Base	2016
Opening	2025
Mid	2035
Design	2045
Model	2045

Enter Base and Model Year AADTs for Volume Comparison:
(volumes for other project years are calculated by interpolation)

	From West:	From East:	From North:	From South:	TOTAL
	EB Approach	WB Approach	SB Approach	NB Approach	
2016	10000	9600	200	810	20610
2045	14000	13000	240	970	28210

**1st Guess Actual/Counted
Turning %'s for Traffic
AADT Balancing for 2016**

(EB LT)	West-to-North	1.3%	3
(EB THRU)	West-to-East	93.7%	225
(EB RT)	West-to-South	5.0%	12
(WB LT)	East-to-South	0.2%	1
(WB THRU)	East-to-West	99.4%	547
(WB RT)	East-to-North	0.4%	2
(SB LT)	North-to-East	22.7%	5
(SB THRU)	North-to-South	4.6%	1
(SB RT)	North-to-West	72.7%	16
(NB LT)	South-to-West	96.4%	53
(NB THRU)	South-to-North	0.0%	0
(NB RT)	South-to-East	3.6%	2

Existing Year AADTs

Existing Turning Movement Counts

FSUTMS Model Year AADTs

Desired Closure: 1.00

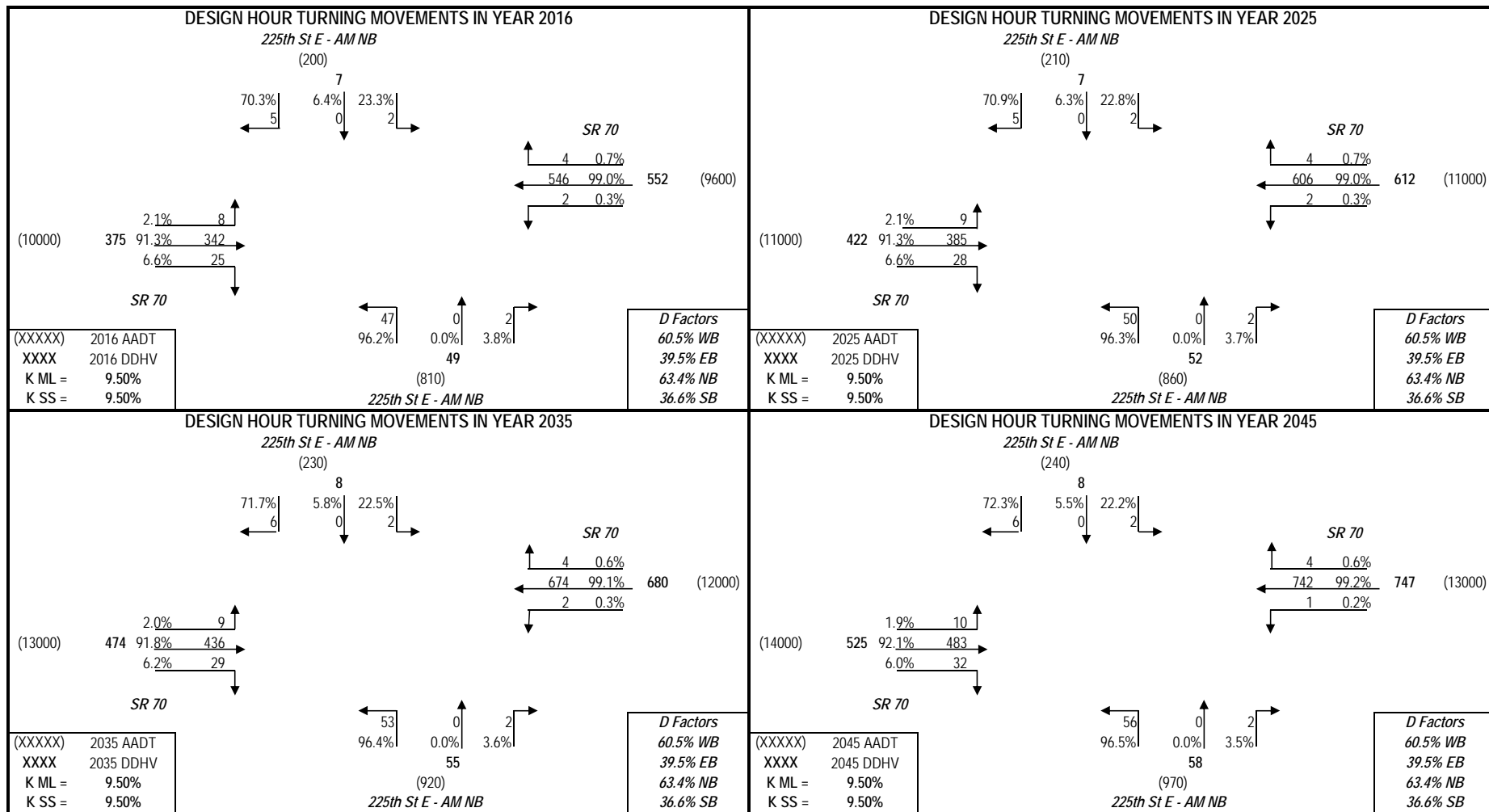
First Guess Turning % Option Used Existing Turning Movement Counts

Only the existing year total departure volumes [AADT*K*(1-D)] will be used to calculate the turning percentages first guess.

The turning percentages first guess is the same as the actual distribution of turning volumes entered. No balancing technique is used.

Only the FSUTMS model year departure volumes [AADT*K*(1-D)] will be used to calculate the turning percentages first guess.

PROJECT TRAFFIC FOR SR 70 AT 225th St E - AM NB



TURNS5 ANALYSIS SHEET - INPUT

Analyst:

Date: 14-Sep-18

Highway: SR 70

Intersection: 225th St E - PM NB

Project: SR 70 DTTM

County: Manatee

Is this a 4 way intersection?

Yes, my intersection has four approaches

If not, which 3 approaches exist in the intersection?

EB, WB, and SB

EB, WB, and NB

EB, SB, and NB

WB, SB, and NB

Is the Mainline Oriented North/South?

Enter Yes or No

Yes

No

K Factors		D Factors	
	Mainline		Mainline
	9.50%	Westbound (WB)	39.5%
	Side street	Eastbound (EB)	60.5%
	9.50%		Side street
		Northbound (NB)	63.4%
		Southbound (SB)	36.6%

Do you have FTSUTMS Model Year traffic from which you would like to interpolate/extrapolate for project years? (Y/N)

Enter Yes or No

Yes

No

If "Yes" go to cell C47 If "No" go to cell C31

Enter Year and Growth Rates from Base Year:

Year	Rate (1.0% = 0.01)	
	Mainline	Side Street
Base 2016		
Opening 2023		
Mid 2033	0.60%	0.60%
Design 2043		

Mainline Growth Function

Linear

Exponential

Decaying

Side Street Growth Function

Linear

Exponential

Decaying

Enter Base Year AADTs for Volume Comparison:
(growth rates are used to calculate other project years)

From West:	From East:	From North:	From South:	TOTAL
EB Approach	WB Approach	SB Approach	NB Approach	
10000	9600	200	810	20610

Enter Project and Model Years

Year
Base 2016
Opening 2025
Mid 2035
Design 2045
Model 2045

Enter Base and Model Year AADTs for Volume Comparison:
(volumes for other project years are calculated by interpolation)

	From West:	From East:	From North:	From South:	TOTAL
	EB Approach	WB Approach	SB Approach	NB Approach	
2016	10000	9600	200	810	20610
2045	14000	13000	240	970	28210

**1st Guess Actual/Counted
Turning %'s for Traffic
AADT Balancing for 2016**

(EB LT)	West-to-North	1.4%	8
(EB THRU)	West-to-East	89.2%	496
(EB RT)	West-to-South	9.4%	52
(WB LT)	East-to-South	0.4%	1
(WB THRU)	East-to-West	99.2%	256
(WB RT)	East-to-North	0.4%	1
(SB LT)	North-to-East	0.0%	0
(SB THRU)	North-to-South	0.0%	0
(SB RT)	North-to-West	100.0%	10
(NB LT)	South-to-West	88.5%	23
(NB THRU)	South-to-North	3.8%	1
(NB RT)	South-to-East	7.7%	2

Existing Year AADTs

Existing Turning Movement Counts

FSUTMS Model Year AADTs

Desired Closure: 0.01

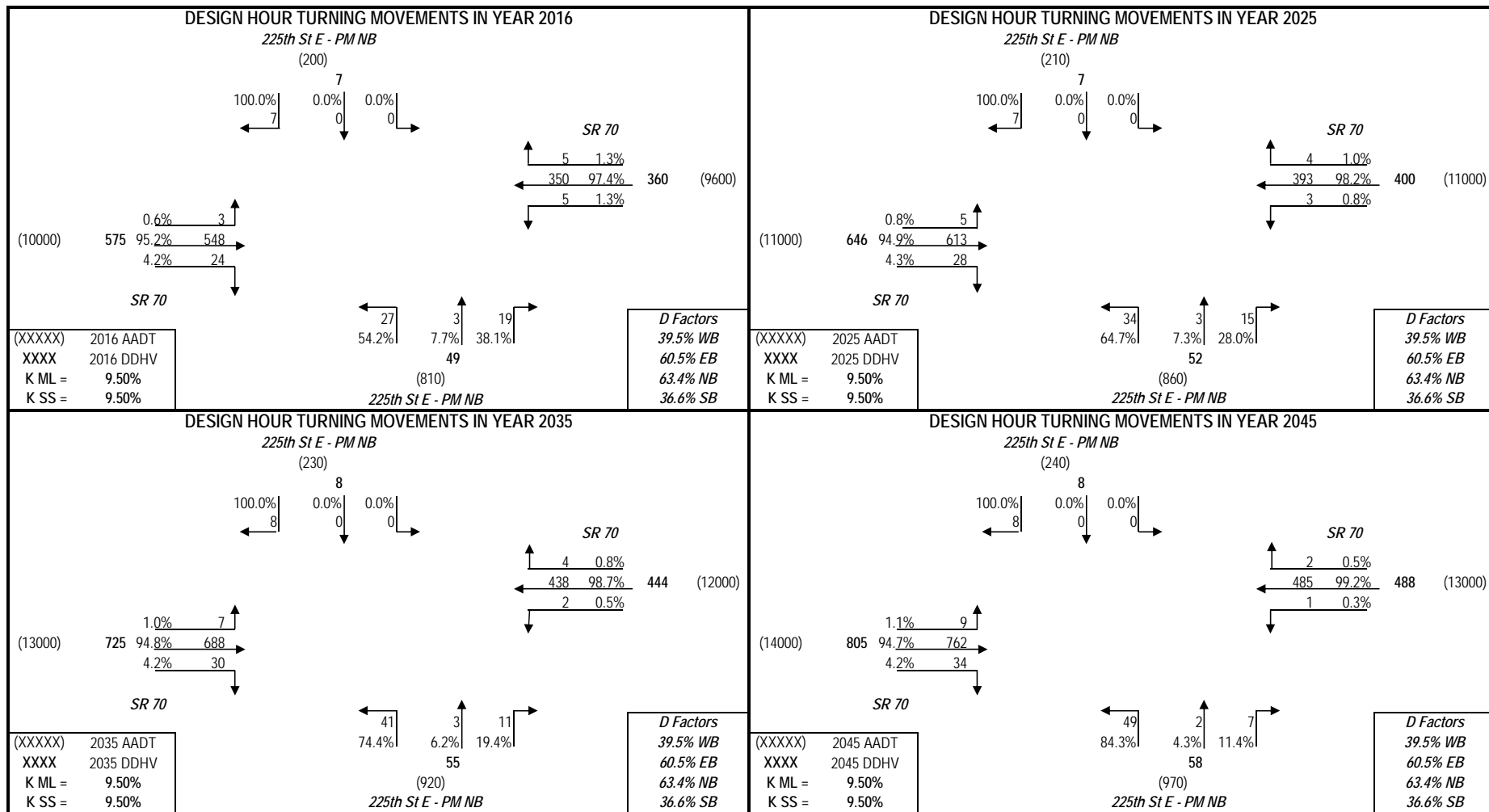
First Guess Turning % Option Used Existing Turning Movement Counts

Only the existing year total departure volumes [AADT*K*(1-D)] will be used to calculate the turning percentages first guess.

The turning percentages first guess is the same as the **actual distribution of turning volumes entered**. No balancing technique is used.

Only the FSUTMS model year departure volumes [AADT*K*(1-D)] will be used to calculate the turning percentages first guess.

PROJECT TRAFFIC FOR SR 70 AT 225th St E - PM NB



TURNS5 ANALYSIS SHEET - INPUT

Analyst:

Date: 14-Sep-18

Highway: SR 70

Intersection: Meadow Dove Ln-CR 675 - AM NB

Project: SR 70 DTTM

County: Manatee

Is this a 4 way intersection?

Yes, my intersection has four approaches

If not, which 3 approaches exist in the intersection?

EB, WB, and SB

EB, WB, and NB

EB, SB, and NB

WB, SB, and NB

Is the Mainline Oriented North/South?

Enter Yes or No

Yes

No

K Factors		D Factors	
	Mainline		Mainline
	9.50%	Westbound (WB)	60.5%
		Eastbound (EB)	39.5%
	Side street		Side street
	9.50%	Northbound (NB)	38.8%
		Southbound (SB)	61.2%

Do you have FTSUTMS Model Year traffic from which you would like to interpolate/extrapolate for project years? (Y/N)

Enter Yes or No

Yes

No

If "Yes" go to cell C47

If "No" go to cell C31

Enter Year and Growth Rates from Base Year:

	Year	Rate (1.0% = 0.01)	
		Mainline	Side Street
Base	2016		
Opening	2023		
Mid	2033	0.60%	0.60%
Design	2043		

Mainline Growth Function

Linear

Exponential

Decaying

Side Street Growth Function

Linear

Exponential

Decaying

Enter Base Year AADTs for Volume Comparison:

(growth rates are used to calculate other project years)

From West:	From East:	From North:	From South:	TOTAL
EB Approach	WB Approach	SB Approach	NB Approach	
10000	9600	200	810	20610

Enter Project and Model Years

	Year
Base	2016
Opening	2025
Mid	2035
Design	2045
Model	2045

Enter Base and Model Year AADTs for Volume Comparison:

(volumes for other project years are calculated by interpolation)

	From West:	From East:	From North:	From South:	TOTAL
	EB Approach	WB Approach	SB Approach	NB Approach	
2016	9600	9500	2600	360	22060
2045	13000	13000	5000	1370	32370

1st Guess Actual/Counted
Turning %'s for Traffic
AADT Balancing for 2016

(EB LT)	West-to-North	16.1%	37
(EB THRU)	West-to-East	83.9%	193
(EB RT)	West-to-South	0.0%	0
(WB LT)	East-to-South	0.2%	1
(WB THRU)	East-to-West	89.7%	419
(WB RT)	East-to-North	10.1%	47
(SB LT)	North-to-East	38.4%	66
(SB THRU)	North-to-South	0.0%	0
(SB RT)	North-to-West	61.6%	106
(NB LT)	South-to-West	64.9%	24
(NB THRU)	South-to-North	10.8%	4
(NB RT)	South-to-East	24.3%	9

Existing Year AADTs

Existing Turning Movement Counts

FSUTMS Model Year AADTs

Desired Closure: 1.00

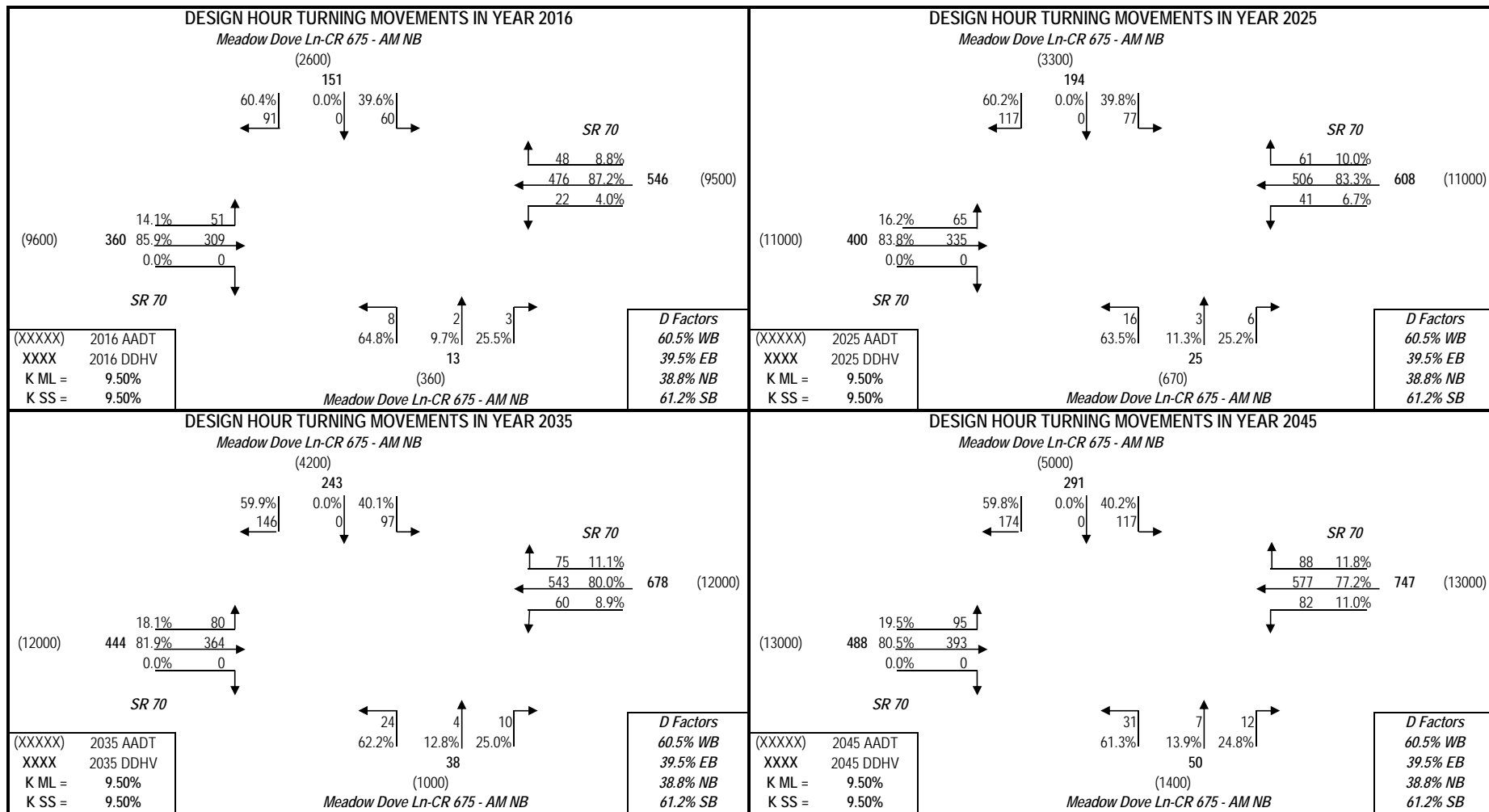
First Guess Turning % Option Used Existing Turning Movement Counts

Only the existing year total departure volumes [AADT*K*(1-D)] will be used to calculate the turning percentages first guess.

The turning percentages first guess is the same as the **actual distribution of turning volumes entered**. No balancing technique is used.

Only the FSUTMS model year departure volumes [AADT*K*(1-D)] will be used to calculate the turning percentages first guess.

PROJECT TRAFFIC FOR SR 70 AT Meadow Dove Ln-CR 675 - AM NB



TURNS5 ANALYSIS SHEET - INPUT

Analyst:

Date: 14-Sep-18

Highway: SR 70

Intersection: Meadow Dove Ln-CR 675 - PM NB

Project: SR 70 DTTM

County: Manatee

Is this a 4 way intersection?

Yes, my intersection has four approaches

If not, which 3 approaches exist in the intersection?

EB, WB, and SB

EB, WB, and NB

EB, SB, and NB

WB, SB, and NB

Is the Mainline Oriented North/South?

Enter Yes or No

Yes

No

K Factors	Mainline	D Factors	Mainline
	9.50%	Westbound (WB)	39.5%
	Side street	Eastbound (EB)	60.5%
	9.50%		Side street
		Northbound (NB)	61.2%
		Southbound (SB)	38.8%

Do you have FTSUTMS Model Year traffic from which you would like to interpolate/extrapolate for project years? (Y/N)

Enter Yes or No

Yes

No

If "Yes" go to cell C47

If "No" go to cell C31

Enter Year and Growth Rates from Base Year:

Base	Year	Rate (1.0% = 0.01)	
		Mainline	Side Street
Opening	2016	0.60%	0.60%
Mid	2033		
Design	2043		
	2043		

Mainline Growth Function

Linear

Exponential

Decaying

Side Street Growth Function

Linear

Exponential

Decaying

Enter Base Year AADTs for Volume Comparison:

(growth rates are used to calculate other project years)

From West:	From East:	From North:	From South:	TOTAL
EB Approach	WB Approach	SB Approach	NB Approach	
10000	9600	200	810	20610

Enter Project and Model Years

	Year
Base	2016
Opening	2025
Mid	2035
Design	2045
Model	2045

Enter Base and Model Year AADTs for Volume Comparison:

(volumes for other project years are calculated by interpolation)

	From West:	From East:	From North:	From South:	TOTAL
	EB Approach	WB Approach	SB Approach	NB Approach	
2016	9600	9500	2600	360	22060
2045	13000	13000	5000	1370	32370

1st Guess Actual/Counted
Turning %'s for Traffic
AADT Balancing for 2016

		1st Guess	Actual/Counted
(EB LT)	West-to-North	19.9%	99
(EB THRU)	West-to-East	78.5%	391
(EB RT)	West-to-South	1.6%	8
(WB LT)	East-to-South	2.2%	6
(WB THRU)	East-to-West	77.9%	211
(WB RT)	East-to-North	19.9%	54
(SB LT)	North-to-East	59.8%	55
(SB THRU)	North-to-South	3.2%	3
(SB RT)	North-to-West	37.0%	34
(NB LT)	South-to-West	75.0%	15
(NB THRU)	South-to-North	10.0%	2
(NB RT)	South-to-East	15.0%	3

Existing Year AADTs

Existing Turning Movement Counts

FSUTMS Model Year AADTs

Desired Closure: 1.00

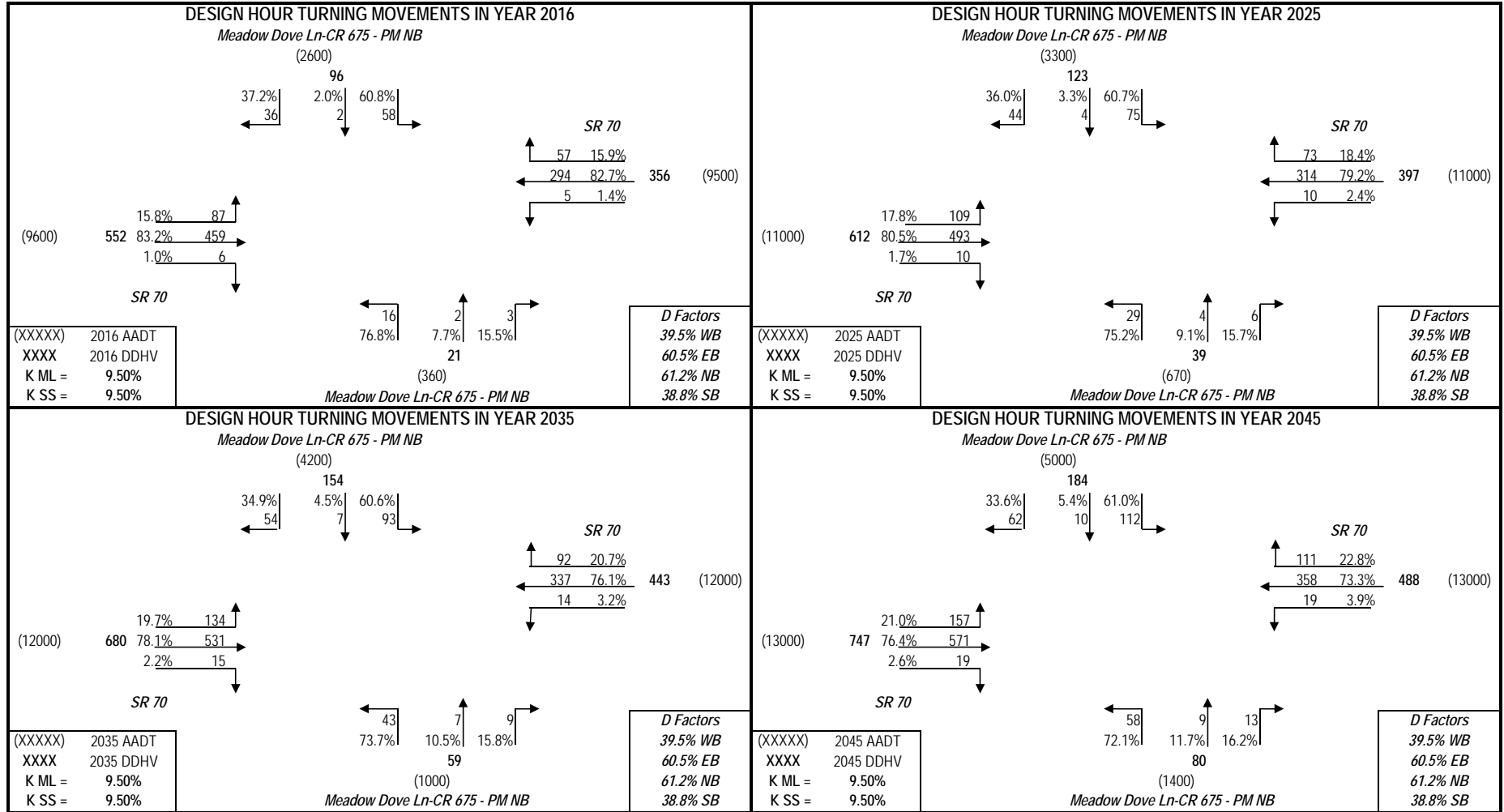
First Guess Turning % Option Used Existing Turning Movement Counts

Only the existing year total departure volumes [AADT*K*(1-D)] will be used to calculate the turning percentages first guess.

The turning percentages first guess is the same as the **actual distribution of turning volumes entered**. No balancing technique is used.

Only the FSUTMS model year departure volumes [AADT*K*(1-D)] will be used to calculate the turning percentages first guess.

PROJECT TRAFFIC FOR SR 70 AT Meadow Dove Ln-CR 675 - PM NB



Roadway Count Summary

Vanasse Hangen Brustlin, Inc.

Start Date : October 3, 2018
 Stop Date : October 3, 2018
 County : Manatee

Start Time : 00:00
 Stop Time : 24:00
 Station Number : 1
 Equipment ID : 132

Location : Del Webb Blvd - South of SR 70

3-Oct-18

Northbound Volume

End Time	00	01	02	03	04	05	06	07	08	09	10	11
15	0	0	0	0	1	0	2	12	13	17	23	32
30	0	0	0	0	0	0	2	16	22	17	23	19
45	2	0	0	0	0	1	4	5	16	19	27	26
00	1	0	0	0	0	3	7	21	20	29	28	28
Hr Total	3	0	0	0	1	4	15	54	71	82	101	105

End Time	12	13	14	15	16	17	18	19	20	21	22	23
15	34	31	20	27	27	30	22	7	8	1	2	1
30	35	28	23	21	20	17	13	2	4	2	0	1
45	27	20	20	27	26	15	13	6	1	2	0	0
00	21	22	37	24	12	11	13	1	0	0	0	0
Hr Total	117	101	100	99	85	73	61	16	13	5	2	2

24 Hour Total : 1,110
 AM Peak Hour begins : 11:45
 PM Peak Hour begins : 12:00

AM Peak Volume : 124
 PM Peak Volume : 117
 AM Peak Hour Factor : 0.89
 PM Peak Hour Factor : 0.84

3-Oct-18

Southbound Volume

End Time	00	01	02	03	04	05	06	07	08	09	10	11
15	0	0	0	0	0	0	5	16	24	17	22	19
30	0	0	0	0	0	0	5	18	21	33	29	33
45	2	1	0	0	0	0	13	22	20	30	12	28
00	1	0	0	0	0	3	10	29	30	29	27	34
Hr Total	3	1	0	0	0	3	33	85	95	109	90	114

End Time	12	13	14	15	16	17	18	19	20	21	22	23
15	26	15	20	32	24	10	10	5	5	6	0	1
30	30	32	23	31	20	11	6	5	4	3	0	0
45	25	23	20	15	14	8	5	2	3	4	0	0
00	29	28	21	18	16	17	5	3	7	1	0	1
Hr Total	110	98	84	96	74	46	26	15	19	14	0	2

24 Hour Total : 1,117
 AM Peak Hour begins : 11:15
 PM Peak Hour begins : 12:00

AM Peak Volume : 121
 PM Peak Volume : 110
 AM Peak Hour Factor : 0.89
 PM Peak Hour Factor : 0.92

3-Oct-18

Total Volume for All Lanes

End Time	00	01	02	03	04	05	06	07	08	09	10	11
15	0	0	0	0	1	0	7	28	37	34	45	51
30	0	0	0	0	0	0	7	34	43	50	52	52
45	4	1	0	0	0	1	17	27	36	49	39	54
00	2	0	0	0	0	6	17	50	50	58	55	62
Hr Total	6	1	0	0	1	7	48	139	166	191	191	219

End Time	12	13	14	15	16	17	18	19	20	21	22	23
15	60	46	40	59	51	40	32	12	13	7	2	2
30	65	60	46	52	40	28	19	7	8	5	0	1
45	52	43	40	42	40	23	18	8	4	6	0	0
00	50	50	58	42	28	28	18	4	7	1	0	1
Hr Total	227	199	184	195	159	119	87	31	32	19	2	4

24 Hour Total : 2,227
 AM Peak Hour begins : 11:30
 PM Peak Hour begins : 12:00

AM Peak Volume : 241
 PM Peak Volume : 227
 AM Peak Hour Factor : 0.93
 PM Peak Hour Factor : 0.87

Roadway Count Summary

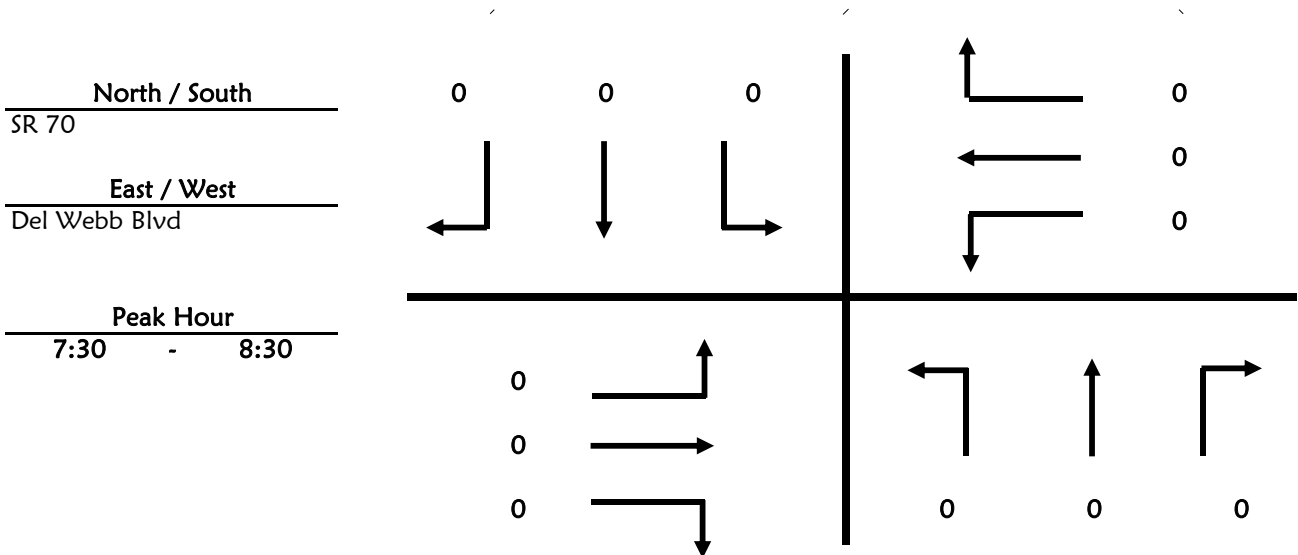
Vanasse Hangen Brustlin, Inc.

County Manatee City bradenton
 Intersection SR 70 & Del Webb Blvd
 Date Wednesday, October 03, 2018
 Time Period 7:00 to 9:00 U-Turn & RTOR

VHB Project #: 62430.1

Time Period	Northbound			Southbound		
	Left	Through	Right	Left	Through	Right
7:00 - 7:15	0	0	0	0	0	0
7:15 - 7:30	0	0	0	0	0	0
7:30 - 7:45	0	0	0	0	0	0
7:45 - 8:00	0	0	0	0	0	0
8:00 - 8:15	0	0	0	0	0	0
8:15 - 8:30	0	0	0	0	0	0
8:30 - 8:45	0	0	0	0	0	0
8:45 - 9:00	0	0	0	0	0	0

Time Period	Eastbound			Westbound		
	Left	Through	Right	Left	Through	Right
7:00 - 7:15	0	0	0	0	0	0
7:15 - 7:30	0	0	0	0	0	0
7:30 - 7:45	0	0	0	0	0	0
7:45 - 8:00	0	0	0	0	0	0
8:00 - 8:15	0	0	0	0	0	0
8:15 - 8:30	0	0	0	0	0	0
8:30 - 8:45	0	0	0	0	0	0
8:45 - 9:00	0	0	0	0	0	0



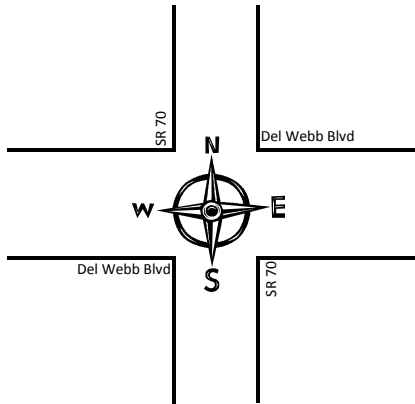
Pedestrian & Bicycle Summary

Project #: 62430.1
 Date: Wednesday, Octo

NB/SB: SR 70
 EB/WB: Del Webb Blvd

		Hour								
		7:00	8:00	1	2	3	6	7	8	
Eastbound	Bike	0	0							0
	Ped	0	0							0
Westbound	Bike	0	0							0
	Ped	0	0							0

		Southbound		Northbound	
Hour		Ped	Bike	Ped	Bike
1	7:00	0	0	0	0
2	8:00	0	0	0	0
3					
4					
5					
6					
7					
8					
		0	0	0	0



		Southbound		Northbound			
Hour		Ped	Bike	Ped	Bike	Hour	
1	7:00	0	0	0	0	1	7:00
2	8:00	0	0	0	0	2	8:00
3						3	
4						4	
5						5	
6						6	
7						7	
8						8	
		0	0	0	0		

Eastbound	Bike	0	0							0
	Ped	0	0							0
Westbound	Bike	0	0							0
	Ped	0	0							0

		7:00	8:00	1	2	3	4	5	6	7	8
Hour											

Roadway Count Summary

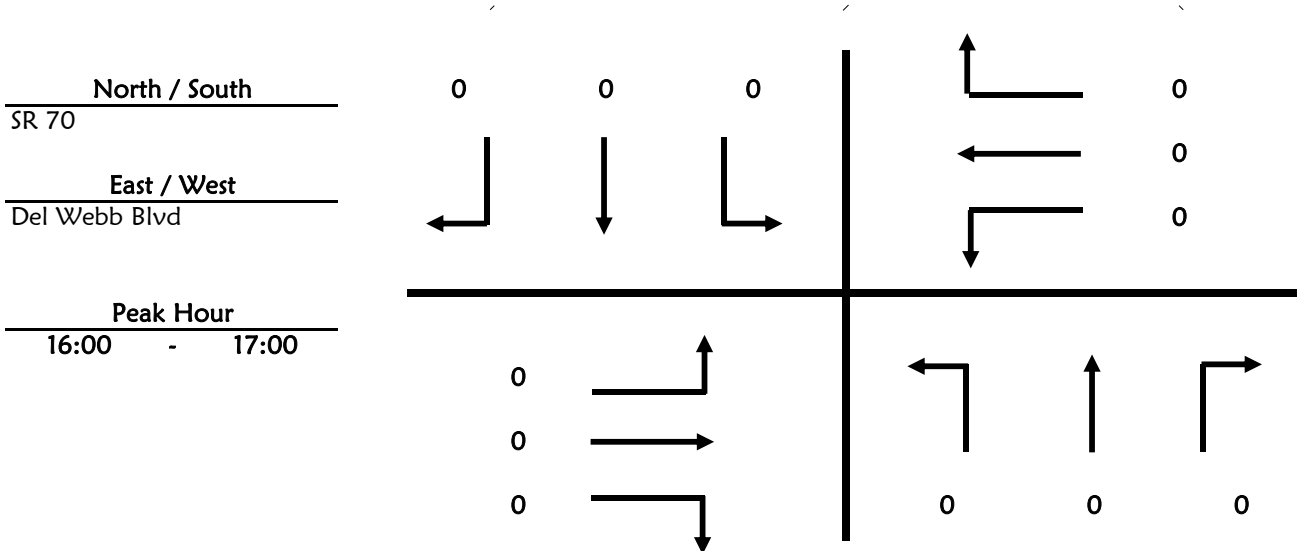
Vanasse Hangen Brustlin, Inc.

County Manatee City bradenton
 Intersection SR 70 & Del Webb Blvd
 Date Wednesday, October 03, 2018
 Time Period 16:00 to 18:00 U-Turn & RTOR

VHB Project #: 62430.1

Time Period	Northbound			Southbound		
	Left	Through	Right	Left	Through	Right
16:00 - 16:15	0	0	0	0	0	0
16:15 - 16:30	0	0	0	0	0	0
16:30 - 16:45	0	0	0	0	0	0
16:45 - 17:00	0	0	0	0	0	0
17:00 - 17:15	0	0	0	0	0	0
17:15 - 17:30	0	0	0	0	0	0
17:30 - 17:45	0	0	0	0	0	0
17:45 - 18:00	1	0	0	0	0	0

Time Period	Eastbound			Westbound		
	Left	Through	Right	Left	Through	Right
16:00 - 16:15	0	0	0	0	0	0
16:15 - 16:30	0	0	0	0	0	0
16:30 - 16:45	0	0	0	0	0	0
16:45 - 17:00	0	0	0	0	0	0
17:00 - 17:15	0	0	0	0	0	0
17:15 - 17:30	0	0	0	0	0	0
17:30 - 17:45	0	0	0	0	0	0
17:45 - 18:00	0	0	0	0	0	0



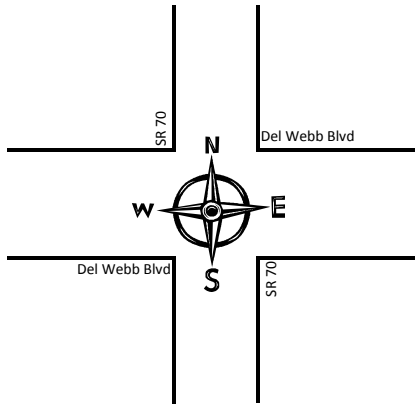
Pedestrian & Bicycle Summary

Project #: 62430.1
 Date: Wednesday, Octo

NB/SB: SR 70
 EB/WB: Del Webb Blvd

		Hour								
		16:00	17:00	1	2	3	6	7	8	
Eastbound	Bike	0	0							0
	Ped	0	0							0
Westbound	Bike	0	0							0
	Ped	0	0							0

Hour	Southbound		Northbound	
	Ped	Bike	Ped	Bike
1 16:00	0	0	0	0
2 17:00	0	0	0	0
3				
4				
5				
6				
7				
8				
	0	0	0	0



Hour	Southbound		Northbound	
	Ped	Bike	Ped	Bike
1 16:00	0	0	0	0
2 17:00	0	0	0	0
3				
4				
5				
6				
7				
8				
	0	0	0	0

Eastbound	Bike	0	0							0
	Ped	0	0							0
Westbound	Bike	0	0							0
	Ped	0	0							0

		16:00	17:00	1	2	3	4	5	6	7	8	
		Hour										

Appendix F

Synchro Intersections Output Sheets- No Build

HCM 6th Signalized Intersection Summary
 1: Lorraine Rd & SR 70

2025 No Build AM
 09/13/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	161	621	415	184	927	65	467	228	103	125	361	112
Future Volume (veh/h)	161	621	415	184	927	65	467	228	103	125	361	112
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1796	1796	1796	1796	1796	1796	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	166	640	428	190	956	67	481	235	106	129	372	115
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	7	7	7	7	7	7	3	3	3	3	3	3
Cap, veh/h	117	1210	767	198	1380	616	264	624	529	175	376	116
Arrive On Green	0.07	0.35	0.35	0.12	0.40	0.40	0.15	0.34	0.34	0.10	0.28	0.27
Sat Flow, veh/h	1711	3413	1522	1711	3413	1522	1767	1856	1572	1767	1360	420
Grp Volume(v), veh/h	166	640	428	190	956	67	481	235	106	129	0	487
Grp Sat Flow(s),veh/h/ln	1711	1706	1522	1711	1706	1522	1767	1856	1572	1767	0	1780
Q Serve(g_s), s	12.3	26.8	34.9	19.9	41.7	4.9	26.9	17.3	8.6	12.8	0.0	49.0
Cycle Q Clear(g_c), s	12.3	26.8	34.9	19.9	41.7	4.9	26.9	17.3	8.6	12.8	0.0	49.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.24
Lane Grp Cap(c), veh/h	117	1210	767	198	1380	616	264	624	529	175	0	492
V/C Ratio(X)	1.42	0.53	0.56	0.96	0.69	0.11	1.82	0.38	0.20	0.74	0.00	0.99
Avail Cap(c_a), veh/h	117	1210	767	198	1380	616	264	624	529	191	0	492
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	83.8	46.2	30.8	79.2	44.3	33.4	76.6	45.4	42.5	78.8	0.0	65.1
Incr Delay (d2), s/veh	231.5	1.7	2.9	52.7	2.9	0.4	384.1	0.4	0.2	12.8	0.0	37.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.9	11.5	13.7	11.5	17.8	1.9	40.5	8.2	3.5	6.5	0.0	27.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	315.4	47.8	33.7	131.9	47.2	33.7	460.7	45.8	42.7	91.6	0.0	102.6
LnGrp LOS	F	D	C	F	D	C	F	D	D	F	A	F
Approach Vol, veh/h		1234			1213			822			616	
Approach Delay, s/veh		78.9			59.7			288.2			100.3	
Approach LOS		E			E			F			F	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	26.0	68.0	31.0	55.0	17.0	77.0	20.3	65.7				
Change Period (Y+Rc), s	8.2	7.2	7.1	8.2	7.7	7.2	5.5	8.2				
Max Green Setting (Gmax), s	17.8	60.8	23.9	46.8	9.3	69.8	16.5	55.8				
Max Q Clear Time (g_c+I1), s	21.9	36.9	28.9	51.0	14.3	43.7	14.8	19.3				
Green Ext Time (p_c), s	0.0	5.7	0.0	0.0	0.0	6.8	0.0	1.8				

Intersection Summary

HCM 6th Ctrl Delay	120.6
HCM 6th LOS	F

Intersection												
Int Delay, s/veh	0.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗	↖	↖	↗	↖	↖	↗	↖	↖	↗	↖
Traffic Vol, veh/h	115	557	143	76	915	22	198	112	29	19	69	139
Future Vol, veh/h	115	557	143	76	915	22	198	112	29	19	69	139
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	500	-	480	500	-	460	300	-	0	325	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	7	7	7	7	7	7	2	2	2	2	2	2
Mvmt Flow	119	574	147	78	943	23	204	115	30	20	71	143

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	966	0	0	721	0	0	2030	1934	574	2057	2058	943
Stage 1	-	-	-	-	-	-	812	812	-	1099	1099	-
Stage 2	-	-	-	-	-	-	1218	1122	-	958	959	-
Critical Hdwy	4.17	-	-	4.17	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.263	-	-	2.263	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	693	-	-	858	-	-	~ 42	~ 66	518	41	~ 55	318
Stage 1	-	-	-	-	-	-	373	392	-	258	288	-
Stage 2	-	-	-	-	-	-	221	281	-	309	335	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	693	-	-	858	-	-	~ 50	518	-	~ 41	318	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 50	-	-	~ 41	-	-
Stage 1	-	-	-	-	-	-	309	325	-	214	262	-
Stage 2	-	-	-	-	-	-	~ 80	255	-	155	277	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	1.6			0.7								
HCM LOS							-			-		

Minor Lane/Major Mvmt	NBLn1	NBLn2	NBLn3	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2	SBLn3
Capacity (veh/h)	-	50	518	693	-	-	858	-	-	-	41	318
HCM Lane V/C Ratio	-	2.309	0.058	0.171	-	-	0.091	-	-	-	1.735	0.451
HCM Control Delay (s)	-	\$ 773.6	12.4	11.3	-	-	9.6	-	-	-	\$ 567.9	25.3
HCM Lane LOS	-	F	B	B	-	-	A	-	-	-	F	D
HCM 95th %tile Q(veh)	-	11.8	0.2	0.6	-	-	0.3	-	-	-	7.4	2.2

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

Intersection

Int Delay, s/veh 6.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↘	↗	↗	↘	↘	↘
Traffic Vol, veh/h	137	480	778	40	44	209
Future Vol, veh/h	137	480	778	40	44	209
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	750	-	-	350	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	7	7	7	7	2	2
Mvmt Flow	144	505	819	42	46	220

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	861	0	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	4.17	-	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	2.263	-	-
Pot Cap-1 Maneuver	760	-	-
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	760	-	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	2.4	0	36.1
HCM LOS			E

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	760	-	-	-	93	375
HCM Lane V/C Ratio	0.19	-	-	-	0.498	0.587
HCM Control Delay (s)	10.8	-	-	-	77.2	27.4
HCM Lane LOS	B	-	-	-	F	D
HCM 95th %tile Q(veh)	0.7	-	-	-	2.2	3.6

Intersection						
Int Delay, s/veh	2.1					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗	↘	↑	↘	↗
Traffic Vol, veh/h	478	99	11	769	68	15
Future Vol, veh/h	478	99	11	769	68	15
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	375	360	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	7	7	7	7	2	2
Mvmt Flow	503	104	12	809	72	16

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	607	0	1336 503
Stage 1	-	-	-	-	503 -
Stage 2	-	-	-	-	833 -
Critical Hdwy	-	-	4.17	-	6.42 6.22
Critical Hdwy Stg 1	-	-	-	-	5.42 -
Critical Hdwy Stg 2	-	-	-	-	5.42 -
Follow-up Hdwy	-	-	2.263	-	3.518 3.318
Pot Cap-1 Maneuver	-	-	947	-	169 569
Stage 1	-	-	-	-	607 -
Stage 2	-	-	-	-	427 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	947	-	167 569
Mov Cap-2 Maneuver	-	-	-	-	167 -
Stage 1	-	-	-	-	599 -
Stage 2	-	-	-	-	427 -

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	36.3
HCM LOS			E

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	167	569	-	-	947	-
HCM Lane V/C Ratio	0.429	0.028	-	-	0.012	-
HCM Control Delay (s)	41.8	11.5	-	-	8.8	-
HCM Lane LOS	E	B	-	-	A	-
HCM 95th %tile Q(veh)	1.9	0.1	-	-	0	-

Intersection												
Int Delay, s/veh	7.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↵	↵		↵	↵		↵	↵	↵	↵	↵	↵
Traffic Vol, veh/h	64	401	28	28	673	62	52	18	30	32	9	55
Future Vol, veh/h	64	401	28	28	673	62	52	18	30	32	9	55
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	250	-	-	250	-	-	250	-	250	250	-	250
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	7	7	7	7	7	7	2	2	2	2	2	2
Mvmt Flow	67	422	29	29	708	65	55	19	32	34	9	58

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	773	0	0	451	0	0	1403	1402	437	1395	1384	741
Stage 1	-	-	-	-	-	-	571	571	-	799	799	-
Stage 2	-	-	-	-	-	-	832	831	-	596	585	-
Critical Hdwy	4.17	-	-	4.17	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.263	-	-	2.263	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	820	-	-	1084	-	-	117	140	620	119	143	416
Stage 1	-	-	-	-	-	-	506	505	-	379	398	-
Stage 2	-	-	-	-	-	-	363	384	-	490	498	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	820	-	-	1084	-	-	87	125	620	92	128	416
Mov Cap-2 Maneuver	-	-	-	-	-	-	87	125	-	92	128	-
Stage 1	-	-	-	-	-	-	465	464	-	348	387	-
Stage 2	-	-	-	-	-	-	297	374	-	410	457	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	1.3			0.3			62.1			33.6		
HCM LOS							F			D		

Minor Lane/Major Mvmt	NBLn1	NBLn2	NBLn3	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2	SBLn3
Capacity (veh/h)	87	125	620	820	-	-	1084	-	-	92	128	416
HCM Lane V/C Ratio	0.629	0.152	0.051	0.082	-	-	0.027	-	-	0.366	0.074	0.139
HCM Control Delay (s)	99.6	38.9	11.1	9.8	-	-	8.4	-	-	65.2	35.4	15
HCM Lane LOS	F	E	B	A	-	-	A	-	-	F	E	C
HCM 95th %tile Q(veh)	2.9	0.5	0.2	0.3	-	-	0.1	-	-	1.4	0.2	0.5

Intersection												
Int Delay, s/veh	2.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↙	↑	↗	↙	↑	↗	↙	↗	↗		↕	
Traffic Vol, veh/h	22	318	66	18	682	3	30	2	12	6	3	77
Future Vol, veh/h	22	318	66	18	682	3	30	2	12	6	3	77
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	510	-	510	510	-	510	150	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	7	7	7	7	7	7	7	0	25	50	0	3
Mvmt Flow	23	335	69	19	718	3	32	2	13	6	3	81

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	721	0	0	404	0	0	1181	1140	335	1179	1206	718
Stage 1	-	-	-	-	-	-	381	381	-	756	756	-
Stage 2	-	-	-	-	-	-	800	759	-	423	450	-
Critical Hdwy	4.17	-	-	4.17	-	-	7.17	6.5	6.45	7.6	6.5	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.17	5.5	-	6.6	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.17	5.5	-	6.6	5.5	-
Follow-up Hdwy	2.263	-	-	2.263	-	-	3.563	4	3.525	3.95	4	3.327
Pot Cap-1 Maneuver	858	-	-	1128	-	-	163	203	657	135	185	427
Stage 1	-	-	-	-	-	-	631	617	-	335	419	-
Stage 2	-	-	-	-	-	-	371	418	-	525	575	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	858	-	-	1128	-	-	126	194	657	127	177	427
Mov Cap-2 Maneuver	-	-	-	-	-	-	126	194	-	127	177	-
Stage 1	-	-	-	-	-	-	614	600	-	326	412	-
Stage 2	-	-	-	-	-	-	293	411	-	499	559	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.5			0.2			33.3			18.7		
HCM LOS							D			C		

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	126	490	858	-	-	1128	-	-	352
HCM Lane V/C Ratio	0.251	0.03	0.027	-	-	0.017	-	-	0.257
HCM Control Delay (s)	42.9	12.6	9.3	-	-	8.2	-	-	18.7
HCM Lane LOS	E	B	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	0.9	0.1	0.1	-	-	0.1	-	-	1

Intersection						
Int Delay, s/veh	0.6					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗	↘	↑	↘	↗
Traffic Vol, veh/h	330	7	6	687	26	4
Future Vol, veh/h	330	7	6	687	26	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	510	570	-	180	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	7	7	7	7	0	0
Mvmt Flow	347	7	6	723	27	4

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	354	0	1082
Stage 1	-	-	-	-	347
Stage 2	-	-	-	-	735
Critical Hdwy	-	-	4.17	-	6.4
Critical Hdwy Stg 1	-	-	-	-	5.4
Critical Hdwy Stg 2	-	-	-	-	5.4
Follow-up Hdwy	-	-	2.263	-	3.5
Pot Cap-1 Maneuver	-	-	1178	-	243
Stage 1	-	-	-	-	720
Stage 2	-	-	-	-	478
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1178	-	242
Mov Cap-2 Maneuver	-	-	-	-	242
Stage 1	-	-	-	-	716
Stage 2	-	-	-	-	478

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	20.3
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	242	701	-	-	1178	-
HCM Lane V/C Ratio	0.113	0.006	-	-	0.005	-
HCM Control Delay (s)	21.8	10.2	-	-	8.1	-
HCM Lane LOS	C	B	-	-	A	-
HCM 95th %tile Q(veh)	0.4	0	-	-	0	-

Intersection						
Int Delay, s/veh	0.2					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	11	327	673	2	2	4
Future Vol, veh/h	11	327	673	2	2	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	410	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	7	7	7	7	0	0
Mvmt Flow	12	344	708	2	2	4

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	710	0	-	0	1077 709
Stage 1	-	-	-	-	709 -
Stage 2	-	-	-	-	368 -
Critical Hdwy	4.17	-	-	-	6.4 6.2
Critical Hdwy Stg 1	-	-	-	-	5.4 -
Critical Hdwy Stg 2	-	-	-	-	5.4 -
Follow-up Hdwy	2.263	-	-	-	3.5 3.3
Pot Cap-1 Maneuver	866	-	-	-	245 438
Stage 1	-	-	-	-	491 -
Stage 2	-	-	-	-	704 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	866	-	-	-	242 438
Mov Cap-2 Maneuver	-	-	-	-	242 -
Stage 1	-	-	-	-	484 -
Stage 2	-	-	-	-	704 -

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	15.6
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	866	-	-	-	345
HCM Lane V/C Ratio	0.013	-	-	-	0.018
HCM Control Delay (s)	9.2	-	-	-	15.6
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Intersection												
Int Delay, s/veh	2.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↑	↔	↔	↑	↔		↔	↔		↔	
Traffic Vol, veh/h	7	305	18	4	608	4	55	2	6	8	2	17
Future Vol, veh/h	7	305	18	4	608	4	55	2	6	8	2	17
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	500	-	400	600	-	490	-	-	100	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	7	7	7	7	7	7	2	0	0	0	100	6
Mvmt Flow	7	321	19	4	640	4	58	2	6	8	2	18

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	644	0	0	340	0	0	995	987	321	997	1002	640
Stage 1	-	-	-	-	-	-	335	335	-	648	648	-
Stage 2	-	-	-	-	-	-	660	652	-	349	354	-
Critical Hdwy	4.17	-	-	4.17	-	-	7.12	6.5	6.2	7.1	7.5	6.26
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.5	-	6.1	6.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.5	-	6.1	6.5	-
Follow-up Hdwy	2.263	-	-	2.263	-	-	3.518	4	3.3	3.5	4.9	3.354
Pot Cap-1 Maneuver	917	-	-	1192	-	-	224	249	724	225	167	468
Stage 1	-	-	-	-	-	-	679	646	-	462	343	-
Stage 2	-	-	-	-	-	-	452	467	-	671	489	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	917	-	-	1192	-	-	211	246	724	220	165	468
Mov Cap-2 Maneuver	-	-	-	-	-	-	211	246	-	220	165	-
Stage 1	-	-	-	-	-	-	674	641	-	458	342	-
Stage 2	-	-	-	-	-	-	431	466	-	658	485	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.2			0.1			26.8			17.4		
HCM LOS							D			C		

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	212	724	917	-	-	1192	-	-	318
HCM Lane V/C Ratio	0.283	0.009	0.008	-	-	0.004	-	-	0.089
HCM Control Delay (s)	28.6	10	9	-	-	8	-	-	17.4
HCM Lane LOS	D	B	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	1.1	0	0	-	-	0	-	-	0.3

Intersection												
Int Delay, s/veh	3.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	55	255	8	26	468	0	26	6	14	82	3	127
Future Vol, veh/h	55	255	8	26	468	0	26	6	14	82	3	127
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	Yield
Storage Length	520	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	7	7	7	7	7	7	0	0	0	15	0	7
Mvmt Flow	58	268	8	27	493	0	27	6	15	86	3	134

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	493	0	0	276	0	0	937	935	272	946	939	493
Stage 1	-	-	-	-	-	-	388	388	-	547	547	-
Stage 2	-	-	-	-	-	-	549	547	-	399	392	-
Critical Hdwy	4.17	-	-	4.17	-	-	7.1	6.5	6.2	7.25	6.5	6.27
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.25	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.25	5.5	-
Follow-up Hdwy	2.263	-	-	2.263	-	-	3.5	4	3.3	3.635	4	3.363
Pot Cap-1 Maneuver	1045	-	-	1259	-	-	247	267	772	229	266	566
Stage 1	-	-	-	-	-	-	640	612	-	499	521	-
Stage 2	-	-	-	-	-	-	524	521	-	602	610	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1045	-	-	1259	-	-	175	245	772	207	244	566
Mov Cap-2 Maneuver	-	-	-	-	-	-	263	338	-	321	351	-
Stage 1	-	-	-	-	-	-	604	578	-	471	505	-
Stage 2	-	-	-	-	-	-	386	505	-	552	576	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	1.5			0.4			17.3			11.2		
HCM LOS							C			B		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	341	1045	-	-	1259	-	-	803
HCM Lane V/C Ratio	0.142	0.055	-	-	0.022	-	-	0.278
HCM Control Delay (s)	17.3	8.6	-	-	7.9	0	-	11.2
HCM Lane LOS	C	A	-	-	A	A	-	B
HCM 95th %tile Q(veh)	0.5	0.2	-	-	0.1	-	-	1.1

Intersection						
Int Delay, s/veh	0					
Movement	NBT	NBR	SBL	SBT	NWL	NWR
Lane Configurations	↑			↑		↑
Traffic Vol, veh/h	61	0	0	212	0	60
Future Vol, veh/h	61	0	0	212	0	60
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	16974	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	64	0	0	223	0	63

Major/Minor	Minor2	Major2			
Conflicting Flow All	223	-	-	-	-
Stage 1	223	-	-	-	-
Stage 2	0	-	-	-	-
Critical Hdwy	6.52	-	-	-	-
Critical Hdwy Stg 1	5.52	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	4.018	-	-	-	-
Pot Cap-1 Maneuver	676	0	0	-	-
Stage 1	719	0	0	-	-
Stage 2	-	0	0	-	-
Platoon blocked, %					-
Mov Cap-1 Maneuver	0	-	-	-	-
Mov Cap-2 Maneuver	0	-	-	-	-
Stage 1	0	-	-	-	-
Stage 2	0	-	-	-	-

Approach	NB	SB
HCM Control Delay, s		0
HCM LOS	-	

Minor Lane/Major Mvmt	NBLn1	SBT
Capacity (veh/h)	-	-
HCM Lane V/C Ratio	-	-
HCM Control Delay (s)	-	-
HCM Lane LOS	-	-
HCM 95th %tile Q(veh)	-	-

HCM 6th Signalized Intersection Summary
1: Lorraine Rd & SR 70

2035 No Build AM
09/13/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	194	909	471	248	1484	96	542	257	148	161	381	155
Future Volume (veh/h)	194	909	471	248	1484	96	542	257	148	161	381	155
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1796	1796	1796	1796	1796	1796	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	200	937	486	256	1530	99	559	265	153	166	393	160
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	7	7	7	7	7	7	3	3	3	3	3	3
Cap, veh/h	117	1210	767	198	1380	616	264	606	514	191	347	141
Arrive On Green	0.07	0.35	0.35	0.12	0.40	0.40	0.15	0.33	0.33	0.11	0.28	0.27
Sat Flow, veh/h	1711	3413	1522	1711	3413	1522	1767	1856	1572	1767	1253	510
Grp Volume(v), veh/h	200	937	486	256	1530	99	559	265	153	166	0	553
Grp Sat Flow(s),veh/h/ln	1711	1706	1522	1711	1706	1522	1767	1856	1572	1767	0	1764
Q Serve(g_s), s	12.3	44.0	41.9	20.8	72.8	7.5	26.9	20.2	13.1	16.6	0.0	49.8
Cycle Q Clear(g_c), s	12.3	44.0	41.9	20.8	72.8	7.5	26.9	20.2	13.1	16.6	0.0	49.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.29
Lane Grp Cap(c), veh/h	117	1210	767	198	1380	616	264	606	514	191	0	488
V/C Ratio(X)	1.71	0.77	0.63	1.29	1.11	0.16	2.12	0.44	0.30	0.87	0.00	1.13
Avail Cap(c_a), veh/h	117	1210	767	198	1380	616	264	606	514	191	0	488
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	83.8	51.7	32.5	79.6	53.6	34.1	76.6	47.6	45.2	79.0	0.0	65.4
Incr Delay (d2), s/veh	353.4	4.9	4.0	164.9	59.7	0.6	515.1	0.5	0.3	31.7	0.0	82.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	16.8	19.2	16.5	18.1	41.5	2.9	50.1	9.6	5.3	9.3	0.0	33.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	437.3	56.6	36.5	244.5	113.3	34.7	591.6	48.1	45.5	110.7	0.0	148.1
LnGrp LOS	F	E	D	F	F	C	F	D	D	F	A	F
Approach Vol, veh/h		1623			1885			977				719
Approach Delay, s/veh		97.5			127.0			358.7				139.5
Approach LOS		F			F			F				F
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	26.0	68.0	31.0	55.0	17.0	77.0	22.0	64.0				
Change Period (Y+Rc), s	8.2	7.2	7.1	8.2	7.7	7.2	5.5	8.2				
Max Green Setting (Gmax), s	17.8	60.8	23.9	46.8	9.3	69.8	16.5	55.8				
Max Q Clear Time (g_c+I1), s	22.8	47.0	28.9	51.8	14.3	75.8	18.6	22.2				
Green Ext Time (p_c), s	0.0	6.5	0.0	0.0	0.0	0.0	0.0	2.2				
Intersection Summary												
HCM 6th Ctrl Delay			163.0									
HCM 6th LOS			F									

Intersection												
Int Delay, s/veh	1.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗	↖	↖	↗	↖	↖	↗	↖	↖	↗	↖
Traffic Vol, veh/h	229	755	249	97	1224	43	303	233	44	29	135	282
Future Vol, veh/h	229	755	249	97	1224	43	303	233	44	29	135	282
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	500	-	480	500	-	460	300	-	0	325	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	7	7	7	7	7	7	2	2	2	2	2	2
Mvmt Flow	236	778	257	100	1262	44	312	240	45	30	139	291

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1306	0	0	1035	0	0	2949	2756	778	2983	2969	1262
Stage 1	-	-	-	-	-	-	1250	1250	-	1462	1462	-
Stage 2	-	-	-	-	-	-	1699	1506	-	1521	1507	-
Critical Hdwy	4.17	-	-	4.17	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.263	-	-	2.263	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	514	-	-	653	-	-	~ 9	~ 20	396	~ 9	~ 14	~ 207
Stage 1	-	-	-	-	-	-	~ 212	244	-	160	193	-
Stage 2	-	-	-	-	-	-	~ 117	~ 184	-	148	184	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	514	-	-	653	-	-	~ 9	396	-	~ 6	~ 207	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 9	-	-	~ 6	-	-
Stage 1	-	-	-	-	-	-	~ 115	~ 132	-	87	163	-
Stage 2	-	-	-	-	-	-	~ 156	-	-	~ 100	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	3.3	0.8		
HCM LOS			-	-

Minor Lane/Major Mvmt	NBLn1	NBLn2	NBLn3	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2	SBLn3
Capacity (veh/h)	-	9	396	514	-	-	653	-	-	-	-	6 207
HCM Lane V/C Ratio	-	26.69	0.115	0.459	-	-	0.153	-	-	-	-	-23.196 1.404
HCM Control Delay (s)		\$ 12366.9	15.3	17.8	-	-	11.5	-	-			\$ 11185.1 252.2
HCM Lane LOS		-	F	C	C	-	-	B	-	-	-	- F F
HCM 95th %tile Q(veh)		-	31.7	0.4	2.4	-	-	0.5	-	-	-	- 19.3 16.9

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

Intersection						
Int Delay, s/veh	94.6					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↘	↗	↗	↘	↘	↘
Traffic Vol, veh/h	288	564	871	85	93	441
Future Vol, veh/h	288	564	871	85	93	441
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	750	-	-	350	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	7	7	7	7	2	2
Mvmt Flow	303	594	917	89	98	464

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	1006	0	0 2117 917
Stage 1	-	-	- 917 -
Stage 2	-	-	- 1200 -
Critical Hdwy	4.17	-	- 6.42 6.22
Critical Hdwy Stg 1	-	-	- 5.42 -
Critical Hdwy Stg 2	-	-	- 5.42 -
Follow-up Hdwy	2.263	-	- 3.518 3.318
Pot Cap-1 Maneuver	669	-	- ~ 56 ~ 330
Stage 1	-	-	- 390 -
Stage 2	-	-	- 285 -
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	669	-	- ~ 31 ~ 330
Mov Cap-2 Maneuver	-	-	- ~ 31 -
Stage 1	-	-	- 213 -
Stage 2	-	-	- 285 -

Approach	EB	WB	SB
HCM Control Delay, s	5	0	\$ 406.7
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	669	-	-	-	31	330
HCM Lane V/C Ratio	0.453	-	-	-	3.158	1.407
HCM Control Delay (s)	14.8	-	-	-	\$ 1239.7	231
HCM Lane LOS	B	-	-	-	F	F
HCM 95th %tile Q(veh)	2.4	-	-	-	11.5	24

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

Intersection						
Int Delay, s/veh	6.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗	↘	↑	↘	↗
Traffic Vol, veh/h	560	124	24	848	96	30
Future Vol, veh/h	560	124	24	848	96	30
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	375	360	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	7	7	7	7	2	2
Mvmt Flow	589	131	25	893	101	32

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	720	0	1532 589
Stage 1	-	-	-	-	589 -
Stage 2	-	-	-	-	943 -
Critical Hdwy	-	-	4.17	-	6.42 6.22
Critical Hdwy Stg 1	-	-	-	-	5.42 -
Critical Hdwy Stg 2	-	-	-	-	5.42 -
Follow-up Hdwy	-	-	2.263	-	3.518 3.318
Pot Cap-1 Maneuver	-	-	859	-	128 508
Stage 1	-	-	-	-	554 -
Stage 2	-	-	-	-	379 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	859	-	124 508
Mov Cap-2 Maneuver	-	-	-	-	124 -
Stage 1	-	-	-	-	538 -
Stage 2	-	-	-	-	379 -

Approach	EB	WB	NB
HCM Control Delay, s	0	0.3	82
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	124	508	-	-	859	-
HCM Lane V/C Ratio	0.815	0.062	-	-	0.029	-
HCM Control Delay (s)	103.7	12.6	-	-	9.3	-
HCM Lane LOS	F	B	-	-	A	-
HCM 95th %tile Q(veh)	4.9	0.2	-	-	0.1	-

Intersection												
Int Delay, s/veh	104.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗	↖	↗	↖	↗
Traffic Vol, veh/h	134	396	60	58	648	130	109	38	64	67	18	116
Future Vol, veh/h	134	396	60	58	648	130	109	38	64	67	18	116
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	250	-	-	250	-	-	250	-	250	250	-	250
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	7	7	7	7	7	7	2	2	2	2	2	2
Mvmt Flow	141	417	63	61	682	137	115	40	67	71	19	122

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	819	0	0	480	0	0	1674	1672	449	1657	1635	751
Stage 1	-	-	-	-	-	-	731	731	-	873	873	-
Stage 2	-	-	-	-	-	-	943	941	-	784	762	-
Critical Hdwy	4.17	-	-	4.17	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.263	-	-	2.263	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	788	-	-	1057	-	-	~ 76	96	610	78	101	411
Stage 1	-	-	-	-	-	-	413	427	-	345	368	-
Stage 2	-	-	-	-	-	-	315	342	-	386	414	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	788	-	-	1057	-	-	~ 36	74	610	~ 34	78	411
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 36	74	-	~ 34	78	-
Stage 1	-	-	-	-	-	-	339	351	-	283	347	-
Stage 2	-	-	-	-	-	-	197	322	-	250	340	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2.4	0.6	\$ 650.8	265.6
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	NBLn2	NBLn3	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2	SBLn3
Capacity (veh/h)	36	74	610	788	-	-	1057	-	-	34	78	411
HCM Lane V/C Ratio	3.187	0.541	0.11	0.179	-	-	0.058	-	-	2.074	0.243	0.297
HCM Control Delay (s)	\$ 1218.1	100.3	11.6	10.6	-	-	8.6	-	-	\$ 749.2	65.4	17.4
HCM Lane LOS	F	F	B	B	-	-	A	-	-	F	F	C
HCM 95th %tile Q(veh)	13.1	2.3	0.4	0.6	-	-	0.2	-	-	7.9	0.9	1.2

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

Intersection												
Int Delay, s/veh	4.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↙	↑	↗	↙	↑	↗	↙	↗			↕	
Traffic Vol, veh/h	25	402	70	31	735	7	34	3	16	11	4	86
Future Vol, veh/h	25	402	70	31	735	7	34	3	16	11	4	86
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	510	-	510	510	-	510	150	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	7	7	7	7	7	7	7	0	25	50	0	3
Mvmt Flow	26	423	74	33	774	7	36	3	17	12	4	91

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	781	0	0	497	0	0	1366	1322	423	1362	1389	774
Stage 1	-	-	-	-	-	-	475	475	-	840	840	-
Stage 2	-	-	-	-	-	-	891	847	-	522	549	-
Critical Hdwy	4.17	-	-	4.17	-	-	7.17	6.5	6.45	7.6	6.5	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.17	5.5	-	6.6	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.17	5.5	-	6.6	5.5	-
Follow-up Hdwy	2.263	-	-	2.263	-	-	3.563	4	3.525	3.95	4	3.327
Pot Cap-1 Maneuver	815	-	-	1042	-	-	121	158	585	99	144	397
Stage 1	-	-	-	-	-	-	561	561	-	299	384	-
Stage 2	-	-	-	-	-	-	330	381	-	460	520	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	815	-	-	1042	-	-	87	148	585	90	135	397
Mov Cap-2 Maneuver	-	-	-	-	-	-	87	148	-	90	135	-
Stage 1	-	-	-	-	-	-	543	543	-	289	372	-
Stage 2	-	-	-	-	-	-	244	369	-	430	503	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.5			0.3			51.8			26.2		
HCM LOS							F			D		

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	87	399	815	-	-	1042	-	-	274
HCM Lane V/C Ratio	0.411	0.05	0.032	-	-	0.031	-	-	0.388
HCM Control Delay (s)	72.7	14.5	9.6	-	-	8.6	-	-	26.2
HCM Lane LOS	F	B	A	-	-	A	-	-	D
HCM 95th %tile Q(veh)	1.7	0.2	0.1	-	-	0.1	-	-	1.8

Intersection						
Int Delay, s/veh	0.7					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗	↘	↑	↘	↗
Traffic Vol, veh/h	425	9	6	744	26	5
Future Vol, veh/h	425	9	6	744	26	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	510	570	-	180	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	7	7	7	7	0	0
Mvmt Flow	447	9	6	783	27	5

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	456	0	1242
Stage 1	-	-	-	-	447
Stage 2	-	-	-	-	795
Critical Hdwy	-	-	4.17	-	6.4
Critical Hdwy Stg 1	-	-	-	-	5.4
Critical Hdwy Stg 2	-	-	-	-	5.4
Follow-up Hdwy	-	-	2.263	-	3.5
Pot Cap-1 Maneuver	-	-	1079	-	195
Stage 1	-	-	-	-	649
Stage 2	-	-	-	-	448
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1079	-	194
Mov Cap-2 Maneuver	-	-	-	-	194
Stage 1	-	-	-	-	645
Stage 2	-	-	-	-	448

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	24.1
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	194	616	-	-	1079	-
HCM Lane V/C Ratio	0.141	0.009	-	-	0.006	-
HCM Control Delay (s)	26.6	10.9	-	-	8.4	-
HCM Lane LOS	D	B	-	-	A	-
HCM 95th %tile Q(veh)	0.5	0	-	-	0	-

Intersection						
Int Delay, s/veh	0.3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	16	423	738	4	3	7
Future Vol, veh/h	16	423	738	4	3	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	410	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	7	7	7	7	0	0
Mvmt Flow	17	445	777	4	3	7

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	781	0	-	0	1258 779
Stage 1	-	-	-	-	779 -
Stage 2	-	-	-	-	479 -
Critical Hdwy	4.17	-	-	-	6.4 6.2
Critical Hdwy Stg 1	-	-	-	-	5.4 -
Critical Hdwy Stg 2	-	-	-	-	5.4 -
Follow-up Hdwy	2.263	-	-	-	3.5 3.3
Pot Cap-1 Maneuver	815	-	-	-	190 399
Stage 1	-	-	-	-	456 -
Stage 2	-	-	-	-	627 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	815	-	-	-	186 399
Mov Cap-2 Maneuver	-	-	-	-	186 -
Stage 1	-	-	-	-	446 -
Stage 2	-	-	-	-	627 -

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	17.6
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	815	-	-	-	297
HCM Lane V/C Ratio	0.021	-	-	-	0.035
HCM Control Delay (s)	9.5	-	-	-	17.6
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	-	0.1

Intersection												
Int Delay, s/veh	3.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	11	394	25	7	675	7	58	3	11	12	4	19
Future Vol, veh/h	11	394	25	7	675	7	58	3	11	12	4	19
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	500	-	400	600	-	490	-	-	100	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	7	7	7	7	7	7	2	0	0	0	100	6
Mvmt Flow	12	415	26	7	711	7	61	3	12	13	4	20

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	718	0	0	441	0	0	1180	1171	415	1185	1190	711
Stage 1	-	-	-	-	-	-	439	439	-	725	725	-
Stage 2	-	-	-	-	-	-	741	732	-	460	465	-
Critical Hdwy	4.17	-	-	4.17	-	-	7.12	6.5	6.2	7.1	7.5	6.26
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.5	-	6.1	6.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.5	-	6.1	6.5	-
Follow-up Hdwy	2.263	-	-	2.263	-	-	3.518	4	3.3	3.5	4.9	3.354
Pot Cap-1 Maneuver	860	-	-	1093	-	-	167	194	642	167	124	426
Stage 1	-	-	-	-	-	-	597	582	-	420	312	-
Stage 2	-	-	-	-	-	-	408	430	-	585	428	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	860	-	-	1093	-	-	153	190	642	159	122	426
Mov Cap-2 Maneuver	-	-	-	-	-	-	153	190	-	159	122	-
Stage 1	-	-	-	-	-	-	589	574	-	414	310	-
Stage 2	-	-	-	-	-	-	381	427	-	563	422	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.2			0.1			39			23.7		
HCM LOS							E			C		

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	154	642	860	-	-	1093	-	-	229
HCM Lane V/C Ratio	0.417	0.018	0.013	-	-	0.007	-	-	0.161
HCM Control Delay (s)	44.1	10.7	9.2	-	-	8.3	-	-	23.7
HCM Lane LOS	E	B	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	1.8	0.1	0	-	-	0	-	-	0.6

Intersection												
Int Delay, s/veh	5.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↶	↷			↕			↕			↕	
Traffic Vol, veh/h	75	324	13	54	523	0	29	8	19	99	7	151
Future Vol, veh/h	75	324	13	54	523	0	29	8	19	99	7	151
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	Yield
Storage Length	520	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	7	7	7	7	7	7	0	0	0	15	0	7
Mvmt Flow	79	341	14	57	551	0	31	8	20	104	7	159

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	551	0	0	355	0	0	1175	1171	348	1185	1178	551
Stage 1	-	-	-	-	-	-	506	506	-	665	665	-
Stage 2	-	-	-	-	-	-	669	665	-	520	513	-
Critical Hdwy	4.17	-	-	4.17	-	-	7.1	6.5	6.2	7.25	6.5	6.27
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.25	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.25	5.5	-
Follow-up Hdwy	2.263	-	-	2.263	-	-	3.5	4	3.3	3.635	4	3.363
Pot Cap-1 Maneuver	994	-	-	1176	-	-	170	194	700	156	192	525
Stage 1	-	-	-	-	-	-	552	543	-	429	461	-
Stage 2	-	-	-	-	-	-	450	461	-	516	539	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	994	-	-	1176	-	-	103	166	700	132	165	525
Mov Cap-2 Maneuver	-	-	-	-	-	-	170	260	-	241	273	-
Stage 1	-	-	-	-	-	-	508	500	-	395	429	-
Stage 2	-	-	-	-	-	-	287	429	-	454	496	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	1.6			0.8			24.3			16.2		
HCM LOS							C			C		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	245	994	-	-	1176	-	-	589
HCM Lane V/C Ratio	0.241	0.079	-	-	0.048	-	-	0.459
HCM Control Delay (s)	24.3	8.9	-	-	8.2	0	-	16.2
HCM Lane LOS	C	A	-	-	A	A	-	C
HCM 95th %tile Q(veh)	0.9	0.3	-	-	0.2	-	-	2.4

Intersection						
Int Delay, s/veh	0					
Movement	NBT	NBR	SBL	SBT	NWL	NWR
Lane Configurations	↑			↑		↑
Traffic Vol, veh/h	83	0	0	257	0	74
Future Vol, veh/h	83	0	0	257	0	74
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	16974	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	87	0	0	271	0	78

Major/Minor	Minor2	Major2		
Conflicting Flow All	271	-	-	-
Stage 1	271	-	-	-
Stage 2	0	-	-	-
Critical Hdwy	6.52	-	-	-
Critical Hdwy Stg 1	5.52	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	4.018	-	-	-
Pot Cap-1 Maneuver	636	0	0	-
Stage 1	685	0	0	-
Stage 2	-	0	0	-
Platoon blocked, %				-
Mov Cap-1 Maneuver	0	-	-	-
Mov Cap-2 Maneuver	0	-	-	-
Stage 1	0	-	-	-
Stage 2	0	-	-	-

Approach	NB	SB
HCM Control Delay, s		0
HCM LOS	-	

Minor Lane/Major Mvmt	NBLn1	SBT
Capacity (veh/h)	-	-
HCM Lane V/C Ratio	-	-
HCM Control Delay (s)	-	-
HCM Lane LOS	-	-
HCM 95th %tile Q(veh)	-	-

HCM 6th Signalized Intersection Summary
 1: Lorraine Rd & SR 70

2045 No Build AM

09/13/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗	↘	↑↑	↗	↘	↑	↗	↘	↗	↘
Traffic Volume (veh/h)	226	1198	527	312	2041	126	616	287	193	198	402	197
Future Volume (veh/h)	226	1198	527	312	2041	126	616	287	193	198	402	197
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1796	1796	1796	1796	1796	1796	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	233	1235	543	322	2104	130	635	296	199	204	414	203
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	7	7	7	7	7	7	3	3	3	3	3	3
Cap, veh/h	117	1191	767	198	1361	607	274	606	514	201	325	159
Arrive On Green	0.07	0.35	0.35	0.12	0.40	0.40	0.16	0.33	0.33	0.11	0.28	0.27
Sat Flow, veh/h	1711	3413	1522	1711	3413	1522	1767	1856	1572	1767	1175	576
Grp Volume(v), veh/h	233	1235	543	322	2104	130	635	296	199	204	0	617
Grp Sat Flow(s),veh/h/ln	1711	1706	1522	1711	1706	1522	1767	1856	1572	1767	0	1752
Q Serve(g_s), s	12.3	62.8	49.5	20.8	71.8	10.1	27.9	23.0	17.6	20.5	0.0	49.8
Cycle Q Clear(g_c), s	12.3	62.8	49.5	20.8	71.8	10.1	27.9	23.0	17.6	20.5	0.0	49.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.33
Lane Grp Cap(c), veh/h	117	1191	767	198	1361	607	274	606	514	201	0	485
V/C Ratio(X)	1.99	1.04	0.71	1.63	1.55	0.21	2.32	0.49	0.39	1.01	0.00	1.27
Avail Cap(c_a), veh/h	117	1191	767	198	1361	607	274	606	514	201	0	485
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	83.8	58.6	34.4	79.6	54.1	35.6	76.1	48.5	46.7	79.8	0.0	65.4
Incr Delay (d2), s/veh	475.9	36.2	5.5	304.9	249.2	0.8	604.6	0.6	0.5	67.0	0.0	138.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	20.8	32.3	19.7	25.8	76.8	4.0	58.8	10.9	7.1	13.1	0.0	40.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	559.8	94.8	39.9	384.5	303.3	36.4	680.6	49.2	47.2	146.8	0.0	203.7
LnGrp LOS	F	F	D	F	F	D	F	D	D	F	A	F
Approach Vol, veh/h		2011			2556			1130				821
Approach Delay, s/veh		133.9			299.9			403.7				189.5
Approach LOS		F			F			F				F
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	26.0	67.0	32.0	55.0	17.0	76.0	23.0	64.0				
Change Period (Y+Rc), s	8.2	7.2	7.1	8.2	7.7	7.2	5.5	8.2				
Max Green Setting (Gmax), s	17.8	59.8	24.9	46.8	9.3	68.8	17.5	55.8				
Max Q Clear Time (g_c+I1), s	22.8	64.8	29.9	51.8	14.3	73.8	22.5	25.0				
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.6				

Intersection Summary

HCM 6th Ctrl Delay	252.8
HCM 6th LOS	F

Intersection												
Int Delay, s/veh	4.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑	↗	↖	↑	↗	↖	↑	↗	↖	↑	↗
Traffic Vol, veh/h	343	953	355	118	1534	65	409	355	60	38	202	425
Future Vol, veh/h	343	953	355	118	1534	65	409	355	60	38	202	425
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	500	-	480	500	-	460	300	-	0	325	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	7	7	7	7	7	7	2	2	2	2	2	2
Mvmt Flow	354	982	366	122	1581	67	422	366	62	39	208	438

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1648	0	0	1348	0	0	3872	3582	982	3912	3881	1581
Stage 1	-	-	-	-	-	-	1690	1690	-	1825	1825	-
Stage 2	-	-	-	-	-	-	2182	1892	-	2087	2056	-
Critical Hdwy	4.17	-	-	4.17	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.263	-	-	2.263	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	379	-	-	495	-	-	~ 2	~ 6	302	~ 2	~ 3	~ 134
Stage 1	-	-	-	-	-	-	~ 118	~ 149	-	99	~ 128	-
Stage 2	-	-	-	-	-	-	~ 61	~ 118	-	69	~ 98	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	379	-	-	495	-	-	-	0	302	0	0	~ 134
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	0	-	0	0	-
Stage 1	-	-	-	-	-	-	~ 8	~ 10	-	~ 7	~ 97	-
Stage 2	-	-	-	-	-	-	~ 120	~ 89	-	-	~ 6	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	13.4	1	-	-
HCM LOS	-	-	-	-

Minor Lane/Major Mvmt	NBLn1	NBLn2	NBLn3	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2	SBLn3
Capacity (veh/h)	-	-	302	379	-	-	495	-	-	-	-	134
HCM Lane V/C Ratio	-	-	0.205	0.933	-	-	0.246	-	-	-	-	3.27
HCM Control Delay (s)	-	-	20	64.3	-	-	14.6	-	-	-	-	\$ 1090.6
HCM Lane LOS	-	-	C	F	-	-	B	-	-	-	-	F
HCM 95th %tile Q(veh)	-	-	0.8	10	-	-	1	-	-	-	-	41.9

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

Intersection						
Int Delay, s/veh	725.7					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↘	↗	↗	↘	↘	↘
Traffic Vol, veh/h	440	648	963	129	142	673
Future Vol, veh/h	440	648	963	129	142	673
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	750	-	-	350	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	7	7	7	7	2	2
Mvmt Flow	463	682	1014	136	149	708

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	1150	0	0 2622 1014
Stage 1	-	-	- 1014 -
Stage 2	-	-	- 1608 -
Critical Hdwy	4.17	-	- 6.42 6.22
Critical Hdwy Stg 1	-	-	- 5.42 -
Critical Hdwy Stg 2	-	-	- 5.42 -
Follow-up Hdwy	2.263	-	- 3.518 3.318
Pot Cap-1 Maneuver	590	-	- ~ 26 ~ 290
Stage 1	-	-	- 350 -
Stage 2	-	-	- 180 -
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	590	-	- ~ 6 ~ 290
Mov Cap-2 Maneuver	-	-	- ~ 6 -
Stage 1	-	-	- ~ 75 -
Stage 2	-	-	- 180 -

Approach	EB	WB	SB
HCM Control Delay, s	12	0	\$ 2650.9
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	590	-	-	-	6	290
HCM Lane V/C Ratio	0.785	-	-	-	-24.912	2.443
HCM Control Delay (s)	29.8	-	-	-	\$ 11958	687.1
HCM Lane LOS	D	-	-	-	F	F
HCM 95th %tile Q(veh)	7.5	-	-	-	20.6	57

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

Intersection						
Int Delay, s/veh	22.1					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗	↘	↑	↘	↗
Traffic Vol, veh/h	643	150	38	930	125	45
Future Vol, veh/h	643	150	38	930	125	45
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	375	360	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	7	7	7	7	2	2
Mvmt Flow	677	158	40	979	132	47

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	835	0	1736
Stage 1	-	-	-	-	677
Stage 2	-	-	-	-	1059
Critical Hdwy	-	-	4.17	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	-	-	2.263	-	3.518
Pot Cap-1 Maneuver	-	-	777	-	96
Stage 1	-	-	-	-	505
Stage 2	-	-	-	-	333
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	777	-	91
Mov Cap-2 Maneuver	-	-	-	-	91
Stage 1	-	-	-	-	479
Stage 2	-	-	-	-	333

Approach	EB	WB	NB
HCM Control Delay, s	0	0.4	249.3
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	91	453	-	-	777	-
HCM Lane V/C Ratio	1.446	0.105	-	-	0.051	-
HCM Control Delay (s)	\$ 334.1	13.9	-	-	9.9	-
HCM Lane LOS	F	B	-	-	A	-
HCM 95th %tile Q(veh)	10	0.3	-	-	0.2	-

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

Intersection												
Int Delay, s/veh	627											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↵	↶		↵	↶		↵	↶	↶	↵	↶	↶
Traffic Vol, veh/h	205	392	91	89	624	199	167	58	97	103	28	177
Future Vol, veh/h	205	392	91	89	624	199	167	58	97	103	28	177
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	250	-	-	250	-	-	250	-	250	250	-	250
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	7	7	7	7	7	7	2	2	2	2	2	2
Mvmt Flow	216	413	96	94	657	209	176	61	102	108	29	186

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	866	0	0	509	0	0	1950	1947	461	1925	1891	762
Stage 1	-	-	-	-	-	-	893	893	-	950	950	-
Stage 2	-	-	-	-	-	-	1057	1054	-	975	941	-
Critical Hdwy	4.17	-	-	4.17	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.263	-	-	2.263	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	757	-	-	1031	-	-	~ 48	65	600	~ 50	70	405
Stage 1	-	-	-	-	-	-	336	360	-	312	339	-
Stage 2	-	-	-	-	-	-	272	303	-	303	342	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	757	-	-	1031	-	-	~ 10	~ 42	600	-	46	405
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 10	~ 42	-	-	46	-
Stage 1	-	-	-	-	-	-	240	257	-	223	308	-
Stage 2	-	-	-	-	-	-	~ 121	275	-	137	245	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	3.5			0.9			\$ 4332.2					
HCM LOS							F			-		

Minor Lane/Major Mvmt	NBLn1	NBLn2	NBLn3	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2	SBLn3
Capacity (veh/h)	10	42	600	757	-	-	1031	-	-	-	46	405
HCM Lane V/C Ratio	17.579	1.454	0.17	0.285	-	-	0.091	-	-	-	0.641	0.46
HCM Control Delay (s)	\$ 8189.5	\$ 450.6	12.2	11.6	-	-	8.8	-	-	-	173	21.2
HCM Lane LOS	F	F	B	B	-	-	A	-	-	-	F	C
HCM 95th %tile Q(veh)	23.5	6.1	0.6	1.2	-	-	0.3	-	-	-	2.4	2.4

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

Intersection												
Int Delay, s/veh	7.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↙	↑	↗	↙	↑	↗	↙	↗			↕	
Traffic Vol, veh/h	28	486	74	43	787	10	38	5	20	15	5	96
Future Vol, veh/h	28	486	74	43	787	10	38	5	20	15	5	96
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	510	-	510	510	-	510	150	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	7	7	7	7	7	7	7	0	25	50	0	3
Mvmt Flow	29	512	78	45	828	11	40	5	21	16	5	101

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	839	0	0	590	0	0	1547	1499	512	1540	1566	828
Stage 1	-	-	-	-	-	-	570	570	-	918	918	-
Stage 2	-	-	-	-	-	-	977	929	-	622	648	-
Critical Hdwy	4.17	-	-	4.17	-	-	7.17	6.5	6.45	7.6	6.5	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.17	5.5	-	6.6	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.17	5.5	-	6.6	5.5	-
Follow-up Hdwy	2.263	-	-	2.263	-	-	3.563	4	3.525	3.95	4	3.327
Pot Cap-1 Maneuver	775	-	-	961	-	-	91	123	519	73	112	369
Stage 1	-	-	-	-	-	-	498	509	-	269	353	-
Stage 2	-	-	-	-	-	-	295	349	-	402	469	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	775	-	-	961	-	-	60	113	519	63	103	369
Mov Cap-2 Maneuver	-	-	-	-	-	-	60	113	-	63	103	-
Stage 1	-	-	-	-	-	-	480	490	-	259	336	-
Stage 2	-	-	-	-	-	-	201	333	-	367	452	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.5			0.5			93.9			42.8		
HCM LOS							F			E		

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	60	302	775	-	-	961	-	-	212
HCM Lane V/C Ratio	0.667	0.087	0.038	-	-	0.047	-	-	0.576
HCM Control Delay (s)	143.7	18.1	9.8	-	-	8.9	-	-	42.8
HCM Lane LOS	F	C	A	-	-	A	-	-	E
HCM 95th %tile Q(veh)	2.8	0.3	0.1	-	-	0.1	-	-	3.2

Intersection						
Int Delay, s/veh	0.7					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗	↘	↑	↘	↗
Traffic Vol, veh/h	519	10	5	802	25	5
Future Vol, veh/h	519	10	5	802	25	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	510	570	-	180	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	7	7	7	7	0	0
Mvmt Flow	546	11	5	844	26	5

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	557	0	1400
Stage 1	-	-	-	-	546
Stage 2	-	-	-	-	854
Critical Hdwy	-	-	4.17	-	6.4
Critical Hdwy Stg 1	-	-	-	-	5.4
Critical Hdwy Stg 2	-	-	-	-	5.4
Follow-up Hdwy	-	-	2.263	-	3.5
Pot Cap-1 Maneuver	-	-	989	-	156
Stage 1	-	-	-	-	584
Stage 2	-	-	-	-	421
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	989	-	155
Mov Cap-2 Maneuver	-	-	-	-	155
Stage 1	-	-	-	-	581
Stage 2	-	-	-	-	421

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	29.4
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	155	541	-	-	989	-
HCM Lane V/C Ratio	0.17	0.01	-	-	0.005	-
HCM Control Delay (s)	32.9	11.7	-	-	8.7	-
HCM Lane LOS	D	B	-	-	A	-
HCM 95th %tile Q(veh)	0.6	0	-	-	0	-

Intersection						
Int Delay, s/veh	0.4					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	20	520	804	5	5	10
Future Vol, veh/h	20	520	804	5	5	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	410	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	7	7	7	7	0	0
Mvmt Flow	21	547	846	5	5	11

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	851	0	-	0	1438 849
Stage 1	-	-	-	-	849 -
Stage 2	-	-	-	-	589 -
Critical Hdwy	4.17	-	-	-	6.4 6.2
Critical Hdwy Stg 1	-	-	-	-	5.4 -
Critical Hdwy Stg 2	-	-	-	-	5.4 -
Follow-up Hdwy	2.263	-	-	-	3.5 3.3
Pot Cap-1 Maneuver	767	-	-	-	148 364
Stage 1	-	-	-	-	423 -
Stage 2	-	-	-	-	558 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	767	-	-	-	144 364
Mov Cap-2 Maneuver	-	-	-	-	144 -
Stage 1	-	-	-	-	412 -
Stage 2	-	-	-	-	558 -

Approach	EB	WB	SB
HCM Control Delay, s	0.4	0	21
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	767	-	-	-	241
HCM Lane V/C Ratio	0.027	-	-	-	0.066
HCM Control Delay (s)	9.8	-	-	-	21
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	-	0.2

Intersection												
Int Delay, s/veh	4.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	15	483	32	10	742	10	60	5	15	15	5	20
Future Vol, veh/h	15	483	32	10	742	10	60	5	15	15	5	20
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	500	-	400	600	-	490	-	-	100	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	7	7	7	7	7	7	2	0	0	0	100	6
Mvmt Flow	16	508	34	11	781	11	63	5	16	16	5	21

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	792	0	0	542	0	0	1362	1354	508	1371	1377	781
Stage 1	-	-	-	-	-	-	540	540	-	803	803	-
Stage 2	-	-	-	-	-	-	822	814	-	568	574	-
Critical Hdwy	4.17	-	-	4.17	-	-	7.12	6.5	6.2	7.1	7.5	6.26
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.5	-	6.1	6.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.5	-	6.1	6.5	-
Follow-up Hdwy	2.263	-	-	2.263	-	-	3.518	4	3.3	3.5	4.9	3.354
Pot Cap-1 Maneuver	807	-	-	1002	-	-	125	151	569	125	92	389
Stage 1	-	-	-	-	-	-	526	524	-	380	283	-
Stage 2	-	-	-	-	-	-	368	394	-	511	376	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	807	-	-	1002	-	-	110	146	569	116	89	389
Mov Cap-2 Maneuver	-	-	-	-	-	-	110	146	-	116	89	-
Stage 1	-	-	-	-	-	-	515	514	-	372	280	-
Stage 2	-	-	-	-	-	-	338	390	-	482	368	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.3			0.1			65.6			33.2		
HCM LOS							F			D		

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	112	569	807	-	-	1002	-	-	169
HCM Lane V/C Ratio	0.611	0.028	0.02	-	-	0.011	-	-	0.249
HCM Control Delay (s)	78.1	11.5	9.6	-	-	8.6	-	-	33.2
HCM Lane LOS	F	B	A	-	-	A	-	-	D
HCM 95th %tile Q(veh)	3	0.1	0.1	-	-	0	-	-	0.9

Intersection												
Int Delay, s/veh	9.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗			↕			↕			↕	
Traffic Vol, veh/h	95	393	19	82	577	0	31	10	25	117	10	174
Future Vol, veh/h	95	393	19	82	577	0	31	10	25	117	10	174
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	Yield
Storage Length	520	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	7	7	7	7	7	7	0	0	0	15	0	7
Mvmt Flow	100	414	20	86	607	0	33	11	26	123	11	183

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	607	0	0	434	0	0	1409	1403	424	1422	1413	607
Stage 1	-	-	-	-	-	-	624	624	-	779	779	-
Stage 2	-	-	-	-	-	-	785	779	-	643	634	-
Critical Hdwy	4.17	-	-	4.17	-	-	7.1	6.5	6.2	7.25	6.5	6.27
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.25	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.25	5.5	-
Follow-up Hdwy	2.263	-	-	2.263	-	-	3.5	4	3.3	3.635	4	3.363
Pot Cap-1 Maneuver	947	-	-	1099	-	-	117	141	634	~ 106	139	487
Stage 1	-	-	-	-	-	-	477	481	-	370	409	-
Stage 2	-	-	-	-	-	-	389	409	-	441	476	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	947	-	-	1099	-	-	59	111	634	~ 82	110	487
Mov Cap-2 Maneuver	-	-	-	-	-	-	93	194	-	176	210	-
Stage 1	-	-	-	-	-	-	426	430	-	331	361	-
Stage 2	-	-	-	-	-	-	208	361	-	369	426	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	1.7			1.1			45.4			34.9		
HCM LOS							E			D		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	156	947	-	-	1099	-	-	423
HCM Lane V/C Ratio	0.445	0.106	-	-	0.079	-	-	0.749
HCM Control Delay (s)	45.4	9.2	-	-	8.6	0	-	34.9
HCM Lane LOS	E	A	-	-	A	A	-	D
HCM 95th %tile Q(veh)	2	0.4	-	-	0.3	-	-	6.1

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

Intersection						
Int Delay, s/veh	0					
Movement	NBT	NBR	SBL	SBT	NWL	NWR
Lane Configurations	↑			↑		↑
Traffic Vol, veh/h	105	0	0	301	0	88
Future Vol, veh/h	105	0	0	301	0	88
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	16974	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	111	0	0	317	0	93

Major/Minor	Minor2	Major2		
Conflicting Flow All	317	-	-	-
Stage 1	317	-	-	-
Stage 2	0	-	-	-
Critical Hdwy	6.52	-	-	-
Critical Hdwy Stg 1	5.52	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	4.018	-	-	-
Pot Cap-1 Maneuver	599	0	0	-
Stage 1	654	0	0	-
Stage 2	-	0	0	-
Platoon blocked, %				-
Mov Cap-1 Maneuver	0	-	-	-
Mov Cap-2 Maneuver	0	-	-	-
Stage 1	0	-	-	-
Stage 2	0	-	-	-

Approach	NB	SB
HCM Control Delay, s		0
HCM LOS	-	

Minor Lane/Major Mvmt	NBLn1	SBT
Capacity (veh/h)	-	-
HCM Lane V/C Ratio	-	-
HCM Control Delay (s)	-	-
HCM Lane LOS	-	-
HCM 95th %tile Q(veh)	-	-

HCM 6th Signalized Intersection Summary
 1: Lorraine Rd & SR 70

2025 No Build PM
 09/13/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↗	↑↑	↘	↖	↑↑	↗	↖	↑	↗	↖	↘	↙
Traffic Volume (veh/h)	241	1024	338	98	689	84	399	275	177	113	136	120
Future Volume (veh/h)	241	1024	338	98	689	84	399	275	177	113	136	120
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1796	1796	1796	1796	1796	1796	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	248	1056	-48	101	710	-28	411	284	7	116	140	-36
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	7	7	7	7	7	7	2	2	2	2	2	2
Cap, veh/h	202	1927	1087	112	1756	783	266	343	291	163	218	0
Arrive On Green	0.12	0.56	0.00	0.07	0.51	0.00	0.15	0.18	0.18	0.09	0.12	0.00
Sat Flow, veh/h	1711	3413	1522	1711	3413	1522	1781	1870	1585	1781	1870	0
Grp Volume(v), veh/h	248	1056	-48	101	710	-28	411	284	7	116	104	0
Grp Sat Flow(s),veh/h/ln	1711	1706	1522	1711	1706	1522	1781	1870	1585	1781	1870	0
Q Serve(g_s), s	21.3	35.1	0.0	10.6	23.0	0.0	26.9	26.3	0.7	11.4	9.4	0.0
Cycle Q Clear(g_c), s	21.3	35.1	0.0	10.6	23.0	0.0	26.9	26.3	0.7	11.4	9.4	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	202	1927	1087	112	1756	783	266	343	291	163	218	0
V/C Ratio(X)	1.23	0.55	-0.04	0.90	0.40	-0.04	1.54	0.83	0.02	0.71	0.48	0.00
Avail Cap(c_a), veh/h	202	1927	1087	112	1756	783	266	611	518	193	517	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	79.4	24.7	0.0	83.5	26.8	0.0	76.5	70.7	60.2	79.5	74.4	0.0
Incr Delay (d2), s/veh	137.1	1.1	0.0	55.0	0.7	0.0	262.7	5.1	0.0	9.6	1.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	17.0	14.1	0.0	6.3	9.3	0.0	31.8	13.2	0.3	5.7	4.6	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	216.4	25.8	0.0	138.6	27.5	0.0	339.2	75.8	60.3	89.1	76.0	0.0
LnGrp LOS	F	C	A	F	C	A	F	E	E	F	E	A
Approach Vol, veh/h		1256			783			702				220
Approach Delay, s/veh		64.5			42.8			229.9				82.9
Approach LOS		E			D			F				F
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	17.0	105.8	31.0	26.2	26.0	96.8	18.9	38.3				
Change Period (Y+Rc), s	8.2	7.2	7.1	8.2	7.7	7.2	5.5	8.2				
Max Green Setting (Gmax), s	8.8	69.8	23.9	46.8	18.3	60.8	16.5	55.8				
Max Q Clear Time (g_c+I1), s	12.6	37.1	28.9	11.4	23.3	25.0	13.4	28.3				
Green Ext Time (p_c), s	0.0	7.9	0.0	0.6	0.0	4.8	0.1	1.7				

Intersection Summary												
HCM 6th Ctrl Delay											99.3	
HCM 6th LOS											F	

Intersection												
Int Delay, s/veh	0.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗	↖	↖	↗	↖	↖	↗	↖	↖	↗	↖
Traffic Vol, veh/h	151	927	233	24	604	16	147	92	35	25	104	129
Future Vol, veh/h	151	927	233	24	604	16	147	92	35	25	104	129
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	500	-	480	500	-	460	300	-	0	325	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	7	7	7	7	7	7	2	2	2	2	2	2
Mvmt Flow	156	956	240	25	623	16	152	95	36	26	107	133

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	639	0	0	1196	0	0	2069	1957	956	2127	2181	623
Stage 1	-	-	-	-	-	-	1268	1268	-	673	673	-
Stage 2	-	-	-	-	-	-	801	689	-	1454	1508	-
Critical Hdwy	4.17	-	-	4.17	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.263	-	-	2.263	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	921	-	-	566	-	-	~ 40	~ 64	313	36	~ 46	486
Stage 1	-	-	-	-	-	-	207	240	-	445	454	-
Stage 2	-	-	-	-	-	-	378	446	-	162	183	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	921	-	-	566	-	-	~ 51	313	-	~ 37	486	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 51	-	-	~ 37	-	-
Stage 1	-	-	-	-	-	-	172	199	-	370	434	-
Stage 2	-	-	-	-	-	-	198	426	-	62	152	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.1	0.4	-	-
HCM LOS	-	-	-	-

Minor Lane/Major Mvmt	NBLn1	NBLn2	NBLn3	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2	SBLn3
Capacity (veh/h)	-	51	313	921	-	-	566	-	-	-	37	486
HCM Lane V/C Ratio	-	1.86	0.115	0.169	-	-	0.044	-	-	-	2.898	0.274
HCM Control Delay (s)	-	\$ 579.7	18	9.7	-	-	11.7	-	-	-	\$ 1085.3	15.2
HCM Lane LOS	-	F	C	A	-	-	B	-	-	-	F	C
HCM 95th %tile Q(veh)	-	9.3	0.4	0.6	-	-	0.1	-	-	-	12.1	1.1

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

Intersection						
Int Delay, s/veh	5					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↘	↗	↗	↘	↘	↘
Traffic Vol, veh/h	207	750	497	30	42	121
Future Vol, veh/h	207	750	497	30	42	121
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	750	-	-	350	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	7	7	7	7	2	2
Mvmt Flow	218	789	523	32	44	127

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	555	0	-	0	1748 523
Stage 1	-	-	-	-	523 -
Stage 2	-	-	-	-	1225 -
Critical Hdwy	4.17	-	-	-	6.42 6.22
Critical Hdwy Stg 1	-	-	-	-	5.42 -
Critical Hdwy Stg 2	-	-	-	-	5.42 -
Follow-up Hdwy	2.263	-	-	-	3.518 3.318
Pot Cap-1 Maneuver	991	-	-	-	95 554
Stage 1	-	-	-	-	595 -
Stage 2	-	-	-	-	278 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	991	-	-	-	74 554
Mov Cap-2 Maneuver	-	-	-	-	74 -
Stage 1	-	-	-	-	464 -
Stage 2	-	-	-	-	278 -

Approach	EB	WB	SB
HCM Control Delay, s	2.1	0	38
HCM LOS			E

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	991	-	-	-	74	554
HCM Lane V/C Ratio	0.22	-	-	-	0.597	0.23
HCM Control Delay (s)	9.7	-	-	-	109	13.4
HCM Lane LOS	A	-	-	-	F	B
HCM 95th %tile Q(veh)	0.8	-	-	-	2.6	0.9

Intersection						
Int Delay, s/veh	3.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗	↘	↑	↘	↗
Traffic Vol, veh/h	736	86	13	500	89	8
Future Vol, veh/h	736	86	13	500	89	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	375	360	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	7	7	7	7	2	2
Mvmt Flow	775	91	14	526	94	8

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	866	0	1329 775
Stage 1	-	-	-	-	775 -
Stage 2	-	-	-	-	554 -
Critical Hdwy	-	-	4.17	-	6.42 6.22
Critical Hdwy Stg 1	-	-	-	-	5.42 -
Critical Hdwy Stg 2	-	-	-	-	5.42 -
Follow-up Hdwy	-	-	2.263	-	3.518 3.318
Pot Cap-1 Maneuver	-	-	757	-	171 398
Stage 1	-	-	-	-	454 -
Stage 2	-	-	-	-	575 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	757	-	168 398
Mov Cap-2 Maneuver	-	-	-	-	168 -
Stage 1	-	-	-	-	446 -
Stage 2	-	-	-	-	575 -

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	47.5
HCM LOS			E

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	168	398	-	-	757	-
HCM Lane V/C Ratio	0.558	0.021	-	-	0.018	-
HCM Control Delay (s)	50.5	14.2	-	-	9.8	-
HCM Lane LOS	F	B	-	-	A	-
HCM 95th %tile Q(veh)	2.9	0.1	-	-	0.1	-

Intersection												
Int Delay, s/veh	7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↵	↵		↵	↵		↵	↑	↵	↵	↑	↵
Traffic Vol, veh/h	59	629	56	31	418	33	29	8	28	62	18	66
Future Vol, veh/h	59	629	56	31	418	33	29	8	28	62	18	66
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	250	-	-	250	-	-	250	-	250	250	-	250
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	7	7	7	7	7	7	2	2	2	2	2	2
Mvmt Flow	62	662	59	33	440	35	31	8	29	65	19	69

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	475	0	0	721	0	0	1384	1357	692	1358	1369	458
Stage 1	-	-	-	-	-	-	816	816	-	524	524	-
Stage 2	-	-	-	-	-	-	568	541	-	834	845	-
Critical Hdwy	4.17	-	-	4.17	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.263	-	-	2.263	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1061	-	-	858	-	-	121	149	444	126	146	603
Stage 1	-	-	-	-	-	-	371	391	-	537	530	-
Stage 2	-	-	-	-	-	-	508	521	-	362	379	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1061	-	-	858	-	-	89	135	444	104	132	603
Mov Cap-2 Maneuver	-	-	-	-	-	-	89	135	-	104	132	-
Stage 1	-	-	-	-	-	-	349	368	-	506	510	-
Stage 2	-	-	-	-	-	-	416	501	-	311	357	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.7			0.6			39.1			46.1		
HCM LOS							E			E		

Minor Lane/Major Mvmt	NBLn1	NBLn2	NBLn3	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2	SBLn3
Capacity (veh/h)	89	135	444	1061	-	-	858	-	-	104	132	603
HCM Lane V/C Ratio	0.343	0.062	0.066	0.059	-	-	0.038	-	-	0.628	0.144	0.115
HCM Control Delay (s)	65.2	33.4	13.7	8.6	-	-	9.4	-	-	85.4	36.8	11.7
HCM Lane LOS	F	D	B	A	-	-	A	-	-	F	E	B
HCM 95th %tile Q(veh)	1.3	0.2	0.2	0.2	-	-	0.1	-	-	3.1	0.5	0.4

Intersection												
Int Delay, s/veh	3.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑	↗	↖	↑	↗	↖	↗			↕	
Traffic Vol, veh/h	73	626	43	8	357	5	57	2	12	4	2	35
Future Vol, veh/h	73	626	43	8	357	5	57	2	12	4	2	35
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	510	-	510	510	-	510	150	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	7	7	7	7	7	7	7	0	25	50	0	3
Mvmt Flow	77	659	45	8	376	5	60	2	13	4	2	37

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	381	0	0	704	0	0	1227	1210	659	1235	1250	376
Stage 1	-	-	-	-	-	-	813	813	-	392	392	-
Stage 2	-	-	-	-	-	-	414	397	-	843	858	-
Critical Hdwy	4.17	-	-	4.17	-	-	7.17	6.5	6.45	7.6	6.5	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.17	5.5	-	6.6	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.17	5.5	-	6.6	5.5	-
Follow-up Hdwy	2.263	-	-	2.263	-	-	3.563	4	3.525	3.95	4	3.327
Pot Cap-1 Maneuver	1151	-	-	871	-	-	152	184	426	123	174	668
Stage 1	-	-	-	-	-	-	365	395	-	547	610	-
Stage 2	-	-	-	-	-	-	606	607	-	298	376	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1151	-	-	871	-	-	134	170	426	111	161	668
Mov Cap-2 Maneuver	-	-	-	-	-	-	134	170	-	111	161	-
Stage 1	-	-	-	-	-	-	341	369	-	510	605	-
Stage 2	-	-	-	-	-	-	565	602	-	268	351	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.8	0.2	44.8	14.9
HCM LOS			E	B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	134	351	1151	-	-	871	-	-	407
HCM Lane V/C Ratio	0.448	0.042	0.067	-	-	0.01	-	-	0.106
HCM Control Delay (s)	52	15.7	8.4	-	-	9.2	-	-	14.9
HCM Lane LOS	F	C	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	2	0.1	0.2	-	-	0	-	-	0.4

Intersection						
Int Delay, s/veh	0.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗	↘	↑	↘	↗
Traffic Vol, veh/h	633	20	4	365	13	3
Future Vol, veh/h	633	20	4	365	13	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	510	570	-	180	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	7	7	7	7	0	0
Mvmt Flow	666	21	4	384	14	3

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	687	0	1058
Stage 1	-	-	-	-	666
Stage 2	-	-	-	-	392
Critical Hdwy	-	-	4.17	-	6.4
Critical Hdwy Stg 1	-	-	-	-	5.4
Critical Hdwy Stg 2	-	-	-	-	5.4
Follow-up Hdwy	-	-	2.263	-	3.5
Pot Cap-1 Maneuver	-	-	884	-	251
Stage 1	-	-	-	-	515
Stage 2	-	-	-	-	687
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	884	-	250
Mov Cap-2 Maneuver	-	-	-	-	250
Stage 1	-	-	-	-	512
Stage 2	-	-	-	-	687

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	18.8
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	250	463	-	-	884	-
HCM Lane V/C Ratio	0.055	0.007	-	-	0.005	-
HCM Control Delay (s)	20.2	12.8	-	-	9.1	-
HCM Lane LOS	C	B	-	-	A	-
HCM 95th %tile Q(veh)	0.2	0	-	-	0	-

Intersection						
Int Delay, s/veh	0.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	3	629	366	0	2	3
Future Vol, veh/h	3	629	366	0	2	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	410	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	7	7	7	7	0	0
Mvmt Flow	3	662	385	0	2	3

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	385	0	-	0	1053 385
Stage 1	-	-	-	-	385 -
Stage 2	-	-	-	-	668 -
Critical Hdwy	4.17	-	-	-	6.4 6.2
Critical Hdwy Stg 1	-	-	-	-	5.4 -
Critical Hdwy Stg 2	-	-	-	-	5.4 -
Follow-up Hdwy	2.263	-	-	-	3.5 3.3
Pot Cap-1 Maneuver	1147	-	-	-	253 667
Stage 1	-	-	-	-	692 -
Stage 2	-	-	-	-	513 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1147	-	-	-	252 667
Mov Cap-2 Maneuver	-	-	-	-	252 -
Stage 1	-	-	-	-	690 -
Stage 2	-	-	-	-	513 -

Approach	EB	WB	SB
HCM Control Delay, s	0	0	14.1
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1147	-	-	-	402
HCM Lane V/C Ratio	0.003	-	-	-	0.013
HCM Control Delay (s)	8.1	-	-	-	14.1
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection												
Int Delay, s/veh	1.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑	↗	↖	↑	↗		↖	↗		↕	
Traffic Vol, veh/h	12	579	59	5	327	4	31	4	4	2	2	13
Future Vol, veh/h	12	579	59	5	327	4	31	4	4	2	2	13
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	500	-	400	600	-	490	-	-	100	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	7	7	7	7	7	7	2	0	0	0	100	6
Mvmt Flow	13	609	62	5	344	4	33	4	4	2	2	14

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	348	0	0	671	0	0	999	993	609	1024	1051	344
Stage 1	-	-	-	-	-	-	635	635	-	354	354	-
Stage 2	-	-	-	-	-	-	364	358	-	670	697	-
Critical Hdwy	4.17	-	-	4.17	-	-	7.12	6.5	6.2	7.1	7.5	6.26
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.5	-	6.1	6.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.5	-	6.1	6.5	-
Follow-up Hdwy	2.263	-	-	2.263	-	-	3.518	4	3.3	3.5	4.9	3.354
Pot Cap-1 Maneuver	1184	-	-	896	-	-	222	247	499	216	155	690
Stage 1	-	-	-	-	-	-	467	476	-	667	489	-
Stage 2	-	-	-	-	-	-	655	631	-	450	323	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1184	-	-	896	-	-	213	243	499	209	152	690
Mov Cap-2 Maneuver	-	-	-	-	-	-	213	243	-	209	152	-
Stage 1	-	-	-	-	-	-	462	471	-	660	486	-
Stage 2	-	-	-	-	-	-	636	627	-	437	319	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.1			0.1			23.8			14.2		
HCM LOS							C			B		

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	216	499	1184	-	-	896	-	-	409
HCM Lane V/C Ratio	0.171	0.008	0.011	-	-	0.006	-	-	0.044
HCM Control Delay (s)	25.1	12.3	8.1	-	-	9	-	-	14.2
HCM Lane LOS	D	B	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.6	0	0	-	-	0	-	-	0.1

Intersection												
Int Delay, s/veh	3.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	117	447	13	10	257	0	28	4	10	73	5	46
Future Vol, veh/h	117	447	13	10	257	0	28	4	10	73	5	46
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	Yield
Storage Length	520	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	7	7	7	7	7	7	0	0	0	15	0	7
Mvmt Flow	123	471	14	11	271	0	29	4	11	77	5	48

Major/Minor	Major1		Major2		Minor1			Minor2				
Conflicting Flow All	271	0	0	485	0	0	1020	1017	478	1025	1024	271
Stage 1	-	-	-	-	-	-	724	724	-	293	293	-
Stage 2	-	-	-	-	-	-	296	293	-	732	731	-
Critical Hdwy	4.17	-	-	4.17	-	-	7.1	6.5	6.2	7.25	6.5	6.27
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.25	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.25	5.5	-
Follow-up Hdwy	2.263	-	-	2.263	-	-	3.5	4	3.3	3.635	4	3.363
Pot Cap-1 Maneuver	1264	-	-	1052	-	-	217	239	591	202	237	756
Stage 1	-	-	-	-	-	-	420	433	-	688	674	-
Stage 2	-	-	-	-	-	-	717	674	-	393	430	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1264	-	-	1052	-	-	184	213	591	180	211	756
Mov Cap-2 Maneuver	-	-	-	-	-	-	283	300	-	269	304	-
Stage 1	-	-	-	-	-	-	379	391	-	621	666	-
Stage 2	-	-	-	-	-	-	658	666	-	345	388	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	1.7		0.3		17.8		16.9	
HCM LOS					C		C	

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	325	1264	-	-	1052	-	-	431
HCM Lane V/C Ratio	0.136	0.097	-	-	0.01	-	-	0.303
HCM Control Delay (s)	17.8	8.2	-	-	8.5	0	-	16.9
HCM Lane LOS	C	A	-	-	A	A	-	C
HCM 95th %tile Q(veh)	0.5	0.3	-	-	0	-	-	1.3

Intersection						
Int Delay, s/veh	0					
Movement	NBT	NBR	SBL	SBT	NWL	NWR
Lane Configurations	↑			↑		↑
Traffic Vol, veh/h	121	0	0	124	0	72
Future Vol, veh/h	121	0	0	124	0	72
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	16974	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	127	0	0	131	0	76

























Major/Minor	Minor2	Major2	
Conflicting Flow All	131	-	-
Stage 1	131	-	-
Stage 2	0	-	-
Critical Hdwy	6.52	-	-
Critical Hdwy Stg 1	5.52	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	4.018	-	-
Pot Cap-1 Maneuver	760	0	0
Stage 1	788	0	0
Stage 2	-	0	0
Platoon blocked, %			-
Mov Cap-1 Maneuver	0	-	-
Mov Cap-2 Maneuver	0	-	-
Stage 1	0	-	-
Stage 2	0	-	-

Approach	NB	SB
HCM Control Delay, s		0
HCM LOS	-	

Minor Lane/Major Mvmt	NBLn1	SBT
Capacity (veh/h)	-	-
HCM Lane V/C Ratio	-	-
HCM Control Delay (s)	-	-
HCM Lane LOS	-	-
HCM 95th %tile Q(veh)	-	-

HCM 6th Signalized Intersection Summary
1: Lorraine Rd & SR 70

2035 No Build PM
10/17/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	285	1525	486	160	984	117	474	338	252	149	185	138
Future Volume (veh/h)	285	1525	486	160	984	117	474	338	252	149	185	138
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1796	1796	1796	1796	1796	1796	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	294	1572	105	165	1014	6	489	348	85	154	191	-18
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	7	7	7	7	7	7	2	2	2	2	2	2
Cap, veh/h	202	1735	1010	112	1564	698	276	410	348	199	313	0
Arrive On Green	0.12	0.51	0.51	0.07	0.46	0.46	0.16	0.22	0.22	0.11	0.17	0.00
Sat Flow, veh/h	1711	3413	1522	1711	3413	1522	1781	1870	1585	1781	1870	0
Grp Volume(v), veh/h	294	1572	105	165	1014	6	489	348	85	154	173	0
Grp Sat Flow(s),veh/h/ln	1711	1706	1522	1711	1706	1522	1781	1870	1585	1781	1870	0
Q Serve(g_s), s	21.3	75.6	4.5	11.8	41.2	0.4	27.9	32.1	8.0	15.1	15.3	0.0
Cycle Q Clear(g_c), s	21.3	75.6	4.5	11.8	41.2	0.4	27.9	32.1	8.0	15.1	15.3	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	202	1735	1010	112	1564	698	276	410	348	199	313	0
V/C Ratio(X)	1.45	0.91	0.10	1.47	0.65	0.01	1.77	0.85	0.24	0.77	0.55	0.00
Avail Cap(c_a), veh/h	202	1735	1010	112	1564	698	276	611	518	203	517	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	79.4	40.4	11.0	84.1	37.6	26.5	76.1	67.4	58.0	77.7	68.8	0.0
Incr Delay (d2), s/veh	228.9	8.4	0.2	253.9	2.1	0.0	361.4	7.2	0.4	16.5	1.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	22.1	32.3	1.6	13.1	17.3	0.1	40.6	16.3	3.3	7.9	7.5	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	308.3	48.7	11.2	338.0	39.7	26.5	437.4	74.6	58.3	94.2	70.3	0.0
LnGrp LOS	F	D	B	F	D	C	F	E	E	F	E	A
Approach Vol, veh/h		1971			1185			922			327	
Approach Delay, s/veh		85.4			81.2			265.5			81.5	
Approach LOS		F			F			F			F	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	17.0	95.7	32.0	35.3	26.0	86.7	22.6	44.7				
Change Period (Y+Rc), s	8.2	7.2	7.1	8.2	7.7	7.2	5.5	8.2				
Max Green Setting (Gmax), s	8.8	68.8	24.9	46.8	18.3	59.8	17.5	55.8				
Max Q Clear Time (g_c+I1), s	13.8	78.6	29.9	17.3	23.3	43.2	17.1	34.1				
Green Ext Time (p_c), s	0.0	0.0	0.0	1.0	0.0	6.0	0.0	2.4				
Intersection Summary												
HCM 6th Ctrl Delay			121.7									
HCM 6th LOS			F									

Intersection												
Int Delay, s/veh	1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑	↗	↘	↑	↗	↘	↑	↗	↘	↑	↗
Traffic Vol, veh/h	252	1278	364	42	797	27	236	173	51	46	211	242
Future Vol, veh/h	252	1278	364	42	797	27	236	173	51	46	211	242
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	500	-	480	500	-	460	300	-	0	325	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	7	7	7	7	7	7	2	2	2	2	2	2
Mvmt Flow	265	1345	383	44	839	28	248	182	54	48	222	255

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	867	0	0	1728	0	0	3055	2830	1345	3112	3185	839
Stage 1	-	-	-	-	-	-	1875	1875	-	927	927	-
Stage 2	-	-	-	-	-	-	1180	955	-	2185	2258	-
Critical Hdwy	4.17	-	-	4.17	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.263	-	-	2.263	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	756	-	-	352	-	-	~ 8	~ 18	185	~ 7	~ 10	366
Stage 1	-	-	-	-	-	-	~ 92	~ 121	-	322	347	-
Stage 2	-	-	-	-	-	-	~ 232	337	-	60	~ 77	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	756	-	-	352	-	-	~ 10	185	-	~ 6	366	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 10	-	-	~ 6	-	-
Stage 1	-	-	-	-	-	-	~ 60	~ 79	-	209	304	-
Stage 2	-	-	-	-	-	-	~ 17	295	-	~ 50	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.6	0.8		
HCM LOS			-	-

Minor Lane/Major Mvmt	NBLn1	NBLn2	NBLn3	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2	SBLn3
Capacity (veh/h)	-	10	185	756	-	-	352	-	-	-	-	6 366
HCM Lane V/C Ratio	-	18.211	0.29	0.351	-	-	0.126	-	-	-	-	37.018 0.696
HCM Control Delay (s)	-	\$ 8473.6	32.2	12.3	-	-	16.7	-	-	-	-	\$ 17407.7 34.5
HCM Lane LOS	-	F	D	B	-	-	C	-	-	-	-	F D
HCM 95th %tile Q(veh)	-	24.3	1.1	1.6	-	-	0.4	-	-	-	-	29.8 5

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

Intersection

Int Delay, s/veh 99.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↘	↗	↗	↘	↘	↘
Traffic Vol, veh/h	437	875	556	64	88	256
Future Vol, veh/h	437	875	556	64	88	256
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	750	-	-	350	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	7	7	7	7	2	2
Mvmt Flow	460	921	585	67	93	269

Major/Minor

	Major1	Major2	Minor2		
Conflicting Flow All	652	0	0	2426	585
Stage 1	-	-	-	585	-
Stage 2	-	-	-	1841	-
Critical Hdwy	4.17	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	5.42	-
Follow-up Hdwy	2.263	-	-	3.518	3.318
Pot Cap-1 Maneuver	911	-	-	~ 35	511
Stage 1	-	-	-	557	-
Stage 2	-	-	-	138	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	911	-	-	~ 17	511
Mov Cap-2 Maneuver	-	-	-	~ 17	-
Stage 1	-	-	-	276	-
Stage 2	-	-	-	138	-

Approach

	EB	WB	SB
HCM Control Delay, s	4.3	0	\$ 641.6
HCM LOS			F

Minor Lane/Major Mvmt

	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	911	-	-	-	17	511
HCM Lane V/C Ratio	0.505	-	-	-	5.449	0.527
HCM Control Delay (s)	12.9	-	-	\$ 2451.2	19.6	
HCM Lane LOS	B	-	-	-	F	C
HCM 95th %tile Q(veh)	2.9	-	-	-	12.3	3

Notes

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

Intersection						
Int Delay, s/veh	11.4					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗	↘	↑	↘	↗
Traffic Vol, veh/h	843	113	30	559	118	16
Future Vol, veh/h	843	113	30	559	118	16
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	375	360	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	7	7	7	7	2	2
Mvmt Flow	887	119	32	588	124	17

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	1006	0	1539
Stage 1	-	-	-	-	887
Stage 2	-	-	-	-	652
Critical Hdwy	-	-	4.17	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	-	-	2.263	-	3.518
Pot Cap-1 Maneuver	-	-	669	-	127
Stage 1	-	-	-	-	402
Stage 2	-	-	-	-	518
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	669	-	~ 121
Mov Cap-2 Maneuver	-	-	-	-	~ 121
Stage 1	-	-	-	-	383
Stage 2	-	-	-	-	518

Approach	EB	WB	NB
HCM Control Delay, s	0	0.5	141.1
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	121	343	-	-	669	-
HCM Lane V/C Ratio	1.027	0.049	-	-	0.047	-
HCM Control Delay (s)	158.1	16	-	-	10.6	-
HCM Lane LOS	F	C	-	-	B	-
HCM 95th %tile Q(veh)	7	0.2	-	-	0.1	-

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

Intersection												
Int Delay, s/veh	95.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↵	↵		↵	↵		↵	↵	↵	↵	↵	↵
Traffic Vol, veh/h	124	619	117	65	388	69	62	18	58	131	39	139
Future Vol, veh/h	124	619	117	65	388	69	62	18	58	131	39	139
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	250	-	-	250	-	-	250	-	250	250	-	250
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	7	7	7	7	7	7	2	2	2	2	2	2
Mvmt Flow	131	652	123	68	408	73	65	19	61	138	41	146

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	481	0	0	775	0	0	1650	1593	714	1597	1618	445
Stage 1	-	-	-	-	-	-	976	976	-	581	581	-
Stage 2	-	-	-	-	-	-	674	617	-	1016	1037	-
Critical Hdwy	4.17	-	-	4.17	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.263	-	-	2.263	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1056	-	-	819	-	-	79	107	431	~ 86	103	613
Stage 1	-	-	-	-	-	-	302	329	-	499	500	-
Stage 2	-	-	-	-	-	-	444	481	-	287	308	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1056	-	-	819	-	-	~ 32	86	431	~ 52	83	613
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 32	86	-	~ 52	83	-
Stage 1	-	-	-	-	-	-	265	288	-	437	459	-
Stage 2	-	-	-	-	-	-	282	441	-	202	270	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	1.3			1.2			\$ 350.2			\$ 404.6		
HCM LOS							F			F		

Minor Lane/Major Mvmt	NBLn1	NBLn2	NBLn3	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2	SBLn3
Capacity (veh/h)	32	86	431	1056	-	-	819	-	-	52	83	613
HCM Lane V/C Ratio	2.039	0.22	0.142	0.124	-	-	0.084	-	-	2.652	0.495	0.239
HCM Control Delay (s)	\$ 748.8	58.3	14.7	8.9	-	-	9.8	-	-	\$ 915.7	84.9	12.7
HCM Lane LOS	F	F	B	A	-	-	A	-	-	F	F	B
HCM 95th %tile Q(veh)	7.4	0.8	0.5	0.4	-	-	0.3	-	-	14.3	2.1	0.9

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

Intersection												
Int Delay, s/veh	6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↑	↔	↔	↑	↔	↔	↔	↔		↔	
Traffic Vol, veh/h	87	690	44	12	425	10	61	3	16	7	3	40
Future Vol, veh/h	87	690	44	12	425	10	61	3	16	7	3	40
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	510	-	510	510	-	510	150	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	7	7	7	7	7	7	7	0	25	50	0	3
Mvmt Flow	92	726	46	13	447	11	64	3	17	7	3	42

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	458	0	0	772	0	0	1411	1394	726	1416	1429	447
Stage 1	-	-	-	-	-	-	910	910	-	473	473	-
Stage 2	-	-	-	-	-	-	501	484	-	943	956	-
Critical Hdwy	4.17	-	-	4.17	-	-	7.17	6.5	6.45	7.6	6.5	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.17	5.5	-	6.6	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.17	5.5	-	6.6	5.5	-
Follow-up Hdwy	2.263	-	-	2.263	-	-	3.563	4	3.525	3.95	4	3.327
Pot Cap-1 Maneuver	1077	-	-	821	-	-	113	143	389	90	136	609
Stage 1	-	-	-	-	-	-	322	356	-	491	562	-
Stage 2	-	-	-	-	-	-	543	555	-	260	339	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1077	-	-	821	-	-	95	129	389	78	122	609
Mov Cap-2 Maneuver	-	-	-	-	-	-	95	129	-	78	122	-
Stage 1	-	-	-	-	-	-	295	326	-	449	553	-
Stage 2	-	-	-	-	-	-	495	546	-	225	310	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.9	0.3	80.4	20.9
HCM LOS			F	C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	95	295	1077	-	-	821	-	-	278
HCM Lane V/C Ratio	0.676	0.068	0.085	-	-	0.015	-	-	0.189
HCM Control Delay (s)	99.8	18.1	8.7	-	-	9.5	-	-	20.9
HCM Lane LOS	F	C	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	3.3	0.2	0.3	-	-	0	-	-	0.7

Intersection						
Int Delay, s/veh	0.5					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗	↘	↑	↘	↗
Traffic Vol, veh/h	713	25	7	444	17	7
Future Vol, veh/h	713	25	7	444	17	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	510	570	-	180	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	7	7	7	7	0	0
Mvmt Flow	751	26	7	467	18	7

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	777	0	1232 751
Stage 1	-	-	-	-	751 -
Stage 2	-	-	-	-	481 -
Critical Hdwy	-	-	4.17	-	6.4 6.2
Critical Hdwy Stg 1	-	-	-	-	5.4 -
Critical Hdwy Stg 2	-	-	-	-	5.4 -
Follow-up Hdwy	-	-	2.263	-	3.5 3.3
Pot Cap-1 Maneuver	-	-	818	-	197 414
Stage 1	-	-	-	-	470 -
Stage 2	-	-	-	-	626 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	818	-	195 414
Mov Cap-2 Maneuver	-	-	-	-	195 -
Stage 1	-	-	-	-	466 -
Stage 2	-	-	-	-	626 -

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	22
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	195	414	-	-	818	-
HCM Lane V/C Ratio	0.092	0.018	-	-	0.009	-
HCM Control Delay (s)	25.3	13.9	-	-	9.4	-
HCM Lane LOS	D	B	-	-	A	-
HCM 95th %tile Q(veh)	0.3	0.1	-	-	0	-

Intersection						
Int Delay, s/veh	0.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	4	717	446	0	3	7
Future Vol, veh/h	4	717	446	0	3	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	410	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	7	7	7	7	0	0
Mvmt Flow	4	755	469	0	3	7

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	469	0	-	0	1232 469
Stage 1	-	-	-	-	469 -
Stage 2	-	-	-	-	763 -
Critical Hdwy	4.17	-	-	-	6.4 6.2
Critical Hdwy Stg 1	-	-	-	-	5.4 -
Critical Hdwy Stg 2	-	-	-	-	5.4 -
Follow-up Hdwy	2.263	-	-	-	3.5 3.3
Pot Cap-1 Maneuver	1067	-	-	-	197 598
Stage 1	-	-	-	-	634 -
Stage 2	-	-	-	-	464 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1067	-	-	-	196 598
Mov Cap-2 Maneuver	-	-	-	-	196 -
Stage 1	-	-	-	-	631 -
Stage 2	-	-	-	-	464 -

Approach	EB	WB	SB
HCM Control Delay, s	0	0	15
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1067	-	-	-	370
HCM Lane V/C Ratio	0.004	-	-	-	0.028
HCM Control Delay (s)	8.4	-	-	-	15
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Intersection												
Int Delay, s/veh	2.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↑	↔	↔	↑	↔		↔	↔		↔	
Traffic Vol, veh/h	16	670	67	10	406	7	40	7	7	3	3	17
Future Vol, veh/h	16	670	67	10	406	7	40	7	7	3	3	17
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	500	-	400	600	-	490	-	-	100	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	7	7	7	7	7	7	2	0	0	0	100	6
Mvmt Flow	17	705	71	11	427	7	42	7	7	3	3	18

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	434	0	0	776	0	0	1202	1195	705	1231	1259	427
Stage 1	-	-	-	-	-	-	739	739	-	449	449	-
Stage 2	-	-	-	-	-	-	463	456	-	782	810	-
Critical Hdwy	4.17	-	-	4.17	-	-	7.12	6.5	6.2	7.1	7.5	6.26
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.5	-	6.1	6.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.5	-	6.1	6.5	-
Follow-up Hdwy	2.263	-	-	2.263	-	-	3.518	4	3.3	3.5	4.9	3.354
Pot Cap-1 Maneuver	1099	-	-	818	-	-	161	188	440	156	111	619
Stage 1	-	-	-	-	-	-	409	427	-	593	437	-
Stage 2	-	-	-	-	-	-	579	572	-	390	281	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1099	-	-	818	-	-	150	183	440	145	108	619
Mov Cap-2 Maneuver	-	-	-	-	-	-	150	183	-	145	108	-
Stage 1	-	-	-	-	-	-	403	421	-	584	431	-
Stage 2	-	-	-	-	-	-	551	565	-	371	277	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.2			0.2			35.8			17.9		
HCM LOS							E			C		

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	154	440	1099	-	-	818	-	-	303
HCM Lane V/C Ratio	0.321	0.017	0.015	-	-	0.013	-	-	0.08
HCM Control Delay (s)	39.1	13.3	8.3	-	-	9.5	-	-	17.9
HCM Lane LOS	E	B	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	1.3	0.1	0	-	-	0	-	-	0.3

Intersection												
Int Delay, s/veh	5.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	137	509	19	15	307	0	43	7	17	92	8	59
Future Vol, veh/h	137	509	19	15	307	0	43	7	17	92	8	59
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	Yield
Storage Length	520	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	7	7	7	7	7	7	0	0	0	15	0	7
Mvmt Flow	144	536	20	16	323	0	45	7	18	97	8	62

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	323	0	0	556	0	0	1193	1189	546	1202	1199	323
Stage 1	-	-	-	-	-	-	834	834	-	355	355	-
Stage 2	-	-	-	-	-	-	359	355	-	847	844	-
Critical Hdwy	4.17	-	-	4.17	-	-	7.1	6.5	6.2	7.25	6.5	6.27
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.25	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.25	5.5	-
Follow-up Hdwy	2.263	-	-	2.263	-	-	3.5	4	3.3	3.635	4	3.363
Pot Cap-1 Maneuver	1209	-	-	990	-	-	165	190	541	152	187	707
Stage 1	-	-	-	-	-	-	365	386	-	636	633	-
Stage 2	-	-	-	-	-	-	663	633	-	339	382	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1209	-	-	990	-	-	131	164	541	129	161	707
Mov Cap-2 Maneuver	-	-	-	-	-	-	227	252	-	213	255	-
Stage 1	-	-	-	-	-	-	322	340	-	560	620	-
Stage 2	-	-	-	-	-	-	585	620	-	282	337	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	1.7			0.4			23.1			25.1		
HCM LOS							C			D		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	269	1209	-	-	990	-	-	343
HCM Lane V/C Ratio	0.262	0.119	-	-	0.016	-	-	0.488
HCM Control Delay (s)	23.1	8.4	-	-	8.7	0	-	25.1
HCM Lane LOS		C	A	-	-	A	A	D
HCM 95th %tile Q(veh)		1	0.4	-	-	0	-	2.6

Intersection						
Int Delay, s/veh	0					
Movement	NBT	NBR	SBL	SBT	NWL	NWR
Lane Configurations	↑			↑		↑
Traffic Vol, veh/h	144	0	0	159	0	91
Future Vol, veh/h	144	0	0	159	0	91
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	16974	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	152	0	0	167	0	96

Major/Minor	Minor2	Major2		
Conflicting Flow All	167	-	-	-
Stage 1	167	-	-	-
Stage 2	0	-	-	-
Critical Hdwy	6.52	-	-	-
Critical Hdwy Stg 1	5.52	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	4.018	-	-	-
Pot Cap-1 Maneuver	726	0	0	-
Stage 1	760	0	0	-
Stage 2	-	0	0	-
Platoon blocked, %				-
Mov Cap-1 Maneuver	0	-	-	-
Mov Cap-2 Maneuver	0	-	-	-
Stage 1	0	-	-	-
Stage 2	0	-	-	-

Approach	NB	SB
HCM Control Delay, s		0
HCM LOS	-	

Minor Lane/Major Mvmt	NBLn1	SBT
Capacity (veh/h)	-	-
HCM Lane V/C Ratio	-	-
HCM Control Delay (s)	-	-
HCM Lane LOS	-	-
HCM 95th %tile Q(veh)	-	-

HCM 6th Signalized Intersection Summary
1: Lorraine Rd & SR 70

2045 No Build PM
09/13/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗	↘	↖	↗	↘	↖	↗	↘	↖	↗	↘
Traffic Volume (veh/h)	329	2026	634	221	1280	150	549	401	328	186	235	157
Future Volume (veh/h)	329	2026	634	221	1280	150	549	401	328	186	235	157
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1796	1796	1796	1796	1796	1796	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	339	2089	258	228	1320	40	566	413	163	192	242	2
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	7	7	7	7	7	7	2	2	2	2	2	2
Cap, veh/h	202	1645	953	112	1474	658	256	476	404	183	379	3
Arrive On Green	0.12	0.48	0.48	0.07	0.43	0.43	0.14	0.25	0.25	0.10	0.20	0.19
Sat Flow, veh/h	1711	3413	1522	1711	3413	1522	1781	1870	1585	1781	1852	15
Grp Volume(v), veh/h	339	2089	258	228	1320	40	566	413	163	192	0	244
Grp Sat Flow(s),veh/h/ln	1711	1706	1522	1711	1706	1522	1781	1870	1585	1781	0	1868
Q Serve(g_s), s	21.3	86.8	13.7	11.8	64.5	2.8	25.9	38.0	15.4	18.5	0.0	21.5
Cycle Q Clear(g_c), s	21.3	86.8	13.7	11.8	64.5	2.8	25.9	38.0	15.4	18.5	0.0	21.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.01
Lane Grp Cap(c), veh/h	202	1645	953	112	1474	658	256	476	404	183	0	382
V/C Ratio(X)	1.67	1.27	0.27	2.03	0.90	0.06	2.21	0.87	0.40	1.05	0.00	0.64
Avail Cap(c_a), veh/h	202	1645	953	112	1474	658	256	611	518	183	0	517
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	79.4	46.6	15.2	84.1	47.4	29.8	77.1	64.2	55.7	80.8	0.0	65.5
Incr Delay (d2), s/veh	324.2	126.4	0.7	494.6	8.8	0.2	556.3	10.3	0.7	80.0	0.0	1.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	27.5	64.0	5.1	20.6	28.3	1.1	51.6	19.6	6.3	12.6	0.0	10.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	403.6	173.0	15.9	578.7	56.2	30.0	633.3	74.5	56.4	160.7	0.0	67.3
LnGrp LOS	F	F	B	F	E	C	F	E	E	F	A	E
Approach Vol, veh/h		2686			1588			1142				436
Approach Delay, s/veh		187.0			130.5			348.9				108.4
Approach LOS		F			F			F				F
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	17.0	91.0	30.0	42.0	26.0	82.0	21.0	51.0				
Change Period (Y+Rc), s	8.2	7.2	7.1	8.2	7.7	7.2	5.5	8.2				
Max Green Setting (Gmax), s	8.8	70.8	22.9	46.8	18.3	61.8	15.5	55.8				
Max Q Clear Time (g_c+I1), s	13.8	88.8	27.9	23.5	23.3	66.5	20.5	40.0				
Green Ext Time (p_c), s	0.0	0.0	0.0	1.4	0.0	0.0	0.0	2.8				

Intersection Summary

HCM 6th Ctrl Delay	197.4
HCM 6th LOS	F

Intersection												
Int Delay, s/veh	1.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗	↖	↖	↗	↖	↖	↗	↖	↖	↗	↖
Traffic Vol, veh/h	354	1629	496	60	990	38	325	254	67	67	319	354
Future Vol, veh/h	354	1629	496	60	990	38	325	254	67	67	319	354
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	500	-	480	500	-	460	300	-	0	325	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	7	7	7	7	7	7	2	2	2	2	2	2
Mvmt Flow	365	1679	511	62	1021	39	335	262	69	69	329	365

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1060	0	0	2190	0	0	3921	3593	1679	3975	4065	1021
Stage 1	-	-	-	-	-	-	2409	2409	-	1145	1145	-
Stage 2	-	-	-	-	-	-	1512	1184	-	2830	2920	-
Critical Hdwy	4.17	-	-	4.17	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.263	-	-	2.263	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	638	-	-	232	-	-	~ 2	~ 5	117	~ 2	~ 3	~ 287
Stage 1	-	-	-	-	-	-	~ 44	~ 64	-	243	~ 274	-
Stage 2	-	-	-	-	-	-	~ 150	263	-	~ 25	~ 35	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	638	-	-	232	-	-	~ 2	117	-	~ 1	~ 287	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 2	-	-	~ 1	-	-
Stage 1	-	-	-	-	-	-	~ 19	~ 27	-	104	~ 201	-
Stage 2	-	-	-	-	-	-	~ 19	~ 193	-	-	~ 15	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	2.6			1.4								
HCM LOS							-			-		

Minor Lane/Major Mvmt	NBLn1	NBLn2	NBLn3	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2	SBLn3
Capacity (veh/h)	-	2	117	638	-	-	232	-	-	-	-	1 287
HCM Lane V/C Ratio		130.928	0.59	0.572	-	-	0.267	-	-		328.866	1.272
HCM Control Delay (s)		\$ 62033.4	72.7	17.9	-	-	26.1	-	-		\$ 154671.4	183.1
HCM Lane LOS		-	F	F	C	-	-	D	-	-	-	F F
HCM 95th %tile Q(veh)		-	35.3	2.9	3.6	-	-	1	-	-	-	43.8 17.5

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

Intersection

Int Delay, s/veh 1641.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↘	↗	↗	↘	↘	↘
Traffic Vol, veh/h	667	1000	615	98	135	390
Future Vol, veh/h	667	1000	615	98	135	390
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	750	-	-	350	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	7	7	7	7	2	2
Mvmt Flow	702	1053	647	103	142	411

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	750	0	0
Stage 1	-	-	647
Stage 2	-	-	2457
Critical Hdwy	4.17	-	6.42
Critical Hdwy Stg 1	-	-	5.42
Critical Hdwy Stg 2	-	-	5.42
Follow-up Hdwy	2.263	-	3.518
Pot Cap-1 Maneuver	837	-	~ 13
Stage 1	-	-	521
Stage 2	-	-	~ 67
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	837	-	~ 2
Mov Cap-2 Maneuver	-	-	~ 2
Stage 1	-	-	~ 84
Stage 2	-	-	~ 67

Approach	EB	WB	SB
HCM Control Delay, s	10.9	0	\$ 9049.2
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	837	-	-	-	2	471
HCM Lane V/C Ratio	0.839	-	-	-	71.053	0.872
HCM Control Delay (s)	27.2	-	-	-	\$ 35059.4	45.7
HCM Lane LOS	D	-	-	-	F	E
HCM 95th %tile Q(veh)	9.9	-	-	-	20.2	9.2

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

Intersection						
Int Delay, s/veh	37.4					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗	↘	↑	↘	↗
Traffic Vol, veh/h	952	140	46	619	147	25
Future Vol, veh/h	952	140	46	619	147	25
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	375	360	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	7	7	7	7	2	2
Mvmt Flow	1002	147	48	652	155	26

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	1149	0	1750
Stage 1	-	-	-	-	1002
Stage 2	-	-	-	-	748
Critical Hdwy	-	-	4.17	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	-	-	2.263	-	3.518
Pot Cap-1 Maneuver	-	-	590	-	94
Stage 1	-	-	-	-	355
Stage 2	-	-	-	-	468
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	590	-	86
Mov Cap-2 Maneuver	-	-	-	-	86
Stage 1	-	-	-	-	326
Stage 2	-	-	-	-	468

Approach	EB	WB	NB
HCM Control Delay, s	0	0.8	\$ 416.4
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	86	294	-	-	590	-
HCM Lane V/C Ratio	1.799	0.09	-	-	0.082	-
HCM Control Delay (s)	\$ 484.1	18.4	-	-	11.6	-
HCM Lane LOS	F	C	-	-	B	-
HCM 95th %tile Q(veh)	13	0.3	-	-	0.3	-

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

Intersection

Int Delay, s/veh 409.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↵	↵		↵	↵		↵	↵	↵	↵	↵	↵
Traffic Vol, veh/h	189	609	179	99	359	105	94	27	89	200	59	212
Future Vol, veh/h	189	609	179	99	359	105	94	27	89	200	59	212
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	250	-	-	250	-	-	250	-	250	250	-	250
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	7	7	7	7	7	7	2	2	2	2	2	2
Mvmt Flow	199	641	188	104	378	111	99	28	94	211	62	223

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	489	0	0	829	0	0	1917	1830	735	1836	1869	434
Stage 1	-	-	-	-	-	-	1133	1133	-	642	642	-
Stage 2	-	-	-	-	-	-	784	697	-	1194	1227	-
Critical Hdwy	4.17	-	-	4.17	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.263	-	-	2.263	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1049	-	-	781	-	-	~ 51	76	420	~ 58	72	622
Stage 1	-	-	-	-	-	-	247	278	-	463	469	-
Stage 2	-	-	-	-	-	-	386	443	-	228	251	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1049	-	-	781	-	-	53	420	~ 21	~ 51	622	
Mov Cap-2 Maneuver	-	-	-	-	-	-	53	-	~ 21	~ 51	-	
Stage 1	-	-	-	-	-	-	200	225	-	375	407	-
Stage 2	-	-	-	-	-	-	182	384	-	~ 125	203	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	1.8			1.8						\$ 1924.2		
HCM LOS							-			F		

Minor Lane/Major Mvmt	NBLn1	NBLn2	NBLn3	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2	SBLn3
Capacity (veh/h)	-	53	420	1049	-	-	781	-	-	21	51	622
HCM Lane V/C Ratio	-	0.536	0.223	0.19	-	-	0.133	-	-	10.025	1.218	0.359
HCM Control Delay (s)	-	133.7	16	9.2	-	-	10.3	-	-	\$ 4420	\$ 327.3	14
HCM Lane LOS	-	F	C	A	-	-	B	-	-	F	F	B
HCM 95th %tile Q(veh)	-	2.1	0.8	0.7	-	-	0.5	-	-	26.7	5.6	1.6

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

Intersection												
Int Delay, s/veh	11.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↑	↔	↔	↑	↔	↔	↔	↔		↔	
Traffic Vol, veh/h	100	754	45	15	494	15	65	5	20	10	5	45
Future Vol, veh/h	100	754	45	15	494	15	65	5	20	10	5	45
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	510	-	510	510	-	510	150	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	7	7	7	7	7	7	7	0	25	50	0	3
Mvmt Flow	105	794	47	16	520	16	68	5	21	11	5	47

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	536	0	0	841	0	0	1590	1572	794	1593	1603	520
Stage 1	-	-	-	-	-	-	1004	1004	-	552	552	-
Stage 2	-	-	-	-	-	-	586	568	-	1041	1051	-
Critical Hdwy	4.17	-	-	4.17	-	-	7.17	6.5	6.45	7.6	6.5	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.17	5.5	-	6.6	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.17	5.5	-	6.6	5.5	-
Follow-up Hdwy	2.263	-	-	2.263	-	-	3.563	4	3.525	3.95	4	3.327
Pot Cap-1 Maneuver	1007	-	-	773	-	-	85	111	354	67	107	554
Stage 1	-	-	-	-	-	-	285	322	-	442	518	-
Stage 2	-	-	-	-	-	-	488	510	-	227	306	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1007	-	-	773	-	-	~ 67	97	354	55	94	554
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 67	97	-	55	94	-
Stage 1	-	-	-	-	-	-	255	289	-	396	507	-
Stage 2	-	-	-	-	-	-	433	499	-	188	274	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	1			0.3			165.7			33.1		
HCM LOS							F			D		

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	67	231	1007	-	-	773	-	-	190
HCM Lane V/C Ratio	1.021	0.114	0.105	-	-	0.02	-	-	0.332
HCM Control Delay (s)	220.7	22.6	9	-	-	9.8	-	-	33.1
HCM Lane LOS	F	C	A	-	-	A	-	-	D
HCM 95th %tile Q(veh)	5.2	0.4	0.3	-	-	0.1	-	-	1.4

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

Intersection						
Int Delay, s/veh	0.7					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗	↘	↑	↘	↗
Traffic Vol, veh/h	792	30	10	523	20	10
Future Vol, veh/h	792	30	10	523	20	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	510	570	-	180	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	7	7	7	7	0	0
Mvmt Flow	834	32	11	551	21	11

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	866	0	1407
Stage 1	-	-	-	-	834
Stage 2	-	-	-	-	573
Critical Hdwy	-	-	4.17	-	6.4
Critical Hdwy Stg 1	-	-	-	-	5.4
Critical Hdwy Stg 2	-	-	-	-	5.4
Follow-up Hdwy	-	-	2.263	-	3.5
Pot Cap-1 Maneuver	-	-	757	-	155
Stage 1	-	-	-	-	430
Stage 2	-	-	-	-	568
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	757	-	153
Mov Cap-2 Maneuver	-	-	-	-	153
Stage 1	-	-	-	-	424
Stage 2	-	-	-	-	568

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	26.5
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	153	371	-	-	757	-
HCM Lane V/C Ratio	0.138	0.028	-	-	0.014	-
HCM Control Delay (s)	32.2	15	-	-	9.8	-
HCM Lane LOS	D	C	-	-	A	-
HCM 95th %tile Q(veh)	0.5	0.1	-	-	0	-

Intersection						
Int Delay, s/veh	0.3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	5	805	525	0	5	10
Future Vol, veh/h	5	805	525	0	5	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	410	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	7	7	7	7	0	0
Mvmt Flow	5	847	553	0	5	11

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	553	0	-	0	1410 553
Stage 1	-	-	-	-	553 -
Stage 2	-	-	-	-	857 -
Critical Hdwy	4.17	-	-	-	6.4 6.2
Critical Hdwy Stg 1	-	-	-	-	5.4 -
Critical Hdwy Stg 2	-	-	-	-	5.4 -
Follow-up Hdwy	2.263	-	-	-	3.5 3.3
Pot Cap-1 Maneuver	992	-	-	-	154 537
Stage 1	-	-	-	-	580 -
Stage 2	-	-	-	-	419 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	992	-	-	-	153 537
Mov Cap-2 Maneuver	-	-	-	-	153 -
Stage 1	-	-	-	-	577 -
Stage 2	-	-	-	-	419 -

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	18
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	992	-	-	-	292
HCM Lane V/C Ratio	0.005	-	-	-	0.054
HCM Control Delay (s)	8.6	-	-	-	18
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0.2

Intersection												
Int Delay, s/veh	4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	20	762	75	15	485	10	49	10	10	5	5	20
Future Vol, veh/h	20	762	75	15	485	10	49	10	10	5	5	20
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	500	-	400	600	-	490	-	-	100	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	7	7	7	7	7	7	2	0	0	0	100	6
Mvmt Flow	21	802	79	16	511	11	52	11	11	5	5	21

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	522	0	0	881	0	0	1406	1398	802	1438	1466	511
Stage 1	-	-	-	-	-	-	844	844	-	543	543	-
Stage 2	-	-	-	-	-	-	562	554	-	895	923	-
Critical Hdwy	4.17	-	-	4.17	-	-	7.12	6.5	6.2	7.1	7.5	6.26
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.5	-	6.1	6.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.5	-	6.1	6.5	-
Follow-up Hdwy	2.263	-	-	2.263	-	-	3.518	4	3.3	3.5	4.9	3.354
Pot Cap-1 Maneuver	1019	-	-	747	-	-	117	142	387	112	80	555
Stage 1	-	-	-	-	-	-	358	382	-	528	390	-
Stage 2	-	-	-	-	-	-	512	517	-	338	244	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1019	-	-	747	-	-	103	136	387	99	77	555
Mov Cap-2 Maneuver	-	-	-	-	-	-	103	136	-	99	77	-
Stage 1	-	-	-	-	-	-	350	374	-	517	382	-
Stage 2	-	-	-	-	-	-	475	506	-	313	239	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.2			0.3			68.2			26.6		
HCM LOS							F			D		

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	107	387	1019	-	-	747	-	-	198
HCM Lane V/C Ratio	0.58	0.027	0.021	-	-	0.021	-	-	0.159
HCM Control Delay (s)	77.3	14.6	8.6	-	-	9.9	-	-	26.6
HCM Lane LOS	F	B	A	-	-	A	-	-	D
HCM 95th %tile Q(veh)	2.8	0.1	0.1	-	-	0.1	-	-	0.6

Intersection												
Int Delay, s/veh	10.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗			↕			↕			↕	
Traffic Vol, veh/h	157	571	25	20	358	0	58	10	25	112	10	72
Future Vol, veh/h	157	571	25	20	358	0	58	10	25	112	10	72
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	Yield
Storage Length	520	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	7	7	7	7	7	7	0	0	0	15	0	7
Mvmt Flow	165	601	26	21	377	0	61	11	26	118	11	76

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	377	0	0	627	0	0	1369	1363	614	1382	1376	377
Stage 1	-	-	-	-	-	-	944	944	-	419	419	-
Stage 2	-	-	-	-	-	-	425	419	-	963	957	-
Critical Hdwy	4.17	-	-	4.17	-	-	7.1	6.5	6.2	7.25	6.5	6.27
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.25	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.25	5.5	-
Follow-up Hdwy	2.263	-	-	2.263	-	-	3.5	4	3.3	3.635	4	3.363
Pot Cap-1 Maneuver	1155	-	-	931	-	-	125	149	496	~ 114	146	659
Stage 1	-	-	-	-	-	-	317	344	-	587	593	-
Stage 2	-	-	-	-	-	-	611	593	-	291	339	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1155	-	-	931	-	-	93	124	496	~ 91	121	659
Mov Cap-2 Maneuver	-	-	-	-	-	-	181	211	-	166	213	-
Stage 1	-	-	-	-	-	-	272	295	-	503	576	-
Stage 2	-	-	-	-	-	-	515	576	-	228	291	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	1.8			0.5			33.4			50.8		
HCM LOS							D			F		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	222	1155	-	-	931	-	-	269
HCM Lane V/C Ratio	0.441	0.143	-	-	0.023	-	-	0.759
HCM Control Delay (s)	33.4	8.6	-	-	9	0	-	50.8
HCM Lane LOS	D	A	-	-	A	A	-	F
HCM 95th %tile Q(veh)	2.1	0.5	-	-	0.1	-	-	5.6

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

Intersection						
Int Delay, s/veh	0					
Movement	NBT	NBR	SBL	SBT	NWL	NWR
Lane Configurations	↑			↑		↑
Traffic Vol, veh/h	167	0	0	194	0	111
Future Vol, veh/h	167	0	0	194	0	111
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	16974	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	176	0	0	204	0	117

Major/Minor	Minor2	Major2		
Conflicting Flow All	204	-	-	-
Stage 1	204	-	-	-
Stage 2	0	-	-	-
Critical Hdwy	6.52	-	-	-
Critical Hdwy Stg 1	5.52	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	4.018	-	-	-
Pot Cap-1 Maneuver	692	0	0	-
Stage 1	733	0	0	-
Stage 2	-	0	0	-
Platoon blocked, %				-
Mov Cap-1 Maneuver	0	-	-	-
Mov Cap-2 Maneuver	0	-	-	-
Stage 1	0	-	-	-
Stage 2	0	-	-	-

Approach	NB	SB
HCM Control Delay, s		0
HCM LOS	-	

Minor Lane/Major Mvmt	NBLn1	SBT
Capacity (veh/h)	-	-
HCM Lane V/C Ratio	-	-
HCM Control Delay (s)	-	-
HCM Lane LOS	-	-
HCM 95th %tile Q(veh)	-	-

Appendix G

**Synchro Intersections Output Sheets- No Build
(After Additional Signalizations)**

HCM 6th Signalized Intersection Summary
 1: Lorraine Rd & SR 70

2025 No Build AM - Signal
 09/13/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗	↘	↖	↗	↘	↖	↗	↘	↖	↗	↘
Traffic Volume (veh/h)	161	621	415	184	927	65	467	228	103	125	361	112
Future Volume (veh/h)	161	621	415	184	927	65	467	228	103	125	361	112
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1796	1796	1796	1796	1796	1796	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	166	640	428	190	956	67	481	235	106	129	372	115
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	7	7	7	7	7	7	3	3	3	3	3	3
Cap, veh/h	117	1096	759	198	1380	616	254	621	527	147	361	112
Arrive On Green	0.07	0.32	0.35	0.12	0.40	0.40	0.14	0.33	0.33	0.08	0.27	0.27
Sat Flow, veh/h	1711	3413	1522	1711	3413	1522	1767	1856	1572	1767	1360	420
Grp Volume(v), veh/h	166	640	428	190	956	67	481	235	106	129	0	487
Grp Sat Flow(s),veh/h/ln	1711	1706	1522	1711	1706	1522	1767	1856	1572	1767	0	1780
Q Serve(g_s), s	12.3	28.2	35.3	19.9	41.7	4.9	25.9	17.4	8.7	13.0	0.0	47.8
Cycle Q Clear(g_c), s	12.3	28.2	35.3	19.9	41.7	4.9	25.9	17.4	8.7	13.0	0.0	47.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.24
Lane Grp Cap(c), veh/h	117	1096	759	198	1380	616	254	621	527	147	0	473
V/C Ratio(X)	1.42	0.58	0.56	0.96	0.69	0.11	1.89	0.38	0.20	0.88	0.00	1.03
Avail Cap(c_a), veh/h	117	1096	759	198	1380	616	254	621	527	162	0	473
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	83.8	51.1	31.5	79.2	44.3	33.4	77.0	45.6	42.7	81.6	0.0	66.0
Incr Delay (d2), s/veh	231.5	2.3	3.0	52.7	2.9	0.4	415.7	0.4	0.2	35.7	0.0	49.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.9	12.2	13.8	11.5	17.8	1.9	41.2	8.2	3.5	7.4	0.0	28.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	315.4	53.3	34.5	131.9	47.2	33.7	492.8	46.0	42.9	117.2	0.0	115.4
LnGrp LOS	F	D	C	F	D	C	F	D	D	F	A	F
Approach Vol, veh/h		1234			1213			822			616	
Approach Delay, s/veh		82.1			59.7			307.0			115.8	
Approach LOS		F			E			F			F	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	26.0	68.0	30.0	56.0	17.0	77.0	20.5	65.5				
Change Period (Y+Rc), s	8.2	7.2	7.1	8.2	7.7	7.2	5.5	8.2				
Max Green Setting (Gmax), s	17.8	60.8	22.9	47.8	9.3	69.8	16.5	55.8				
Max Q Clear Time (g_c+I1), s	21.9	37.3	27.9	49.8	14.3	43.7	15.0	19.4				
Green Ext Time (p_c), s	0.0	5.6	0.0	0.0	0.0	6.8	0.0	1.8				

Intersection Summary

HCM 6th Ctrl Delay	128.0
HCM 6th LOS	F

HCM 6th Signalized Intersection Summary
 2: Greenbrook Blvd/Post Blvd & SR 70

2025 No Build AM - Signal
 09/13/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑	↗	↘	↑	↗	↘	↑	↗	↘	↑	↗
Traffic Volume (veh/h)	115	557	143	76	915	22	198	112	29	19	69	139
Future Volume (veh/h)	115	557	143	76	915	22	198	112	29	19	69	139
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1796	1796	1796	1796	1796	1796	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	119	574	147	78	943	23	204	115	30	20	71	143
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	7	7	7	7	7	7	2	2	2	2	2	2
Cap, veh/h	138	1085	1110	95	1040	881	223	376	318	31	175	275
Arrive On Green	0.08	0.60	0.60	0.06	0.58	0.58	0.12	0.20	0.20	0.02	0.09	0.09
Sat Flow, veh/h	1711	1796	1522	1711	1796	1522	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	119	574	147	78	943	23	204	115	30	20	71	143
Grp Sat Flow(s),veh/h/ln	1711	1796	1522	1711	1796	1522	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	12.4	33.5	5.2	8.1	83.7	1.2	20.4	9.4	2.8	2.0	6.4	14.7
Cycle Q Clear(g_c), s	12.4	33.5	5.2	8.1	83.7	1.2	20.4	9.4	2.8	2.0	6.4	14.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	138	1085	1110	95	1040	881	223	376	318	31	175	275
V/C Ratio(X)	0.87	0.53	0.13	0.83	0.91	0.03	0.92	0.31	0.09	0.64	0.41	0.52
Avail Cap(c_a), veh/h	204	1085	1110	119	1040	881	242	379	321	54	182	282
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	81.8	20.7	7.3	84.2	33.6	16.2	77.8	61.3	58.6	87.9	76.9	67.5
Incr Delay (d2), s/veh	21.4	1.8	0.2	30.0	12.9	0.1	34.7	0.5	0.1	19.7	1.5	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.2	14.0	1.8	4.3	38.0	0.4	11.6	4.6	1.1	1.1	3.2	6.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	103.2	22.6	7.6	114.2	46.4	16.2	112.5	61.7	58.7	107.5	78.4	69.1
LnGrp LOS	F	C	A	F	D	B	F	E	E	F	E	E
Approach Vol, veh/h		840			1044			349			234	
Approach Delay, s/veh		31.4			50.8			91.2			75.2	
Approach LOS		C			D			F			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	15.4	114.3	28.0	22.3	20.0	109.7	8.7	41.6				
Change Period (Y+Rc), s	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5				
Max Green Setting (Gmax), s	12.5	103.5	24.5	17.5	21.5	94.5	5.5	36.5				
Max Q Clear Time (g_c+10), s	11.0	35.5	22.4	16.7	14.4	85.7	4.0	11.4				
Green Ext Time (p_c), s	0.0	4.2	0.1	0.1	0.1	4.1	0.0	0.7				

Intersection Summary

HCM 6th Ctrl Delay	52.2
HCM 6th LOS	D

Intersection						
Int Delay, s/veh	6.3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↘	↗	↗	↘	↘	↘
Traffic Vol, veh/h	137	480	778	40	44	209
Future Vol, veh/h	137	480	778	40	44	209
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	750	-	-	350	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	7	7	7	7	2	2
Mvmt Flow	144	505	819	42	46	220

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	861	0	-	0	1612 819
Stage 1	-	-	-	-	819 -
Stage 2	-	-	-	-	793 -
Critical Hdwy	4.17	-	-	-	6.42 6.22
Critical Hdwy Stg 1	-	-	-	-	5.42 -
Critical Hdwy Stg 2	-	-	-	-	5.42 -
Follow-up Hdwy	2.263	-	-	-	3.518 3.318
Pot Cap-1 Maneuver	760	-	-	-	115 375
Stage 1	-	-	-	-	433 -
Stage 2	-	-	-	-	446 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	760	-	-	-	93 375
Mov Cap-2 Maneuver	-	-	-	-	93 -
Stage 1	-	-	-	-	351 -
Stage 2	-	-	-	-	446 -

Approach	EB	WB	SB
HCM Control Delay, s	2.4	0	36.1
HCM LOS			E

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	760	-	-	-	93	375
HCM Lane V/C Ratio	0.19	-	-	-	0.498	0.587
HCM Control Delay (s)	10.8	-	-	-	77.2	27.4
HCM Lane LOS	B	-	-	-	F	D
HCM 95th %tile Q(veh)	0.7	-	-	-	2.2	3.6

Intersection						
Int Delay, s/veh	2.1					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗	↘	↑	↘	↗
Traffic Vol, veh/h	478	99	11	769	68	15
Future Vol, veh/h	478	99	11	769	68	15
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	375	360	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	7	7	7	7	2	2
Mvmt Flow	503	104	12	809	72	16























Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	607	0	1336 503
Stage 1	-	-	-	-	503 -
Stage 2	-	-	-	-	833 -
Critical Hdwy	-	-	4.17	-	6.42 6.22
Critical Hdwy Stg 1	-	-	-	-	5.42 -
Critical Hdwy Stg 2	-	-	-	-	5.42 -
Follow-up Hdwy	-	-	2.263	-	3.518 3.318
Pot Cap-1 Maneuver	-	-	947	-	169 569
Stage 1	-	-	-	-	607 -
Stage 2	-	-	-	-	427 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	947	-	167 569
Mov Cap-2 Maneuver	-	-	-	-	167 -
Stage 1	-	-	-	-	599 -
Stage 2	-	-	-	-	427 -

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	36.3
HCM LOS			E

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	167	569	-	-	947	-
HCM Lane V/C Ratio	0.429	0.028	-	-	0.012	-
HCM Control Delay (s)	41.8	11.5	-	-	8.8	-
HCM Lane LOS	E	B	-	-	A	-
HCM 95th %tile Q(veh)	1.9	0.1	-	-	0	-

HCM 6th Signalized Intersection Summary
 4: Bourneside Blvd & SR 70

2025 No Build AM - Signal
 10/17/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	64	401	28	28	673	62	52	18	30	32	9	55
Future Volume (veh/h)	64	401	28	28	673	62	52	18	30	32	9	55
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1796	1796	1796	1796	1796	1796	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	67	422	29	29	708	65	55	19	32	34	9	58
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	7	7	7	7	7	7	2	2	2	2	2	2
Cap, veh/h	91	867	60	53	810	74	85	162	137	62	138	117
Arrive On Green	0.05	0.52	0.52	0.03	0.50	0.50	0.05	0.09	0.09	0.03	0.07	0.07
Sat Flow, veh/h	1711	1662	114	1711	1621	149	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	67	0	451	29	0	773	55	19	32	34	9	58
Grp Sat Flow(s),veh/h/ln	1711	0	1776	1711	0	1769	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	2.6	0.0	11.0	1.1	0.0	26.2	2.1	0.6	1.3	1.3	0.3	2.4
Cycle Q Clear(g_c), s	2.6	0.0	11.0	1.1	0.0	26.2	2.1	0.6	1.3	1.3	0.3	2.4
Prop In Lane	1.00		0.06	1.00		0.08	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	91	0	926	53	0	885	85	162	137	62	138	117
V/C Ratio(X)	0.74	0.00	0.49	0.55	0.00	0.87	0.65	0.12	0.23	0.55	0.07	0.49
Avail Cap(c_a), veh/h	418	0	1695	342	0	1610	356	512	434	303	457	387
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.5	0.0	10.4	32.3	0.0	15.0	31.6	28.5	28.8	32.1	29.1	30.1
Incr Delay (d2), s/veh	11.1	0.0	0.4	8.4	0.0	2.9	8.0	0.3	0.9	7.3	0.2	3.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	0.0	3.1	0.5	0.0	8.4	1.0	0.3	0.5	0.7	0.1	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.7	0.0	10.8	40.7	0.0	17.9	39.7	28.8	29.6	39.4	29.3	33.3
LnGrp LOS	D	A	B	D	A	B	D	C	C	D	C	C
Approach Vol, veh/h		518			802			106			101	
Approach Delay, s/veh		14.9			18.7			34.7			35.0	
Approach LOS		B			B			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.9	11.4	7.6	40.8	8.7	10.5	9.1	39.3				
Change Period (Y+Rc), s	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5				
Max Green Setting (Gmax), s	11.5	18.5	13.5	64.5	13.5	16.5	16.5	61.5				
Max Q Clear Time (g_c+I1), s	3.3	3.3	3.1	13.0	4.1	4.4	4.6	28.2				
Green Ext Time (p_c), s	0.0	0.1	0.0	2.6	0.1	0.1	0.1	5.6				
Intersection Summary												
HCM 6th Ctrl Delay			19.6									
HCM 6th LOS			B									

Intersection												
Int Delay, s/veh	2.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↙	↑	↗	↙	↑	↗	↙	↗	↗		↕	
Traffic Vol, veh/h	22	318	66	18	682	3	30	2	12	6	3	77
Future Vol, veh/h	22	318	66	18	682	3	30	2	12	6	3	77
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	510	-	510	510	-	510	150	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	7	7	7	7	7	7	7	0	25	50	0	3
Mvmt Flow	23	335	69	19	718	3	32	2	13	6	3	81

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	721	0	0	404	0	0	1181	1140	335	1179	1206	718
Stage 1	-	-	-	-	-	-	381	381	-	756	756	-
Stage 2	-	-	-	-	-	-	800	759	-	423	450	-
Critical Hdwy	4.17	-	-	4.17	-	-	7.17	6.5	6.45	7.6	6.5	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.17	5.5	-	6.6	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.17	5.5	-	6.6	5.5	-
Follow-up Hdwy	2.263	-	-	2.263	-	-	3.563	4	3.525	3.95	4	3.327
Pot Cap-1 Maneuver	858	-	-	1128	-	-	163	203	657	135	185	427
Stage 1	-	-	-	-	-	-	631	617	-	335	419	-
Stage 2	-	-	-	-	-	-	371	418	-	525	575	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	858	-	-	1128	-	-	126	194	657	127	177	427
Mov Cap-2 Maneuver	-	-	-	-	-	-	126	194	-	127	177	-
Stage 1	-	-	-	-	-	-	614	600	-	326	412	-
Stage 2	-	-	-	-	-	-	293	411	-	499	559	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.5	0.2	33.3	18.7
HCM LOS			D	C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	126	490	858	-	-	1128	-	-	352
HCM Lane V/C Ratio	0.251	0.03	0.027	-	-	0.017	-	-	0.257
HCM Control Delay (s)	42.9	12.6	9.3	-	-	8.2	-	-	18.7
HCM Lane LOS	E	B	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	0.9	0.1	0.1	-	-	0.1	-	-	1

Intersection						
Int Delay, s/veh	0.6					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗	↘	↑	↘	↗
Traffic Vol, veh/h	330	7	6	687	26	4
Future Vol, veh/h	330	7	6	687	26	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	510	570	-	180	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	7	7	7	7	0	0
Mvmt Flow	347	7	6	723	27	4

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	354	0	1082
Stage 1	-	-	-	-	347
Stage 2	-	-	-	-	735
Critical Hdwy	-	-	4.17	-	6.4
Critical Hdwy Stg 1	-	-	-	-	5.4
Critical Hdwy Stg 2	-	-	-	-	5.4
Follow-up Hdwy	-	-	2.263	-	3.5
Pot Cap-1 Maneuver	-	-	1178	-	243
Stage 1	-	-	-	-	720
Stage 2	-	-	-	-	478
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1178	-	242
Mov Cap-2 Maneuver	-	-	-	-	242
Stage 1	-	-	-	-	716
Stage 2	-	-	-	-	478

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	20.3
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	242	701	-	-	1178	-
HCM Lane V/C Ratio	0.113	0.006	-	-	0.005	-
HCM Control Delay (s)	21.8	10.2	-	-	8.1	-
HCM Lane LOS	C	B	-	-	A	-
HCM 95th %tile Q(veh)	0.4	0	-	-	0	-

Intersection						
Int Delay, s/veh	0.2					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖	↑	↗		↖	
Traffic Vol, veh/h	11	327	673	2	2	4
Future Vol, veh/h	11	327	673	2	2	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	410	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	7	7	7	7	0	0
Mvmt Flow	12	344	708	2	2	4

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	710	0	-	0	1077 709
Stage 1	-	-	-	-	709 -
Stage 2	-	-	-	-	368 -
Critical Hdwy	4.17	-	-	-	6.4 6.2
Critical Hdwy Stg 1	-	-	-	-	5.4 -
Critical Hdwy Stg 2	-	-	-	-	5.4 -
Follow-up Hdwy	2.263	-	-	-	3.5 3.3
Pot Cap-1 Maneuver	866	-	-	-	245 438
Stage 1	-	-	-	-	491 -
Stage 2	-	-	-	-	704 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	866	-	-	-	242 438
Mov Cap-2 Maneuver	-	-	-	-	242 -
Stage 1	-	-	-	-	484 -
Stage 2	-	-	-	-	704 -

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	15.6
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	866	-	-	-	345
HCM Lane V/C Ratio	0.013	-	-	-	0.018
HCM Control Delay (s)	9.2	-	-	-	15.6
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Intersection												
Int Delay, s/veh	2.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↙	↑	↗	↙	↑	↗		↖	↗		↕	
Traffic Vol, veh/h	7	305	18	4	608	4	55	2	6	8	2	17
Future Vol, veh/h	7	305	18	4	608	4	55	2	6	8	2	17
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	500	-	400	600	-	490	-	-	100	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	7	7	7	7	7	7	2	0	0	0	100	6
Mvmt Flow	7	321	19	4	640	4	58	2	6	8	2	18

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	644	0	0	340	0	0	995	987	321	997	1002	640
Stage 1	-	-	-	-	-	-	335	335	-	648	648	-
Stage 2	-	-	-	-	-	-	660	652	-	349	354	-
Critical Hdwy	4.17	-	-	4.17	-	-	7.12	6.5	6.2	7.1	7.5	6.26
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.5	-	6.1	6.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.5	-	6.1	6.5	-
Follow-up Hdwy	2.263	-	-	2.263	-	-	3.518	4	3.3	3.5	4.9	3.354
Pot Cap-1 Maneuver	917	-	-	1192	-	-	224	249	724	225	167	468
Stage 1	-	-	-	-	-	-	679	646	-	462	343	-
Stage 2	-	-	-	-	-	-	452	467	-	671	489	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	917	-	-	1192	-	-	211	246	724	220	165	468
Mov Cap-2 Maneuver	-	-	-	-	-	-	211	246	-	220	165	-
Stage 1	-	-	-	-	-	-	674	641	-	458	342	-
Stage 2	-	-	-	-	-	-	431	466	-	658	485	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.2			0.1			26.8			17.4		
HCM LOS							D			C		

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	212	724	917	-	-	1192	-	-	318
HCM Lane V/C Ratio	0.283	0.009	0.008	-	-	0.004	-	-	0.089
HCM Control Delay (s)	28.6	10	9	-	-	8	-	-	17.4
HCM Lane LOS	D	B	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	1.1	0	0	-	-	0	-	-	0.3

Intersection												
Int Delay, s/veh	3.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↶	↷			↕			↕			↕	
Traffic Vol, veh/h	55	255	8	26	468	0	26	6	14	82	3	127
Future Vol, veh/h	55	255	8	26	468	0	26	6	14	82	3	127
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	Yield
Storage Length	520	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	7	7	7	7	7	7	0	0	0	15	0	7
Mvmt Flow	58	268	8	27	493	0	27	6	15	86	3	134

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	493	0	0	276	0	0	937	935	272	946	939	493
Stage 1	-	-	-	-	-	-	388	388	-	547	547	-
Stage 2	-	-	-	-	-	-	549	547	-	399	392	-
Critical Hdwy	4.17	-	-	4.17	-	-	7.1	6.5	6.2	7.25	6.5	6.27
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.25	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.25	5.5	-
Follow-up Hdwy	2.263	-	-	2.263	-	-	3.5	4	3.3	3.635	4	3.363
Pot Cap-1 Maneuver	1045	-	-	1259	-	-	247	267	772	229	266	566
Stage 1	-	-	-	-	-	-	640	612	-	499	521	-
Stage 2	-	-	-	-	-	-	524	521	-	602	610	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1045	-	-	1259	-	-	175	245	772	207	244	566
Mov Cap-2 Maneuver	-	-	-	-	-	-	263	338	-	321	351	-
Stage 1	-	-	-	-	-	-	604	578	-	471	505	-
Stage 2	-	-	-	-	-	-	386	505	-	552	576	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	1.5			0.4			17.3			11.2		
HCM LOS							C			B		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	341	1045	-	-	1259	-	-	803
HCM Lane V/C Ratio	0.142	0.055	-	-	0.022	-	-	0.278
HCM Control Delay (s)	17.3	8.6	-	-	7.9	0	-	11.2
HCM Lane LOS	C	A	-	-	A	A	-	B
HCM 95th %tile Q(veh)	0.5	0.2	-	-	0.1	-	-	1.1

Intersection						
Int Delay, s/veh	0					
Movement	NBT	NBR	SBL	SBT	NWL	NWR
Lane Configurations	↑			↑		↑
Traffic Vol, veh/h	61	0	0	212	0	60
Future Vol, veh/h	61	0	0	212	0	60
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	16974	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	64	0	0	223	0	63

Major/Minor	Minor2	Major2	
Conflicting Flow All	223	-	-
Stage 1	223	-	-
Stage 2	0	-	-
Critical Hdwy	6.52	-	-
Critical Hdwy Stg 1	5.52	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	4.018	-	-
Pot Cap-1 Maneuver	676	0	0
Stage 1	719	0	0
Stage 2	-	0	0
Platoon blocked, %			-
Mov Cap-1 Maneuver	0	-	-
Mov Cap-2 Maneuver	0	-	-
Stage 1	0	-	-
Stage 2	0	-	-

Approach	NB	SB
HCM Control Delay, s		0
HCM LOS	-	

Minor Lane/Major Mvmt	NBLn1	SBT
Capacity (veh/h)	-	-
HCM Lane V/C Ratio	-	-
HCM Control Delay (s)	-	-
HCM Lane LOS	-	-
HCM 95th %tile Q(veh)	-	-

HCM 6th Signalized Intersection Summary
1: Lorraine Rd & SR 70

2035 No Build AM - Signal
09/13/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	194	909	471	248	1484	96	542	257	148	161	381	155
Future Volume (veh/h)	194	909	471	248	1484	96	542	257	148	161	381	155
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1796	1796	1796	1796	1796	1796	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	200	937	486	256	1530	99	559	265	153	166	393	160
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	7	7	7	7	7	7	3	3	3	3	3	3
Cap, veh/h	117	1210	767	198	1380	616	264	606	514	191	347	141
Arrive On Green	0.07	0.35	0.35	0.12	0.40	0.40	0.15	0.33	0.33	0.11	0.28	0.28
Sat Flow, veh/h	1711	3413	1522	1711	3413	1522	1767	1856	1572	1767	1253	510
Grp Volume(v), veh/h	200	937	486	256	1530	99	559	265	153	166	0	553
Grp Sat Flow(s),veh/h/ln	1711	1706	1522	1711	1706	1522	1767	1856	1572	1767	0	1764
Q Serve(g_s), s	12.3	44.0	41.9	20.8	72.8	7.5	26.9	20.2	13.1	16.6	0.0	49.8
Cycle Q Clear(g_c), s	12.3	44.0	41.9	20.8	72.8	7.5	26.9	20.2	13.1	16.6	0.0	49.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.29
Lane Grp Cap(c), veh/h	117	1210	767	198	1380	616	264	606	514	191	0	488
V/C Ratio(X)	1.71	0.77	0.63	1.29	1.11	0.16	2.12	0.44	0.30	0.87	0.00	1.13
Avail Cap(c_a), veh/h	117	1210	767	198	1380	616	264	606	514	191	0	488
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	83.8	51.7	32.5	79.6	53.6	34.1	76.6	47.6	45.2	79.0	0.0	65.1
Incr Delay (d2), s/veh	353.4	4.9	4.0	164.9	59.7	0.6	515.1	0.5	0.3	31.7	0.0	82.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	16.8	19.2	16.5	18.1	41.5	2.9	50.1	9.6	5.3	9.3	0.0	33.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	437.3	56.6	36.5	244.5	113.3	34.7	591.6	48.1	45.5	110.7	0.0	147.8
LnGrp LOS	F	E	D	F	F	C	F	D	D	F	A	F
Approach Vol, veh/h		1623			1885			977				719
Approach Delay, s/veh		97.5			127.0			358.7				139.3
Approach LOS		F			F			F				F
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	26.0	68.0	31.0	55.0	17.0	77.0	22.0	64.0				
Change Period (Y+Rc), s	8.2	7.2	7.1	8.2	7.7	7.2	5.5	8.2				
Max Green Setting (Gmax), s	17.8	60.8	23.9	46.8	9.3	69.8	16.5	55.8				
Max Q Clear Time (g_c+I1), s	22.8	46.0	28.9	51.8	14.3	74.8	18.6	22.2				
Green Ext Time (p_c), s	0.0	6.8	0.0	0.0	0.0	0.0	0.0	2.2				
Intersection Summary												
HCM 6th Ctrl Delay					163.0							
HCM 6th LOS					F							

HCM 6th Signalized Intersection Summary
2: Greenbrook Blvd/Post Blvd & SR 70

2035 No Build AM - Signal
09/13/2018



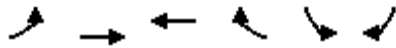
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑	↗	↘	↑	↗	↘	↑	↗	↘	↑	↗
Traffic Volume (veh/h)	229	755	249	97	1224	43	303	233	44	29	135	282
Future Volume (veh/h)	229	755	249	97	1224	43	303	233	44	29	135	282
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1796	1796	1796	1796	1796	1796	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	236	778	257	100	1262	44	312	240	45	30	139	291
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	7	7	7	7	7	7	2	2	2	2	2	2
Cap, veh/h	204	1035	1084	117	943	799	242	396	336	39	182	343
Arrive On Green	0.12	0.58	0.58	0.07	0.53	0.53	0.14	0.21	0.21	0.02	0.10	0.10
Sat Flow, veh/h	1711	1796	1522	1711	1796	1522	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	236	778	257	100	1262	44	312	240	45	30	139	291
Grp Sat Flow(s),veh/h/ln	1711	1796	1522	1711	1796	1522	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	21.5	58.3	10.5	10.4	94.5	2.5	24.5	20.9	4.1	3.0	13.0	17.5
Cycle Q Clear(g_c), s	21.5	58.3	10.5	10.4	94.5	2.5	24.5	20.9	4.1	3.0	13.0	17.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	204	1035	1084	117	943	799	242	396	336	39	182	343
V/C Ratio(X)	1.15	0.75	0.24	0.85	1.34	0.06	1.29	0.61	0.13	0.78	0.76	0.85
Avail Cap(c_a), veh/h	204	1035	1084	119	943	799	242	396	336	54	182	343
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	0.38	0.38	0.38	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	79.3	28.5	9.0	82.9	42.7	20.9	77.8	64.2	57.6	87.6	79.2	67.6
Incr Delay (d2), s/veh	111.0	5.0	0.5	19.7	155.0	0.0	156.5	2.6	0.2	35.7	17.4	17.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	15.6	25.4	3.7	5.2	80.2	1.0	21.9	10.3	1.7	1.8	7.2	14.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	190.2	33.6	9.5	102.6	197.8	21.0	234.3	66.8	57.7	123.3	96.6	85.3
LnGrp LOS	F	C	A	F	F	C	F	E	E	F	F	F
Approach Vol, veh/h		1271			1406			597			460	
Approach Delay, s/veh		57.8			185.5			153.7			91.2	
Approach LOS		E			F			F			F	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	17.8	109.2	30.0	23.0	27.0	100.0	9.4	43.6				
Change Period (Y+Rc), s	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5				
Max Green Setting (Gmax), s	12.5	103.5	24.5	17.5	21.5	94.5	5.5	36.5				
Max Q Clear Time (g_c+1/2), s	12.5	60.3	26.5	19.5	23.5	96.5	5.0	22.9				
Green Ext Time (p_c), s	0.0	6.8	0.0	0.0	0.0	0.0	0.0	1.2				

Intersection Summary

HCM 6th Ctrl Delay	125.3
HCM 6th LOS	F

HCM 6th Signalized Intersection Summary
 3: SR 70 & Uihlein Rd

2035 No Build AM - Signal
 09/13/2018



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↶	↷	↶	↷	↶	↷
Traffic Volume (veh/h)	288	564	871	85	93	441
Future Volume (veh/h)	288	564	871	85	93	441
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1796	1796	1796	1796	1870	1870
Adj Flow Rate, veh/h	303	594	917	36	98	253
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	7	7	7	7	2	2
Cap, veh/h	333	1396	966	1023	238	520
Arrive On Green	0.19	0.78	0.54	0.54	0.13	0.13
Sat Flow, veh/h	1711	1796	1796	1522	1781	1585
Grp Volume(v), veh/h	303	594	917	36	98	253
Grp Sat Flow(s),veh/h/ln	1711	1796	1796	1522	1781	1585
Q Serve(g_s), s	21.4	13.6	59.4	1.0	6.2	15.7
Cycle Q Clear(g_c), s	21.4	13.6	59.4	1.0	6.2	15.7
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	333	1396	966	1023	238	520
V/C Ratio(X)	0.91	0.43	0.95	0.04	0.41	0.49
Avail Cap(c_a), veh/h	464	1638	1070	1110	238	520
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	48.6	4.6	26.9	6.8	49.0	33.1
Incr Delay (d2), s/veh	17.5	0.2	15.9	0.0	1.1	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.3	3.3	26.9	0.4	2.9	14.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	66.1	4.8	42.8	6.8	50.1	33.8
LnGrp LOS	E	A	D	A	D	C
Approach Vol, veh/h		897	953		351	
Approach Delay, s/veh		25.5	41.4		38.4	
Approach LOS		C	D		D	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		101.4		22.0	29.5	71.9
Change Period (Y+Rc), s		5.5		5.5	5.5	5.5
Max Green Setting (Gmax), s		112.5		16.5	33.5	73.5
Max Q Clear Time (g_c+I1), s		15.6		17.7	23.4	61.4
Green Ext Time (p_c), s		3.7		0.0	0.6	4.9
Intersection Summary						
HCM 6th Ctrl Delay			34.4			
HCM 6th LOS			C			

Intersection						
Int Delay, s/veh	6.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗	↘	↑	↘	↗
Traffic Vol, veh/h	560	124	24	848	96	30
Future Vol, veh/h	560	124	24	848	96	30
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	375	360	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	7	7	7	7	2	2
Mvmt Flow	589	131	25	893	101	32























Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	720	0	1532 589
Stage 1	-	-	-	-	589 -
Stage 2	-	-	-	-	943 -
Critical Hdwy	-	-	4.17	-	6.42 6.22
Critical Hdwy Stg 1	-	-	-	-	5.42 -
Critical Hdwy Stg 2	-	-	-	-	5.42 -
Follow-up Hdwy	-	-	2.263	-	3.518 3.318
Pot Cap-1 Maneuver	-	-	859	-	128 508
Stage 1	-	-	-	-	554 -
Stage 2	-	-	-	-	379 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	859	-	124 508
Mov Cap-2 Maneuver	-	-	-	-	124 -
Stage 1	-	-	-	-	538 -
Stage 2	-	-	-	-	379 -

Approach	EB	WB	NB
HCM Control Delay, s	0	0.3	82
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	124	508	-	-	859	-
HCM Lane V/C Ratio	0.815	0.062	-	-	0.029	-
HCM Control Delay (s)	103.7	12.6	-	-	9.3	-
HCM Lane LOS	F	B	-	-	A	-
HCM 95th %tile Q(veh)	4.9	0.2	-	-	0.1	-

HCM 6th Signalized Intersection Summary
 4: Bourneside Blvd & SR 70

2035 No Build AM - Signal
 10/17/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	134	396	60	58	648	130	109	38	64	67	18	116
Future Volume (veh/h)	134	396	60	58	648	130	109	38	64	67	18	116
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1796	1796	1796	1796	1796	1796	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	141	417	63	61	682	137	115	40	67	71	19	122
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	7	7	7	7	7	7	2	2	2	2	2	2
Cap, veh/h	171	853	129	78	733	147	144	237	201	92	182	154
Arrive On Green	0.10	0.56	0.56	0.05	0.51	0.51	0.08	0.13	0.13	0.05	0.10	0.10
Sat Flow, veh/h	1711	1524	230	1711	1452	292	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	141	0	480	61	0	819	115	40	67	71	19	122
Grp Sat Flow(s),veh/h/ln	1711	0	1755	1711	0	1744	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	8.2	0.0	16.8	3.6	0.0	44.5	6.4	1.9	3.9	4.0	0.9	7.6
Cycle Q Clear(g_c), s	8.2	0.0	16.8	3.6	0.0	44.5	6.4	1.9	3.9	4.0	0.9	7.6
Prop In Lane	1.00		0.13	1.00		0.17	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	171	0	982	78	0	881	144	237	201	92	182	154
V/C Ratio(X)	0.82	0.00	0.49	0.78	0.00	0.93	0.80	0.17	0.33	0.77	0.10	0.79
Avail Cap(c_a), veh/h	278	0	1115	228	0	1057	237	341	289	202	304	258
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	44.8	0.0	13.5	47.9	0.0	23.4	45.8	39.6	40.4	47.5	41.8	44.8
Incr Delay (d2), s/veh	9.9	0.0	0.4	15.5	0.0	12.6	9.6	0.3	1.0	12.8	0.2	8.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.8	0.0	5.7	1.8	0.0	18.8	3.2	0.9	1.5	2.1	0.4	3.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	54.6	0.0	13.9	63.4	0.0	36.0	55.5	39.9	41.4	60.4	42.0	53.6
LnGrp LOS	D	A	B	E	A	D	E	D	D	E	D	D
Approach Vol, veh/h		621			880			222			212	
Approach Delay, s/veh		23.2			37.9			48.4			54.8	
Approach LOS		C			D			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.7	18.3	10.1	62.3	13.7	15.4	15.7	56.8				
Change Period (Y+Rc), s	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5				
Max Green Setting (Gmax), s	11.5	18.5	13.5	64.5	13.5	16.5	16.5	61.5				
Max Q Clear Time (g_c+I1), s	6.0	5.9	5.6	18.8	8.4	9.6	10.2	46.5				
Green Ext Time (p_c), s	0.1	0.3	0.1	2.8	0.1	0.2	0.2	4.8				
Intersection Summary												
HCM 6th Ctrl Delay			36.2									
HCM 6th LOS			D									

Intersection												
Int Delay, s/veh	4.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↙	↑	↗	↙	↑	↗	↙	↗			↕	
Traffic Vol, veh/h	25	402	70	31	735	7	34	3	16	11	4	86
Future Vol, veh/h	25	402	70	31	735	7	34	3	16	11	4	86
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	510	-	510	510	-	510	150	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	7	7	7	7	7	7	7	0	25	50	0	3
Mvmt Flow	26	423	74	33	774	7	36	3	17	12	4	91

Major/Minor	Major1		Major2		Minor1		Minor2					
Conflicting Flow All	781	0	0	497	0	0	1366	1322	423	1362	1389	774
Stage 1	-	-	-	-	-	-	475	475	-	840	840	-
Stage 2	-	-	-	-	-	-	891	847	-	522	549	-
Critical Hdwy	4.17	-	-	4.17	-	-	7.17	6.5	6.45	7.6	6.5	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.17	5.5	-	6.6	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.17	5.5	-	6.6	5.5	-
Follow-up Hdwy	2.263	-	-	2.263	-	-	3.563	4	3.525	3.95	4	3.327
Pot Cap-1 Maneuver	815	-	-	1042	-	-	121	158	585	99	144	397
Stage 1	-	-	-	-	-	-	561	561	-	299	384	-
Stage 2	-	-	-	-	-	-	330	381	-	460	520	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	815	-	-	1042	-	-	87	148	585	90	135	397
Mov Cap-2 Maneuver	-	-	-	-	-	-	87	148	-	90	135	-
Stage 1	-	-	-	-	-	-	543	543	-	289	372	-
Stage 2	-	-	-	-	-	-	244	369	-	430	503	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	0.5		0.3		51.8		26.2	
HCM LOS					F		D	

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	87	399	815	-	-	1042	-	-	274
HCM Lane V/C Ratio	0.411	0.05	0.032	-	-	0.031	-	-	0.388
HCM Control Delay (s)	72.7	14.5	9.6	-	-	8.6	-	-	26.2
HCM Lane LOS	F	B	A	-	-	A	-	-	D
HCM 95th %tile Q(veh)	1.7	0.2	0.1	-	-	0.1	-	-	1.8

Intersection						
Int Delay, s/veh	0.7					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗	↖	↑	↖	↗
Traffic Vol, veh/h	425	9	6	744	26	5
Future Vol, veh/h	425	9	6	744	26	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	510	570	-	180	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	7	7	7	7	0	0
Mvmt Flow	447	9	6	783	27	5

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	456	0	1242
Stage 1	-	-	-	-	447
Stage 2	-	-	-	-	795
Critical Hdwy	-	-	4.17	-	6.4
Critical Hdwy Stg 1	-	-	-	-	5.4
Critical Hdwy Stg 2	-	-	-	-	5.4
Follow-up Hdwy	-	-	2.263	-	3.5
Pot Cap-1 Maneuver	-	-	1079	-	195
Stage 1	-	-	-	-	649
Stage 2	-	-	-	-	448
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1079	-	194
Mov Cap-2 Maneuver	-	-	-	-	194
Stage 1	-	-	-	-	645
Stage 2	-	-	-	-	448

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	24.1
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	194	616	-	-	1079	-
HCM Lane V/C Ratio	0.141	0.009	-	-	0.006	-
HCM Control Delay (s)	26.6	10.9	-	-	8.4	-
HCM Lane LOS	D	B	-	-	A	-
HCM 95th %tile Q(veh)	0.5	0	-	-	0	-

Intersection						
Int Delay, s/veh	0.3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	16	423	738	4	3	7
Future Vol, veh/h	16	423	738	4	3	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	410	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	7	7	7	7	0	0
Mvmt Flow	17	445	777	4	3	7

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	781	0	-	0	1258 779
Stage 1	-	-	-	-	779 -
Stage 2	-	-	-	-	479 -
Critical Hdwy	4.17	-	-	-	6.4 6.2
Critical Hdwy Stg 1	-	-	-	-	5.4 -
Critical Hdwy Stg 2	-	-	-	-	5.4 -
Follow-up Hdwy	2.263	-	-	-	3.5 3.3
Pot Cap-1 Maneuver	815	-	-	-	190 399
Stage 1	-	-	-	-	456 -
Stage 2	-	-	-	-	627 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	815	-	-	-	186 399
Mov Cap-2 Maneuver	-	-	-	-	186 -
Stage 1	-	-	-	-	446 -
Stage 2	-	-	-	-	627 -

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	17.6
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	815	-	-	-	297
HCM Lane V/C Ratio	0.021	-	-	-	0.035
HCM Control Delay (s)	9.5	-	-	-	17.6
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	-	0.1

Intersection												
Int Delay, s/veh	3.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	11	394	25	7	675	7	58	3	11	12	4	19
Future Vol, veh/h	11	394	25	7	675	7	58	3	11	12	4	19
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	500	-	400	600	-	490	-	-	100	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	7	7	7	7	7	7	2	0	0	0	100	6
Mvmt Flow	12	415	26	7	711	7	61	3	12	13	4	20

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	718	0	0	441	0	0	1180	1171	415	1185	1190	711
Stage 1	-	-	-	-	-	-	439	439	-	725	725	-
Stage 2	-	-	-	-	-	-	741	732	-	460	465	-
Critical Hdwy	4.17	-	-	4.17	-	-	7.12	6.5	6.2	7.1	7.5	6.26
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.5	-	6.1	6.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.5	-	6.1	6.5	-
Follow-up Hdwy	2.263	-	-	2.263	-	-	3.518	4	3.3	3.5	4.9	3.354
Pot Cap-1 Maneuver	860	-	-	1093	-	-	167	194	642	167	124	426
Stage 1	-	-	-	-	-	-	597	582	-	420	312	-
Stage 2	-	-	-	-	-	-	408	430	-	585	428	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	860	-	-	1093	-	-	153	190	642	159	122	426
Mov Cap-2 Maneuver	-	-	-	-	-	-	153	190	-	159	122	-
Stage 1	-	-	-	-	-	-	589	574	-	414	310	-
Stage 2	-	-	-	-	-	-	381	427	-	563	422	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.2			0.1			39			23.7		
HCM LOS							E			C		

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	154	642	860	-	-	1093	-	-	229
HCM Lane V/C Ratio	0.417	0.018	0.013	-	-	0.007	-	-	0.161
HCM Control Delay (s)	44.1	10.7	9.2	-	-	8.3	-	-	23.7
HCM Lane LOS	E	B	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	1.8	0.1	0	-	-	0	-	-	0.6

Intersection												
Int Delay, s/veh	5.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗			↕			↕			↕	
Traffic Vol, veh/h	75	324	13	54	523	0	29	8	19	99	7	151
Future Vol, veh/h	75	324	13	54	523	0	29	8	19	99	7	151
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	Yield
Storage Length	520	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	7	7	7	7	7	7	0	0	0	15	0	7
Mvmt Flow	79	341	14	57	551	0	31	8	20	104	7	159

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	551	0	0	355	0	0	1175	1171	348	1185	1178	551
Stage 1	-	-	-	-	-	-	506	506	-	665	665	-
Stage 2	-	-	-	-	-	-	669	665	-	520	513	-
Critical Hdwy	4.17	-	-	4.17	-	-	7.1	6.5	6.2	7.25	6.5	6.27
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.25	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.25	5.5	-
Follow-up Hdwy	2.263	-	-	2.263	-	-	3.5	4	3.3	3.635	4	3.363
Pot Cap-1 Maneuver	994	-	-	1176	-	-	170	194	700	156	192	525
Stage 1	-	-	-	-	-	-	552	543	-	429	461	-
Stage 2	-	-	-	-	-	-	450	461	-	516	539	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	994	-	-	1176	-	-	103	166	700	132	165	525
Mov Cap-2 Maneuver	-	-	-	-	-	-	170	260	-	241	273	-
Stage 1	-	-	-	-	-	-	508	500	-	395	429	-
Stage 2	-	-	-	-	-	-	287	429	-	454	496	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	1.6			0.8			24.3			16.2		
HCM LOS							C			C		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	245	994	-	-	1176	-	-	589
HCM Lane V/C Ratio	0.241	0.079	-	-	0.048	-	-	0.459
HCM Control Delay (s)	24.3	8.9	-	-	8.2	0	-	16.2
HCM Lane LOS	C	A	-	-	A	A	-	C
HCM 95th %tile Q(veh)	0.9	0.3	-	-	0.2	-	-	2.4

Intersection						
Int Delay, s/veh	0					
Movement	NBT	NBR	SBL	SBT	NWL	NWR
Lane Configurations	↑			↑		↑
Traffic Vol, veh/h	83	0	0	257	0	74
Future Vol, veh/h	83	0	0	257	0	74
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	16974	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	87	0	0	271	0	78

Major/Minor	Minor2	Major2		
Conflicting Flow All	271	-	-	-
Stage 1	271	-	-	-
Stage 2	0	-	-	-
Critical Hdwy	6.52	-	-	-
Critical Hdwy Stg 1	5.52	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	4.018	-	-	-
Pot Cap-1 Maneuver	636	0	0	-
Stage 1	685	0	0	-
Stage 2	-	0	0	-
Platoon blocked, %				-
Mov Cap-1 Maneuver	0	-	-	-
Mov Cap-2 Maneuver	0	-	-	-
Stage 1	0	-	-	-
Stage 2	0	-	-	-

Approach	NB	SB
HCM Control Delay, s		0
HCM LOS	-	

Minor Lane/Major Mvmt	NBLn1	SBT
Capacity (veh/h)	-	-
HCM Lane V/C Ratio	-	-
HCM Control Delay (s)	-	-
HCM Lane LOS	-	-
HCM 95th %tile Q(veh)	-	-

HCM 6th Signalized Intersection Summary
1: Lorraine Rd & SR 70

2045 No Build AM - Signal
09/13/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗	↘	↑↑	↗	↘	↑	↗	↘	↗	↘
Traffic Volume (veh/h)	226	1198	527	312	2041	126	616	287	193	198	402	197
Future Volume (veh/h)	226	1198	527	312	2041	126	616	287	193	198	402	197
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1796	1796	1796	1796	1796	1796	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	233	1235	543	322	2104	130	635	296	199	204	414	203
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	7	7	7	7	7	7	3	3	3	3	3	3
Cap, veh/h	117	1191	767	198	1361	607	274	606	514	201	325	159
Arrive On Green	0.07	0.35	0.35	0.12	0.40	0.40	0.16	0.33	0.33	0.11	0.28	0.27
Sat Flow, veh/h	1711	3413	1522	1711	3413	1522	1767	1856	1572	1767	1175	576
Grp Volume(v), veh/h	233	1235	543	322	2104	130	635	296	199	204	0	617
Grp Sat Flow(s),veh/h/ln	1711	1706	1522	1711	1706	1522	1767	1856	1572	1767	0	1752
Q Serve(g_s), s	12.3	62.8	49.5	20.8	71.8	10.1	27.9	23.0	17.6	20.5	0.0	49.8
Cycle Q Clear(g_c), s	12.3	62.8	49.5	20.8	71.8	10.1	27.9	23.0	17.6	20.5	0.0	49.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.33
Lane Grp Cap(c), veh/h	117	1191	767	198	1361	607	274	606	514	201	0	485
V/C Ratio(X)	1.99	1.04	0.71	1.63	1.55	0.21	2.32	0.49	0.39	1.01	0.00	1.27
Avail Cap(c_a), veh/h	117	1191	767	198	1361	607	274	606	514	201	0	485
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	83.8	58.6	34.4	79.6	54.1	35.6	76.1	48.5	46.7	79.8	0.0	65.4
Incr Delay (d2), s/veh	475.9	36.2	5.5	304.9	249.2	0.8	604.6	0.6	0.5	67.0	0.0	138.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	20.8	32.3	19.7	25.8	76.8	4.0	58.8	10.9	7.1	13.1	0.0	40.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	559.8	94.8	39.9	384.5	303.3	36.4	680.6	49.2	47.2	146.8	0.0	203.7
LnGrp LOS	F	F	D	F	F	D	F	D	D	F	A	F
Approach Vol, veh/h		2011			2556			1130				821
Approach Delay, s/veh		133.9			299.9			403.7				189.5
Approach LOS		F			F			F				F
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	26.0	67.0	32.0	55.0	17.0	76.0	23.0	64.0				
Change Period (Y+Rc), s	8.2	7.2	7.1	8.2	7.7	7.2	5.5	8.2				
Max Green Setting (Gmax), s	17.8	59.8	24.9	46.8	9.3	68.8	17.5	55.8				
Max Q Clear Time (g_c+I1), s	22.8	65.8	29.9	51.8	14.3	73.8	22.5	25.0				
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.6				
Intersection Summary												
HCM 6th Ctrl Delay											252.8	
HCM 6th LOS											F	

HCM 6th Signalized Intersection Summary
 2: Greenbrook Blvd/Post Blvd & SR 70

2045 No Build AM - Signal
 09/13/2018



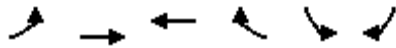
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	343	953	355	118	1534	65	409	355	60	38	202	425
Future Volume (veh/h)	343	953	355	118	1534	65	409	355	60	38	202	425
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1796	1796	1796	1796	1796	1796	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	354	982	366	122	1581	67	422	366	62	39	208	438
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	7	7	7	7	7	7	2	2	2	2	2	2
Cap, veh/h	204	1033	1082	119	943	799	242	384	325	50	182	343
Arrive On Green	0.12	0.57	0.57	0.07	0.52	0.52	0.14	0.21	0.21	0.03	0.10	0.10
Sat Flow, veh/h	1711	1796	1522	1711	1796	1522	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	354	982	366	122	1581	67	422	366	62	39	208	438
Grp Sat Flow(s),veh/h/ln	1711	1796	1522	1711	1796	1522	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	21.5	92.3	16.5	12.5	94.5	3.9	24.5	34.8	5.8	3.9	17.5	17.5
Cycle Q Clear(g_c), s	21.5	92.3	16.5	12.5	94.5	3.9	24.5	34.8	5.8	3.9	17.5	17.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	204	1033	1082	119	943	799	242	384	325	50	182	343
V/C Ratio(X)	1.73	0.95	0.34	1.03	1.68	0.08	1.74	0.95	0.19	0.78	1.14	1.28
Avail Cap(c_a), veh/h	204	1033	1082	119	943	799	242	384	325	54	182	343
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	0.09	0.09	0.09	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	79.3	35.9	9.9	83.8	42.7	21.2	77.8	70.7	59.2	86.9	81.3	70.5
Incr Delay (d2), s/veh	349.3	18.4	0.8	31.9	304.8	0.0	349.9	34.1	0.3	47.1	110.7	144.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh	19.2	43.1	5.8	6.5	119.5	1.5	34.9	20.4	2.4	2.5	14.1	29.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	428.5	54.3	10.7	115.6	347.6	21.3	427.6	104.8	59.5	134.0	192.0	215.2
LnGrp LOS	F	D	B	F	F	C	F	F	E	F	F	F
Approach Vol, veh/h		1702			1770			850			685	
Approach Delay, s/veh		122.7			319.3			261.7			203.5	
Approach LOS		F			F			F			F	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	18.0	109.0	30.0	23.0	27.0	100.0	10.6	42.4				
Change Period (Y+Rc), s	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5				
Max Green Setting (Gmax), s	12.5	103.5	24.5	17.5	21.5	94.5	5.5	36.5				
Max Q Clear Time (g_c+M), s	14.5	94.3	26.5	19.5	23.5	96.5	5.9	36.8				
Green Ext Time (p_c), s	0.0	5.2	0.0	0.0	0.0	0.0	0.0	0.0				

Intersection Summary

HCM 6th Ctrl Delay	226.9
HCM 6th LOS	F

HCM 6th Signalized Intersection Summary
3: SR 70 & Uihlein Rd

2045 No Build AM - Signal
09/13/2018



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖	↗	↖	↖	↘	↗
Traffic Volume (veh/h)	440	648	963	129	142	673
Future Volume (veh/h)	440	648	963	129	142	673
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1796	1796	1796	1796	1870	1870
Adj Flow Rate, veh/h	463	682	1014	83	149	497
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	7	7	7	7	2	2
Cap, veh/h	409	1443	943	979	210	566
Arrive On Green	0.24	0.80	0.52	0.52	0.12	0.12
Sat Flow, veh/h	1711	1796	1796	1522	1781	1585
Grp Volume(v), veh/h	463	682	1014	83	149	497
Grp Sat Flow(s),veh/h/ln	1711	1796	1796	1522	1781	1585
Q Serve(g_s), s	33.5	16.8	73.5	2.9	11.3	16.5
Cycle Q Clear(g_c), s	33.5	16.8	73.5	2.9	11.3	16.5
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	409	1443	943	979	210	566
V/C Ratio(X)	1.13	0.47	1.08	0.08	0.71	0.88
Avail Cap(c_a), veh/h	409	1443	943	979	210	566
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	53.2	4.4	33.3	9.4	59.4	42.1
Incr Delay (d2), s/veh	85.2	0.2	51.7	0.0	10.6	14.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	23.4	4.1	42.7	1.3	5.7	34.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	138.5	4.6	85.0	9.5	70.0	56.8
LnGrp LOS	F	A	F	A	E	E
Approach Vol, veh/h		1145	1097		646	
Approach Delay, s/veh		58.7	79.3		59.8	
Approach LOS		E	E		E	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		118.0		22.0	39.0	79.0
Change Period (Y+Rc), s		5.5		5.5	5.5	5.5
Max Green Setting (Gmax), s		112.5		16.5	33.5	73.5
Max Q Clear Time (g_c+I1), s		18.8		18.5	35.5	75.5
Green Ext Time (p_c), s		4.5		0.0	0.0	0.0
Intersection Summary						
HCM 6th Ctrl Delay			66.8			
HCM 6th LOS			E			

HCM 6th Signalized Intersection Summary
 29: Del Webb Blvd & SR 70

2045 No Build AM - Signal
 10/12/2018

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗	↘	↑	↘	↗
Traffic Volume (veh/h)	643	150	38	930	125	45
Future Volume (veh/h)	643	150	38	930	125	45
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1796	1796	1796	1796	1870	1870
Adj Flow Rate, veh/h	677	158	40	979	132	47
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	7	7	7	7	2	2
Cap, veh/h	955	810	59	1167	215	246
Arrive On Green	0.53	0.53	0.03	0.65	0.12	0.12
Sat Flow, veh/h	1796	1522	1711	1796	1781	1585
Grp Volume(v), veh/h	677	158	40	979	132	47
Grp Sat Flow(s),veh/h/ln	1796	1522	1711	1796	1781	1585
Q Serve(g_s), s	13.6	2.6	1.1	20.1	3.4	1.2
Cycle Q Clear(g_c), s	13.6	2.6	1.1	20.1	3.4	1.2
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	955	810	59	1167	215	246
V/C Ratio(X)	0.71	0.20	0.68	0.84	0.61	0.19
Avail Cap(c_a), veh/h	3539	2999	321	4026	798	765
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	8.4	5.9	22.9	6.5	20.0	17.6
Incr Delay (d2), s/veh	1.0	0.1	12.8	1.7	2.8	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.7	0.4	0.6	2.5	1.4	0.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	9.4	6.0	35.7	8.2	22.8	18.0
LnGrp LOS	A	A	D	A	C	B
Approach Vol, veh/h	835			1019	179	
Approach Delay, s/veh	8.8			9.2	21.6	
Approach LOS	A			A	C	
Timer - Assigned Phs		2	3	4		8
Phs Duration (G+Y+Rc), s		11.3	5.7	31.0		36.7
Change Period (Y+Rc), s		5.5	4.0	5.5		5.5
Max Green Setting (Gmax), s		21.5	9.0	94.5		107.5
Max Q Clear Time (g_c+I1), s		5.4	3.1	15.6		22.1
Green Ext Time (p_c), s		0.4	0.0	5.0		9.0
Intersection Summary						
HCM 6th Ctrl Delay			10.1			
HCM 6th LOS			B			

HCM 6th Signalized Intersection Summary
 4: Bourneside Blvd & SR 70

2045 No Build AM - Signal
 09/13/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↑	↗	↖	↑	↗
Traffic Volume (veh/h)	205	392	91	89	624	199	167	58	97	103	28	177
Future Volume (veh/h)	205	392	91	89	624	199	167	58	97	103	28	177
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1796	1796	1796	1796	1796	1796	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	216	413	96	94	657	209	176	61	102	108	29	186
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	7	7	7	7	7	7	2	2	2	2	2	2
Cap, veh/h	217	750	174	116	618	197	185	293	249	132	237	201
Arrive On Green	0.13	0.53	0.53	0.07	0.47	0.47	0.10	0.16	0.16	0.07	0.13	0.13
Sat Flow, veh/h	1711	1410	328	1711	1306	415	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	216	0	509	94	0	866	176	61	102	108	29	186
Grp Sat Flow(s),veh/h/ln	1711	0	1737	1711	0	1721	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	16.4	0.0	25.2	7.0	0.0	61.5	12.8	3.7	7.5	7.8	1.8	15.1
Cycle Q Clear(g_c), s	16.4	0.0	25.2	7.0	0.0	61.5	12.8	3.7	7.5	7.8	1.8	15.1
Prop In Lane	1.00		0.19	1.00		0.24	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	217	0	925	116	0	814	185	293	249	132	237	201
V/C Ratio(X)	0.99	0.00	0.55	0.81	0.00	1.06	0.95	0.21	0.41	0.82	0.12	0.92
Avail Cap(c_a), veh/h	217	0	925	178	0	814	185	293	249	158	237	201
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	56.7	0.0	20.1	59.8	0.0	34.3	57.9	47.8	49.4	59.3	50.3	56.1
Incr Delay (d2), s/veh	59.5	0.0	0.7	14.9	0.0	49.8	52.1	0.3	1.1	24.3	0.2	42.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.4	0.0	9.5	3.4	0.0	34.8	8.4	1.8	3.0	4.4	0.9	8.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	116.2	0.0	20.8	74.6	0.0	84.0	110.0	48.1	50.5	83.7	50.6	98.9
LnGrp LOS	F	A	C	E	A	F	F	D	D	F	D	F
Approach Vol, veh/h		725			960			339			323	
Approach Delay, s/veh		49.2			83.1			81.0			89.5	
Approach LOS		D			F			F			F	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	5.1	25.9	14.3	74.7	19.0	22.0	22.0	67.0				
Change Period (Y+Rc), s	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5				
Max Green Setting (Gmax), s	5	18.5	13.5	64.5	13.5	16.5	16.5	61.5				
Max Q Clear Time (g_c+19), s	19.8	9.5	9.0	27.2	14.8	17.1	18.4	63.5				
Green Ext Time (p_c), s	0.0	0.4	0.1	3.0	0.0	0.0	0.0	0.0				

Intersection Summary

HCM 6th Ctrl Delay	73.2
HCM 6th LOS	E

Intersection												
Int Delay, s/veh	7.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	28	486	74	43	787	10	38	5	20	15	5	96
Future Vol, veh/h	28	486	74	43	787	10	38	5	20	15	5	96
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	510	-	510	510	-	510	150	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	7	7	7	7	7	7	7	0	25	50	0	3
Mvmt Flow	29	512	78	45	828	11	40	5	21	16	5	101

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	839	0	0	590	0	0	1547	1499	512	1540	1566	828
Stage 1	-	-	-	-	-	-	570	570	-	918	918	-
Stage 2	-	-	-	-	-	-	977	929	-	622	648	-
Critical Hdwy	4.17	-	-	4.17	-	-	7.17	6.5	6.45	7.6	6.5	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.17	5.5	-	6.6	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.17	5.5	-	6.6	5.5	-
Follow-up Hdwy	2.263	-	-	2.263	-	-	3.563	4	3.525	3.95	4	3.327
Pot Cap-1 Maneuver	775	-	-	961	-	-	91	123	519	73	112	369
Stage 1	-	-	-	-	-	-	498	509	-	269	353	-
Stage 2	-	-	-	-	-	-	295	349	-	402	469	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	775	-	-	961	-	-	60	113	519	63	103	369
Mov Cap-2 Maneuver	-	-	-	-	-	-	60	113	-	63	103	-
Stage 1	-	-	-	-	-	-	480	490	-	259	336	-
Stage 2	-	-	-	-	-	-	201	333	-	367	452	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.5			0.5			93.9			42.8		
HCM LOS							F			E		

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	60	302	775	-	-	961	-	-	212
HCM Lane V/C Ratio	0.667	0.087	0.038	-	-	0.047	-	-	0.576
HCM Control Delay (s)	143.7	18.1	9.8	-	-	8.9	-	-	42.8
HCM Lane LOS	F	C	A	-	-	A	-	-	E
HCM 95th %tile Q(veh)	2.8	0.3	0.1	-	-	0.1	-	-	3.2

Intersection						
Int Delay, s/veh	0.7					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗	↘	↑	↘	↗
Traffic Vol, veh/h	519	10	5	802	25	5
Future Vol, veh/h	519	10	5	802	25	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	510	570	-	180	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	7	7	7	7	0	0
Mvmt Flow	546	11	5	844	26	5

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	557	0	1400
Stage 1	-	-	-	-	546
Stage 2	-	-	-	-	854
Critical Hdwy	-	-	4.17	-	6.4
Critical Hdwy Stg 1	-	-	-	-	5.4
Critical Hdwy Stg 2	-	-	-	-	5.4
Follow-up Hdwy	-	-	2.263	-	3.5
Pot Cap-1 Maneuver	-	-	989	-	156
Stage 1	-	-	-	-	584
Stage 2	-	-	-	-	421
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	989	-	155
Mov Cap-2 Maneuver	-	-	-	-	155
Stage 1	-	-	-	-	581
Stage 2	-	-	-	-	421

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	29.4
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	155	541	-	-	989	-
HCM Lane V/C Ratio	0.17	0.01	-	-	0.005	-
HCM Control Delay (s)	32.9	11.7	-	-	8.7	-
HCM Lane LOS	D	B	-	-	A	-
HCM 95th %tile Q(veh)	0.6	0	-	-	0	-

Intersection						
Int Delay, s/veh	0.4					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	20	520	804	5	5	10
Future Vol, veh/h	20	520	804	5	5	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	410	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	7	7	7	7	0	0
Mvmt Flow	21	547	846	5	5	11

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	851	0	-	0	1438 849
Stage 1	-	-	-	-	849 -
Stage 2	-	-	-	-	589 -
Critical Hdwy	4.17	-	-	-	6.4 6.2
Critical Hdwy Stg 1	-	-	-	-	5.4 -
Critical Hdwy Stg 2	-	-	-	-	5.4 -
Follow-up Hdwy	2.263	-	-	-	3.5 3.3
Pot Cap-1 Maneuver	767	-	-	-	148 364
Stage 1	-	-	-	-	423 -
Stage 2	-	-	-	-	558 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	767	-	-	-	144 364
Mov Cap-2 Maneuver	-	-	-	-	144 -
Stage 1	-	-	-	-	412 -
Stage 2	-	-	-	-	558 -

Approach	EB	WB	SB
HCM Control Delay, s	0.4	0	21
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	767	-	-	-	241
HCM Lane V/C Ratio	0.027	-	-	-	0.066
HCM Control Delay (s)	9.8	-	-	-	21
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	-	0.2

Intersection												
Int Delay, s/veh	4.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	15	483	32	10	742	10	60	5	15	15	5	20
Future Vol, veh/h	15	483	32	10	742	10	60	5	15	15	5	20
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	500	-	400	600	-	490	-	-	100	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	7	7	7	7	7	7	2	0	0	0	100	6
Mvmt Flow	16	508	34	11	781	11	63	5	16	16	5	21

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	792	0	0	542	0	0	1362	1354	508	1371	1377	781
Stage 1	-	-	-	-	-	-	540	540	-	803	803	-
Stage 2	-	-	-	-	-	-	822	814	-	568	574	-
Critical Hdwy	4.17	-	-	4.17	-	-	7.12	6.5	6.2	7.1	7.5	6.26
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.5	-	6.1	6.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.5	-	6.1	6.5	-
Follow-up Hdwy	2.263	-	-	2.263	-	-	3.518	4	3.3	3.5	4.9	3.354
Pot Cap-1 Maneuver	807	-	-	1002	-	-	125	151	569	125	92	389
Stage 1	-	-	-	-	-	-	526	524	-	380	283	-
Stage 2	-	-	-	-	-	-	368	394	-	511	376	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	807	-	-	1002	-	-	110	146	569	116	89	389
Mov Cap-2 Maneuver	-	-	-	-	-	-	110	146	-	116	89	-
Stage 1	-	-	-	-	-	-	515	514	-	372	280	-
Stage 2	-	-	-	-	-	-	338	390	-	482	368	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	0.1	65.6	33.2
HCM LOS			F	D

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	112	569	807	-	-	1002	-	-	169
HCM Lane V/C Ratio	0.611	0.028	0.02	-	-	0.011	-	-	0.249
HCM Control Delay (s)	78.1	11.5	9.6	-	-	8.6	-	-	33.2
HCM Lane LOS	F	B	A	-	-	A	-	-	D
HCM 95th %tile Q(veh)	3	0.1	0.1	-	-	0	-	-	0.9

Intersection												
Int Delay, s/veh	9.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗			↕			↕			↕	
Traffic Vol, veh/h	95	393	19	82	577	0	31	10	25	117	10	174
Future Vol, veh/h	95	393	19	82	577	0	31	10	25	117	10	174
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	Yield
Storage Length	520	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	7	7	7	7	7	7	0	0	0	15	0	7
Mvmt Flow	100	414	20	86	607	0	33	11	26	123	11	183

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	607	0	0	434	0	0	1409	1403	424	1422	1413	607
Stage 1	-	-	-	-	-	-	624	624	-	779	779	-
Stage 2	-	-	-	-	-	-	785	779	-	643	634	-
Critical Hdwy	4.17	-	-	4.17	-	-	7.1	6.5	6.2	7.25	6.5	6.27
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.25	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.25	5.5	-
Follow-up Hdwy	2.263	-	-	2.263	-	-	3.5	4	3.3	3.635	4	3.363
Pot Cap-1 Maneuver	947	-	-	1099	-	-	117	141	634	~ 106	139	487
Stage 1	-	-	-	-	-	-	477	481	-	370	409	-
Stage 2	-	-	-	-	-	-	389	409	-	441	476	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	947	-	-	1099	-	-	59	111	634	~ 82	110	487
Mov Cap-2 Maneuver	-	-	-	-	-	-	93	194	-	176	210	-
Stage 1	-	-	-	-	-	-	426	430	-	331	361	-
Stage 2	-	-	-	-	-	-	208	361	-	369	426	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	1.7			1.1			45.4			34.9		
HCM LOS							E			D		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	156	947	-	-	1099	-	-	423
HCM Lane V/C Ratio	0.445	0.106	-	-	0.079	-	-	0.749
HCM Control Delay (s)	45.4	9.2	-	-	8.6	0	-	34.9
HCM Lane LOS	E	A	-	-	A	A	-	D
HCM 95th %tile Q(veh)	2	0.4	-	-	0.3	-	-	6.1

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

Intersection						
Int Delay, s/veh	0					
Movement	NBT	NBR	SBL	SBT	NWL	NWR
Lane Configurations	↑			↑		↑
Traffic Vol, veh/h	105	0	0	301	0	88
Future Vol, veh/h	105	0	0	301	0	88
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	16974	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	111	0	0	317	0	93




























Major/Minor	Minor2	Major2		
Conflicting Flow All	317	-	-	-
Stage 1	317	-	-	-
Stage 2	0	-	-	-
Critical Hdwy	6.52	-	-	-
Critical Hdwy Stg 1	5.52	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	4.018	-	-	-
Pot Cap-1 Maneuver	599	0	0	-
Stage 1	654	0	0	-
Stage 2	-	0	0	-
Platoon blocked, %				-
Mov Cap-1 Maneuver	0	-	-	-
Mov Cap-2 Maneuver	0	-	-	-
Stage 1	0	-	-	-
Stage 2	0	-	-	-

Approach	NB	SB
HCM Control Delay, s		0
HCM LOS	-	

Minor Lane/Major Mvmt	NBLn1	SBT
Capacity (veh/h)	-	-
HCM Lane V/C Ratio	-	-
HCM Control Delay (s)	-	-
HCM Lane LOS	-	-
HCM 95th %tile Q(veh)	-	-

HCM 6th Signalized Intersection Summary
 1: Lorraine Rd & SR 70

2025 No Build PM - Signal
 09/13/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 						 	
Traffic Volume (veh/h)	241	1024	338	98	689	84	399	275	177	113	136	120
Future Volume (veh/h)	241	1024	338	98	689	84	399	275	177	113	136	120
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1796	1796	1796	1796	1796	1796	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	248	1056	-48	101	710	-28	411	284	7	116	140	-36
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	7	7	7	7	7	7	2	2	2	2	2	2
Cap, veh/h	202	1927	1087	112	1756	783	266	343	291	163	218	0
Arrive On Green	0.12	0.56	0.00	0.07	0.51	0.00	0.15	0.18	0.18	0.09	0.12	0.00
Sat Flow, veh/h	1711	3413	1522	1711	3413	1522	1781	1870	1585	1781	1870	0
Grp Volume(v), veh/h	248	1056	-48	101	710	-28	411	284	7	116	104	0
Grp Sat Flow(s),veh/h/ln	1711	1706	1522	1711	1706	1522	1781	1870	1585	1781	1870	0
Q Serve(g_s), s	21.3	35.1	0.0	10.6	23.0	0.0	26.9	26.3	0.7	11.4	9.4	0.0
Cycle Q Clear(g_c), s	21.3	35.1	0.0	10.6	23.0	0.0	26.9	26.3	0.7	11.4	9.4	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	202	1927	1087	112	1756	783	266	343	291	163	218	0
V/C Ratio(X)	1.23	0.55	-0.04	0.90	0.40	-0.04	1.54	0.83	0.02	0.71	0.48	0.00
Avail Cap(c_a), veh/h	202	1927	1087	112	1756	783	266	611	518	193	517	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	79.4	24.7	0.0	83.5	26.8	0.0	76.5	70.7	60.2	79.5	74.4	0.0
Incr Delay (d2), s/veh	137.1	1.1	0.0	55.0	0.7	0.0	262.7	5.1	0.0	9.6	1.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	17.0	14.1	0.0	6.3	9.3	0.0	31.8	13.2	0.3	5.7	4.6	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	216.4	25.8	0.0	138.6	27.5	0.0	339.2	75.8	60.3	89.1	76.0	0.0
LnGrp LOS	F	C	A	F	C	A	F	E	E	F	E	A
Approach Vol, veh/h		1256			783			702			220	
Approach Delay, s/veh		64.5			42.8			229.9			82.9	
Approach LOS		E			D			F			F	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	17.0	105.8	31.0	26.2	26.0	96.8	18.9	38.3				
Change Period (Y+Rc), s	8.2	7.2	7.1	8.2	7.7	7.2	5.5	8.2				
Max Green Setting (Gmax), s	8.8	69.8	23.9	46.8	18.3	60.8	16.5	55.8				
Max Q Clear Time (g_c+I1), s	12.6	38.1	28.9	11.4	23.3	25.0	13.4	28.3				
Green Ext Time (p_c), s	0.0	7.9	0.0	0.6	0.0	4.8	0.1	1.7				
Intersection Summary												
HCM 6th Ctrl Delay			99.3									
HCM 6th LOS			F									

HCM 6th Signalized Intersection Summary
 2: Greenbrook Blvd/Post Blvd & SR 70

2025 No Build PM - Signal
 09/13/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	151	927	233	24	604	16	147	92	35	25	104	129
Future Volume (veh/h)	151	927	233	24	604	16	147	92	35	25	104	129
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1796	1796	1796	1796	1796	1796	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	156	956	240	25	623	16	152	95	36	26	107	133
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	7	7	7	7	7	7	2	2	2	2	2	2
Cap, veh/h	175	1209	1171	34	1061	899	171	308	261	188	166	303
Arrive On Green	0.10	0.67	0.67	0.02	0.59	0.59	0.10	0.16	0.16	0.02	0.09	0.09
Sat Flow, veh/h	1711	1796	1522	1711	1796	1522	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	156	956	240	25	623	16	152	95	36	26	107	133
Grp Sat Flow(s),veh/h/ln	1711	1796	1522	1711	1796	1522	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	16.2	67.0	7.8	2.6	39.1	0.8	15.2	8.0	3.5	2.4	10.0	13.3
Cycle Q Clear(g_c), s	16.2	67.0	7.8	2.6	39.1	0.8	15.2	8.0	3.5	2.4	10.0	13.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	175	1209	1171	34	1061	899	171	308	261	188	166	303
V/C Ratio(X)	0.89	0.79	0.20	0.74	0.59	0.02	0.89	0.31	0.14	0.14	0.64	0.44
Avail Cap(c_a), veh/h	223	1209	1171	52	1061	899	213	410	348	216	255	378
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	79.8	20.6	5.7	87.8	23.1	15.2	80.4	66.1	64.2	72.5	79.3	64.3
Incr Delay (d2), s/veh	28.6	5.3	0.4	26.3	2.4	0.0	29.0	0.6	0.2	0.3	4.1	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.4	27.5	2.6	1.4	16.6	0.3	8.4	3.9	1.4	1.1	5.0	5.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	108.4	25.9	6.1	114.1	25.5	15.3	109.4	66.7	64.5	72.8	83.4	65.3
LnGrp LOS	F	C	A	F	C	B	F	E	E	E	F	E
Approach Vol, veh/h		1352			664			283			266	
Approach Delay, s/veh		31.9			28.6			89.4			73.3	
Approach LOS		C			C			F			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.1	126.6	22.8	21.5	23.9	111.8	9.1	35.2				
Change Period (Y+Rc), s	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5				
Max Green Setting (Gmax), s	5.5	106.5	21.5	24.5	23.5	88.5	6.5	39.5				
Max Q Clear Time (g_c+1), s	14.6	69.0	17.2	15.3	18.2	41.1	4.4	10.0				
Green Ext Time (p_c), s	0.0	9.2	0.1	0.6	0.2	4.1	0.0	0.6				
Intersection Summary												
HCM 6th Ctrl Delay											41.7	
HCM 6th LOS											D	

Intersection						
Int Delay, s/veh	5					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↘	↗	↗	↘	↘	↘
Traffic Vol, veh/h	207	750	497	30	42	121
Future Vol, veh/h	207	750	497	30	42	121
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	750	-	-	350	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	7	7	7	7	2	2
Mvmt Flow	218	789	523	32	44	127

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	555	0	-	0	1748 523
Stage 1	-	-	-	-	523 -
Stage 2	-	-	-	-	1225 -
Critical Hdwy	4.17	-	-	-	6.42 6.22
Critical Hdwy Stg 1	-	-	-	-	5.42 -
Critical Hdwy Stg 2	-	-	-	-	5.42 -
Follow-up Hdwy	2.263	-	-	-	3.518 3.318
Pot Cap-1 Maneuver	991	-	-	-	95 554
Stage 1	-	-	-	-	595 -
Stage 2	-	-	-	-	278 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	991	-	-	-	74 554
Mov Cap-2 Maneuver	-	-	-	-	74 -
Stage 1	-	-	-	-	464 -
Stage 2	-	-	-	-	278 -

Approach	EB	WB	SB
HCM Control Delay, s	2.1	0	38
HCM LOS			E

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	991	-	-	-	74	554
HCM Lane V/C Ratio	0.22	-	-	-	0.597	0.23
HCM Control Delay (s)	9.7	-	-	-	109	13.4
HCM Lane LOS	A	-	-	-	F	B
HCM 95th %tile Q(veh)	0.8	-	-	-	2.6	0.9

Intersection						
Int Delay, s/veh	3.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗	↘	↑	↘	↗
Traffic Vol, veh/h	736	86	13	500	89	8
Future Vol, veh/h	736	86	13	500	89	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	375	360	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	7	7	7	7	2	2
Mvmt Flow	775	91	14	526	94	8























Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	866	0	1329 775
Stage 1	-	-	-	-	775 -
Stage 2	-	-	-	-	554 -
Critical Hdwy	-	-	4.17	-	6.42 6.22
Critical Hdwy Stg 1	-	-	-	-	5.42 -
Critical Hdwy Stg 2	-	-	-	-	5.42 -
Follow-up Hdwy	-	-	2.263	-	3.518 3.318
Pot Cap-1 Maneuver	-	-	757	-	171 398
Stage 1	-	-	-	-	454 -
Stage 2	-	-	-	-	575 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	757	-	168 398
Mov Cap-2 Maneuver	-	-	-	-	168 -
Stage 1	-	-	-	-	446 -
Stage 2	-	-	-	-	575 -

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	47.5
HCM LOS			E

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	168	398	-	-	757	-
HCM Lane V/C Ratio	0.558	0.021	-	-	0.018	-
HCM Control Delay (s)	50.5	14.2	-	-	9.8	-
HCM Lane LOS	F	B	-	-	A	-
HCM 95th %tile Q(veh)	2.9	0.1	-	-	0.1	-

HCM 6th Signalized Intersection Summary
 4: Bourneside Blvd & SR 70

2025 No Build PM - Signal
 10/17/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	59	629	56	31	418	33	29	8	28	62	18	66
Future Volume (veh/h)	59	629	56	31	418	33	29	8	28	62	18	66
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1796	1796	1796	1796	1796	1796	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	62	662	59	33	440	35	31	8	29	65	19	69
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	7	7	7	7	7	7	2	2	2	2	2	2
Cap, veh/h	81	805	72	51	785	62	50	159	135	87	198	167
Arrive On Green	0.05	0.50	0.50	0.03	0.48	0.48	0.03	0.09	0.09	0.05	0.11	0.11
Sat Flow, veh/h	1711	1625	145	1711	1642	131	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	62	0	721	33	0	475	31	8	29	65	19	69
Grp Sat Flow(s),veh/h/ln	1711	0	1770	1711	0	1773	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	1.7	0.0	16.3	0.9	0.0	9.0	0.8	0.2	0.8	1.7	0.4	1.9
Cycle Q Clear(g_c), s	1.7	0.0	16.3	0.9	0.0	9.0	0.8	0.2	0.8	1.7	0.4	1.9
Prop In Lane	1.00		0.08	1.00		0.07	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	81	0	877	51	0	847	50	159	135	87	198	167
V/C Ratio(X)	0.77	0.00	0.82	0.65	0.00	0.56	0.61	0.05	0.21	0.75	0.10	0.41
Avail Cap(c_a), veh/h	911	0	2791	401	0	2267	569	717	608	797	957	811
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.1	0.0	10.1	22.5	0.0	8.7	22.5	19.7	20.0	22.0	19.0	19.6
Incr Delay (d2), s/veh	14.0	0.0	2.0	12.9	0.0	0.6	11.5	0.1	0.8	12.1	0.2	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.0	3.6	0.5	0.0	2.1	0.5	0.1	0.3	0.9	0.2	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.1	0.0	12.1	35.5	0.0	9.3	34.0	19.8	20.8	34.1	19.2	21.2
LnGrp LOS	D	A	B	D	A	A	C	B	C	C	B	C
Approach Vol, veh/h		783			508			68			153	
Approach Delay, s/veh		14.0			11.0			26.7			26.5	
Approach LOS		B			B			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.3	8.0	5.4	27.2	5.3	9.0	6.2	26.4				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	21.0	18.0	11.0	74.0	15.0	24.0	25.0	60.0				
Max Q Clear Time (g_c+I1), s	3.7	2.8	2.9	18.3	2.8	3.9	3.7	11.0				
Green Ext Time (p_c), s	0.1	0.1	0.0	5.0	0.0	0.2	0.1	2.9				
Intersection Summary												
HCM 6th Ctrl Delay			14.8									
HCM 6th LOS			B									

Intersection												
Int Delay, s/veh	3.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↙	↑	↗	↙	↑	↗	↙	↗	↔		↕	
Traffic Vol, veh/h	73	626	43	8	357	5	57	2	12	4	2	35
Future Vol, veh/h	73	626	43	8	357	5	57	2	12	4	2	35
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	510	-	510	510	-	510	150	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	7	7	7	7	7	7	7	0	25	50	0	3
Mvmt Flow	77	659	45	8	376	5	60	2	13	4	2	37

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	381	0	0	704	0	0	1227	1210	659	1235	1250	376
Stage 1	-	-	-	-	-	-	813	813	-	392	392	-
Stage 2	-	-	-	-	-	-	414	397	-	843	858	-
Critical Hdwy	4.17	-	-	4.17	-	-	7.17	6.5	6.45	7.6	6.5	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.17	5.5	-	6.6	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.17	5.5	-	6.6	5.5	-
Follow-up Hdwy	2.263	-	-	2.263	-	-	3.563	4	3.525	3.95	4	3.327
Pot Cap-1 Maneuver	1151	-	-	871	-	-	152	184	426	123	174	668
Stage 1	-	-	-	-	-	-	365	395	-	547	610	-
Stage 2	-	-	-	-	-	-	606	607	-	298	376	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1151	-	-	871	-	-	134	170	426	111	161	668
Mov Cap-2 Maneuver	-	-	-	-	-	-	134	170	-	111	161	-
Stage 1	-	-	-	-	-	-	341	369	-	510	605	-
Stage 2	-	-	-	-	-	-	565	602	-	268	351	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.8	0.2	44.8	14.9
HCM LOS			E	B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	134	351	1151	-	-	871	-	-	407
HCM Lane V/C Ratio	0.448	0.042	0.067	-	-	0.01	-	-	0.106
HCM Control Delay (s)	52	15.7	8.4	-	-	9.2	-	-	14.9
HCM Lane LOS	F	C	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	2	0.1	0.2	-	-	0	-	-	0.4

Intersection						
Int Delay, s/veh	0.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗	↖	↑	↖	↗
Traffic Vol, veh/h	633	20	4	365	13	3
Future Vol, veh/h	633	20	4	365	13	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	510	570	-	180	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	7	7	7	7	0	0
Mvmt Flow	666	21	4	384	14	3

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	687	0	1058
Stage 1	-	-	-	-	666
Stage 2	-	-	-	-	392
Critical Hdwy	-	-	4.17	-	6.4
Critical Hdwy Stg 1	-	-	-	-	5.4
Critical Hdwy Stg 2	-	-	-	-	5.4
Follow-up Hdwy	-	-	2.263	-	3.5
Pot Cap-1 Maneuver	-	-	884	-	251
Stage 1	-	-	-	-	515
Stage 2	-	-	-	-	687
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	884	-	250
Mov Cap-2 Maneuver	-	-	-	-	250
Stage 1	-	-	-	-	512
Stage 2	-	-	-	-	687

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	18.8
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	250	463	-	-	884	-
HCM Lane V/C Ratio	0.055	0.007	-	-	0.005	-
HCM Control Delay (s)	20.2	12.8	-	-	9.1	-
HCM Lane LOS	C	B	-	-	A	-
HCM 95th %tile Q(veh)	0.2	0	-	-	0	-

Intersection						
Int Delay, s/veh	0.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	3	629	366	0	2	3
Future Vol, veh/h	3	629	366	0	2	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	410	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	7	7	7	7	0	0
Mvmt Flow	3	662	385	0	2	3

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	385	0	-	0	1053 385
Stage 1	-	-	-	-	385 -
Stage 2	-	-	-	-	668 -
Critical Hdwy	4.17	-	-	-	6.4 6.2
Critical Hdwy Stg 1	-	-	-	-	5.4 -
Critical Hdwy Stg 2	-	-	-	-	5.4 -
Follow-up Hdwy	2.263	-	-	-	3.5 3.3
Pot Cap-1 Maneuver	1147	-	-	-	253 667
Stage 1	-	-	-	-	692 -
Stage 2	-	-	-	-	513 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1147	-	-	-	252 667
Mov Cap-2 Maneuver	-	-	-	-	252 -
Stage 1	-	-	-	-	690 -
Stage 2	-	-	-	-	513 -

Approach	EB	WB	SB
HCM Control Delay, s	0	0	14.1
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1147	-	-	-	402
HCM Lane V/C Ratio	0.003	-	-	-	0.013
HCM Control Delay (s)	8.1	-	-	-	14.1
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection												
Int Delay, s/veh	1.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↑	↔	↔	↑	↔		↔	↔		↔	
Traffic Vol, veh/h	12	579	59	5	327	4	31	4	4	2	2	13
Future Vol, veh/h	12	579	59	5	327	4	31	4	4	2	2	13
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	500	-	400	600	-	490	-	-	100	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	7	7	7	7	7	7	2	0	0	0	100	6
Mvmt Flow	13	609	62	5	344	4	33	4	4	2	2	14

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	348	0	0	671	0	0	999	993	609	1024	1051	344
Stage 1	-	-	-	-	-	-	635	635	-	354	354	-
Stage 2	-	-	-	-	-	-	364	358	-	670	697	-
Critical Hdwy	4.17	-	-	4.17	-	-	7.12	6.5	6.2	7.1	7.5	6.26
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.5	-	6.1	6.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.5	-	6.1	6.5	-
Follow-up Hdwy	2.263	-	-	2.263	-	-	3.518	4	3.3	3.5	4.9	3.354
Pot Cap-1 Maneuver	1184	-	-	896	-	-	222	247	499	216	155	690
Stage 1	-	-	-	-	-	-	467	476	-	667	489	-
Stage 2	-	-	-	-	-	-	655	631	-	450	323	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1184	-	-	896	-	-	213	243	499	209	152	690
Mov Cap-2 Maneuver	-	-	-	-	-	-	213	243	-	209	152	-
Stage 1	-	-	-	-	-	-	462	471	-	660	486	-
Stage 2	-	-	-	-	-	-	636	627	-	437	319	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.1			0.1			23.8			14.2		
HCM LOS							C			B		

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	216	499	1184	-	-	896	-	-	409
HCM Lane V/C Ratio	0.171	0.008	0.011	-	-	0.006	-	-	0.044
HCM Control Delay (s)	25.1	12.3	8.1	-	-	9	-	-	14.2
HCM Lane LOS	D	B	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.6	0	0	-	-	0	-	-	0.1

Intersection												
Int Delay, s/veh	3.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	117	447	13	10	257	0	28	4	10	73	5	46
Future Vol, veh/h	117	447	13	10	257	0	28	4	10	73	5	46
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	Yield
Storage Length	520	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	7	7	7	7	7	7	0	0	0	15	0	7
Mvmt Flow	123	471	14	11	271	0	29	4	11	77	5	48

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	271	0	0	485	0	0	1020	1017	478	1025	1024	271
Stage 1	-	-	-	-	-	-	724	724	-	293	293	-
Stage 2	-	-	-	-	-	-	296	293	-	732	731	-
Critical Hdwy	4.17	-	-	4.17	-	-	7.1	6.5	6.2	7.25	6.5	6.27
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.25	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.25	5.5	-
Follow-up Hdwy	2.263	-	-	2.263	-	-	3.5	4	3.3	3.635	4	3.363
Pot Cap-1 Maneuver	1264	-	-	1052	-	-	217	239	591	202	237	756
Stage 1	-	-	-	-	-	-	420	433	-	688	674	-
Stage 2	-	-	-	-	-	-	717	674	-	393	430	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1264	-	-	1052	-	-	184	213	591	180	211	756
Mov Cap-2 Maneuver	-	-	-	-	-	-	283	300	-	269	304	-
Stage 1	-	-	-	-	-	-	379	391	-	621	666	-
Stage 2	-	-	-	-	-	-	658	666	-	345	388	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	1.7			0.3			17.8			16.9		
HCM LOS							C			C		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	325	1264	-	-	1052	-	-	431
HCM Lane V/C Ratio	0.136	0.097	-	-	0.01	-	-	0.303
HCM Control Delay (s)	17.8	8.2	-	-	8.5	0	-	16.9
HCM Lane LOS	C	A	-	-	A	A	-	C
HCM 95th %tile Q(veh)	0.5	0.3	-	-	0	-	-	1.3

Intersection						
Int Delay, s/veh	0					
Movement	NBT	NBR	SBL	SBT	NWL	NWR
Lane Configurations	↑			↑		↑
Traffic Vol, veh/h	121	0	0	124	0	72
Future Vol, veh/h	121	0	0	124	0	72
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	16974	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	127	0	0	131	0	76

























Major/Minor	Minor2	Major2		
Conflicting Flow All	131	-	-	-
Stage 1	131	-	-	-
Stage 2	0	-	-	-
Critical Hdwy	6.52	-	-	-
Critical Hdwy Stg 1	5.52	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	4.018	-	-	-
Pot Cap-1 Maneuver	760	0	0	-
Stage 1	788	0	0	-
Stage 2	-	0	0	-
Platoon blocked, %				-
Mov Cap-1 Maneuver	0	-	-	-
Mov Cap-2 Maneuver	0	-	-	-
Stage 1	0	-	-	-
Stage 2	0	-	-	-

Approach	NB	SB
HCM Control Delay, s		0
HCM LOS	-	

Minor Lane/Major Mvmt	NBLn1	SBT
Capacity (veh/h)	-	-
HCM Lane V/C Ratio	-	-
HCM Control Delay (s)	-	-
HCM Lane LOS	-	-
HCM 95th %tile Q(veh)	-	-

HCM 6th Signalized Intersection Summary
1: Lorraine Rd & SR 70

2035 No Build PM - Signal
10/17/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	285	1525	486	160	984	117	474	338	252	149	185	138
Future Volume (veh/h)	285	1525	486	160	984	117	474	338	252	149	185	138
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1796	1796	1796	1796	1796	1796	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	294	1572	105	165	1014	6	489	348	85	154	191	-18
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	7	7	7	7	7	7	2	2	2	2	2	2
Cap, veh/h	202	1735	1010	112	1564	698	276	410	348	199	313	0
Arrive On Green	0.12	0.51	0.51	0.07	0.46	0.46	0.16	0.22	0.22	0.11	0.17	0.00
Sat Flow, veh/h	1711	3413	1522	1711	3413	1522	1781	1870	1585	1781	1870	0
Grp Volume(v), veh/h	294	1572	105	165	1014	6	489	348	85	154	173	0
Grp Sat Flow(s),veh/h/ln	1711	1706	1522	1711	1706	1522	1781	1870	1585	1781	1870	0
Q Serve(g_s), s	21.3	75.6	4.5	11.8	41.2	0.4	27.9	32.1	8.0	15.1	15.3	0.0
Cycle Q Clear(g_c), s	21.3	75.6	4.5	11.8	41.2	0.4	27.9	32.1	8.0	15.1	15.3	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	202	1735	1010	112	1564	698	276	410	348	199	313	0
V/C Ratio(X)	1.45	0.91	0.10	1.47	0.65	0.01	1.77	0.85	0.24	0.77	0.55	0.00
Avail Cap(c_a), veh/h	202	1735	1010	112	1564	698	276	611	518	203	517	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	79.4	40.4	11.0	84.1	37.6	26.5	76.1	67.4	58.0	77.7	68.8	0.0
Incr Delay (d2), s/veh	228.9	8.4	0.2	253.9	2.1	0.0	361.4	7.2	0.4	16.5	1.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	22.1	32.3	1.6	13.1	17.3	0.1	40.6	16.3	3.3	7.9	7.5	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	308.3	48.7	11.2	338.0	39.7	26.5	437.4	74.6	58.3	94.2	70.3	0.0
LnGrp LOS	F	D	B	F	D	C	F	E	E	F	E	A
Approach Vol, veh/h		1971			1185			922			327	
Approach Delay, s/veh		85.4			81.2			265.5			81.5	
Approach LOS		F			F			F			F	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	17.0	95.7	32.0	35.3	26.0	86.7	22.6	44.7				
Change Period (Y+Rc), s	8.2	7.2	7.1	8.2	7.7	7.2	5.5	8.2				
Max Green Setting (Gmax), s	8.8	68.8	24.9	46.8	18.3	59.8	17.5	55.8				
Max Q Clear Time (g_c+I1), s	13.8	77.6	29.9	17.3	23.3	43.2	17.1	34.1				
Green Ext Time (p_c), s	0.0	0.0	0.0	1.0	0.0	6.0	0.0	2.4				
Intersection Summary												
HCM 6th Ctrl Delay			121.7									
HCM 6th LOS			F									

HCM 6th Signalized Intersection Summary
2: Greenbrook Blvd/Post Blvd & SR 70

2035 No Build PM - Signal
09/13/2018



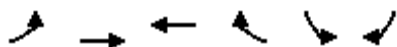
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	252	1278	364	42	797	27	236	173	51	46	211	242
Future Volume (veh/h)	252	1278	364	42	797	27	236	173	51	46	211	242
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1796	1796	1796	1796	1796	1796	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	265	1345	383	44	839	28	248	182	54	48	222	255
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	7	7	7	7	7	7	2	2	2	2	2	2
Cap, veh/h	223	1063	1082	52	883	748	213	420	356	251	255	423
Arrive On Green	0.13	0.59	0.59	0.03	0.49	0.49	0.12	0.22	0.22	0.03	0.14	0.14
Sat Flow, veh/h	1711	1796	1522	1711	1796	1522	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	265	1345	383	44	839	28	248	182	54	48	222	255
Grp Sat Flow(s),veh/h/ln	1711	1796	1522	1711	1796	1522	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	23.5	106.5	17.5	4.6	80.2	1.7	21.5	15.0	4.9	4.2	20.9	24.5
Cycle Q Clear(g_c), s	23.5	106.5	17.5	4.6	80.2	1.7	21.5	15.0	4.9	4.2	20.9	24.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	223	1063	1082	52	883	748	213	420	356	251	255	423
V/C Ratio(X)	1.19	1.27	0.35	0.84	0.95	0.04	1.17	0.43	0.15	0.19	0.87	0.60
Avail Cap(c_a), veh/h	223	1063	1082	52	883	748	213	420	356	260	255	423
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.67	0.67	0.67	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	78.3	36.8	10.0	86.8	43.6	23.7	79.2	60.0	56.0	64.1	76.2	57.7
Incr Delay (d2), s/veh	119.8	127.1	0.9	52.9	15.4	0.1	113.6	0.7	0.2	0.4	26.4	2.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.6	80.8	6.2	2.8	37.8	0.7	16.6	7.3	2.0	1.9	12.0	10.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	198.1	163.8	10.9	139.7	59.0	23.8	192.8	60.7	56.2	64.5	102.6	60.1
LnGrp LOS	F	F	B	F	E	C	F	E	E	E	F	E
Approach Vol, veh/h	1993			911			484			525		
Approach Delay, s/veh	139.0			61.9			127.9			78.5		
Approach LOS	F			E			F			E		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.0	112.0	27.0	30.0	29.0	94.0	11.1	45.9				
Change Period (Y+Rc), s	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5				
Max Green Setting (Gmax), s	5.5	106.5	21.5	24.5	23.5	88.5	6.5	39.5				
Max Q Clear Time (g_c+10), s	10.6	108.5	23.5	26.5	25.5	82.2	6.2	17.0				
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	2.8	0.0	1.1				

Intersection Summary

HCM 6th Ctrl Delay	111.5
HCM 6th LOS	F

HCM 6th Signalized Intersection Summary
3: SR 70 & Uihlein Rd

2035 No Build PM - Signal
09/13/2018



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖	↗	↖	↖	↘	↗
Traffic Volume (veh/h)	437	875	556	64	88	256
Future Volume (veh/h)	437	875	556	64	88	256
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1796	1796	1796	1796	1870	1870
Adj Flow Rate, veh/h	460	921	585	67	93	269
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	7	7	7	7	2	2
Cap, veh/h	509	1311	663	781	256	699
Arrive On Green	0.30	0.73	0.37	0.37	0.14	0.14
Sat Flow, veh/h	1711	1796	1796	1522	1781	1585
Grp Volume(v), veh/h	460	921	585	67	93	269
Grp Sat Flow(s),veh/h/ln	1711	1796	1796	1522	1781	1585
Q Serve(g_s), s	22.5	24.7	26.5	1.9	4.1	9.9
Cycle Q Clear(g_c), s	22.5	24.7	26.5	1.9	4.1	9.9
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	509	1311	663	781	256	699
V/C Ratio(X)	0.90	0.70	0.88	0.09	0.36	0.39
Avail Cap(c_a), veh/h	1093	2325	1065	1121	338	772
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.3	6.5	25.6	10.8	33.6	16.4
Incr Delay (d2), s/veh	6.3	0.7	5.4	0.0	0.9	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.0	5.0	10.9	0.8	1.8	10.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	35.7	7.2	31.0	10.8	34.5	16.7
LnGrp LOS	D	A	C	B	C	B
Approach Vol, veh/h		1381	652		362	
Approach Delay, s/veh		16.7	28.9		21.3	
Approach LOS		B	C		C	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		68.9		18.0	31.3	37.6
Change Period (Y+Rc), s		5.5		5.5	5.5	5.5
Max Green Setting (Gmax), s		112.5		16.5	55.5	51.5
Max Q Clear Time (g_c+I1), s		26.7		11.9	24.5	28.5
Green Ext Time (p_c), s		7.6		0.5	1.4	3.6
Intersection Summary						
HCM 6th Ctrl Delay			20.7			
HCM 6th LOS			C			

Intersection						
Int Delay, s/veh	11.4					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗	↘	↑	↘	↗
Traffic Vol, veh/h	843	113	30	559	118	16
Future Vol, veh/h	843	113	30	559	118	16
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	375	360	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	7	7	7	7	2	2
Mvmt Flow	887	119	32	588	124	17

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	1006	0	1539 887
Stage 1	-	-	-	-	887 -
Stage 2	-	-	-	-	652 -
Critical Hdwy	-	-	4.17	-	6.42 6.22
Critical Hdwy Stg 1	-	-	-	-	5.42 -
Critical Hdwy Stg 2	-	-	-	-	5.42 -
Follow-up Hdwy	-	-	2.263	-	3.518 3.318
Pot Cap-1 Maneuver	-	-	669	-	127 343
Stage 1	-	-	-	-	402 -
Stage 2	-	-	-	-	518 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	669	-	~ 121 343
Mov Cap-2 Maneuver	-	-	-	-	~ 121 -
Stage 1	-	-	-	-	383 -
Stage 2	-	-	-	-	518 -























Approach	EB	WB	NB
HCM Control Delay, s	0	0.5	141.1
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	121	343	-	-	669	-
HCM Lane V/C Ratio	1.027	0.049	-	-	0.047	-
HCM Control Delay (s)	158.1	16	-	-	10.6	-
HCM Lane LOS	F	C	-	-	B	-
HCM 95th %tile Q(veh)	7	0.2	-	-	0.1	-

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

HCM 6th Signalized Intersection Summary
 4: Bourneside Blvd & SR 70

2035 No Build PM - Signal
 10/17/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	124	619	117	65	388	69	62	18	58	131	39	139
Future Volume (veh/h)	124	619	117	65	388	69	62	18	58	131	39	139
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1796	1796	1796	1796	1796	1796	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	131	652	123	68	408	73	65	19	61	138	41	146
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	7	7	7	7	7	7	2	2	2	2	2	2
Cap, veh/h	171	753	142	85	687	123	84	140	119	182	243	206
Arrive On Green	0.10	0.51	0.51	0.05	0.46	0.46	0.05	0.08	0.08	0.10	0.13	0.13
Sat Flow, veh/h	1711	1469	277	1711	1483	265	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	131	0	775	68	0	481	65	19	61	138	41	146
Grp Sat Flow(s),veh/h/ln	1711	0	1746	1711	0	1748	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	4.6	0.0	23.9	2.4	0.0	12.5	2.2	0.6	2.3	4.6	1.2	5.4
Cycle Q Clear(g_c), s	4.6	0.0	23.9	2.4	0.0	12.5	2.2	0.6	2.3	4.6	1.2	5.4
Prop In Lane	1.00		0.16	1.00		0.15	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	171	0	896	85	0	810	84	140	119	182	243	206
V/C Ratio(X)	0.77	0.00	0.87	0.80	0.00	0.59	0.78	0.14	0.51	0.76	0.17	0.71
Avail Cap(c_a), veh/h	696	0	2102	306	0	1706	435	548	464	608	730	619
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.0	0.0	13.1	28.9	0.0	12.2	29.0	26.6	27.4	26.9	23.8	25.6
Incr Delay (d2), s/veh	7.1	0.0	2.7	15.2	0.0	0.7	14.3	0.4	3.4	6.4	0.3	4.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	0.0	6.7	1.2	0.0	3.8	1.2	0.3	0.9	2.2	0.5	2.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.0	0.0	15.8	44.1	0.0	12.9	43.3	27.0	30.7	33.3	24.1	30.0
LnGrp LOS	C	A	B	D	A	B	D	C	C	C	C	C
Approach Vol, veh/h		906			549			145			325	
Approach Delay, s/veh		18.4			16.8			35.9			30.7	
Approach LOS		B			B			D			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.3	8.6	7.1	35.5	6.9	12.0	10.1	32.5				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	21.0	18.0	11.0	74.0	15.0	24.0	25.0	60.0				
Max Q Clear Time (g_c+I1), s	6.6	4.3	4.4	25.9	4.2	7.4	6.6	14.5				
Green Ext Time (p_c), s	0.3	0.2	0.1	5.6	0.1	0.6	0.3	3.0				
Intersection Summary												
HCM 6th Ctrl Delay			21.3									
HCM 6th LOS			C									

Intersection												
Int Delay, s/veh	6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↑	↔	↔	↑	↔	↔	↔	↔		↔	
Traffic Vol, veh/h	87	690	44	12	425	10	61	3	16	7	3	40
Future Vol, veh/h	87	690	44	12	425	10	61	3	16	7	3	40
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	510	-	510	510	-	510	150	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	7	7	7	7	7	7	7	0	25	50	0	3
Mvmt Flow	92	726	46	13	447	11	64	3	17	7	3	42

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	458	0	0	772	0	0	1411	1394	726	1416	1429	447
Stage 1	-	-	-	-	-	-	910	910	-	473	473	-
Stage 2	-	-	-	-	-	-	501	484	-	943	956	-
Critical Hdwy	4.17	-	-	4.17	-	-	7.17	6.5	6.45	7.6	6.5	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.17	5.5	-	6.6	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.17	5.5	-	6.6	5.5	-
Follow-up Hdwy	2.263	-	-	2.263	-	-	3.563	4	3.525	3.95	4	3.327
Pot Cap-1 Maneuver	1077	-	-	821	-	-	113	143	389	90	136	609
Stage 1	-	-	-	-	-	-	322	356	-	491	562	-
Stage 2	-	-	-	-	-	-	543	555	-	260	339	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1077	-	-	821	-	-	95	129	389	78	122	609
Mov Cap-2 Maneuver	-	-	-	-	-	-	95	129	-	78	122	-
Stage 1	-	-	-	-	-	-	295	326	-	449	553	-
Stage 2	-	-	-	-	-	-	495	546	-	225	310	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.9	0.3	80.4	20.9
HCM LOS			F	C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	95	295	1077	-	-	821	-	-	278
HCM Lane V/C Ratio	0.676	0.068	0.085	-	-	0.015	-	-	0.189
HCM Control Delay (s)	99.8	18.1	8.7	-	-	9.5	-	-	20.9
HCM Lane LOS	F	C	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	3.3	0.2	0.3	-	-	0	-	-	0.7

Intersection						
Int Delay, s/veh	0.5					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗	↘	↑	↘	↗
Traffic Vol, veh/h	713	25	7	444	17	7
Future Vol, veh/h	713	25	7	444	17	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	510	570	-	180	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	7	7	7	7	0	0
Mvmt Flow	751	26	7	467	18	7

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	777	0	1232 751
Stage 1	-	-	-	-	751 -
Stage 2	-	-	-	-	481 -
Critical Hdwy	-	-	4.17	-	6.4 6.2
Critical Hdwy Stg 1	-	-	-	-	5.4 -
Critical Hdwy Stg 2	-	-	-	-	5.4 -
Follow-up Hdwy	-	-	2.263	-	3.5 3.3
Pot Cap-1 Maneuver	-	-	818	-	197 414
Stage 1	-	-	-	-	470 -
Stage 2	-	-	-	-	626 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	818	-	195 414
Mov Cap-2 Maneuver	-	-	-	-	195 -
Stage 1	-	-	-	-	466 -
Stage 2	-	-	-	-	626 -

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	22
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	195	414	-	-	818	-
HCM Lane V/C Ratio	0.092	0.018	-	-	0.009	-
HCM Control Delay (s)	25.3	13.9	-	-	9.4	-
HCM Lane LOS	D	B	-	-	A	-
HCM 95th %tile Q(veh)	0.3	0.1	-	-	0	-

Intersection						
Int Delay, s/veh	0.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	4	717	446	0	3	7
Future Vol, veh/h	4	717	446	0	3	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	410	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	7	7	7	7	0	0
Mvmt Flow	4	755	469	0	3	7

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	469	0	-	0	1232 469
Stage 1	-	-	-	-	469 -
Stage 2	-	-	-	-	763 -
Critical Hdwy	4.17	-	-	-	6.4 6.2
Critical Hdwy Stg 1	-	-	-	-	5.4 -
Critical Hdwy Stg 2	-	-	-	-	5.4 -
Follow-up Hdwy	2.263	-	-	-	3.5 3.3
Pot Cap-1 Maneuver	1067	-	-	-	197 598
Stage 1	-	-	-	-	634 -
Stage 2	-	-	-	-	464 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1067	-	-	-	196 598
Mov Cap-2 Maneuver	-	-	-	-	196 -
Stage 1	-	-	-	-	631 -
Stage 2	-	-	-	-	464 -

Approach	EB	WB	SB
HCM Control Delay, s	0	0	15
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1067	-	-	-	370
HCM Lane V/C Ratio	0.004	-	-	-	0.028
HCM Control Delay (s)	8.4	-	-	-	15
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Intersection												
Int Delay, s/veh	2.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	16	670	67	10	406	7	40	7	7	3	3	17
Future Vol, veh/h	16	670	67	10	406	7	40	7	7	3	3	17
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	500	-	400	600	-	490	-	-	100	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	7	7	7	7	7	7	2	0	0	0	100	6
Mvmt Flow	17	705	71	11	427	7	42	7	7	3	3	18

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	434	0	0	776	0	0	1202	1195	705	1231	1259	427
Stage 1	-	-	-	-	-	-	739	739	-	449	449	-
Stage 2	-	-	-	-	-	-	463	456	-	782	810	-
Critical Hdwy	4.17	-	-	4.17	-	-	7.12	6.5	6.2	7.1	7.5	6.26
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.5	-	6.1	6.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.5	-	6.1	6.5	-
Follow-up Hdwy	2.263	-	-	2.263	-	-	3.518	4	3.3	3.5	4.9	3.354
Pot Cap-1 Maneuver	1099	-	-	818	-	-	161	188	440	156	111	619
Stage 1	-	-	-	-	-	-	409	427	-	593	437	-
Stage 2	-	-	-	-	-	-	579	572	-	390	281	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1099	-	-	818	-	-	150	183	440	145	108	619
Mov Cap-2 Maneuver	-	-	-	-	-	-	150	183	-	145	108	-
Stage 1	-	-	-	-	-	-	403	421	-	584	431	-
Stage 2	-	-	-	-	-	-	551	565	-	371	277	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.2			0.2			35.8			17.9		
HCM LOS							E			C		

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	154	440	1099	-	-	818	-	-	303
HCM Lane V/C Ratio	0.321	0.017	0.015	-	-	0.013	-	-	0.08
HCM Control Delay (s)	39.1	13.3	8.3	-	-	9.5	-	-	17.9
HCM Lane LOS	E	B	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	1.3	0.1	0	-	-	0	-	-	0.3

Intersection												
Int Delay, s/veh	5.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔			↔			↔			↔	
Traffic Vol, veh/h	137	509	19	15	307	0	43	7	17	92	8	59
Future Vol, veh/h	137	509	19	15	307	0	43	7	17	92	8	59
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	Yield
Storage Length	520	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	7	7	7	7	7	7	0	0	0	15	0	7
Mvmt Flow	144	536	20	16	323	0	45	7	18	97	8	62

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	323	0	0	556	0	0	1193	1189	546	1202	1199	323
Stage 1	-	-	-	-	-	-	834	834	-	355	355	-
Stage 2	-	-	-	-	-	-	359	355	-	847	844	-
Critical Hdwy	4.17	-	-	4.17	-	-	7.1	6.5	6.2	7.25	6.5	6.27
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.25	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.25	5.5	-
Follow-up Hdwy	2.263	-	-	2.263	-	-	3.5	4	3.3	3.635	4	3.363
Pot Cap-1 Maneuver	1209	-	-	990	-	-	165	190	541	152	187	707
Stage 1	-	-	-	-	-	-	365	386	-	636	633	-
Stage 2	-	-	-	-	-	-	663	633	-	339	382	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1209	-	-	990	-	-	131	164	541	129	161	707
Mov Cap-2 Maneuver	-	-	-	-	-	-	227	252	-	213	255	-
Stage 1	-	-	-	-	-	-	322	340	-	560	620	-
Stage 2	-	-	-	-	-	-	585	620	-	282	337	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	1.7			0.4			23.1			25.1		
HCM LOS							C			D		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	269	1209	-	-	990	-	-	343
HCM Lane V/C Ratio	0.262	0.119	-	-	0.016	-	-	0.488
HCM Control Delay (s)	23.1	8.4	-	-	8.7	0	-	25.1
HCM Lane LOS	C	A	-	-	A	A	-	D
HCM 95th %tile Q(veh)	1	0.4	-	-	0	-	-	2.6

Intersection						
Int Delay, s/veh	0					
Movement	NBT	NBR	SBL	SBT	NWL	NWR
Lane Configurations	↑			↑		↑
Traffic Vol, veh/h	144	0	0	159	0	91
Future Vol, veh/h	144	0	0	159	0	91
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	16974	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	152	0	0	167	0	96

























Major/Minor	Minor2	Major2		
Conflicting Flow All	167	-	-	-
Stage 1	167	-	-	-
Stage 2	0	-	-	-
Critical Hdwy	6.52	-	-	-
Critical Hdwy Stg 1	5.52	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	4.018	-	-	-
Pot Cap-1 Maneuver	726	0	0	-
Stage 1	760	0	0	-
Stage 2	-	0	0	-
Platoon blocked, %				-
Mov Cap-1 Maneuver	0	-	-	-
Mov Cap-2 Maneuver	0	-	-	-
Stage 1	0	-	-	-
Stage 2	0	-	-	-

Approach	NB	SB
HCM Control Delay, s		0
HCM LOS	-	

Minor Lane/Major Mvmt	NBLn1	SBT
Capacity (veh/h)	-	-
HCM Lane V/C Ratio	-	-
HCM Control Delay (s)	-	-
HCM Lane LOS	-	-
HCM 95th %tile Q(veh)	-	-

HCM 6th Signalized Intersection Summary
1: Lorraine Rd & SR 70

2045 No Build PM - Signal
09/13/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	329	2026	634	221	1280	150	549	401	328	186	235	157
Future Volume (veh/h)	329	2026	634	221	1280	150	549	401	328	186	235	157
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1796	1796	1796	1796	1796	1796	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	339	2089	258	228	1320	40	566	413	163	192	242	2
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	7	7	7	7	7	7	2	2	2	2	2	2
Cap, veh/h	202	1645	953	112	1474	658	256	476	404	183	379	3
Arrive On Green	0.12	0.48	0.48	0.07	0.43	0.43	0.14	0.25	0.25	0.10	0.20	0.19
Sat Flow, veh/h	1711	3413	1522	1711	3413	1522	1781	1870	1585	1781	1852	15
Grp Volume(v), veh/h	339	2089	258	228	1320	40	566	413	163	192	0	244
Grp Sat Flow(s),veh/h/ln	1711	1706	1522	1711	1706	1522	1781	1870	1585	1781	0	1868
Q Serve(g_s), s	21.3	86.8	13.7	11.8	64.5	2.8	25.9	38.0	15.4	18.5	0.0	21.5
Cycle Q Clear(g_c), s	21.3	86.8	13.7	11.8	64.5	2.8	25.9	38.0	15.4	18.5	0.0	21.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.01
Lane Grp Cap(c), veh/h	202	1645	953	112	1474	658	256	476	404	183	0	382
V/C Ratio(X)	1.67	1.27	0.27	2.03	0.90	0.06	2.21	0.87	0.40	1.05	0.00	0.64
Avail Cap(c_a), veh/h	202	1645	953	112	1474	658	256	611	518	183	0	517
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	79.4	46.6	15.2	84.1	47.4	29.8	77.1	64.2	55.7	80.8	0.0	65.5
Incr Delay (d2), s/veh	324.2	126.4	0.7	494.6	8.8	0.2	556.3	10.3	0.7	80.0	0.0	1.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	27.5	64.0	5.1	20.6	28.3	1.1	51.6	19.6	6.3	12.6	0.0	10.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	403.6	173.0	15.9	578.7	56.2	30.0	633.3	74.5	56.4	160.7	0.0	67.3
LnGrp LOS	F	F	B	F	E	C	F	E	E	F	A	E
Approach Vol, veh/h		2686			1588			1142				436
Approach Delay, s/veh		187.0			130.5			348.9				108.4
Approach LOS		F			F			F				F
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	17.0	91.0	30.0	42.0	26.0	82.0	21.0	51.0				
Change Period (Y+Rc), s	8.2	7.2	7.1	8.2	7.7	7.2	5.5	8.2				
Max Green Setting (Gmax), s	8.8	70.8	22.9	46.8	18.3	61.8	15.5	55.8				
Max Q Clear Time (g_c+I1), s	13.8	89.8	27.9	23.5	23.3	66.5	20.5	40.0				
Green Ext Time (p_c), s	0.0	0.0	0.0	1.4	0.0	0.0	0.0	2.8				
Intersection Summary												
HCM 6th Ctrl Delay					197.4							
HCM 6th LOS					F							

HCM 6th Signalized Intersection Summary
 2: Greenbrook Blvd/Post Blvd & SR 70

2045 No Build PM - Signal
 09/13/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	354	1629	496	60	990	38	325	254	67	67	319	354
Future Volume (veh/h)	354	1629	496	60	990	38	325	254	67	67	319	354
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1796	1796	1796	1796	1796	1796	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	365	1679	511	62	1021	39	335	262	69	69	329	365
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	7	7	7	7	7	7	2	2	2	2	2	2
Cap, veh/h	223	1063	1082	52	883	748	213	410	348	201	255	423
Arrive On Green	0.13	0.59	0.59	0.03	0.49	0.49	0.12	0.22	0.22	0.04	0.14	0.14
Sat Flow, veh/h	1711	1796	1522	1711	1796	1522	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	365	1679	511	62	1021	39	335	262	69	69	329	365
Grp Sat Flow(s),veh/h/ln	1711	1796	1522	1711	1796	1522	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	23.5	106.5	26.3	5.5	88.5	2.4	21.5	22.9	6.4	6.0	24.5	24.5
Cycle Q Clear(g_c), s	23.5	106.5	26.3	5.5	88.5	2.4	21.5	22.9	6.4	6.0	24.5	24.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	223	1063	1082	52	883	748	213	410	348	201	255	423
V/C Ratio(X)	1.63	1.58	0.47	1.19	1.16	0.05	1.57	0.64	0.20	0.34	1.29	0.86
Avail Cap(c_a), veh/h	223	1063	1082	52	883	748	213	410	348	201	255	423
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.54	0.54	0.54	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	78.3	36.8	11.3	87.2	45.8	23.9	79.2	63.8	57.3	64.3	77.8	62.9
Incr Delay (d2), s/veh	304.9	265.4	1.5	149.9	77.6	0.1	279.9	3.3	0.3	1.0	157.6	16.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh	19.1	121.6	9.3	4.6	56.6	0.9	26.5	11.4	2.6	2.8	23.0	18.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	383.1	302.2	12.8	237.2	123.4	23.9	359.2	67.1	57.6	65.3	235.4	79.5
LnGrp LOS	F	F	B	F	F	C	F	E	E	E	F	E
Approach Vol, veh/h	2555			1122			666			763		
Approach Delay, s/veh	255.9			126.2			213.0			145.5		
Approach LOS	F			F			F			F		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	110.0	112.0	27.0	30.0	29.0	94.0	12.0	45.0				
Change Period (Y+Rc), s	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5				
Max Green Setting (Gmax), s	5.5	106.5	21.5	24.5	23.5	88.5	6.5	39.5				
Max Q Clear Time (g_c+17), s	5.5	108.5	23.5	26.5	25.5	90.5	8.0	24.9				
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5				

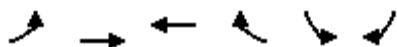
Intersection Summary

HCM 6th Ctrl Delay	205.3											
HCM 6th LOS	F											

HCM 6th Signalized Intersection Summary

3: SR 70 & Uihlein Rd

2045 No Build PM - Signal
09/13/2018



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↶	↷	↶	↷	↶	↷
Traffic Volume (veh/h)	667	1000	615	98	135	390
Future Volume (veh/h)	667	1000	615	98	135	390
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1796	1796	1796	1796	1870	1870
Adj Flow Rate, veh/h	702	1053	647	103	142	411
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	7	7	7	7	2	2
Cap, veh/h	678	1443	661	739	210	815
Arrive On Green	0.40	0.80	0.37	0.37	0.12	0.12
Sat Flow, veh/h	1711	1796	1796	1522	1781	1585
Grp Volume(v), veh/h	702	1053	647	103	142	411
Grp Sat Flow(s),veh/h/ln	1711	1796	1796	1522	1781	1585
Q Serve(g_s), s	55.5	39.0	49.8	5.2	10.7	16.5
Cycle Q Clear(g_c), s	55.5	39.0	49.8	5.2	10.7	16.5
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	678	1443	661	739	210	815
V/C Ratio(X)	1.04	0.73	0.98	0.14	0.68	0.50
Avail Cap(c_a), veh/h	678	1443	661	739	210	815
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.3	6.5	43.7	19.9	59.2	22.3
Incr Delay (d2), s/veh	43.9	1.9	29.7	0.1	8.3	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.1	10.0	26.5	2.3	5.3	23.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	86.2	8.4	73.4	19.9	67.5	22.8
LnGrp LOS	F	A	E	B	E	C
Approach Vol, veh/h		1755	750		553	
Approach Delay, s/veh		39.5	66.1		34.3	
Approach LOS		D	E		C	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		118.0		22.0	61.0	57.0
Change Period (Y+Rc), s		5.5		5.5	5.5	5.5
Max Green Setting (Gmax), s		112.5		16.5	55.5	51.5
Max Q Clear Time (g_c+I1), s		41.0		18.5	57.5	51.8
Green Ext Time (p_c), s		10.1		0.0	0.0	0.0
Intersection Summary						
HCM 6th Ctrl Delay			45.1			
HCM 6th LOS			D			

HCM 6th Signalized Intersection Summary
 29: Del Webb Blvd & SR 70

2045 No Build PM - Signal
 10/17/2018

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗	↘	↑	↘	↗
Traffic Volume (veh/h)	952	140	46	619	147	25
Future Volume (veh/h)	952	140	46	619	147	25
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1796	1796	1796	1796	1870	1870
Adj Flow Rate, veh/h	1002	147	48	652	155	26
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	7	7	7	7	2	2
Cap, veh/h	1135	962	59	1300	211	243
Arrive On Green	0.63	0.63	0.03	0.72	0.12	0.12
Sat Flow, veh/h	1796	1522	1711	1796	1781	1585
Grp Volume(v), veh/h	1002	147	48	652	155	26
Grp Sat Flow(s),veh/h/ln	1796	1522	1711	1796	1781	1585
Q Serve(g_s), s	32.4	2.7	1.9	11.0	5.9	1.0
Cycle Q Clear(g_c), s	32.4	2.7	1.9	11.0	5.9	1.0
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1135	962	59	1300	211	243
V/C Ratio(X)	0.88	0.15	0.81	0.50	0.74	0.11
Avail Cap(c_a), veh/h	2484	2105	172	2767	549	543
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	10.7	5.2	33.4	4.2	29.7	25.4
Incr Delay (d2), s/veh	2.5	0.1	22.0	0.3	4.9	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.8	0.5	1.1	1.7	2.7	0.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	13.2	5.3	55.4	4.5	34.6	25.6
LnGrp LOS	B	A	E	A	C	C
Approach Vol, veh/h	1149			700	181	
Approach Delay, s/veh	12.1			8.0	33.3	
Approach LOS	B			A	C	
Timer - Assigned Phs		2	3	4		8
Phs Duration (G+Y+Rc), s		13.8	6.4	49.6		56.0
Change Period (Y+Rc), s		5.5	4.0	5.5		5.5
Max Green Setting (Gmax), s		21.5	7.0	96.5		107.5
Max Q Clear Time (g_c+I1), s		7.9	3.9	34.4		13.0
Green Ext Time (p_c), s		0.4	0.0	9.7		4.4
Intersection Summary						
HCM 6th Ctrl Delay			12.6			
HCM 6th LOS			B			

HCM 6th Signalized Intersection Summary
 4: Bourneside Blvd & SR 70

2045 No Build PM - Signal
 09/13/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↑	↗	↖	↑	↗
Traffic Volume (veh/h)	189	609	179	99	359	105	94	27	89	200	59	212
Future Volume (veh/h)	189	609	179	99	359	105	94	27	89	200	59	212
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1796	1796	1796	1796	1796	1796	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	199	641	188	104	378	111	99	28	94	211	62	223
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	7	7	7	7	7	7	2	2	2	2	2	2
Cap, veh/h	235	698	205	130	616	181	127	180	153	248	308	261
Arrive On Green	0.14	0.52	0.52	0.08	0.46	0.46	0.07	0.10	0.10	0.14	0.16	0.16
Sat Flow, veh/h	1711	1334	391	1711	1334	392	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	199	0	829	104	0	489	99	28	94	211	62	223
Grp Sat Flow(s),veh/h/ln	1711	0	1726	1711	0	1726	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	11.0	0.0	42.8	5.8	0.0	20.6	5.3	1.3	5.5	11.2	2.8	13.3
Cycle Q Clear(g_c), s	11.0	0.0	42.8	5.8	0.0	20.6	5.3	1.3	5.5	11.2	2.8	13.3
Prop In Lane	1.00		0.23	1.00		0.23	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	235	0	903	130	0	797	127	180	153	248	308	261
V/C Ratio(X)	0.85	0.00	0.92	0.80	0.00	0.61	0.78	0.16	0.62	0.85	0.20	0.85
Avail Cap(c_a), veh/h	441	0	1317	194	0	1067	275	347	294	386	463	392
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.8	0.0	21.2	44.1	0.0	19.6	44.3	40.2	42.1	40.7	35.0	39.4
Incr Delay (d2), s/veh	8.1	0.0	7.8	13.1	0.0	0.8	9.9	0.4	4.0	10.3	0.3	11.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.9	0.0	16.0	2.8	0.0	7.5	2.7	0.6	2.2	5.6	1.3	5.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	49.0	0.0	29.0	57.2	0.0	20.4	54.2	40.6	46.1	51.1	35.3	50.6
LnGrp LOS	D	A	C	E	A	C	D	D	D	D	D	D
Approach Vol, veh/h		1028			593			221			496	
Approach Delay, s/veh		32.8			26.8			49.0			48.9	
Approach LOS		C			C			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	17.5	13.4	11.4	54.7	10.9	20.0	17.3	48.8				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	18.0	18.0	11.0	74.0	15.0	24.0	25.0	60.0				
Max Q Clear Time (g_c+M), s	11.2	7.5	7.8	44.8	7.3	15.3	13.0	22.6				
Green Ext Time (p_c), s	0.4	0.3	0.1	6.0	0.1	0.7	0.4	3.0				

Intersection Summary

HCM 6th Ctrl Delay	36.3
HCM 6th LOS	D

Intersection												
Int Delay, s/veh	11.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑	↗	↖	↑	↗	↖	↗			↕	
Traffic Vol, veh/h	100	754	45	15	494	15	65	5	20	10	5	45
Future Vol, veh/h	100	754	45	15	494	15	65	5	20	10	5	45
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	510	-	510	510	-	510	150	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	7	7	7	7	7	7	7	0	25	50	0	3
Mvmt Flow	105	794	47	16	520	16	68	5	21	11	5	47

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	536	0	0	841	0	0	1590	1572	794	1593	1603	520
Stage 1	-	-	-	-	-	-	1004	1004	-	552	552	-
Stage 2	-	-	-	-	-	-	586	568	-	1041	1051	-
Critical Hdwy	4.17	-	-	4.17	-	-	7.17	6.5	6.45	7.6	6.5	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.17	5.5	-	6.6	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.17	5.5	-	6.6	5.5	-
Follow-up Hdwy	2.263	-	-	2.263	-	-	3.563	4	3.525	3.95	4	3.327
Pot Cap-1 Maneuver	1007	-	-	773	-	-	85	111	354	67	107	554
Stage 1	-	-	-	-	-	-	285	322	-	442	518	-
Stage 2	-	-	-	-	-	-	488	510	-	227	306	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1007	-	-	773	-	-	~ 67	97	354	55	94	554
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 67	97	-	55	94	-
Stage 1	-	-	-	-	-	-	255	289	-	396	507	-
Stage 2	-	-	-	-	-	-	433	499	-	188	274	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	1			0.3			165.7			33.1		
HCM LOS							F			D		

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	67	231	1007	-	-	773	-	-	190
HCM Lane V/C Ratio	1.021	0.114	0.105	-	-	0.02	-	-	0.332
HCM Control Delay (s)	220.7	22.6	9	-	-	9.8	-	-	33.1
HCM Lane LOS	F	C	A	-	-	A	-	-	D
HCM 95th %tile Q(veh)	5.2	0.4	0.3	-	-	0.1	-	-	1.4

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

Intersection						
Int Delay, s/veh	0.7					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗	↘	↑	↘	↗
Traffic Vol, veh/h	792	30	10	523	20	10
Future Vol, veh/h	792	30	10	523	20	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	510	570	-	180	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	7	7	7	7	0	0
Mvmt Flow	834	32	11	551	21	11

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	866	0	1407
Stage 1	-	-	-	-	834
Stage 2	-	-	-	-	573
Critical Hdwy	-	-	4.17	-	6.4
Critical Hdwy Stg 1	-	-	-	-	5.4
Critical Hdwy Stg 2	-	-	-	-	5.4
Follow-up Hdwy	-	-	2.263	-	3.5
Pot Cap-1 Maneuver	-	-	757	-	155
Stage 1	-	-	-	-	430
Stage 2	-	-	-	-	568
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	757	-	153
Mov Cap-2 Maneuver	-	-	-	-	153
Stage 1	-	-	-	-	424
Stage 2	-	-	-	-	568

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	26.5
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	153	371	-	-	757	-
HCM Lane V/C Ratio	0.138	0.028	-	-	0.014	-
HCM Control Delay (s)	32.2	15	-	-	9.8	-
HCM Lane LOS	D	C	-	-	A	-
HCM 95th %tile Q(veh)	0.5	0.1	-	-	0	-

Intersection						
Int Delay, s/veh	0.3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	5	805	525	0	5	10
Future Vol, veh/h	5	805	525	0	5	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	410	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	7	7	7	7	0	0
Mvmt Flow	5	847	553	0	5	11

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	553	0	-	0	1410 553
Stage 1	-	-	-	-	553 -
Stage 2	-	-	-	-	857 -
Critical Hdwy	4.17	-	-	-	6.4 6.2
Critical Hdwy Stg 1	-	-	-	-	5.4 -
Critical Hdwy Stg 2	-	-	-	-	5.4 -
Follow-up Hdwy	2.263	-	-	-	3.5 3.3
Pot Cap-1 Maneuver	992	-	-	-	154 537
Stage 1	-	-	-	-	580 -
Stage 2	-	-	-	-	419 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	992	-	-	-	153 537
Mov Cap-2 Maneuver	-	-	-	-	153 -
Stage 1	-	-	-	-	577 -
Stage 2	-	-	-	-	419 -

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	18
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	992	-	-	-	292
HCM Lane V/C Ratio	0.005	-	-	-	0.054
HCM Control Delay (s)	8.6	-	-	-	18
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0.2

Intersection												
Int Delay, s/veh	4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↑	↔	↔	↑	↔		↔	↔		↔	
Traffic Vol, veh/h	20	762	75	15	485	10	49	10	10	5	5	20
Future Vol, veh/h	20	762	75	15	485	10	49	10	10	5	5	20
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	500	-	400	600	-	490	-	-	100	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	7	7	7	7	7	7	2	0	0	0	100	6
Mvmt Flow	21	802	79	16	511	11	52	11	11	5	5	21

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	522	0	0	881	0	0	1406	1398	802	1438	1466	511
Stage 1	-	-	-	-	-	-	844	844	-	543	543	-
Stage 2	-	-	-	-	-	-	562	554	-	895	923	-
Critical Hdwy	4.17	-	-	4.17	-	-	7.12	6.5	6.2	7.1	7.5	6.26
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.5	-	6.1	6.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.5	-	6.1	6.5	-
Follow-up Hdwy	2.263	-	-	2.263	-	-	3.518	4	3.3	3.5	4.9	3.354
Pot Cap-1 Maneuver	1019	-	-	747	-	-	117	142	387	112	80	555
Stage 1	-	-	-	-	-	-	358	382	-	528	390	-
Stage 2	-	-	-	-	-	-	512	517	-	338	244	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1019	-	-	747	-	-	103	136	387	99	77	555
Mov Cap-2 Maneuver	-	-	-	-	-	-	103	136	-	99	77	-
Stage 1	-	-	-	-	-	-	350	374	-	517	382	-
Stage 2	-	-	-	-	-	-	475	506	-	313	239	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.2			0.3			68.2			26.6		
HCM LOS							F			D		

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	107	387	1019	-	-	747	-	-	198
HCM Lane V/C Ratio	0.58	0.027	0.021	-	-	0.021	-	-	0.159
HCM Control Delay (s)	77.3	14.6	8.6	-	-	9.9	-	-	26.6
HCM Lane LOS	F	B	A	-	-	A	-	-	D
HCM 95th %tile Q(veh)	2.8	0.1	0.1	-	-	0.1	-	-	0.6

Intersection												
Int Delay, s/veh	10.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗			↕			↕			↕	
Traffic Vol, veh/h	157	571	25	20	358	0	58	10	25	112	10	72
Future Vol, veh/h	157	571	25	20	358	0	58	10	25	112	10	72
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	Yield
Storage Length	520	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	7	7	7	7	7	7	0	0	0	15	0	7
Mvmt Flow	165	601	26	21	377	0	61	11	26	118	11	76

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	377	0	0	627	0	0	1369	1363	614	1382	1376	377
Stage 1	-	-	-	-	-	-	944	944	-	419	419	-
Stage 2	-	-	-	-	-	-	425	419	-	963	957	-
Critical Hdwy	4.17	-	-	4.17	-	-	7.1	6.5	6.2	7.25	6.5	6.27
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.25	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.25	5.5	-
Follow-up Hdwy	2.263	-	-	2.263	-	-	3.5	4	3.3	3.635	4	3.363
Pot Cap-1 Maneuver	1155	-	-	931	-	-	125	149	496	~ 114	146	659
Stage 1	-	-	-	-	-	-	317	344	-	587	593	-
Stage 2	-	-	-	-	-	-	611	593	-	291	339	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1155	-	-	931	-	-	93	124	496	~ 91	121	659
Mov Cap-2 Maneuver	-	-	-	-	-	-	181	211	-	166	213	-
Stage 1	-	-	-	-	-	-	272	295	-	503	576	-
Stage 2	-	-	-	-	-	-	515	576	-	228	291	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	1.8		0.5		33.4		50.8	
HCM LOS					D		F	

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	222	1155	-	-	931	-	-	269
HCM Lane V/C Ratio	0.441	0.143	-	-	0.023	-	-	0.759
HCM Control Delay (s)	33.4	8.6	-	-	9	0	-	50.8
HCM Lane LOS	D	A	-	-	A	A	-	F
HCM 95th %tile Q(veh)	2.1	0.5	-	-	0.1	-	-	5.6

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

Intersection						
Int Delay, s/veh	0					
Movement	NBT	NBR	SBL	SBT	NWL	NWR
Lane Configurations	↑			↑		↑
Traffic Vol, veh/h	167	0	0	194	0	111
Future Vol, veh/h	167	0	0	194	0	111
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	16974	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	176	0	0	204	0	117

Major/Minor	Minor2	Major2	
Conflicting Flow All	204	-	-
Stage 1	204	-	-
Stage 2	0	-	-
Critical Hdwy	6.52	-	-
Critical Hdwy Stg 1	5.52	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	4.018	-	-
Pot Cap-1 Maneuver	692	0	0
Stage 1	733	0	0
Stage 2	-	0	0
Platoon blocked, %			-
Mov Cap-1 Maneuver	0	-	-
Mov Cap-2 Maneuver	0	-	-
Stage 1	0	-	-
Stage 2	0	-	-

Approach	NB	SB
HCM Control Delay, s		0
HCM LOS	-	

Minor Lane/Major Mvmt	NBLn1	SBT
Capacity (veh/h)	-	-
HCM Lane V/C Ratio	-	-
HCM Control Delay (s)	-	-
HCM Lane LOS	-	-
HCM 95th %tile Q(veh)	-	-

Appendix H

Roadway Analysis Outputs- No Build

HIGHPLAN 2012 Conceptual Planning Analysis

Project Information

Analyst	JP/VHB	Highway Name	SR 70	Study Period	Kother
Date Prepared	8/23/2018 12:42:50 PM	From	Uihlein (M.P. 9.988)	Analysis Type	Two-Lane Segment
Agency	FDOT D1	To	Bourneside (M.P. 11.988)	Program	HIGHPLAN 2012
Area Type	Rural Undeveloped	Peak Direction	Westbound	Version Date	12/12/2012
File Name	\\vhb\proj\Orlando\62498.04 FDOT D1 SR 70 Re Eval\tech\Analysis\HIGHPLAN\1 - Uihlein to Bourneside\2025 AM NB.xhp				
User Notes	2025 AM NB				

Highway Data

Roadway Variables				Traffic Variables			
Segment Length	2.000	Median	No	AADT	15000	PHF	0.950
# Thru Lanes	2	Left Turn Impact	No	K	0.095	% Heavy Vehicles	7.1
Terrain	Level	Pass Lane Length	N/A	D	0.605	Base Capacity	1700
Posted Speed	60	% NPZ	100	Peak Dir. Hrly. Vol.	862	Local Adj. Factor	0.88
Free Flow Speed	60	Class	1	Off Peak Dir. Hrly. Vol.	563	Adjusted Capacity	0

LOS Results

v/c Ratio	0.61	Density	N/A	PTSF	89.3	ATS	45.0	% FFS	75.0
FFS Delay	40.1	LOS Thresh. Delay	16.1	Service Measure	PTSF	LOS	E		

Service Volumes

Note: The maximum normally acceptable directional service volume for LOS E in Florida for this facility type and area type is 1500 veh/h/ln.

	A	B	C	D	E
Lanes	Hourly Volume In Peak Direction				
1	*	120	260	550	1420
2					
3					
4					
Lanes	Hourly Volume In Both Directions				
2	*	200	430	910	2350
4					
6					
8					
Lanes	Annual Average Daily Traffic				

2	*	2200	4600	9600	24800
4					
6					
8					

* Cannot be achieved based on input data provided.

Performance measure results are no longer applicable with the presence of passing lanes. Refer to the service volume tables to obtain the LOS.

HIGHPLAN 2012 Conceptual Planning Analysis

Project Information

Analyst	JP/VHB	Highway Name	SR 70	Study Period	Kother
Date Prepared	8/23/2018 12:42:50 PM	From	Bourneside (M.P. 11.988)	Analysis Type	Two-Lane Segment
Agency	FDOT D1	To	Lindrick Ln./197th Street E. (M.P. 13.218)	Program	HIGHPLAN 2012
Area Type	Rural Undeveloped	Peak Direction	Westbound	Version Date	12/12/2012
File Name	\\vhb\proj\Orlando\62498.04 FDOT D1 SR 70 Re Eval\tech\Analysis\HIGHPLAN\Bourneside to Lindrick\2025 AM NB.xhp				
User Notes	2025 AM NB				

Highway Data

Roadway Variables				Traffic Variables			
Segment Length	1.230	Median	No	AADT	14000	PHF	0.950
# Thru Lanes	2	Left Turn Impact	No	K	0.095	% Heavy Vehicles	7.1
Terrain	Level	Pass Lane Length	N/A	D	0.605	Base Capacity	1700
Posted Speed	60	% NPZ	33	Peak Dir. Hrly. Vol.	805	Local Adj. Factor	0.88
Free Flow Speed	60	Class	1	Off Peak Dir. Hrly. Vol.	525	Adjusted Capacity	0

LOS Results

v/c Ratio	0.57	Density	N/A	PTSF	84.8	ATS	46.5	% FFS	77.4
FFS Delay	21.5	LOS Thresh. Delay	6.7	Service Measure	PTSF	LOS	E		

Service Volumes

Note: The maximum normally acceptable directional service volume for LOS E in Florida for this facility type and area type is 1500 veh/h/ln.

	A	B	C	D	E
Lanes	Hourly Volume In Peak Direction				
1	80	190	370	650	1420
2					
3					
4					
Lanes	Hourly Volume In Both Directions				
2	140	320	620	1080	2350
4					
6					

Lanes	Annual Average Daily Traffic				
2	1500	3400	6600	11400	24800
4					
6					
8					

Cannot be achieved based on input data provided.

Performance measure results are no longer applicable with the presence of passing lanes. Refer to the service volume tables to obtain the LOS.

HIGHPLAN 2012 Conceptual Planning Analysis

Project Information

Analyst	AP/VHB	Highway Name	SR 70	Study Period	Kother
Date Prepared	8/23/2018 12:42:50 PM	From	Lindrick Ln./197th Street E. (M.P. 13.218)	Analysis Type	Two-Lane Segment
Agency	FDOT D1	To	Meadow Dove Ln./CR 675 (M.P. 15.567)	Program	HIGHPLAN 2012
Area Type	Rural Undeveloped	Peak Direction	Westbound	Version Date	12/12/2012
File Name	\\vhb\proj\Orlando\62498.04 FDOT D1 SR 70 Re Eval\tech\Analysis\HIGHPLAN\Lindrick to CR 675\2025 AM NB.xhp				
User Notes	2025 AM NB				

Highway Data

Roadway Variables				Traffic Variables			
Segment Length	2.300	Median	No	AADT	12000	PHF	0.950
# Thru Lanes	2	Left Turn Impact	No	K	0.095	% Heavy Vehicles	7.1
Terrain	Level	Pass Lane Length	N/A	D	0.605	Base Capacity	1700
Posted Speed	60	% NPZ	36	Peak Dir. Hrly. Vol.	690	Local Adj. Factor	0.88
Free Flow Speed	60	Class	1	Off Peak Dir. Hrly. Vol.	450	Adjusted Capacity	0

LOS Results

v/c Ratio	0.49	Density	N/A	PTSF	81.2	ATS	47.9	% FFS	79.8
FFS Delay	34.8	LOS Thresh. Delay	7.2	Service Measure	PTSF	LOS	E		

Service Volumes

Note: The maximum normally acceptable directional service volume for LOS E in Florida for this facility type and area type is 1500 veh/h/ln.

	A	B	C	D	E
Lanes	Hourly Volume In Peak Direction				
1	80	190	360	650	1420
2					
3					
4					
Lanes	Hourly Volume In Both Directions				
2	140	320	600	1080	2350
4					
6					

8					
Lanes	Annual Average Daily Traffic				
2	1500	3400	6400	11400	24800
4					
6					
8					

* Cannot be achieved based on input data provided.

Performance measure results are no longer applicable with the presence of passing lanes. Refer to the service volume tables to obtain the LOS.

HIGHPLAN 2012 Conceptual Planning Analysis

Project Information

Analyst	JP/VHB	Highway Name	SR 70	Study Period	Kother
Date Prepared	8/23/2018 12:42:50 PM	From	Uihlien (M.P. 9.988)	Analysis Type	Two-Lane Segment
Agency	FDOT D1	To	Bourneside (M.P. 11.988) Street E. (M.P. 13.218)	Program	HIGHPLAN 2012
Area Type	Rural Undeveloped	Peak Direction	Eastbound	Version Date	12/12/2012
File Name	\\vhb\proj\Orlando\62498.04 FDOT D1 SR 70 Re Eval\tech\Analysis\HIGHPLAN\1 - Uihlein to Bourneside\2025 PM NB.xhp				
User Notes	2025 PM NB				

Highway Data

Roadway Variables				Traffic Variables			
Segment Length	2.000	Median	No	AADT	15000	PHF	0.950
# Thru Lanes	2	Left Turn Impact	No	K	0.095	% Heavy Vehicles	7.1
Terrain	Level	Pass Lane Length	N/A	D	0.605	Base Capacity	1700
Posted Speed	60	% NPZ	100	Peak Dir. Hrly. Vol.	862	Local Adj. Factor	0.88
Free Flow Speed	60	Class	1	Off Peak Dir. Hrly. Vol.	563	Adjusted Capacity	0

LOS Results

v/c Ratio	0.61	Density	N/A	PTSF	89.3	ATS	45.0	% FFS	75.0
FFS Delay	40.1	LOS Thresh. Delay	16.1	Service Measure	PTSF	LOS	E		

Service Volumes

Note: The maximum normally acceptable directional service volume for LOS E in Florida for this facility type and area type is 1500 veh/h/ln.

	A	B	C	D	E
Lanes	Hourly Volume In Peak Direction				
1	*	120	260	550	1420
2					
3					
4					
Lanes	Hourly Volume In Both Directions				
2	*	200	430	910	2350
4					
6					

8					
Lanes	Annual Average Daily Traffic				
2	*	2200	4600	9600	24800
4					
6					
8					

Cannot be achieved based on input data provided.

Performance measure results are no longer applicable with the presence of passing lanes. Refer to the service volume tables to obtain the LOS.

HIGHPLAN 2012 Conceptual Planning Analysis

Project Information

Analyst	JP/VHB	Highway Name	SR 70	Study Period	Kother
Date Prepared	8/23/2018 12:42:50 PM	From	Bourneside (M.P. 11.988)	Analysis Type	Two-Lane Segment
Agency	FDOT D1	To	Lindrick Ln./197th Street E. (M.P. 13.218)	Program	HIGHPLAN 2012
Area Type	Rural Undeveloped	Peak Direction	Eastbound	Version Date	12/12/2012
File Name	\\vhb\proj\Orlando\62498.04 FDOT D1 SR 70 Re Eval\tech\Analysis\HIGHPLAN\Bourneside to Lindrick\2025 PM NB.xhp				
User Notes	2025 PM NB				

Highway Data

Roadway Variables				Traffic Variables			
Segment Length	1.230	Median	No	AADT	14000	PHF	0.950
# Thru Lanes	2	Left Turn Impact	No	K	0.095	% Heavy Vehicles	7.1
Terrain	Level	Pass Lane Length	N/A	D	0.605	Base Capacity	1700
Posted Speed	60	% NPZ	37	Peak Dir. Hrly. Vol.	782	Local Adj. Factor	0.88
Free Flow Speed	60	Class	1	Off Peak Dir. Hrly. Vol.	510	Adjusted Capacity	0

LOS Results

v/c Ratio	0.55	Density	N/A	PTSF	84.2	ATS	46.7	% FFS	77.9
FFS Delay	21.0	LOS Thresh. Delay	6.2	Service Measure	PTSF	LOS	E		

Service Volumes

Note: The maximum normally acceptable directional service volume for LOS E in Florida for this facility type and area type is 1500 veh/h/ln.

	A	B	C	D	E
Lanes	Hourly Volume In Peak Direction				
1	70	180	350	640	1420
2					
3					
4					
Lanes	Hourly Volume In Both Directions				
2	120	300	580	1060	2350
4					
6					

8					
Lanes	Annual Average Daily Traffic				
2	1300	3200	6200	11200	24800
4					
6					
8					

Cannot be achieved based on input data provided.

Performance measure results are no longer applicable with the presence of passing lanes. Refer to the service volume tables to obtain the LOS.

HIGHPLAN 2012 Conceptual Planning Analysis

Project Information

Analyst	AP/VHB	Highway Name	SR 70	Study Period	Kother
Date Prepared	8/23/2018 12:42:50 PM	From	Lindrick Ln./197th Street E. (M.P. 13.218)	Analysis Type	Two-Lane Segment
Agency	FDOT D1	To	Meadow Dove Ln./CR 675 (M.P. 15.567)	Program	HIGHPLAN 2012
Area Type	Rural Undeveloped	Peak Direction	Eastbound	Version Date	12/12/2012
File Name	\\vhb\proj\Orlando\62498.04 FDOT D1 SR 70 Re Eval\tech\Analysis\HIGHPLAN\Lindrick to CR 675\2025 PM NB.xhp				
User Notes	2025 PM NB				

Highway Data

Roadway Variables				Traffic Variables			
Segment Length	2.300	Median	No	AADT	12000	PHF	0.950
# Thru Lanes	2	Left Turn Impact	No	K	0.095	% Heavy Vehicles	7.1
Terrain	Level	Pass Lane Length	N/A	D	0.605	Base Capacity	1700
Posted Speed	60	% NPZ	89	Peak Dir. Hrly. Vol.	690	Local Adj. Factor	0.88
Free Flow Speed	60	Class	1	Off Peak Dir. Hrly. Vol.	450	Adjusted Capacity	0

LOS Results

v/c Ratio	0.49	Density	N/A	PTSF	84.6	ATS	47.2	% FFS	78.6
FFS Delay	37.6	LOS Thresh. Delay	10.0	Service Measure	PTSF	LOS	E		

Service Volumes

Note: The maximum normally acceptable directional service volume for LOS E in Florida for this facility type and area type is 1500 veh/h/ln.

	A	B	C	D	E
Lanes	Hourly Volume In Peak Direction				
1	*	130	260	550	1420
2					
3					
4					
Lanes	Hourly Volume In Both Directions				
2	*	220	430	910	2350
4					
6					

8					
Lanes	Annual Average Daily Traffic				
2	*	2400	4600	9600	24800
4					
6					
8					

* Cannot be achieved based on input data provided.

Performance measure results are no longer applicable with the presence of passing lanes. Refer to the service volume tables to obtain the LOS.

HIGHPLAN 2012 Conceptual Planning Analysis

Project Information

Analyst	JP/VHB	Highway Name	SR 70	Study Period	Kother
Date Prepared	8/23/2018 12:42:50 PM	From	Uihlein (M.P. 9.988)	Analysis Type	Two-Lane Segment
Agency	FDOT D1	To	Bourneside (M.P. 11.988)	Program	HIGHPLAN 2012
Area Type	Rural Undeveloped	Peak Direction	Westbound	Version Date	12/12/2012
File Name	\\vhb\proj\Orlando\62498.04 FDOT D1 SR 70 Re Eval\tech\Analysis\HIGHPLAN\1 - Uihlein to Bourneside\2035 AM NB.xhp				
User Notes	2035 AM NB				

Highway Data

Roadway Variables				Traffic Variables			
Segment Length	2.000	Median	No	AADT	17000	PHF	0.950
# Thru Lanes	2	Left Turn Impact	No	K	0.095	% Heavy Vehicles	7.1
Terrain	Level	Pass Lane Length	N/A	D	0.605	Base Capacity	1700
Posted Speed	60	% NPZ	100	Peak Dir. Hrly. Vol.	977	Local Adj. Factor	0.88
Free Flow Speed	60	Class	1	Off Peak Dir. Hrly. Vol.	638	Adjusted Capacity	0

LOS Results

v/c Ratio	0.69	Density	N/A	PTSF	91.1	ATS	43.5	% FFS	72.5
FFS Delay	45.6	LOS Thresh. Delay	21.6	Service Measure	PTSF	LOS	E		

Service Volumes

Note: The maximum normally acceptable directional service volume for LOS E in Florida for this facility type and area type is 1500 veh/h/ln.

	A	B	C	D	E
Lanes	Hourly Volume In Peak Direction				
1	*	120	260	550	1420
2					
3					
4					
Lanes	Hourly Volume In Both Directions				
2	*	200	430	910	2350
4					
6					
8					
Lanes	Annual Average Daily Traffic				

2	*	2200	4600	9600	24800
4					
6					
8					

* Cannot be achieved based on input data provided.

Performance measure results are no longer applicable with the presence of passing lanes. Refer to the service volume tables to obtain the LOS.

HIGHPLAN 2012 Conceptual Planning Analysis

Project Information

Analyst	JP/VHB	Highway Name	SR 70	Study Period	Kother
Date Prepared	8/23/2018 12:42:50 PM	From	Bourneside (M.P. 11.988)	Analysis Type	Two-Lane Segment
Agency	FDOT D1	To	Lindrick Ln./197th Street E. (M.P. 13.218)	Program	HIGHPLAN 2012
Area Type	Rural Undeveloped	Peak Direction	Westbound	Version Date	12/12/2012
File Name	\\vhb\proj\Orlando\62498.04 FDOT D1 SR 70 Re Eval\tech\Analysis\HIGHPLAN\Bourneside to Lindrick\2035 AM NB.xhp				
User Notes	2035 AM NB				

Highway Data

Roadway Variables				Traffic Variables			
Segment Length	1.230	Median	No	AADT	14000	PHF	0.950
# Thru Lanes	2	Left Turn Impact	No	K	0.095	% Heavy Vehicles	7.1
Terrain	Level	Pass Lane Length	N/A	D	0.605	Base Capacity	1700
Posted Speed	60	% NPZ	33	Peak Dir. Hrly. Vol.	822	Local Adj. Factor	0.88
Free Flow Speed	60	Class	1	Off Peak Dir. Hrly. Vol.	537	Adjusted Capacity	0

LOS Results

v/c Ratio	0.58	Density	N/A	PTSF	85.5	ATS	46.2	% FFS	77.0
FFS Delay	22.0	LOS Thresh. Delay	7.2	Service Measure	PTSF	LOS	E		

Service Volumes

Note: The maximum normally acceptable directional service volume for LOS E in Florida for this facility type and area type is 1500 veh/h/ln.

	A	B	C	D	E
Lanes	Hourly Volume In Peak Direction				
1	80	190	370	650	1420
2					
3					
4					
Lanes	Hourly Volume In Both Directions				
2	140	320	620	1080	2350
4					
6					

8					
Lanes	Annual Average Daily Traffic				
2	1500	3400	6600	11400	24800
4					
6					
8					

Cannot be achieved based on input data provided.

Performance measure results are no longer applicable with the presence of passing lanes. Refer to the service volume tables to obtain the LOS.

HIGHPLAN 2012 Conceptual Planning Analysis

Project Information

Analyst	AP/VHB	Highway Name	SR 70	Study Period	Kother
Date Prepared	8/23/2018 12:42:50 PM	From	Lindrick Ln./197th Street E. (M.P. 13.218)	Analysis Type	Two-Lane Segment
Agency	FDOT D1	To	Meadow Dove Ln./CR 675 (M.P. 15.567)	Program	HIGHPLAN 2012
Area Type	Rural Undeveloped	Peak Direction	Westbound	Version Date	12/12/2012
File Name	\\vhb\proj\Orlando\62498.04 FDOT D1 SR 70 Re Eval\tech\Analysis\HIGHPLAN\Lindrick to CR 675\2035 AM NB.xhp				
User Notes	2035 AM NB				

Highway Data

Roadway Variables				Traffic Variables			
Segment Length	2.300	Median	No	AADT	13000	PHF	0.950
# Thru Lanes	2	Left Turn Impact	No	K	0.095	% Heavy Vehicles	7.1
Terrain	Level	Pass Lane Length	N/A	D	0.605	Base Capacity	1700
Posted Speed	60	% NPZ	36	Peak Dir. Hrly. Vol.	747	Local Adj. Factor	0.88
Free Flow Speed	60	Class	1	Off Peak Dir. Hrly. Vol.	488	Adjusted Capacity	0

LOS Results

v/c Ratio	0.53	Density	N/A	PTSF	82.9	ATS	47.2	% FFS	78.7
FFS Delay	37.4	LOS Thresh. Delay	9.8	Service Measure	PTSF	LOS	E		

Service Volumes

Note: The maximum normally acceptable directional service volume for LOS E in Florida for this facility type and area type is 1500 veh/h/ln.

	A	B	C	D	E
Lanes	Hourly Volume In Peak Direction				
1	80	190	360	650	1420
2					
3					
4					
Lanes	Hourly Volume In Both Directions				
2	140	320	600	1080	2350
4					
6					

8					
Lanes	Annual Average Daily Traffic				
2	1500	3400	6400	11400	24800
4					
6					
8					

* Cannot be achieved based on input data provided.

Performance measure results are no longer applicable with the presence of passing lanes. Refer to the service volume tables to obtain the LOS.

HIGHPLAN 2012 Conceptual Planning Analysis

Project Information

Analyst	JP/VHB	Highway Name	SR 70	Study Period	Kother
Date Prepared	8/23/2018 12:42:50 PM	From	Uihlien (M.P. 9.988)	Analysis Type	Two-Lane Segment
Agency	FDOT D1	To	Bourneside (M.P. 11.988) Street E. (M.P. 13.218)	Program	HIGHPLAN 2012
Area Type	Rural Undeveloped	Peak Direction	Eastbound	Version Date	12/12/2012
File Name	\\vhb\proj\Orlando\62498.04 FDOT D1 SR 70 Re Eval\tech\Analysis\HIGHPLAN\1 - Uihlein to Bourneside\2035 PM NB.xhp				
User Notes	2035 PM NB				

Highway Data

Roadway Variables				Traffic Variables			
Segment Length	2.000	Median	No	AADT	17000	PHF	0.950
# Thru Lanes	2	Left Turn Impact	No	K	0.095	% Heavy Vehicles	7.1
Terrain	Level	Pass Lane Length	N/A	D	0.605	Base Capacity	1700
Posted Speed	60	% NPZ	100	Peak Dir. Hrly. Vol.	977	Local Adj. Factor	0.88
Free Flow Speed	60	Class	1	Off Peak Dir. Hrly. Vol.	638	Adjusted Capacity	0

LOS Results

v/c Ratio	0.69	Density	N/A	PTSF	91.1	ATS	43.5	% FFS	72.5
FFS Delay	45.6	LOS Thresh. Delay	21.6	Service Measure	PTSF	LOS	E		

Service Volumes

Note: The maximum normally acceptable directional service volume for LOS E in Florida for this facility type and area type is 1500 veh/h/ln.

	A	B	C	D	E
Lanes	Hourly Volume In Peak Direction				
1	*	120	260	550	1420
2					
3					
4					
Lanes	Hourly Volume In Both Directions				
2	*	200	430	910	2350
4					
6					

8					
Lanes	Annual Average Daily Traffic				
2	*	2200	4600	9600	24800
4					
6					
8					

Cannot be achieved based on input data provided.

Performance measure results are no longer applicable with the presence of passing lanes. Refer to the service volume tables to obtain the LOS.

HIGHPLAN 2012 Conceptual Planning Analysis

Project Information

Analyst	JP/VHB	Highway Name	SR 70	Study Period	Kother
Date Prepared	8/23/2018 12:42:50 PM	From	Bourneside (M.P. 11.988)	Analysis Type	Two-Lane Segment
Agency	FDOT D1	To	Lindrick Ln./197th Street E. (M.P. 13.218)	Program	HIGHPLAN 2012
Area Type	Rural Undeveloped	Peak Direction	Eastbound	Version Date	12/12/2012
File Name	\\vhb\proj\Orlando\62498.04 FDOT D1 SR 70 Re Eval\tech\Analysis\HIGHPLAN\Bourneside to Lindrick\2035 PM NB.xhp				
User Notes	2035 PM NB				

Highway Data

Roadway Variables				Traffic Variables			
Segment Length	1.230	Median	No	AADT	14000	PHF	0.950
# Thru Lanes	2	Left Turn Impact	No	K	0.095	% Heavy Vehicles	7.1
Terrain	Level	Pass Lane Length	N/A	D	0.605	Base Capacity	1700
Posted Speed	60	% NPZ	37	Peak Dir. Hrly. Vol.	822	Local Adj. Factor	0.88
Free Flow Speed	60	Class	1	Off Peak Dir. Hrly. Vol.	537	Adjusted Capacity	0

LOS Results

v/c Ratio	0.58	Density	N/A	PTSF	85.7	ATS	46.2	% FFS	77.0
FFS Delay	22.1	LOS Thresh. Delay	7.3	Service Measure	PTSF	LOS	E		

Service Volumes

Note: The maximum normally acceptable directional service volume for LOS E in Florida for this facility type and area type is 1500 veh/h/ln.

	A	B	C	D	E
Lanes	Hourly Volume In Peak Direction				
1	70	180	350	640	1420
2					
3					
4					
Lanes	Hourly Volume In Both Directions				
2	120	300	580	1060	2350
4					
6					

8					
Lanes	Annual Average Daily Traffic				
2	1300	3200	6200	11200	24800
4					
6					
8					

Cannot be achieved based on input data provided.

Performance measure results are no longer applicable with the presence of passing lanes. Refer to the service volume tables to obtain the LOS.

HIGHPLAN 2012 Conceptual Planning Analysis

Project Information

Analyst	AP/VHB	Highway Name	SR 70	Study Period	Kother
Date Prepared	8/23/2018 12:42:50 PM	From	Lindrick Ln./197th Street E. (M.P. 13.218)	Analysis Type	Two-Lane Segment
Agency	FDOT D1	To	Meadow Dove Ln./CR 675 (M.P. 15.567)	Program	HIGHPLAN 2012
Area Type	Rural Undeveloped	Peak Direction	Eastbound	Version Date	12/12/2012
File Name	\\vhb\proj\Orlando\62498.04 FDOT D1 SR 70 Re Eval\tech\Analysis\HIGHPLAN\Lindrick to CR 675\2035 PM NB.xhp				
User Notes	2035 PM NB				

Highway Data

Roadway Variables				Traffic Variables			
Segment Length	2.300	Median	No	AADT	13000	PHF	0.950
# Thru Lanes	2	Left Turn Impact	No	K	0.095	% Heavy Vehicles	7.1
Terrain	Level	Pass Lane Length	N/A	D	0.605	Base Capacity	1700
Posted Speed	60	% NPZ	89	Peak Dir. Hrly. Vol.	736	Local Adj. Factor	0.88
Free Flow Speed	60	Class	1	Off Peak Dir. Hrly. Vol.	480	Adjusted Capacity	0

LOS Results

v/c Ratio	0.52	Density	N/A	PTSF	85.6	ATS	46.6	% FFS	77.7
FFS Delay	39.6	LOS Thresh. Delay	12.0	Service Measure	PTSF	LOS	E		

Service Volumes

Note: The maximum normally acceptable directional service volume for LOS E in Florida for this facility type and area type is 1500 veh/h/ln.

	A	B	C	D	E
Lanes	Hourly Volume In Peak Direction				
1	*	130	260	550	1420
2					
3					
4					
Lanes	Hourly Volume In Both Directions				
2	*	220	430	910	2350
4					
6					

8					
Lanes	Annual Average Daily Traffic				
2	*	2400	4600	9600	24800
4					
6					
8					

* Cannot be achieved based on input data provided.

Performance measure results are no longer applicable with the presence of passing lanes. Refer to the service volume tables to obtain the LOS.

HIGHPLAN 2012 Conceptual Planning Analysis

Project Information

Analyst	JP/VHB	Highway Name	SR 70	Study Period	Kother
Date Prepared	8/23/2018 12:42:50 PM	From	Uihlein (M.P. 9.988)	Analysis Type	Two-Lane Segment
Agency	FDOT D1	To	Bourneside (M.P. 11.988)	Program	HIGHPLAN 2012
Area Type	Rural Undeveloped	Peak Direction	Westbound	Version Date	12/12/2012
File Name	\\vhb\proj\Orlando\62498.04 FDOT D1 SR 70 Re Eval\tech\Analysis\HIGHPLAN\1 - Uihlein to Bourneside\2045 AM NB.xhp				
User Notes	2045 AM NB				

Highway Data

Roadway Variables				Traffic Variables			
Segment Length	2.000	Median	No	AADT	19000	PHF	0.950
# Thru Lanes	2	Left Turn Impact	No	K	0.095	% Heavy Vehicles	7.1
Terrain	Level	Pass Lane Length	N/A	D	0.605	Base Capacity	1700
Posted Speed	60	% NPZ	100	Peak Dir. Hrly. Vol.	1092	Local Adj. Factor	0.88
Free Flow Speed	60	Class	1	Off Peak Dir. Hrly. Vol.	713	Adjusted Capacity	0

LOS Results

v/c Ratio	0.77	Density	N/A	PTSF	92.7	ATS	41.9	% FFS	69.8
FFS Delay	51.9	LOS Thresh. Delay	27.9	Service Measure	PTSF	LOS	E		

Service Volumes

Note: The maximum normally acceptable directional service volume for LOS E in Florida for this facility type and area type is 1500 veh/h/ln.

	A	B	C	D	E
Lanes	Hourly Volume In Peak Direction				
1	*	120	260	550	1420
2					
3					
4					
Lanes	Hourly Volume In Both Directions				
2	*	200	430	910	2350
4					
6					
8					
Lanes	Annual Average Daily Traffic				

2	*	2200	4600	9600	24800
4					
6					
8					

* Cannot be achieved based on input data provided.

Performance measure results are no longer applicable with the presence of passing lanes. Refer to the service volume tables to obtain the LOS.

HIGHPLAN 2012 Conceptual Planning Analysis

Project Information

Analyst	JP/VHB	Highway Name	SR 70	Study Period	Kother
Date Prepared	8/23/2018 12:42:50 PM	From	Bourneside (M.P. 11.988)	Analysis Type	Two-Lane Segment
Agency	FDOT D1	To	Lindrick Ln./197th Street E. (M.P. 13.218)	Program	HIGHPLAN 2012
Area Type	Rural Undeveloped	Peak Direction	Westbound	Version Date	12/12/2012
File Name	\\vhb\proj\Orlando\62498.04 FDOT D1 SR 70 Re Eval\tech\Analysis\HIGHPLAN\Bourneside to Lindrick\2045 AM NB.xhp				
User Notes	2045 AM NB				

Highway Data

Roadway Variables				Traffic Variables			
Segment Length	1.230	Median	No	AADT	15000	PHF	0.950
# Thru Lanes	2	Left Turn Impact	No	K	0.095	% Heavy Vehicles	7.1
Terrain	Level	Pass Lane Length	N/A	D	0.605	Base Capacity	1700
Posted Speed	60	% NPZ	33	Peak Dir. Hrly. Vol.	862	Local Adj. Factor	0.88
Free Flow Speed	60	Class	1	Off Peak Dir. Hrly. Vol.	563	Adjusted Capacity	0

LOS Results

v/c Ratio	0.61	Density	N/A	PTSF	86.9	ATS	45.7	% FFS	76.1
FFS Delay	23.1	LOS Thresh. Delay	8.4	Service Measure	PTSF	LOS	E		

Service Volumes

Note: The maximum normally acceptable directional service volume for LOS E in Florida for this facility type and area type is 1500 veh/h/ln.

	A	B	C	D	E
Lanes	Hourly Volume In Peak Direction				
1	80	190	370	650	1420
2					
3					
4					
Lanes	Hourly Volume In Both Directions				
2	140	320	620	1080	2350
4					
6					

8					
Lanes	Annual Average Daily Traffic				
2	1500	3400	6600	11400	24800
4					
6					
8					

Cannot be achieved based on input data provided.

Performance measure results are no longer applicable with the presence of passing lanes. Refer to the service volume tables to obtain the LOS.

HIGHPLAN 2012 Conceptual Planning Analysis

Project Information

Analyst	AP/VHB	Highway Name	SR 70	Study Period	Kother
Date Prepared	8/23/2018 12:42:50 PM	From	Lindrick Ln./197th Street E. (M.P. 13.218)	Analysis Type	Two-Lane Segment
Agency	FDOT D1	To	Meadow Dove Ln./CR 675 (M.P. 15.567)	Program	HIGHPLAN 2012
Area Type	Rural Undeveloped	Peak Direction	Westbound	Version Date	12/12/2012
File Name	\\vhb\proj\Orlando\62498.04 FDOT D1 SR 70 Re Eval\tech\Analysis\HIGHPLAN\Lindrick to CR 675\2045 AM NB.xhp				
User Notes	2045 AM NB				

Highway Data

Roadway Variables				Traffic Variables			
Segment Length	2.300	Median	No	AADT	14000	PHF	0.950
# Thru Lanes	2	Left Turn Impact	No	K	0.095	% Heavy Vehicles	7.1
Terrain	Level	Pass Lane Length	N/A	D	0.605	Base Capacity	1700
Posted Speed	60	% NPZ	36	Peak Dir. Hrly. Vol.	787	Local Adj. Factor	0.88
Free Flow Speed	60	Class	1	Off Peak Dir. Hrly. Vol.	514	Adjusted Capacity	0

LOS Results

v/c Ratio	0.55	Density	N/A	PTSF	84.3	ATS	46.7	% FFS	77.8
FFS Delay	39.4	LOS Thresh. Delay	11.8	Service Measure	PTSF	LOS	E		

Service Volumes

Note: The maximum normally acceptable directional service volume for LOS E in Florida for this facility type and area type is 1500 veh/h/ln.

	A	B	C	D	E
Lanes	Hourly Volume In Peak Direction				
1	80	190	360	650	1420
2					
3					
4					
Lanes	Hourly Volume In Both Directions				
2	140	320	600	1080	2350
4					
6					

8					
Lanes	Annual Average Daily Traffic				
2	1500	3400	6400	11400	24800
4					
6					
8					

* Cannot be achieved based on input data provided.

Performance measure results are no longer applicable with the presence of passing lanes. Refer to the service volume tables to obtain the LOS.

HIGHPLAN 2012 Conceptual Planning Analysis

Project Information

Analyst	JP/VHB	Highway Name	SR 70	Study Period	Kother
Date Prepared	8/23/2018 12:42:50 PM	From	Uihlien (M.P. 9.988)	Analysis Type	Two-Lane Segment
Agency	FDOT D1	To	Bourneside (M.P. 11.988) Street E. (M.P. 13.218)	Program	HIGHPLAN 2012
Area Type	Rural Undeveloped	Peak Direction	Eastbound	Version Date	12/12/2012
File Name	\\vhb\proj\Orlando\62498.04 FDOT D1 SR 70 Re Eval\tech\Analysis\HIGHPLAN\1 - Uihlein to Bourneside\2045 PM NB.xhp				
User Notes	2045 PM NB				

Highway Data

Roadway Variables				Traffic Variables			
Segment Length	2.000	Median	No	AADT	19000	PHF	0.950
# Thru Lanes	2	Left Turn Impact	No	K	0.095	% Heavy Vehicles	7.1
Terrain	Level	Pass Lane Length	N/A	D	0.605	Base Capacity	1700
Posted Speed	60	% NPZ	100	Peak Dir. Hrly. Vol.	1092	Local Adj. Factor	0.88
Free Flow Speed	60	Class	1	Off Peak Dir. Hrly. Vol.	713	Adjusted Capacity	0

LOS Results

v/c Ratio	0.77	Density	N/A	PTSF	92.7	ATS	41.9	% FFS	69.8
FFS Delay	51.9	LOS Thresh. Delay	27.9	Service Measure	PTSF	LOS	E		

Service Volumes

Note: The maximum normally acceptable directional service volume for LOS E in Florida for this facility type and area type is 1500 veh/h/ln.

	A	B	C	D	E
Lanes	Hourly Volume In Peak Direction				
1	*	120	260	550	1420
2					
3					
4					
Lanes	Hourly Volume In Both Directions				
2	*	200	430	910	2350
4					
6					

8					
Lanes	Annual Average Daily Traffic				
2	*	2200	4600	9600	24800
4					
6					
8					

Cannot be achieved based on input data provided.

Performance measure results are no longer applicable with the presence of passing lanes. Refer to the service volume tables to obtain the LOS.

HIGHPLAN 2012 Conceptual Planning Analysis

Project Information

Analyst	JP/VHB	Highway Name	SR 70	Study Period	Kother
Date Prepared	8/23/2018 12:42:50 PM	From	Bourneside (M.P. 11.988)	Analysis Type	Two-Lane Segment
Agency	FDOT D1	To	Lindrick Ln./197th Street E. (M.P. 13.218)	Program	HIGHPLAN 2012
Area Type	Rural Undeveloped	Peak Direction	Eastbound	Version Date	12/12/2012
File Name	\\vhb\proj\Orlando\62498.04 FDOT D1 SR 70 Re Eval\tech\Analysis\HIGHPLAN\Bourneside to Lindrick\2045 PM NB.xhp				
User Notes	2045 PM NB				

Highway Data

Roadway Variables				Traffic Variables			
Segment Length	1.230	Median	No	AADT	15000	PHF	0.950
# Thru Lanes	2	Left Turn Impact	No	K	0.095	% Heavy Vehicles	7.1
Terrain	Level	Pass Lane Length	N/A	D	0.605	Base Capacity	1700
Posted Speed	60	% NPZ	37	Peak Dir. Hrly. Vol.	862	Local Adj. Factor	0.88
Free Flow Speed	60	Class	1	Off Peak Dir. Hrly. Vol.	563	Adjusted Capacity	0

LOS Results

v/c Ratio	0.61	Density	N/A	PTSF	87.1	ATS	45.6	% FFS	76.0
FFS Delay	23.2	LOS Thresh. Delay	8.5	Service Measure	PTSF	LOS	E		

Service Volumes

Note: The maximum normally acceptable directional service volume for LOS E in Florida for this facility type and area type is 1500 veh/h/ln.

	A	B	C	D	E
Lanes	Hourly Volume In Peak Direction				
1	70	180	350	640	1420
2					
3					
4					
Lanes	Hourly Volume In Both Directions				
2	120	300	580	1060	2350
4					
6					

8					
Lanes	Annual Average Daily Traffic				
2	1300	3200	6200	11200	24800
4					
6					
8					

Cannot be achieved based on input data provided.

Performance measure results are no longer applicable with the presence of passing lanes. Refer to the service volume tables to obtain the LOS.

HIGHPLAN 2012 Conceptual Planning Analysis

Project Information

Analyst	AP/VHB	Highway Name	SR 70	Study Period	Kother
Date Prepared	8/23/2018 12:42:50 PM	From	Lindrick Ln./197th Street E. (M.P. 13.218)	Analysis Type	Two-Lane Segment
Agency	FDOT D1	To	Meadow Dove Ln./CR 675 (M.P. 15.567)	Program	HIGHPLAN 2012
Area Type	Rural Undeveloped	Peak Direction	Eastbound	Version Date	12/12/2012
File Name	\\vhb\proj\Orlando\62498.04 FDOT D1 SR 70 Re Eval\tech\Analysis\HIGHPLAN\Lindrick to CR 675\2045 PM NB.xhp				
User Notes	2045 PM NB				

Highway Data

Roadway Variables				Traffic Variables			
Segment Length	2.300	Median	No	AADT	14000	PHF	0.950
# Thru Lanes	2	Left Turn Impact	No	K	0.095	% Heavy Vehicles	7.1
Terrain	Level	Pass Lane Length	N/A	D	0.605	Base Capacity	1700
Posted Speed	60	% NPZ	89	Peak Dir. Hrly. Vol.	787	Local Adj. Factor	0.88
Free Flow Speed	60	Class	1	Off Peak Dir. Hrly. Vol.	514	Adjusted Capacity	0

LOS Results

v/c Ratio	0.55	Density	N/A	PTSF	86.9	ATS	46.0	% FFS	76.7
FFS Delay	42.0	LOS Thresh. Delay	14.4	Service Measure	PTSF	LOS	E		

Service Volumes

Note: The maximum normally acceptable directional service volume for LOS E in Florida for this facility type and area type is 1500 veh/h/ln.

	A	B	C	D	E
Lanes	Hourly Volume In Peak Direction				
1	*	130	260	550	1420
2					
3					
4					
Lanes	Hourly Volume In Both Directions				
2	*	220	430	910	2350
4					
6					

8					
Lanes	Annual Average Daily Traffic				
2	*	2400	4600	9600	24800
4					
6					
8					

* Cannot be achieved based on input data provided.

























Performance measure results are no longer applicable with the presence of passing lanes. Refer to the service volume tables to obtain the LOS.

Appendix I

Synchro Intersections Output Sheets- Build

HCM 6th Signalized Intersection Summary
 1: Lorraine Rd & SR 70

2025 Build AM
 09/13/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	165	672	419	188	1010	68	467	223	105	129	370	114
Future Volume (veh/h)	165	672	419	188	1010	68	467	223	105	129	370	114
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1796	1796	1796	1796	1796	1796	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	170	693	432	194	1041	70	481	230	108	133	381	118
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	7	7	7	7	7	7	3	3	3	3	3	3
Cap, veh/h	230	2044	900	329	2231	1007	597	383	327	365	529	345
Arrive On Green	0.07	0.42	0.42	0.10	0.45	0.45	0.17	0.11	0.11	0.21	0.15	0.15
Sat Flow, veh/h	3319	4904	1522	3319	4904	1522	3428	3526	1572	1767	3526	1572
Grp Volume(v), veh/h	170	693	432	194	1041	70	481	230	108	133	381	118
Grp Sat Flow(s),veh/h/ln	1659	1635	1522	1659	1635	1522	1714	1763	1572	1767	1763	1572
Q Serve(g_s), s	6.0	11.5	19.5	6.7	17.6	0.0	16.2	7.5	3.8	7.8	12.4	1.8
Cycle Q Clear(g_c), s	6.0	11.5	19.5	6.7	17.6	0.0	16.2	7.5	3.8	7.8	12.4	1.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	230	2044	900	329	2231	1007	597	383	327	365	529	345
V/C Ratio(X)	0.74	0.34	0.48	0.59	0.47	0.07	0.81	0.60	0.33	0.36	0.72	0.34
Avail Cap(c_a), veh/h	230	2044	900	423	2231	1007	597	467	364	365	529	345
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	54.8	23.8	14.0	51.7	22.6	7.2	47.6	51.0	15.2	40.9	48.6	16.2
Incr Delay (d2), s/veh	12.0	0.5	1.8	1.7	0.7	0.1	8.0	1.5	0.6	0.6	4.7	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	5.1	7.7	11.3	5.0	10.6	1.2	12.1	6.1	3.4	6.2	9.7	3.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	66.8	24.2	15.9	53.4	23.3	7.3	55.6	52.5	15.8	41.5	53.4	16.8
LnGrp LOS	E	C	B	D	C	A	E	D	B	D	D	B
Approach Vol, veh/h		1295			1305			819			632	
Approach Delay, s/veh		27.0			26.9			49.5			44.0	
Approach LOS		C			C			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	17.1	54.7	25.0	23.2	13.0	58.8	30.0	18.2				
Change Period (Y+Rc), s	8.2	* 7.7	7.1	8.2	7.7	7.2	8.2	* 8.2				
Max Green Setting (Gmax), s	12.3	* 44	17.9	15.0	5.3	51.6	21.6	* 13				
Max Q Clear Time (g_c+I1), s	8.7	21.5	18.2	14.4	8.0	19.6	9.8	9.5				
Green Ext Time (p_c), s	0.2	6.0	0.0	0.2	0.0	7.9	0.2	0.6				
Intersection Summary												
HCM 6th Ctrl Delay			34.2									
HCM 6th LOS			C									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 6th Signalized Intersection Summary
 2: Greenbrook Blvd/Post Blvd & SR 70

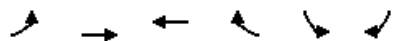
2025 Build AM
 09/13/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↕↕	↗	↗	↕↕↕		↗↗	↕↕		↗	↕↕	↗
Traffic Volume (veh/h)	117	612	143	78	998	24	199	108	31	21	66	140
Future Volume (veh/h)	117	612	143	78	998	24	199	108	31	21	66	140
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1796	1796	1796	1796	1796	1796	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	121	631	147	80	1029	25	205	111	32	22	68	144
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	7	7	7	7	7	7	2	2	2	2	2	2
Cap, veh/h	620	1621	841	262	2175	53	269	412	115	39	334	445
Arrive On Green	0.19	0.47	0.47	0.15	0.44	0.44	0.08	0.15	0.15	0.02	0.09	0.09
Sat Flow, veh/h	3319	3413	1522	1711	4924	120	3456	2746	764	1781	3554	1585
Grp Volume(v), veh/h	121	631	147	80	683	371	205	70	73	22	68	144
Grp Sat Flow(s),veh/h/ln	1659	1706	1522	1711	1635	1775	1728	1777	1733	1781	1777	1585
Q Serve(g_s), s	3.7	14.3	1.8	5.0	17.7	17.7	7.0	4.2	4.5	1.5	2.1	1.5
Cycle Q Clear(g_c), s	3.7	14.3	1.8	5.0	17.7	17.7	7.0	4.2	4.5	1.5	2.1	1.5
Prop In Lane	1.00		1.00	1.00		0.07	1.00		0.44	1.00		1.00
Lane Grp Cap(c), veh/h	620	1621	841	262	1444	784	269	267	260	39	334	445
V/C Ratio(X)	0.20	0.39	0.17	0.30	0.47	0.47	0.76	0.26	0.28	0.57	0.20	0.32
Avail Cap(c_a), veh/h	620	1621	841	262	1444	784	461	267	260	74	334	445
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.91	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.2	20.3	4.1	45.1	23.6	23.6	54.2	45.1	45.2	58.1	50.2	17.0
Incr Delay (d2), s/veh	0.2	0.7	0.5	0.6	1.0	1.9	4.5	2.4	2.7	12.6	1.4	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	2.7	9.3	1.6	3.8	10.6	11.6	5.8	3.7	3.8	1.4	1.8	4.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.3	21.0	4.6	45.7	24.7	25.5	58.7	47.5	47.9	70.7	51.6	19.0
LnGrp LOS	D	C	A	D	C	C	E	D	D	E	D	B
Approach Vol, veh/h		899			1134			348			234	
Approach Delay, s/veh		21.0			26.4			54.2			33.3	
Approach LOS		C			C			D			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	34.4	63.0	15.3	17.3	28.4	59.0	8.6	24.0				
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0				
Max Green Setting (Gmax), s	10.0	57.0	16.0	7.0	20.0	53.0	5.0	18.0				
Max Q Clear Time (g_c+I1), s	10.0	16.3	9.0	4.1	5.7	19.7	3.5	6.5				
Green Ext Time (p_c), s	0.1	4.7	0.4	0.2	0.3	7.1	0.0	0.5				
Intersection Summary												
HCM 6th Ctrl Delay					28.9							
HCM 6th LOS					C							

HCM 6th Signalized Intersection Summary
3: SR 70 & Uihlein Rd

2025 Build AM
09/13/2018



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖↗	↖↗	↖↗	↖	↖	↖
Traffic Volume (veh/h)	133	542	865	43	44	206
Future Volume (veh/h)	133	542	865	43	44	206
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1796	1796	1796	1796	1870	1870
Adj Flow Rate, veh/h	140	571	911	-8	46	6
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	7	7	7	7	2	2
Cap, veh/h	198	2978	2617	1221	62	150
Arrive On Green	0.06	0.87	0.77	0.00	0.04	0.04
Sat Flow, veh/h	3319	3503	3503	1522	1781	1585
Grp Volume(v), veh/h	140	571	911	-8	46	6
Grp Sat Flow(s),veh/h/ln	1659	1706	1706	1522	1781	1585
Q Serve(g_s), s	5.4	3.3	11.0	0.0	3.3	0.4
Cycle Q Clear(g_c), s	5.4	3.3	11.0	0.0	3.3	0.4
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	198	2978	2617	1221	62	150
V/C Ratio(X)	0.71	0.19	0.35	-0.01	0.74	0.04
Avail Cap(c_a), veh/h	1047	2978	2617	1221	219	290
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.95	0.95	0.81	0.00	1.00	1.00
Uniform Delay (d), s/veh	60.0	1.3	4.8	0.0	62.1	53.5
Incr Delay (d2), s/veh	4.3	0.1	0.3	0.0	15.4	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	4.2	0.5	5.4	0.0	3.2	0.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	64.3	1.4	5.1	0.0	77.5	53.6
LnGrp LOS	E	A	A	A	E	D
Approach Vol, veh/h		711	903		52	
Approach Delay, s/veh		13.8	5.2		74.7	
Approach LOS		B	A		E	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		119.4		10.6	13.8	105.7
Change Period (Y+Rc), s		6.0		6.0	6.0	6.0
Max Green Setting (Gmax), s		102.0		16.0	41.0	55.0
Max Q Clear Time (g_c+I1), s		5.3		5.3	7.4	13.0
Green Ext Time (p_c), s		3.6		0.1	0.4	6.7
Intersection Summary						
HCM 6th Ctrl Delay			11.0			
HCM 6th LOS			B			

Intersection						
Int Delay, s/veh	1.4					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↗	↘	↑↑	↘	↗
Traffic Vol, veh/h	524	99	11	839	68	15
Future Vol, veh/h	524	99	11	839	68	15
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	375	360	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	7	7	7	7	2	2
Mvmt Flow	552	104	12	883	72	16

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	656	0	1018 276
Stage 1	-	-	-	-	552 -
Stage 2	-	-	-	-	466 -
Critical Hdwy	-	-	4.24	-	6.84 6.94
Critical Hdwy Stg 1	-	-	-	-	5.84 -
Critical Hdwy Stg 2	-	-	-	-	5.84 -
Follow-up Hdwy	-	-	2.27	-	3.52 3.32
Pot Cap-1 Maneuver	-	-	894	-	233 721
Stage 1	-	-	-	-	541 -
Stage 2	-	-	-	-	598 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	894	-	230 721
Mov Cap-2 Maneuver	-	-	-	-	230 -
Stage 1	-	-	-	-	534 -
Stage 2	-	-	-	-	598 -

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	24.4
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	230	721	-	-	894	-
HCM Lane V/C Ratio	0.311	0.022	-	-	0.013	-
HCM Control Delay (s)	27.6	10.1	-	-	9.1	-
HCM Lane LOS	D	B	-	-	A	-
HCM 95th %tile Q(veh)	1.3	0.1	-	-	0	-

HCM 6th Signalized Intersection Summary
 4: Bournside Blvd & SR 70

2025 Build AM
 09/13/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	65	444	29	29	740	65	54	14	32	34	6	56
Future Volume (veh/h)	65	444	29	29	740	65	54	14	32	34	6	56
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1796	1796	1796	1796	1796	1796	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	68	467	31	31	779	68	57	15	34	36	6	59
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	7	7	7	7	7	7	2	2	2	2	2	2
Cap, veh/h	327	1237	552	421	1151	513	355	205	174	334	177	150
Arrive On Green	0.06	0.36	0.36	0.03	0.34	0.34	0.05	0.11	0.11	0.04	0.09	0.09
Sat Flow, veh/h	1711	3413	1522	1711	3413	1522	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	68	467	31	31	779	68	57	15	34	36	6	59
Grp Sat Flow(s),veh/h/ln	1711	1706	1522	1711	1706	1522	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	1.3	5.3	0.7	0.6	10.3	1.6	1.5	0.4	1.0	0.9	0.2	1.8
Cycle Q Clear(g_c), s	1.3	5.3	0.7	0.6	10.3	1.6	1.5	0.4	1.0	0.9	0.2	1.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	327	1237	552	421	1151	513	355	205	174	334	177	150
V/C Ratio(X)	0.21	0.38	0.06	0.07	0.68	0.13	0.16	0.07	0.20	0.11	0.03	0.39
Avail Cap(c_a), veh/h	840	3103	1384	783	2715	1211	799	708	600	771	673	570
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	11.1	12.4	11.0	10.8	15.0	12.1	19.8	21.1	21.4	20.2	21.7	22.5
Incr Delay (d2), s/veh	0.3	0.2	0.0	0.1	0.7	0.1	0.2	0.1	0.5	0.1	0.1	1.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.7	2.7	0.3	0.3	5.6	0.8	1.0	0.3	0.6	0.7	0.1	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	11.4	12.6	11.0	10.8	15.7	12.3	20.0	21.3	21.9	20.4	21.8	24.1
LnGrp LOS	B	B	B	B	B	B	B	C	C	C	C	C
Approach Vol, veh/h		566			878			106			101	
Approach Delay, s/veh		12.4			15.3			20.8			22.7	
Approach LOS		B			B			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.1	11.8	7.8	25.1	8.8	11.0	9.2	23.8				
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0				
Max Green Setting (Gmax), s	15.0	20.0	13.0	48.0	16.0	19.0	19.0	42.0				
Max Q Clear Time (g_c+I), s	12.5	3.0	2.6	7.3	3.5	3.8	3.3	12.3				
Green Ext Time (p_c), s	0.0	0.1	0.0	2.9	0.1	0.1	0.1	5.5				
Intersection Summary												
HCM 6th Ctrl Delay					15.1							
HCM 6th LOS					B							

Intersection												
Int Delay, s/veh	1.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↗	↘	↘	↗	↘	↘	↗	↘		↗	↘
Traffic Vol, veh/h	22	347	77	8	738	3	30	2	12	6	3	77
Future Vol, veh/h	22	347	77	8	738	3	30	2	12	6	3	77
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	510	-	510	510	-	510	150	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	7	7	7	7	7	7	7	0	25	50	0	3
Mvmt Flow	23	365	81	8	777	3	32	2	13	6	3	81

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	780	0	0	446	0	0	817	1207	183	1023	1285	389
Stage 1	-	-	-	-	-	-	411	411	-	793	793	-
Stage 2	-	-	-	-	-	-	406	796	-	230	492	-
Critical Hdwy	4.24	-	-	4.24	-	-	7.64	6.5	7.4	8.5	6.5	6.96
Critical Hdwy Stg 1	-	-	-	-	-	-	6.64	5.5	-	7.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.64	5.5	-	7.5	5.5	-
Follow-up Hdwy	2.27	-	-	2.27	-	-	3.57	4	3.55	4	4	3.33
Pot Cap-1 Maneuver	801	-	-	1076	-	-	260	185	761	135	166	607
Stage 1	-	-	-	-	-	-	575	598	-	259	403	-
Stage 2	-	-	-	-	-	-	579	402	-	632	551	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	801	-	-	1076	-	-	217	178	761	128	160	607
Mov Cap-2 Maneuver	-	-	-	-	-	-	331	284	-	206	279	-
Stage 1	-	-	-	-	-	-	558	581	-	251	400	-
Stage 2	-	-	-	-	-	-	494	399	-	601	535	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.5			0.1			15.1			13.5		
HCM LOS							C			B		

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	331	614	801	-	-	1076	-	-	516
HCM Lane V/C Ratio	0.095	0.024	0.029	-	-	0.008	-	-	0.175
HCM Control Delay (s)	17	11	9.6	-	-	8.4	-	-	13.5
HCM Lane LOS	C	B	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.3	0.1	0.1	-	-	0	-	-	0.6

Intersection						
Int Delay, s/veh	0.4					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↗	↘	↑↑	↘	↗
Traffic Vol, veh/h	364	7	6	741	26	4
Future Vol, veh/h	364	7	6	741	26	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	510	570	-	180	0
Veh in Median Storage, #	0	-	-	0	1	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	7	7	7	7	0	0
Mvmt Flow	383	7	6	780	27	4

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	390	0	785 192
Stage 1	-	-	-	-	383 -
Stage 2	-	-	-	-	402 -
Critical Hdwy	-	-	4.24	-	6.8 6.9
Critical Hdwy Stg 1	-	-	-	-	5.8 -
Critical Hdwy Stg 2	-	-	-	-	5.8 -
Follow-up Hdwy	-	-	2.27	-	3.5 3.3
Pot Cap-1 Maneuver	-	-	1130	-	334 823
Stage 1	-	-	-	-	665 -
Stage 2	-	-	-	-	650 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1130	-	332 823
Mov Cap-2 Maneuver	-	-	-	-	450 -
Stage 1	-	-	-	-	662 -
Stage 2	-	-	-	-	650 -

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	13
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	450	823	-	-	1130	-
HCM Lane V/C Ratio	0.061	0.005	-	-	0.006	-
HCM Control Delay (s)	13.5	9.4	-	-	8.2	-
HCM Lane LOS	B	A	-	-	A	-
HCM 95th %tile Q(veh)	0.2	0	-	-	0	-

Intersection						
Int Delay, s/veh	0.2					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↵	↕↕	↕↔		↵	
Traffic Vol, veh/h	11	362	726	2	2	4
Future Vol, veh/h	11	362	726	2	2	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	410	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	1	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	7	7	7	7	0	0
Mvmt Flow	12	381	764	2	2	4

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	766	0	-	0	980 383
Stage 1	-	-	-	-	765 -
Stage 2	-	-	-	-	215 -
Critical Hdwy	4.24	-	-	-	6.8 6.9
Critical Hdwy Stg 1	-	-	-	-	5.8 -
Critical Hdwy Stg 2	-	-	-	-	5.8 -
Follow-up Hdwy	2.27	-	-	-	3.5 3.3
Pot Cap-1 Maneuver	811	-	-	-	251 621
Stage 1	-	-	-	-	425 -
Stage 2	-	-	-	-	806 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	811	-	-	-	247 621
Mov Cap-2 Maneuver	-	-	-	-	345 -
Stage 1	-	-	-	-	419 -
Stage 2	-	-	-	-	806 -

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	12.4
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	811	-	-	-	490
HCM Lane V/C Ratio	0.014	-	-	-	0.013
HCM Control Delay (s)	9.5	-	-	-	12.4
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection												
Int Delay, s/veh	1.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↕	↗	↘	↕	↗		↕	↗		↕	
Traffic Vol, veh/h	7	340	18	4	661	4	55	2	6	8	2	17
Future Vol, veh/h	7	340	18	4	661	4	55	2	6	8	2	17
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	500	-	400	600	-	490	-	-	100	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	7	7	7	7	7	7	2	0	0	0	100	6
Mvmt Flow	7	358	19	4	696	4	58	2	6	8	2	18

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	700	0	0	377	0	0	729	1080	179	898	1095	348
Stage 1	-	-	-	-	-	-	372	372	-	704	704	-
Stage 2	-	-	-	-	-	-	357	708	-	194	391	-
Critical Hdwy	4.24	-	-	4.24	-	-	7.54	6.5	6.9	7.5	8.5	7.02
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.5	-	6.5	7.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.5	-	6.5	7.5	-
Follow-up Hdwy	2.27	-	-	2.27	-	-	3.52	4	3.3	3.5	5	3.36
Pot Cap-1 Maneuver	860	-	-	1143	-	-	311	220	839	237	106	637
Stage 1	-	-	-	-	-	-	621	622	-	398	260	-
Stage 2	-	-	-	-	-	-	633	441	-	795	413	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	860	-	-	1143	-	-	297	218	839	232	105	637
Mov Cap-2 Maneuver	-	-	-	-	-	-	413	327	-	326	189	-
Stage 1	-	-	-	-	-	-	616	617	-	395	259	-
Stage 2	-	-	-	-	-	-	608	440	-	780	410	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0	14.7	13.8
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	409	839	860	-	-	1143	-	-	437
HCM Lane V/C Ratio	0.147	0.008	0.009	-	-	0.004	-	-	0.065
HCM Control Delay (s)	15.3	9.3	9.2	-	-	8.2	-	-	13.8
HCM Lane LOS	C	A	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.5	0	0	-	-	0	-	-	0.2

Intersection												
Int Delay, s/veh	1.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↵	↕↗		↵	↕↗			↕↗		↵	↗	
Traffic Vol, veh/h	59	286	10	17	512	0	31	6	14	83	3	133
Future Vol, veh/h	59	286	10	17	512	0	31	6	14	83	3	133
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	Free
Storage Length	520	-	-	150	-	-	-	-	-	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	7	7	7	7	7	7	0	0	0	15	0	7
Mvmt Flow	62	301	11	18	539	0	33	6	15	87	3	140

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	539	0	0	312	0	0	738	1006	156	853	1011	-
Stage 1	-	-	-	-	-	-	431	431	-	575	575	-
Stage 2	-	-	-	-	-	-	307	575	-	278	436	-
Critical Hdwy	4.24	-	-	4.24	-	-	7.5	6.5	6.9	7.8	6.5	-
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.8	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.8	5.5	-
Follow-up Hdwy	2.27	-	-	2.27	-	-	3.5	4	3.3	3.65	4	-
Pot Cap-1 Maneuver	991	-	-	1210	-	-	310	243	868	232	241	0
Stage 1	-	-	-	-	-	-	578	586	-	439	506	0
Stage 2	-	-	-	-	-	-	683	506	-	669	583	0
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	991	-	-	1210	-	-	290	224	868	212	222	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	393	322	-	313	335	-
Stage 1	-	-	-	-	-	-	542	549	-	411	498	-
Stage 2	-	-	-	-	-	-	669	498	-	609	546	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	1.5			0.3			14.1					
HCM LOS							B			-		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	449	991	-	-	1210	-	-	313	-
HCM Lane V/C Ratio	0.12	0.063	-	-	0.015	-	-	0.279	-
HCM Control Delay (s)	14.1	8.9	-	-	8	-	-	20.9	-
HCM Lane LOS	B	A	-	-	A	-	-	C	-
HCM 95th %tile Q(veh)	0.4	0.2	-	-	0	-	-	1.1	-

Intersection						
Int Delay, s/veh	0					
Movement	NBT	NBR	SBL	SBT	NWL	NWR
Lane Configurations	↑			↑		↑
Traffic Vol, veh/h	65	0	0	219	0	61
Future Vol, veh/h	65	0	0	219	0	61
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	16974	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	68	0	0	231	0	64

























Major/Minor	Minor2	Major2	
Conflicting Flow All	231	-	-
Stage 1	231	-	-
Stage 2	0	-	-
Critical Hdwy	6.52	-	-
Critical Hdwy Stg 1	5.52	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	4.018	-	-
Pot Cap-1 Maneuver	669	0	0
Stage 1	713	0	0
Stage 2	-	0	0
Platoon blocked, %			-
Mov Cap-1 Maneuver	0	-	-
Mov Cap-2 Maneuver	0	-	-
Stage 1	0	-	-
Stage 2	0	-	-

Approach	NB	SB
HCM Control Delay, s		0
HCM LOS	-	

Minor Lane/Major Mvmt	NBLn1	SBT
Capacity (veh/h)	-	-
HCM Lane V/C Ratio	-	-
HCM Control Delay (s)	-	-
HCM Lane LOS	-	-
HCM 95th %tile Q(veh)	-	-

HCM 6th Signalized Intersection Summary
1: Lorraine Rd & SR 70

2025 Build PM
09/13/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	245	1091	341	100	743	86	400	269	180	116	131	122
Future Volume (veh/h)	245	1091	341	100	743	86	400	269	180	116	131	122
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1796	1796	1796	1796	1796	1796	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	253	1125	352	103	766	89	412	277	186	120	135	126
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	7	7	7	7	7	7	2	2	2	2	2	2
Cap, veh/h	500	2408	984	224	2037	878	537	440	303	288	492	458
Arrive On Green	0.15	0.49	0.49	0.07	0.42	0.42	0.16	0.12	0.12	0.16	0.14	0.14
Sat Flow, veh/h	3319	4904	1522	3319	4904	1522	3456	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	253	1125	352	103	766	89	412	277	186	120	135	126
Grp Sat Flow(s),veh/h/ln	1659	1635	1522	1659	1635	1522	1728	1777	1585	1781	1777	1585
Q Serve(g_s), s	9.1	19.7	13.8	3.9	14.1	0.0	14.9	9.6	8.7	7.9	4.4	1.8
Cycle Q Clear(g_c), s	9.1	19.7	13.8	3.9	14.1	0.0	14.9	9.6	8.7	7.9	4.4	1.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	500	2408	984	224	2037	878	537	440	303	288	492	458
V/C Ratio(X)	0.51	0.47	0.36	0.46	0.38	0.10	0.77	0.63	0.61	0.42	0.27	0.27
Avail Cap(c_a), veh/h	500	2408	984	255	2037	878	582	610	379	288	492	458
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	50.8	21.9	10.6	58.3	26.3	12.4	52.6	54.1	21.1	49.0	50.2	14.6
Incr Delay (d2), s/veh	0.8	0.7	1.0	1.5	0.5	0.2	5.7	1.5	2.0	1.0	0.3	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	6.7	11.7	8.4	2.9	9.1	2.2	11.2	7.9	6.1	6.5	3.6	3.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	51.6	22.5	11.6	59.8	26.9	12.6	58.3	55.6	23.1	50.0	50.4	14.9
LnGrp LOS	D	C	B	E	C	B	E	E	C	D	D	B
Approach Vol, veh/h		1730			958			875			381	
Approach Delay, s/veh		24.5			29.1			50.0			38.6	
Approach LOS		C			C			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	14.0	68.5	24.3	23.2	24.3	58.2	26.2	21.3				
Change Period (Y+Rc), s	8.2	* 7.7	7.1	8.2	7.7	7.2	8.2	* 8.2				
Max Green Setting (Gmax), s	7.0	* 58	18.9	15.0	14.9	51.0	16.2	* 19				
Max Q Clear Time (g_c+I1), s	5.9	21.7	16.9	6.4	11.1	16.1	9.9	11.6				
Green Ext Time (p_c), s	0.0	10.6	0.3	0.8	0.3	5.6	0.1	1.5				
Intersection Summary												
HCM 6th Ctrl Delay			32.6									
HCM 6th LOS			C									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 6th Signalized Intersection Summary
 2: Greenbrook Blvd/Post Blvd & SR 70

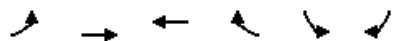
2025 Build PM
 09/13/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↕↕	↗	↗	↕↕↕		↗↗	↕↕		↗	↕↕	↗
Traffic Volume (veh/h)	152	997	234	26	659	17	148	89	53	27	99	139
Future Volume (veh/h)	152	997	234	26	659	17	148	89	53	27	99	139
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1796	1796	1796	1796	1796	1796	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	157	1028	241	27	679	18	153	92	55	28	102	143
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	7	7	7	7	7	7	2	2	2	2	2	2
Cap, veh/h	948	1995	982	199	2040	54	209	138	77	92	191	538
Arrive On Green	0.29	0.58	0.58	0.12	0.42	0.42	0.06	0.06	0.06	0.05	0.05	0.05
Sat Flow, veh/h	3319	3413	1522	1711	4912	130	3456	2201	1226	1781	3554	1585
Grp Volume(v), veh/h	157	1028	241	27	451	246	153	73	74	28	102	143
Grp Sat Flow(s),veh/h/ln	1659	1706	1522	1711	1635	1773	1728	1777	1650	1781	1777	1585
Q Serve(g_s), s	4.6	23.3	2.4	1.8	12.2	12.2	5.7	5.2	5.7	2.0	3.6	1.4
Cycle Q Clear(g_c), s	4.6	23.3	2.4	1.8	12.2	12.2	5.7	5.2	5.7	2.0	3.6	1.4
Prop In Lane	1.00		1.00	1.00		0.07	1.00		0.74	1.00		1.00
Lane Grp Cap(c), veh/h	948	1995	982	199	1358	736	209	111	103	92	191	538
V/C Ratio(X)	0.17	0.52	0.25	0.14	0.33	0.33	0.73	0.66	0.72	0.30	0.53	0.27
Avail Cap(c_a), veh/h	948	1995	982	199	1358	736	372	219	203	123	301	587
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.98	0.98	0.98	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.8	16.0	2.8	51.5	25.8	25.8	60.0	59.6	59.8	59.4	59.9	16.0
Incr Delay (d2), s/veh	0.1	1.0	0.6	0.3	0.6	1.2	4.9	6.4	8.9	1.8	2.3	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	8.3	13.3	2.1	1.4	8.2	8.9	4.7	4.6	4.8	1.7	3.1	4.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.9	17.0	3.4	51.8	26.4	27.0	65.0	65.9	68.7	61.2	62.2	16.3
LnGrp LOS	C	B	A	D	C	C	E	E	E	E	E	B
Approach Vol, veh/h		1426			724			300			273	
Approach Delay, s/veh		16.7			27.6			66.1			38.1	
Approach LOS		B			C			E			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.1	82.0	13.9	13.0	43.1	60.0	12.7	14.1				
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0				
Max Green Setting (Gmax), s	76.0	14.0	11.0	27.0	54.0	9.0	16.0					
Max Q Clear Time (g_c+I), s	25.3	7.7	5.6	6.6	14.2	4.0	7.7					
Green Ext Time (p_c), s	0.0	9.4	0.2	0.5	0.4	4.3	0.0	0.4				
Intersection Summary												
HCM 6th Ctrl Delay					27.2							
HCM 6th LOS					C							

HCM 6th Signalized Intersection Summary
3: SR 70 & Uihlein Rd

2025 Build PM
09/13/2018



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖↗	↕	↕	↖	↗	↖
Traffic Volume (veh/h)	217	830	549	37	35	128
Future Volume (veh/h)	217	830	549	37	35	128
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1796	1796	1796	1796	1870	1870
Adj Flow Rate, veh/h	228	874	578	-14	37	-76
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	7	7	7	7	2	2
Cap, veh/h	293	3255	2797	1177	1	141
Arrive On Green	0.09	0.95	0.82	0.00	0.00	0.00
Sat Flow, veh/h	3319	3503	3503	1522	1781	1585
Grp Volume(v), veh/h	228	874	578	-14	37	-76
Grp Sat Flow(s),veh/h/ln	1659	1706	1706	1522	1781	1585
Q Serve(g_s), s	8.7	2.1	4.8	0.0	0.1	0.0
Cycle Q Clear(g_c), s	8.7	2.1	4.8	0.0	0.1	0.0
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	293	3255	2797	1177	1	141
V/C Ratio(X)	0.78	0.27	0.21	-0.01	27.00	-0.54
Avail Cap(c_a), veh/h	1098	3255	2797	1177	247	359
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.89	0.89	0.95	0.00	1.00	0.00
Uniform Delay (d), s/veh	58.0	0.2	2.6	0.0	65.0	0.0
Incr Delay (d2), s/veh	4.0	0.2	0.2	0.0	1988.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	6.7	0.1	1.8	0.0	8.1	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	62.0	0.4	2.7	0.0	2053.1	0.0
LnGrp LOS	E	A	A	A	F	A
Approach Vol, veh/h		1102	564		-39	
Approach Delay, s/veh		13.1	2.8		0.0	
Approach LOS		B	A		A	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		130.0		0.0	17.5	112.5
Change Period (Y+Rc), s		6.0		6.0	6.0	6.0
Max Green Setting (Gmax), s		100.0		18.0	43.0	51.0
Max Q Clear Time (g_c+I1), s		4.1		2.1	10.7	6.8
Green Ext Time (p_c), s		6.2		0.0	0.7	3.8
Intersection Summary						
HCM 6th Ctrl Delay			9.8			
HCM 6th LOS			A			

Intersection						
Int Delay, s/veh	2.6					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↗	↘	↑↑	↘	↗
Traffic Vol, veh/h	808	86	13	547	89	8
Future Vol, veh/h	808	86	13	547	89	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	375	360	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	7	7	7	7	2	2
Mvmt Flow	851	91	14	576	94	8

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	942	0	1167
Stage 1	-	-	-	-	851
Stage 2	-	-	-	-	316
Critical Hdwy	-	-	4.24	-	6.84
Critical Hdwy Stg 1	-	-	-	-	5.84
Critical Hdwy Stg 2	-	-	-	-	5.84
Follow-up Hdwy	-	-	2.27	-	3.52
Pot Cap-1 Maneuver	-	-	694	-	187
Stage 1	-	-	-	-	379
Stage 2	-	-	-	-	712
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	694	-	183
Mov Cap-2 Maneuver	-	-	-	-	183
Stage 1	-	-	-	-	371
Stage 2	-	-	-	-	712

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	41
HCM LOS			E

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	183	577	-	-	694	-
HCM Lane V/C Ratio	0.512	0.015	-	-	0.02	-
HCM Control Delay (s)	43.7	11.3	-	-	10.3	-
HCM Lane LOS	E	B	-	-	B	-
HCM 95th %tile Q(veh)	2.6	0	-	-	0.1	-

HCM 6th Signalized Intersection Summary
 4: Bournside Blvd & SR 70

2025 Build PM
 09/13/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	59	699	57	32	462	34	30	7	29	64	14	68
Future Volume (veh/h)	59	699	57	32	462	34	30	7	29	64	14	68
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1796	1796	1796	1796	1796	1796	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	62	736	60	34	486	36	32	7	31	67	15	72
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	7	7	7	7	7	7	2	2	2	2	2	2
Cap, veh/h	402	1111	495	299	1042	465	337	186	158	382	232	197
Arrive On Green	0.06	0.33	0.33	0.04	0.31	0.31	0.04	0.10	0.10	0.06	0.12	0.12
Sat Flow, veh/h	1711	3413	1522	1711	3413	1522	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	62	736	60	34	486	36	32	7	31	67	15	72
Grp Sat Flow(s),veh/h/ln	1711	1706	1522	1711	1706	1522	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	1.2	9.3	1.4	0.7	5.8	0.8	0.8	0.2	0.9	1.7	0.4	2.1
Cycle Q Clear(g_c), s	1.2	9.3	1.4	0.7	5.8	0.8	0.8	0.2	0.9	1.7	0.4	2.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	402	1111	495	299	1042	465	337	186	158	382	232	197
V/C Ratio(X)	0.15	0.66	0.12	0.11	0.47	0.08	0.09	0.04	0.20	0.18	0.06	0.37
Avail Cap(c_a), veh/h	950	3257	1453	677	2850	1271	840	744	630	806	707	599
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	10.9	14.6	11.9	11.8	14.1	12.4	19.2	20.5	20.8	18.4	19.5	20.2
Incr Delay (d2), s/veh	0.2	0.7	0.1	0.2	0.3	0.1	0.1	0.1	0.6	0.2	0.1	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.6	4.8	0.7	0.4	3.1	0.4	0.6	0.1	0.5	1.1	0.3	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	11.1	15.3	12.0	12.0	14.5	12.5	19.3	20.6	21.4	18.7	19.6	21.4
LnGrp LOS	B	B	B	B	B	B	B	C	C	B	B	C
Approach Vol, veh/h		858			556			70			154	
Approach Delay, s/veh		14.7			14.2			20.3			20.0	
Approach LOS		B			B			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.0	11.0	7.9	22.4	7.8	12.2	8.9	21.4				
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0				
Max Green Setting (Gmax), s	15.0	20.0	13.0	48.0	16.0	19.0	19.0	42.0				
Max Q Clear Time (g_c+I1), s	13.5	2.9	2.7	11.3	2.8	4.1	3.2	7.8				
Green Ext Time (p_c), s	0.1	0.1	0.0	5.0	0.0	0.2	0.1	3.1				
Intersection Summary												
HCM 6th Ctrl Delay					15.3							
HCM 6th LOS					B							

Intersection												
Int Delay, s/veh	2.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↗	↘	↘	↗	↘	↘	↗	↘		↕	
Traffic Vol, veh/h	73	691	43	8	399	5	57	2	12	4	2	35
Future Vol, veh/h	73	691	43	8	399	5	57	2	12	4	2	35
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	510	-	510	510	-	510	150	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	7	7	7	7	7	7	7	0	25	50	0	3
Mvmt Flow	77	727	45	8	420	5	60	2	13	4	2	37

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	425	0	0	772	0	0	1108	1322	364	955	1362	210
Stage 1	-	-	-	-	-	-	881	881	-	436	436	-
Stage 2	-	-	-	-	-	-	227	441	-	519	926	-
Critical Hdwy	4.24	-	-	4.24	-	-	7.64	6.5	7.4	8.5	6.5	6.96
Critical Hdwy Stg 1	-	-	-	-	-	-	6.64	5.5	-	7.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.64	5.5	-	7.5	5.5	-
Follow-up Hdwy	2.27	-	-	2.27	-	-	3.57	4	3.55	4	4	3.33
Pot Cap-1 Maneuver	1096	-	-	807	-	-	158	158	571	153	149	793
Stage 1	-	-	-	-	-	-	298	367	-	458	583	-
Stage 2	-	-	-	-	-	-	741	580	-	402	350	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1096	-	-	807	-	-	141	146	571	140	137	793
Mov Cap-2 Maneuver	-	-	-	-	-	-	225	248	-	240	242	-
Stage 1	-	-	-	-	-	-	277	341	-	426	577	-
Stage 2	-	-	-	-	-	-	697	574	-	363	326	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.8			0.2			23.9			11.5		
HCM LOS							C			B		

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	225	481	1096	-	-	807	-	-	594
HCM Lane V/C Ratio	0.267	0.031	0.07	-	-	0.01	-	-	0.073
HCM Control Delay (s)	26.7	12.7	8.5	-	-	9.5	-	-	11.5
HCM Lane LOS	D	B	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	1	0.1	0.2	-	-	0	-	-	0.2

Intersection						
Int Delay, s/veh	0.2					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↗	↘	↑↑	↘	↗
Traffic Vol, veh/h	686	20	4	400	13	3
Future Vol, veh/h	686	20	4	400	13	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	510	570	-	180	0
Veh in Median Storage, #	0	-	-	0	1	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	7	7	7	7	0	0
Mvmt Flow	722	21	4	421	14	3

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	743	0	941
Stage 1	-	-	-	-	722
Stage 2	-	-	-	-	219
Critical Hdwy	-	-	4.24	-	6.8
Critical Hdwy Stg 1	-	-	-	-	5.8
Critical Hdwy Stg 2	-	-	-	-	5.8
Follow-up Hdwy	-	-	2.27	-	3.5
Pot Cap-1 Maneuver	-	-	828	-	265
Stage 1	-	-	-	-	447
Stage 2	-	-	-	-	802
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	828	-	264
Mov Cap-2 Maneuver	-	-	-	-	364
Stage 1	-	-	-	-	445
Stage 2	-	-	-	-	802

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	14.4
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	364	641	-	-	828	-
HCM Lane V/C Ratio	0.038	0.005	-	-	0.005	-
HCM Control Delay (s)	15.3	10.6	-	-	9.4	-
HCM Lane LOS	C	B	-	-	A	-
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-

Intersection						
Int Delay, s/veh	0.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↘	↗	↗		↘	
Traffic Vol, veh/h	3	683	401	0	2	3
Future Vol, veh/h	3	683	401	0	2	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	410	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	1	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	7	7	7	7	0	0
Mvmt Flow	3	719	422	0	2	3

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	422	0	0	788	211
Stage 1	-	-	-	422	-
Stage 2	-	-	-	366	-
Critical Hdwy	4.24	-	-	6.8	6.9
Critical Hdwy Stg 1	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	5.8	-
Follow-up Hdwy	2.27	-	-	3.5	3.3
Pot Cap-1 Maneuver	1099	-	-	332	801
Stage 1	-	-	-	635	-
Stage 2	-	-	-	678	-
Platoon blocked, %		-	-		
Mov Cap-1 Maneuver	1099	-	-	331	801
Mov Cap-2 Maneuver	-	-	-	449	-
Stage 1	-	-	-	633	-
Stage 2	-	-	-	678	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	11
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1099	-	-	-	610
HCM Lane V/C Ratio	0.003	-	-	-	0.009
HCM Control Delay (s)	8.3	-	-	-	11
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection												
Int Delay, s/veh	0.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↗	↘	↘	↗	↘		↗	↘		↗	↘
Traffic Vol, veh/h	12	629	59	5	362	4	31	4	4	2	2	13
Future Vol, veh/h	12	629	59	5	362	4	31	4	4	2	2	13
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	500	-	400	600	-	490	-	-	100	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	7	7	7	7	7	7	2	0	0	0	100	6
Mvmt Flow	13	662	62	5	381	4	33	4	4	2	2	14

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	385	0	0	724	0	0	890	1083	331	750	1141	191
Stage 1	-	-	-	-	-	-	688	688	-	391	391	-
Stage 2	-	-	-	-	-	-	202	395	-	359	750	-
Critical Hdwy	4.24	-	-	4.24	-	-	7.54	6.5	6.9	7.5	8.5	7.02
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.5	-	6.5	7.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.5	-	6.5	7.5	-
Follow-up Hdwy	2.27	-	-	2.27	-	-	3.52	4	3.3	3.5	5	3.36
Pot Cap-1 Maneuver	1135	-	-	842	-	-	237	219	671	304	97	806
Stage 1	-	-	-	-	-	-	403	450	-	610	413	-
Stage 2	-	-	-	-	-	-	781	608	-	637	243	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1135	-	-	842	-	-	228	215	671	295	95	806
Mov Cap-2 Maneuver	-	-	-	-	-	-	326	327	-	413	175	-
Stage 1	-	-	-	-	-	-	399	445	-	603	411	-
Stage 2	-	-	-	-	-	-	759	604	-	620	240	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.1			0.1			16.7			12.1		
HCM LOS							C			B		

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	326	671	1135	-	-	842	-	-	525
HCM Lane V/C Ratio	0.113	0.006	0.011	-	-	0.006	-	-	0.034
HCM Control Delay (s)	17.4	10.4	8.2	-	-	9.3	-	-	12.1
HCM Lane LOS	C	B	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.4	0	0	-	-	0	-	-	0.1

Intersection												
Int Delay, s/veh	1.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↵	↕↗		↵	↕↗			↕↗		↵	↗	
Traffic Vol, veh/h	124	494	13	10	289	0	23	4	10	72	4	50
Future Vol, veh/h	124	494	13	10	289	0	23	4	10	72	4	50
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	Free
Storage Length	520	-	-	150	-	-	-	-	-	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	7	7	7	7	7	7	0	0	0	15	0	7
Mvmt Flow	131	520	14	11	304	0	24	4	11	76	4	53

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	304	0	0	534	0	0	965	1115	267	850	1122	-
Stage 1	-	-	-	-	-	-	789	789	-	326	326	-
Stage 2	-	-	-	-	-	-	176	326	-	524	796	-
Critical Hdwy	4.24	-	-	4.24	-	-	7.5	6.5	6.9	7.8	6.5	-
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.8	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.8	5.5	-
Follow-up Hdwy	2.27	-	-	2.27	-	-	3.5	4	3.3	3.65	4	-
Pot Cap-1 Maneuver	1218	-	-	996	-	-	212	210	737	233	208	0
Stage 1	-	-	-	-	-	-	354	405	-	626	652	0
Stage 2	-	-	-	-	-	-	814	652	-	473	402	0
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1218	-	-	996	-	-	191	185	737	207	183	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	265	274	-	303	278	-
Stage 1	-	-	-	-	-	-	316	361	-	558	645	-
Stage 2	-	-	-	-	-	-	800	645	-	411	359	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	1.6			0.3			17.7					
HCM LOS							C					

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	322	1218	-	-	996	-	-	303	-
HCM Lane V/C Ratio	0.121	0.107	-	-	0.011	-	-	0.25	-
HCM Control Delay (s)	17.7	8.3	-	-	8.7	-	-	20.8	-
HCM Lane LOS	C	A	-	-	A	-	-	C	-
HCM 95th %tile Q(veh)	0.4	0.4	-	-	0	-	-	1	-

Intersection						
Int Delay, s/veh	0					
Movement	NBT	NBR	SBL	SBT	NWL	NWR
Lane Configurations	↑			↑		↑
Traffic Vol, veh/h	128	0	0	126	0	71
Future Vol, veh/h	128	0	0	126	0	71
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	16974	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	135	0	0	133	0	75

























Major/Minor	Minor2	Major2	
Conflicting Flow All	133	-	-
Stage 1	133	-	-
Stage 2	0	-	-
Critical Hdwy	6.52	-	-
Critical Hdwy Stg 1	5.52	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	4.018	-	-
Pot Cap-1 Maneuver	758	0	0
Stage 1	786	0	0
Stage 2	-	0	0
Platoon blocked, %			-
Mov Cap-1 Maneuver	0	-	-
Mov Cap-2 Maneuver	0	-	-
Stage 1	0	-	-
Stage 2	0	-	-

Approach	NB	SB
HCM Control Delay, s		0
HCM LOS	-	

Minor Lane/Major Mvmt	NBLn1	SBT
Capacity (veh/h)	-	-
HCM Lane V/C Ratio	-	-
HCM Control Delay (s)	-	-
HCM Lane LOS	-	-
HCM 95th %tile Q(veh)	-	-

HCM 6th Signalized Intersection Summary
1: Lorraine Rd & SR 70

2035 Build AM
09/13/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	201	1017	479	255	1659	102	542	248	151	171	401	159
Future Volume (veh/h)	201	1017	479	255	1659	102	542	248	151	171	401	159
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1796	1796	1796	1796	1796	1796	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	207	1048	494	263	1710	105	559	256	156	176	413	164
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	7	7	7	7	7	7	3	3	3	3	3	3
Cap, veh/h	288	1830	870	393	2027	959	680	432	379	382	529	372
Arrive On Green	0.09	0.37	0.37	0.12	0.41	0.41	0.20	0.12	0.12	0.22	0.15	0.15
Sat Flow, veh/h	3319	4904	1522	3319	4904	1522	3428	3526	1572	1767	3526	1572
Grp Volume(v), veh/h	207	1048	494	263	1710	105	559	256	156	176	413	164
Grp Sat Flow(s),veh/h/ln	1659	1635	1522	1659	1635	1522	1714	1763	1572	1767	1763	1572
Q Serve(g_s), s	7.3	20.4	24.7	9.1	37.7	0.0	18.7	8.2	5.1	10.4	13.5	2.9
Cycle Q Clear(g_c), s	7.3	20.4	24.7	9.1	37.7	0.0	18.7	8.2	5.1	10.4	13.5	2.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	288	1830	870	393	2027	959	680	432	379	382	529	372
V/C Ratio(X)	0.72	0.57	0.57	0.67	0.84	0.11	0.82	0.59	0.41	0.46	0.78	0.44
Avail Cap(c_a), veh/h	288	1830	870	426	2027	959	683	664	482	382	529	372
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	53.4	30.0	16.3	50.6	31.7	8.8	46.1	49.8	13.7	40.9	49.1	14.9
Incr Delay (d2), s/veh	8.4	1.3	2.7	3.6	4.5	0.2	8.0	1.3	0.7	0.9	7.4	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	5.9	12.4	13.9	6.9	20.9	2.0	13.6	6.7	4.5	8.2	10.7	3.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	61.7	31.3	19.0	54.2	36.2	9.1	54.1	51.1	14.4	41.8	56.5	15.7
LnGrp LOS	E	C	B	D	D	A	D	D	B	D	E	B
Approach Vol, veh/h		1749			2078			971			753	
Approach Delay, s/veh		31.4			37.1			46.9			44.2	
Approach LOS		C			D			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	19.4	49.5	27.9	23.2	15.1	53.8	31.2	19.9				
Change Period (Y+Rc), s	8.2	* 7.7	7.1	8.2	7.7	7.2	8.2	* 8.2				
Max Green Setting (Gmax), s	12.4	* 41	20.9	15.0	7.3	46.6	17.9	* 20				
Max Q Clear Time (g_c+I1), s	11.1	26.7	20.7	15.5	9.3	39.7	12.4	10.2				
Green Ext Time (p_c), s	0.1	7.2	0.0	0.0	0.0	5.3	0.2	1.5				
Intersection Summary												
HCM 6th Ctrl Delay			38.0									
HCM 6th LOS			D									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 6th Signalized Intersection Summary
 2: Greenbrook Blvd/Post Blvd & SR 70

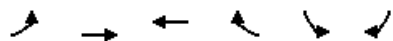
2035 Build AM
 09/13/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↕↕	↗	↗	↕↕↕		↗↗	↕↕		↗	↕↕	↗
Traffic Volume (veh/h)	234	872	250	102	1401	49	305	227	49	33	129	285
Future Volume (veh/h)	234	872	250	102	1401	49	305	227	49	33	129	285
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1796	1796	1796	1796	1796	1796	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	241	899	258	105	1444	51	314	234	51	34	133	294
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	7	7	7	7	7	7	2	2	2	2	2	2
Cap, veh/h	598	1621	889	251	2148	76	376	437	93	50	247	396
Arrive On Green	0.18	0.47	0.47	0.15	0.44	0.44	0.11	0.15	0.15	0.03	0.07	0.07
Sat Flow, veh/h	3319	3413	1522	1711	4863	172	3456	2912	623	1781	3554	1585
Grp Volume(v), veh/h	241	899	258	105	971	524	314	141	144	34	133	294
Grp Sat Flow(s),veh/h/ln	1659	1706	1522	1711	1635	1765	1728	1777	1758	1781	1777	1585
Q Serve(g_s), s	7.7	22.5	2.9	6.7	28.3	28.3	10.7	8.8	9.1	2.3	4.3	4.3
Cycle Q Clear(g_c), s	7.7	22.5	2.9	6.7	28.3	28.3	10.7	8.8	9.1	2.3	4.3	4.3
Prop In Lane	1.00		1.00	1.00		0.10	1.00		0.35	1.00		1.00
Lane Grp Cap(c), veh/h	598	1621	889	251	1444	780	376	267	264	50	247	396
V/C Ratio(X)	0.40	0.55	0.29	0.42	0.67	0.67	0.84	0.53	0.55	0.68	0.54	0.74
Avail Cap(c_a), veh/h	598	1621	889	251	1444	780	461	267	264	74	247	396
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.71	0.71	0.71	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.5	22.5	3.8	46.5	26.6	26.6	52.4	47.1	47.2	57.8	54.0	19.7
Incr Delay (d2), s/veh	0.4	1.4	0.8	0.8	1.8	3.3	10.6	7.3	7.9	14.6	8.2	11.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	5.6	13.5	2.5	5.1	15.1	16.5	8.9	7.9	8.1	2.2	4.0	10.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	43.9	23.8	4.7	47.3	28.4	29.9	63.1	54.4	55.1	72.4	62.2	31.6
LnGrp LOS	D	C	A	D	C	C	E	D	E	E	E	C
Approach Vol, veh/h		1398			1600			599			461	
Approach Delay, s/veh		23.8			30.1			59.1			43.4	
Approach LOS		C			C			E			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	33.6	63.0	19.1	14.3	27.6	59.0	9.4	24.0				
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0				
Max Green Setting (Gmax), s	10.0	57.0	16.0	7.0	20.0	53.0	5.0	18.0				
Max Q Clear Time (g_c+I), s	10.0	24.5	12.7	6.3	9.7	30.3	4.3	11.1				
Green Ext Time (p_c), s	0.1	7.5	0.4	0.1	0.5	10.0	0.0	0.9				
Intersection Summary												
HCM 6th Ctrl Delay			33.7									
HCM 6th LOS			C									

HCM 6th Signalized Intersection Summary
3: SR 70 & Uihlein Rd

2035 Build AM
09/13/2018



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖↗	↕	↕	↖	↗	↖
Traffic Volume (veh/h)	282	694	1053	90	93	434
Future Volume (veh/h)	282	694	1053	90	93	434
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1796	1796	1796	1796	1870	1870
Adj Flow Rate, veh/h	297	731	1108	42	98	246
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	7	7	7	7	2	2
Cap, veh/h	366	2678	2144	1144	219	370
Arrive On Green	0.11	0.78	0.63	0.63	0.12	0.12
Sat Flow, veh/h	3319	3503	3503	1522	1781	1585
Grp Volume(v), veh/h	297	731	1108	42	98	246
Grp Sat Flow(s),veh/h/ln	1659	1706	1706	1522	1781	1585
Q Serve(g_s), s	11.4	7.6	23.2	0.9	6.6	16.0
Cycle Q Clear(g_c), s	11.4	7.6	23.2	0.9	6.6	16.0
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	366	2678	2144	1144	219	370
V/C Ratio(X)	0.81	0.27	0.52	0.04	0.45	0.67
Avail Cap(c_a), veh/h	1047	2678	2144	1144	219	370
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.85	0.85	0.69	0.69	1.00	1.00
Uniform Delay (d), s/veh	56.5	3.8	13.3	4.1	52.9	45.2
Incr Delay (d2), s/veh	3.7	0.2	0.6	0.0	1.4	4.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	8.1	3.3	12.0	0.8	5.5	22.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	60.2	4.1	13.9	4.2	54.3	49.7
LnGrp LOS	E	A	B	A	D	D
Approach Vol, veh/h		1028	1150		344	
Approach Delay, s/veh		20.3	13.6		51.0	
Approach LOS		C	B		D	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		108.0		22.0	20.3	87.7
Change Period (Y+Rc), s		6.0		6.0	6.0	6.0
Max Green Setting (Gmax), s		102.0		16.0	41.0	55.0
Max Q Clear Time (g_c+I1), s		9.6		18.0	13.4	25.2
Green Ext Time (p_c), s		4.9		0.0	1.0	8.4
Intersection Summary						
HCM 6th Ctrl Delay			21.4			
HCM 6th LOS			C			

Intersection						
Int Delay, s/veh	3.4					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↗	↘	↑↑	↘	↗
Traffic Vol, veh/h	657	124	24	997	96	30
Future Vol, veh/h	657	124	24	997	96	30
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	375	360	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	7	7	7	7	2	2
Mvmt Flow	692	131	25	1049	101	32

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	823	0	1267
Stage 1	-	-	-	-	692
Stage 2	-	-	-	-	575
Critical Hdwy	-	-	4.24	-	6.84
Critical Hdwy Stg 1	-	-	-	-	5.84
Critical Hdwy Stg 2	-	-	-	-	5.84
Follow-up Hdwy	-	-	2.27	-	3.52
Pot Cap-1 Maneuver	-	-	771	-	161
Stage 1	-	-	-	-	458
Stage 2	-	-	-	-	526
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	771	-	156
Mov Cap-2 Maneuver	-	-	-	-	156
Stage 1	-	-	-	-	443
Stage 2	-	-	-	-	526

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	50.5
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	156	650	-	-	771	-
HCM Lane V/C Ratio	0.648	0.049	-	-	0.033	-
HCM Control Delay (s)	62.9	10.8	-	-	9.8	-
HCM Lane LOS	F	B	-	-	A	-
HCM 95th %tile Q(veh)	3.6	0.2	-	-	0.1	-

HCM 6th Signalized Intersection Summary
 4: Bournside Blvd & SR 70

2035 Build AM
 09/13/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	138	488	62	61	790	137	113	29	68	71	13	118
Future Volume (veh/h)	138	488	62	61	790	137	113	29	68	71	13	118
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1796	1796	1796	1796	1796	1796	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	145	514	65	64	832	144	119	31	72	75	14	124
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	7	7	7	7	7	7	2	2	2	2	2	2
Cap, veh/h	327	1263	563	414	1165	520	391	253	214	363	210	178
Arrive On Green	0.08	0.37	0.37	0.05	0.34	0.34	0.08	0.14	0.14	0.06	0.11	0.11
Sat Flow, veh/h	1711	3413	1522	1711	3413	1522	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	145	514	65	64	832	144	119	31	72	75	14	124
Grp Sat Flow(s),veh/h/ln	1711	1706	1522	1711	1706	1522	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	3.3	7.0	1.8	1.5	13.3	4.3	3.6	0.9	2.6	2.3	0.4	4.7
Cycle Q Clear(g_c), s	3.3	7.0	1.8	1.5	13.3	4.3	3.6	0.9	2.6	2.3	0.4	4.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	327	1263	563	414	1165	520	391	253	214	363	210	178
V/C Ratio(X)	0.44	0.41	0.12	0.15	0.71	0.28	0.30	0.12	0.34	0.21	0.07	0.70
Avail Cap(c_a), veh/h	705	2614	1166	677	2287	1020	702	597	506	686	567	481
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	13.3	14.6	13.0	12.2	18.0	15.0	21.9	23.8	24.6	22.5	24.9	26.8
Incr Delay (d2), s/veh	0.9	0.2	0.1	0.2	0.8	0.3	0.4	0.2	0.9	0.3	0.1	4.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.9	3.8	0.9	0.8	7.8	2.3	2.6	0.7	1.6	1.7	0.3	3.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	14.2	14.8	13.1	12.3	18.8	15.3	22.3	24.0	25.5	22.8	25.0	31.6
LnGrp LOS	B	B	B	B	B	B	C	C	C	C	C	C
Approach Vol, veh/h		724			1040			222			213	
Approach Delay, s/veh		14.6			17.9			23.6			28.1	
Approach LOS		B			B			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.6	14.5	9.4	29.2	11.1	13.0	11.2	27.4				
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0				
Max Green Setting (Gmax), s	15.0	20.0	13.0	48.0	16.0	19.0	19.0	42.0				
Max Q Clear Time (g_c+I), s	4.6	4.6	3.5	9.0	5.6	6.7	5.3	15.3				
Green Ext Time (p_c), s	0.1	0.3	0.1	3.4	0.2	0.3	0.3	6.1				
Intersection Summary												
HCM 6th Ctrl Delay					18.4							
HCM 6th LOS					B							

Intersection												
Int Delay, s/veh	1.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↗	↘	↘	↗	↘	↘	↗	↘		↕	
Traffic Vol, veh/h	24	462	93	9	853	7	34	3	16	11	4	86
Future Vol, veh/h	24	462	93	9	853	7	34	3	16	11	4	86
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	510	-	510	510	-	510	150	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	7	7	7	7	7	7	7	0	25	50	0	3
Mvmt Flow	25	486	98	9	898	7	36	3	17	12	4	91

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	905	0	0	584	0	0	1005	1459	243	1211	1550	449
Stage 1	-	-	-	-	-	-	536	536	-	916	916	-
Stage 2	-	-	-	-	-	-	469	923	-	295	634	-
Critical Hdwy	4.24	-	-	4.24	-	-	7.64	6.5	7.4	8.5	6.5	6.96
Critical Hdwy Stg 1	-	-	-	-	-	-	6.64	5.5	-	7.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.64	5.5	-	7.5	5.5	-
Follow-up Hdwy	2.27	-	-	2.27	-	-	3.57	4	3.55	4	4	3.33
Pot Cap-1 Maneuver	717	-	-	953	-	-	189	131	692	94	115	555
Stage 1	-	-	-	-	-	-	484	527	-	213	354	-
Stage 2	-	-	-	-	-	-	531	351	-	571	476	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	717	-	-	953	-	-	151	125	692	88	110	555
Mov Cap-2 Maneuver	-	-	-	-	-	-	268	233	-	165	229	-
Stage 1	-	-	-	-	-	-	467	509	-	206	351	-
Stage 2	-	-	-	-	-	-	435	348	-	534	459	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.4			0.1			17.5			16.4		
HCM LOS							C			C		

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	268	528	717	-	-	953	-	-	422
HCM Lane V/C Ratio	0.134	0.038	0.035	-	-	0.01	-	-	0.252
HCM Control Delay (s)	20.5	12.1	10.2	-	-	8.8	-	-	16.4
HCM Lane LOS	C	B	B	-	-	A	-	-	C
HCM 95th %tile Q(veh)	0.5	0.1	0.1	-	-	0	-	-	1

Intersection						
Int Delay, s/veh	0.4					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↗	↘	↑↑	↘	↗
Traffic Vol, veh/h	497	9	6	858	26	5
Future Vol, veh/h	497	9	6	858	26	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	510	570	-	180	0
Veh in Median Storage, #	0	-	-	0	1	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	7	7	7	7	0	0
Mvmt Flow	523	9	6	903	27	5

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	532	0	987
Stage 1	-	-	-	-	523
Stage 2	-	-	-	-	464
Critical Hdwy	-	-	4.24	-	6.8
Critical Hdwy Stg 1	-	-	-	-	5.8
Critical Hdwy Stg 2	-	-	-	-	5.8
Follow-up Hdwy	-	-	2.27	-	3.5
Pot Cap-1 Maneuver	-	-	998	-	248
Stage 1	-	-	-	-	565
Stage 2	-	-	-	-	605
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	998	-	247
Mov Cap-2 Maneuver	-	-	-	-	377
Stage 1	-	-	-	-	562
Stage 2	-	-	-	-	605

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	14.4
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	377	743	-	-	998	-
HCM Lane V/C Ratio	0.073	0.007	-	-	0.006	-
HCM Control Delay (s)	15.3	9.9	-	-	8.6	-
HCM Lane LOS	C	A	-	-	A	-
HCM 95th %tile Q(veh)	0.2	0	-	-	0	-

Intersection						
Int Delay, s/veh	0.2					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↘	↗	↗		↘	
Traffic Vol, veh/h	16	497	851	4	3	7
Future Vol, veh/h	16	497	851	4	3	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	410	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	7	7	7	7	0	0
Mvmt Flow	17	523	896	4	3	7

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	900	0	-	0	1194 450
Stage 1	-	-	-	-	898 -
Stage 2	-	-	-	-	296 -
Critical Hdwy	4.24	-	-	-	6.8 6.9
Critical Hdwy Stg 1	-	-	-	-	5.8 -
Critical Hdwy Stg 2	-	-	-	-	5.8 -
Follow-up Hdwy	2.27	-	-	-	3.5 3.3
Pot Cap-1 Maneuver	720	-	-	-	182 562
Stage 1	-	-	-	-	363 -
Stage 2	-	-	-	-	735 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	720	-	-	-	178 562
Mov Cap-2 Maneuver	-	-	-	-	178 -
Stage 1	-	-	-	-	354 -
Stage 2	-	-	-	-	735 -

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	15.9
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	720	-	-	-	341
HCM Lane V/C Ratio	0.023	-	-	-	0.031
HCM Control Delay (s)	10.1	-	-	-	15.9
HCM Lane LOS	B	-	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	-	0.1

Intersection												
Int Delay, s/veh	1.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↗	↘	↘	↗	↘		↗	↘		↗	↘
Traffic Vol, veh/h	11	468	25	7	787	7	58	3	11	12	4	19
Future Vol, veh/h	11	468	25	7	787	7	58	3	11	12	4	19
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	500	-	400	600	-	490	-	-	100	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	7	7	7	7	7	7	2	0	0	0	100	6
Mvmt Flow	12	493	26	7	828	7	61	3	12	13	4	20

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	835	0	0	519	0	0	947	1366	247	1114	1385	414
Stage 1	-	-	-	-	-	-	517	517	-	842	842	-
Stage 2	-	-	-	-	-	-	430	849	-	272	543	-
Critical Hdwy	4.24	-	-	4.24	-	-	7.54	6.5	6.9	7.5	8.5	7.02
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.5	-	6.5	7.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.5	-	6.5	7.5	-
Follow-up Hdwy	2.27	-	-	2.27	-	-	3.52	4	3.3	3.5	5	3.36
Pot Cap-1 Maneuver	763	-	-	1009	-	-	216	149	759	165	62	576
Stage 1	-	-	-	-	-	-	509	537	-	329	211	-
Stage 2	-	-	-	-	-	-	574	380	-	716	331	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	763	-	-	1009	-	-	200	146	759	158	61	576
Mov Cap-2 Maneuver	-	-	-	-	-	-	326	260	-	259	142	-
Stage 1	-	-	-	-	-	-	501	528	-	324	210	-
Stage 2	-	-	-	-	-	-	539	377	-	690	326	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.2			0.1			17.5			17.4		
HCM LOS							C			C		

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	322	759	763	-	-	1009	-	-	326
HCM Lane V/C Ratio	0.199	0.015	0.015	-	-	0.007	-	-	0.113
HCM Control Delay (s)	18.9	9.8	9.8	-	-	8.6	-	-	17.4
HCM Lane LOS	C	A	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	0.7	0	0	-	-	0	-	-	0.4

Intersection												
Int Delay, s/veh	1.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↵	↕↗		↵	↕↗			↕↗		↵	↗	
Traffic Vol, veh/h	83	390	18	34	616	0	38	8	19	102	7	163
Future Vol, veh/h	83	390	18	34	616	0	38	8	19	102	7	163
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	Free
Storage Length	520	-	-	150	-	-	-	-	-	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	7	7	7	7	7	7	0	0	0	15	0	7
Mvmt Flow	87	411	19	36	648	0	40	8	20	107	7	172

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	648	0	0	430	0	0	995	1315	215	1104	1324	-
Stage 1	-	-	-	-	-	-	595	595	-	720	720	-
Stage 2	-	-	-	-	-	-	400	720	-	384	604	-
Critical Hdwy	4.24	-	-	4.24	-	-	7.5	6.5	6.9	7.8	6.5	-
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.8	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.8	5.5	-
Follow-up Hdwy	2.27	-	-	2.27	-	-	3.5	4	3.3	3.65	4	-
Pot Cap-1 Maneuver	901	-	-	1091	-	-	202	159	796	150	157	0
Stage 1	-	-	-	-	-	-	463	496	-	357	435	0
Stage 2	-	-	-	-	-	-	603	435	-	577	491	0
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	901	-	-	1091	-	-	178	139	796	129	137	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	286	236	-	229	251	-
Stage 1	-	-	-	-	-	-	418	448	-	322	421	-
Stage 2	-	-	-	-	-	-	573	421	-	499	443	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	1.6			0.4			18.2					
HCM LOS							C					

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	341	901	-	-	1091	-	-	229	-
HCM Lane V/C Ratio	0.201	0.097	-	-	0.033	-	-	0.469	-
HCM Control Delay (s)	18.2	9.4	-	-	8.4	-	-	33.9	-
HCM Lane LOS	C	A	-	-	A	-	-	D	-
HCM 95th %tile Q(veh)	0.7	0.3	-	-	0.1	-	-	2.3	-

Intersection						
Int Delay, s/veh	0					
Movement	NBT	NBR	SBL	SBT	NWL	NWR
Lane Configurations	↑			↑		↑
Traffic Vol, veh/h	91	0	0	272	0	76
Future Vol, veh/h	91	0	0	272	0	76
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	16974	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	96	0	0	286	0	80

























Major/Minor	Minor2	Major2		
Conflicting Flow All	286	-	-	-
Stage 1	286	-	-	-
Stage 2	0	-	-	-
Critical Hdwy	6.52	-	-	-
Critical Hdwy Stg 1	5.52	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	4.018	-	-	-
Pot Cap-1 Maneuver	623	0	0	-
Stage 1	675	0	0	-
Stage 2	-	0	0	-
Platoon blocked, %				-
Mov Cap-1 Maneuver	0	-	-	-
Mov Cap-2 Maneuver	0	-	-	-
Stage 1	0	-	-	-
Stage 2	0	-	-	-

Approach	NB	SB
HCM Control Delay, s		0
HCM LOS	-	

Minor Lane/Major Mvmt	NBLn1	SBT
Capacity (veh/h)	-	-
HCM Lane V/C Ratio	-	-
HCM Control Delay (s)	-	-
HCM Lane LOS	-	-
HCM 95th %tile Q(veh)	-	-

HCM 6th Signalized Intersection Summary
1: Lorraine Rd & SR 70

2035 Build PM
09/14/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	293	1667	491	164	1099	121	476	325	260	156	175	142
Future Volume (veh/h)	293	1667	491	164	1099	121	476	325	260	156	175	142
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1796	1796	1796	1796	1796	1796	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	302	1719	506	169	1133	125	491	335	268	161	180	146
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	7	7	7	7	7	7	2	2	2	2	2	2
Cap, veh/h	524	2220	960	276	1890	832	616	521	364	287	492	470
Arrive On Green	0.16	0.45	0.45	0.08	0.39	0.39	0.18	0.15	0.15	0.16	0.14	0.14
Sat Flow, veh/h	3319	4904	1522	3319	4904	1522	3456	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	302	1719	506	169	1133	125	491	335	268	161	180	146
Grp Sat Flow(s),veh/h/ln	1659	1635	1522	1659	1635	1522	1728	1777	1585	1781	1777	1585
Q Serve(g_s), s	11.0	38.4	23.9	6.4	24.0	0.0	17.7	11.5	12.3	10.8	6.0	2.5
Cycle Q Clear(g_c), s	11.0	38.4	23.9	6.4	24.0	0.0	17.7	11.5	12.3	10.8	6.0	2.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	524	2220	960	276	1890	832	616	521	364	287	492	470
V/C Ratio(X)	0.58	0.77	0.53	0.61	0.60	0.15	0.80	0.64	0.74	0.56	0.37	0.31
Avail Cap(c_a), veh/h	524	2220	960	276	1890	832	662	653	423	287	492	470
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	50.7	30.0	13.3	57.6	31.9	14.5	51.2	52.3	19.5	50.3	50.8	13.6
Incr Delay (d2), s/veh	1.5	2.7	2.1	4.0	1.4	0.4	6.4	1.5	5.6	2.4	0.5	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	8.0	20.9	13.2	5.0	14.3	3.5	12.9	9.0	8.7	8.7	4.9	3.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.2	32.7	15.3	61.6	33.3	14.9	57.6	53.7	25.0	52.7	51.3	14.0
LnGrp LOS	D	C	B	E	C	B	E	D	C	D	D	B
Approach Vol, veh/h		2527			1427			1094			487	
Approach Delay, s/veh		31.6			35.1			48.4			40.6	
Approach LOS		C			D			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	16.0	63.5	27.3	23.2	25.2	54.3	26.2	24.3				
Change Period (Y+Rc), s	8.2	* 7.7	7.1	8.2	7.7	7.2	8.2	* 8.2				
Max Green Setting (Gmax), s	7.8	* 55	21.9	15.0	15.8	47.1	17.6	* 21				
Max Q Clear Time (g_c+I1), s	8.4	40.4	19.7	8.0	13.0	26.0	12.8	14.3				
Green Ext Time (p_c), s	0.0	10.4	0.5	0.9	0.3	7.9	0.2	1.8				
Intersection Summary												
HCM 6th Ctrl Delay			36.6									
HCM 6th LOS			D									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 6th Signalized Intersection Summary
 2: Greenbrook Blvd/Post Blvd & SR 70

2035 Build PM
 09/13/2018



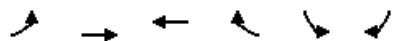
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↕↕	↗	↗	↕↕↔		↗↗	↕↔		↗	↕↕	↗
Traffic Volume (veh/h)	255	1427	368	45	914	30	239	166	88	51	202	263
Future Volume (veh/h)	255	1427	368	45	914	30	239	166	88	51	202	263
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1796	1796	1796	1796	1796	1796	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	263	1471	379	46	942	31	246	171	91	53	208	271
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	7	7	7	7	7	7	2	2	2	2	2	2
Cap, veh/h	787	1995	1023	116	2026	67	301	220	112	119	269	496
Arrive On Green	0.24	0.58	0.58	0.07	0.42	0.42	0.09	0.10	0.10	0.07	0.08	0.08
Sat Flow, veh/h	3319	3413	1522	1711	4876	160	3456	2281	1158	1781	3554	1585
Grp Volume(v), veh/h	263	1471	379	46	631	342	246	131	131	53	208	271
Grp Sat Flow(s),veh/h/ln	1659	1706	1522	1711	1635	1767	1728	1777	1662	1781	1777	1585
Q Serve(g_s), s	8.5	40.9	5.3	3.3	18.2	18.2	9.1	9.4	10.0	3.7	7.5	3.6
Cycle Q Clear(g_c), s	8.5	40.9	5.3	3.3	18.2	18.2	9.1	9.4	10.0	3.7	7.5	3.6
Prop In Lane	1.00		1.00	1.00		0.09	1.00		0.70	1.00		1.00
Lane Grp Cap(c), veh/h	787	1995	1023	116	1358	734	301	171	160	119	269	496
V/C Ratio(X)	0.33	0.74	0.37	0.40	0.46	0.47	0.82	0.77	0.82	0.45	0.77	0.55
Avail Cap(c_a), veh/h	787	1995	1023	116	1358	734	372	219	205	123	301	510
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.93	0.93	0.93	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.1	19.7	2.4	58.0	27.5	27.5	58.3	57.3	57.6	58.4	59.0	18.1
Incr Delay (d2), s/veh	0.2	2.5	1.0	2.0	1.1	2.0	11.0	11.6	17.7	2.6	10.6	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	6.2	21.6	4.2	2.7	11.1	12.1	7.9	8.4	8.7	3.2	6.8	8.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.3	22.2	3.4	60.1	28.6	29.5	69.3	68.9	75.3	61.0	69.6	19.2
LnGrp LOS	D	C	A	E	C	C	E	E	E	E	E	B
Approach Vol, veh/h		2113			1019			508			532	
Approach Delay, s/veh		21.2			30.3			70.8			43.1	
Approach LOS		C			C			E			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	14.8	82.0	17.3	15.9	36.8	60.0	14.6	18.5				
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0				
Max Green Setting (Gmax), s	76.0	76.0	14.0	11.0	27.0	54.0	9.0	16.0				
Max Q Clear Time (g_c+I), s	42.9	42.9	11.1	9.5	10.5	20.2	5.7	12.0				
Green Ext Time (p_c), s	0.0	15.1	0.2	0.4	0.7	6.4	0.0	0.5				

Intersection Summary

HCM 6th Ctrl Delay	32.3
HCM 6th LOS	C

HCM 6th Signalized Intersection Summary
3: SR 70 & Uihlein Rd

2035 Build PM
09/13/2018



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖↗	↖↗	↖↗	↖	↖	↖
Traffic Volume (veh/h)	457	1043	665	79	75	269
Future Volume (veh/h)	457	1043	665	79	75	269
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1796	1796	1796	1796	1870	1870
Adj Flow Rate, veh/h	481	1098	700	30	79	72
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	7	7	7	7	2	2
Cap, veh/h	560	2890	2157	1055	108	364
Arrive On Green	0.17	0.85	0.63	0.63	0.06	0.06
Sat Flow, veh/h	3319	3503	3503	1522	1781	1585
Grp Volume(v), veh/h	481	1098	700	30	79	72
Grp Sat Flow(s),veh/h/ln	1659	1706	1706	1522	1781	1585
Q Serve(g_s), s	18.3	9.4	12.3	0.8	5.7	4.8
Cycle Q Clear(g_c), s	18.3	9.4	12.3	0.8	5.7	4.8
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	560	2890	2157	1055	108	364
V/C Ratio(X)	0.86	0.38	0.32	0.03	0.73	0.20
Avail Cap(c_a), veh/h	1098	2890	2157	1055	247	487
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.65	0.65	0.90	0.90	1.00	1.00
Uniform Delay (d), s/veh	52.5	2.2	11.1	6.3	60.0	40.4
Incr Delay (d2), s/veh	2.7	0.2	0.4	0.0	9.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.1	2.4	7.5	0.5	5.1	8.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	55.2	2.5	11.4	6.3	69.0	40.7
LnGrp LOS	E	A	B	A	E	D
Approach Vol, veh/h		1579	730		151	
Approach Delay, s/veh		18.5	11.2		55.5	
Approach LOS		B	B		E	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		116.1		13.9	27.9	88.2
Change Period (Y+Rc), s		6.0		6.0	6.0	6.0
Max Green Setting (Gmax), s		100.0		18.0	43.0	51.0
Max Q Clear Time (g_c+I1), s		11.4		7.7	20.3	14.3
Green Ext Time (p_c), s		8.7		0.3	1.6	4.8
Intersection Summary						
HCM 6th Ctrl Delay			18.6			
HCM 6th LOS			B			

Intersection						
Int Delay, s/veh	11.7					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↗	↘	↑↑	↘	↗
Traffic Vol, veh/h	994	113	30	658	118	16
Future Vol, veh/h	994	113	30	658	118	16
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	375	360	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	7	7	7	7	2	2
Mvmt Flow	1046	119	32	693	124	17

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	1165	0	1457
Stage 1	-	-	-	-	1046
Stage 2	-	-	-	-	411
Critical Hdwy	-	-	4.24	-	6.84
Critical Hdwy Stg 1	-	-	-	-	5.84
Critical Hdwy Stg 2	-	-	-	-	5.84
Follow-up Hdwy	-	-	2.27	-	3.52
Pot Cap-1 Maneuver	-	-	568	-	~ 120
Stage 1	-	-	-	-	299
Stage 2	-	-	-	-	638
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	568	-	~ 113
Mov Cap-2 Maneuver	-	-	-	-	~ 113
Stage 1	-	-	-	-	282
Stage 2	-	-	-	-	638

Approach	EB	WB	NB
HCM Control Delay, s	0	0.5	165.9
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	113	499	-	-	568	-
HCM Lane V/C Ratio	1.099	0.034	-	-	0.056	-
HCM Control Delay (s)	186.7	12.5	-	-	11.7	-
HCM Lane LOS	F	B	-	-	B	-
HCM 95th %tile Q(veh)	7.6	0.1	-	-	0.2	-

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

HCM 6th Signalized Intersection Summary
 4: Bournside Blvd & SR 70

2035 Build PM
 09/13/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	125	766	120	68	481	71	64	14	60	136	29	143
Future Volume (veh/h)	125	766	120	68	481	71	64	14	60	136	29	143
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1796	1796	1796	1796	1796	1796	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	132	806	126	72	506	75	67	15	63	143	31	151
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	7	7	7	7	7	7	2	2	2	2	2	2
Cap, veh/h	419	1157	516	302	1091	487	335	172	146	410	249	211
Arrive On Green	0.08	0.34	0.34	0.06	0.32	0.32	0.06	0.09	0.09	0.10	0.13	0.13
Sat Flow, veh/h	1711	3413	1522	1711	3413	1522	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	132	806	126	72	506	75	67	15	63	143	31	151
Grp Sat Flow(s),veh/h/ln	1711	1706	1522	1711	1706	1522	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	2.9	11.9	3.5	1.6	6.9	2.1	1.9	0.4	2.2	4.1	0.9	5.3
Cycle Q Clear(g_c), s	2.9	11.9	3.5	1.6	6.9	2.1	1.9	0.4	2.2	4.1	0.9	5.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	419	1157	516	302	1091	487	335	172	146	410	249	211
V/C Ratio(X)	0.32	0.70	0.24	0.24	0.46	0.15	0.20	0.09	0.43	0.35	0.12	0.71
Avail Cap(c_a), veh/h	842	2811	1254	583	2459	1097	723	642	544	694	610	517
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	11.9	16.7	13.9	12.9	15.8	14.2	21.9	24.2	25.0	20.8	22.3	24.2
Incr Delay (d2), s/veh	0.4	0.8	0.2	0.4	0.3	0.1	0.3	0.2	2.0	0.5	0.2	4.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.6	6.6	1.8	0.9	4.0	1.1	1.4	0.3	1.4	3.0	0.7	3.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	12.4	17.4	14.1	13.3	16.1	14.3	22.2	24.4	27.0	21.3	22.5	28.6
LnGrp LOS	B	B	B	B	B	B	C	C	C	C	C	C
Approach Vol, veh/h		1064			653			145			325	
Approach Delay, s/veh		16.4			15.6			24.5			24.8	
Approach LOS		B			B			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.7	11.4	9.4	25.8	9.3	13.8	10.6	24.6				
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0				
Max Green Setting (Gmax), s	15.0	20.0	13.0	48.0	16.0	19.0	19.0	42.0				
Max Q Clear Time (g_c+I1), s	4.2	4.2	3.6	13.9	3.9	7.3	4.9	8.9				
Green Ext Time (p_c), s	0.2	0.2	0.1	5.8	0.1	0.5	0.2	3.4				
Intersection Summary												
HCM 6th Ctrl Delay					18.0							
HCM 6th LOS					B							

Intersection												
Int Delay, s/veh	2.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↗	↘	↘	↗	↘	↘	↗	↘		↗	↘
Traffic Vol, veh/h	87	827	44	12	514	10	61	3	16	7	3	40
Future Vol, veh/h	87	827	44	12	514	10	61	3	16	7	3	40
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	510	-	510	510	-	510	150	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	7	7	7	7	7	7	7	0	25	50	0	3
Mvmt Flow	92	871	46	13	541	11	64	3	17	7	3	42

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	552	0	0	917	0	0	1353	1633	436	1188	1668	271
Stage 1	-	-	-	-	-	-	1055	1055	-	567	567	-
Stage 2	-	-	-	-	-	-	298	578	-	621	1101	-
Critical Hdwy	4.24	-	-	4.24	-	-	7.64	6.5	7.4	8.5	6.5	6.96
Critical Hdwy Stg 1	-	-	-	-	-	-	6.64	5.5	-	7.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.64	5.5	-	7.5	5.5	-
Follow-up Hdwy	2.27	-	-	2.27	-	-	3.57	4	3.55	4	4	3.33
Pot Cap-1 Maneuver	980	-	-	709	-	-	104	102	509	98	97	724
Stage 1	-	-	-	-	-	-	232	305	-	372	510	-
Stage 2	-	-	-	-	-	-	672	504	-	342	290	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	980	-	-	709	-	-	89	91	509	86	86	724
Mov Cap-2 Maneuver	-	-	-	-	-	-	168	189	-	179	186	-
Stage 1	-	-	-	-	-	-	210	276	-	337	501	-
Stage 2	-	-	-	-	-	-	617	495	-	296	263	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.8	0.2	33.2	14
HCM LOS			D	B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	168	402	980	-	-	709	-	-	453
HCM Lane V/C Ratio	0.382	0.05	0.093	-	-	0.018	-	-	0.116
HCM Control Delay (s)	39.1	14.4	9.1	-	-	10.2	-	-	14
HCM Lane LOS	E	B	A	-	-	B	-	-	B
HCM 95th %tile Q(veh)	1.6	0.2	0.3	-	-	0.1	-	-	0.4

Intersection						
Int Delay, s/veh	0.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↗	↘	↑↑	↘	↗
Traffic Vol, veh/h	825	25	7	518	17	7
Future Vol, veh/h	825	25	7	518	17	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	510	570	-	180	0
Veh in Median Storage, #	0	-	-	0	1	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	7	7	7	7	0	0
Mvmt Flow	868	26	7	545	18	7

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	894	0	1155
Stage 1	-	-	-	-	868
Stage 2	-	-	-	-	287
Critical Hdwy	-	-	4.24	-	6.8
Critical Hdwy Stg 1	-	-	-	-	5.8
Critical Hdwy Stg 2	-	-	-	-	5.8
Follow-up Hdwy	-	-	2.27	-	3.5
Pot Cap-1 Maneuver	-	-	724	-	193
Stage 1	-	-	-	-	376
Stage 2	-	-	-	-	742
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	724	-	191
Mov Cap-2 Maneuver	-	-	-	-	298
Stage 1	-	-	-	-	372
Stage 2	-	-	-	-	742

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	16
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	298	576	-	-	724	-
HCM Lane V/C Ratio	0.06	0.013	-	-	0.01	-
HCM Control Delay (s)	17.9	11.3	-	-	10	-
HCM Lane LOS	C	B	-	-	B	-
HCM 95th %tile Q(veh)	0.2	0	-	-	0	-

Intersection						
Int Delay, s/veh	0.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↘	↕	↕		↕	
Traffic Vol, veh/h	4	830	520	0	3	7
Future Vol, veh/h	4	830	520	0	3	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	410	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	1	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	7	7	7	7	0	0
Mvmt Flow	4	874	547	0	3	7

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	547	0	-	0	992
Stage 1	-	-	-	-	547
Stage 2	-	-	-	-	445
Critical Hdwy	4.24	-	-	-	6.8
Critical Hdwy Stg 1	-	-	-	-	5.8
Critical Hdwy Stg 2	-	-	-	-	5.8
Follow-up Hdwy	2.27	-	-	-	3.5
Pot Cap-1 Maneuver	985	-	-	-	246
Stage 1	-	-	-	-	549
Stage 2	-	-	-	-	619
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	985	-	-	-	245
Mov Cap-2 Maneuver	-	-	-	-	375
Stage 1	-	-	-	-	547
Stage 2	-	-	-	-	619

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

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	985	-	-	-	569
HCM Lane V/C Ratio	0.004	-	-	-	0.018
HCM Control Delay (s)	8.7	-	-	-	11.4
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Intersection												
Int Delay, s/veh	1.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↗	↘	↘	↗	↘		↗	↘		↗	↘
Traffic Vol, veh/h	16	777	67	10	479	7	40	7	7	3	3	17
Future Vol, veh/h	16	777	67	10	479	7	40	7	7	3	3	17
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	500	-	400	600	-	490	-	-	100	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	7	7	7	7	7	7	2	0	0	0	100	6
Mvmt Flow	17	818	71	11	504	7	42	7	7	3	3	18

Major/Minor	Major1		Major2		Minor1			Minor2				
Conflicting Flow All	511	0	0	889	0	0	1128	1385	409	973	1449	252
Stage 1	-	-	-	-	-	-	852	852	-	526	526	-
Stage 2	-	-	-	-	-	-	276	533	-	447	923	-
Critical Hdwy	4.24	-	-	4.24	-	-	7.54	6.5	6.9	7.5	8.5	7.02
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.5	-	6.5	7.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.5	-	6.5	7.5	-
Follow-up Hdwy	2.27	-	-	2.27	-	-	3.52	4	3.3	3.5	5	3.36
Pot Cap-1 Maneuver	1016	-	-	727	-	-	159	145	597	210	55	736
Stage 1	-	-	-	-	-	-	321	379	-	508	339	-
Stage 2	-	-	-	-	-	-	707	528	-	566	187	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1016	-	-	727	-	-	149	140	597	198	53	736
Mov Cap-2 Maneuver	-	-	-	-	-	-	251	257	-	324	125	-
Stage 1	-	-	-	-	-	-	316	373	-	499	334	-
Stage 2	-	-	-	-	-	-	673	520	-	539	184	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	0.2		0.2		21.2		14.4	
HCM LOS					C		B	

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	252	597	1016	-	-	727	-	-	408
HCM Lane V/C Ratio	0.196	0.012	0.017	-	-	0.014	-	-	0.059
HCM Control Delay (s)	22.7	11.1	8.6	-	-	10	-	-	14.4
HCM Lane LOS	C	B	A	-	-	B	-	-	B
HCM 95th %tile Q(veh)	0.7	0	0.1	-	-	0	-	-	0.2

Intersection												
Int Delay, s/veh	2.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↵	↕↗		↵	↕↗			↕↗		↵	↗	
Traffic Vol, veh/h	153	609	19	15	375	0	31	7	17	91	5	67
Future Vol, veh/h	153	609	19	15	375	0	31	7	17	91	5	67
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	Free
Storage Length	520	-	-	150	-	-	-	-	-	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	7	7	7	7	7	7	0	0	0	15	0	7
Mvmt Flow	161	641	20	16	395	0	33	7	18	96	5	71

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	395	0	0	661	0	0	1205	1400	331	1073	1410	-
Stage 1	-	-	-	-	-	-	973	973	-	427	427	-
Stage 2	-	-	-	-	-	-	232	427	-	646	983	-
Critical Hdwy	4.24	-	-	4.24	-	-	7.5	6.5	6.9	7.8	6.5	-
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.8	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.8	5.5	-
Follow-up Hdwy	2.27	-	-	2.27	-	-	3.5	4	3.3	3.65	4	-
Pot Cap-1 Maneuver	1125	-	-	890	-	-	142	142	671	158	140	0
Stage 1	-	-	-	-	-	-	275	333	-	542	589	0
Stage 2	-	-	-	-	-	-	756	589	-	397	329	0
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1125	-	-	890	-	-	122	120	671	131	118	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	195	206	-	225	210	-
Stage 1	-	-	-	-	-	-	236	285	-	464	578	-
Stage 2	-	-	-	-	-	-	736	578	-	323	282	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	1.7			0.4			23.5					
HCM LOS							C			-		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	252	1125	-	-	890	-	-	225	-
HCM Lane V/C Ratio	0.23	0.143	-	-	0.018	-	-	0.426	-
HCM Control Delay (s)	23.5	8.7	-	-	9.1	-	-	32.4	-
HCM Lane LOS	C	A	-	-	A	-	-	D	-
HCM 95th %tile Q(veh)	0.9	0.5	-	-	0.1	-	-	2	-

Intersection						
Int Delay, s/veh	0					
Movement	NBT	NBR	SBL	SBT	NWL	NWR
Lane Configurations	↑			↑		↑
Traffic Vol, veh/h	160	0	0	163	0	91
Future Vol, veh/h	160	0	0	163	0	91
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	16974	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	168	0	0	172	0	96

Major/Minor	Minor2	Major2	
Conflicting Flow All	172	-	-
Stage 1	172	-	-
Stage 2	0	-	-
Critical Hdwy	6.52	-	-
Critical Hdwy Stg 1	5.52	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	4.018	-	-
Pot Cap-1 Maneuver	721	0	0
Stage 1	756	0	0
Stage 2	-	0	0
Platoon blocked, %			-
Mov Cap-1 Maneuver	0	-	-
Mov Cap-2 Maneuver	0	-	-
Stage 1	0	-	-
Stage 2	0	-	-

Approach	NB	SB
HCM Control Delay, s		0
HCM LOS	-	

Minor Lane/Major Mvmt	NBLn1	SBT
Capacity (veh/h)	-	-
HCM Lane V/C Ratio	-	-
HCM Control Delay (s)	-	-
HCM Lane LOS	-	-
HCM 95th %tile Q(veh)	-	-

HCM 6th Signalized Intersection Summary
 1: Lorraine Rd & SR 70

2045 Build AM
 09/13/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	237	1363	539	322	2309	135	616	273	198	212	432	203
Future Volume (veh/h)	237	1363	539	322	2309	135	616	273	198	212	432	203
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1796	1796	1796	1796	1796	1796	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	244	1405	556	332	2380	139	635	281	204	219	445	209
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	7	7	7	7	7	7	3	3	3	3	3	3
Cap, veh/h	700	2599	1072	423	2231	983	597	439	396	337	529	567
Arrive On Green	0.21	0.53	0.53	0.13	0.45	0.45	0.17	0.12	0.12	0.19	0.15	0.15
Sat Flow, veh/h	3319	4904	1522	3319	4904	1522	3428	3526	1572	1767	3526	1572
Grp Volume(v), veh/h	244	1405	556	332	2380	139	635	281	204	219	445	209
Grp Sat Flow(s),veh/h/ln	1659	1635	1522	1659	1635	1522	1714	1763	1572	1767	1763	1572
Q Serve(g_s), s	7.5	22.6	20.4	11.6	54.6	0.0	20.9	9.1	9.7	13.7	14.7	3.4
Cycle Q Clear(g_c), s	7.5	22.6	20.4	11.6	54.6	0.0	20.9	9.1	9.7	13.7	14.7	3.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	700	2599	1072	423	2231	983	597	439	396	337	529	567
V/C Ratio(X)	0.35	0.54	0.52	0.78	1.07	0.14	1.06	0.64	0.51	0.65	0.84	0.37
Avail Cap(c_a), veh/h	700	2599	1072	423	2231	983	597	467	409	362	529	567
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.3	18.6	8.3	50.8	32.7	8.3	49.5	50.0	23.4	44.9	49.6	17.3
Incr Delay (d2), s/veh	0.3	0.8	1.8	9.4	39.7	0.3	54.9	2.7	1.0	3.7	11.7	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	5.4	12.6	10.9	9.0	38.3	2.6	20.1	7.5	6.6	10.5	11.8	5.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.6	19.4	10.1	60.1	72.4	8.6	104.4	52.7	24.5	48.6	61.3	17.7
LnGrp LOS	D	B	B	E	F	A	F	D	C	D	E	B
Approach Vol, veh/h		2205			2851			1120			873	
Approach Delay, s/veh		19.4			67.9			76.9			47.7	
Approach LOS		B			E			E			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	20.5	68.8	25.0	23.2	30.5	58.8	28.0	20.2				
Change Period (Y+Rc), s	8.2	* 7.7	7.1	8.2	7.7	7.2	8.2	* 8.2				
Max Green Setting (Gmax), s	12.3	* 44	17.9	15.0	5.3	51.6	21.6	* 13				
Max Q Clear Time (g_c+I1), s	13.6	24.6	22.9	16.7	9.5	56.6	15.7	11.7				
Green Ext Time (p_c), s	0.0	11.3	0.0	0.0	0.0	0.0	0.3	0.3				
Intersection Summary												
HCM 6th Ctrl Delay			51.6									
HCM 6th LOS			D									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 6th Signalized Intersection Summary
 2: Greenbrook Blvd/Post Blvd & SR 70

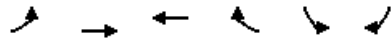
2045 Build AM
 09/13/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↕↕	↗	↗	↕↕↕		↗↗	↕↕		↗	↕↕	↗
Traffic Volume (veh/h)	351	1131	357	126	1804	74	412	345	67	44	192	429
Future Volume (veh/h)	351	1131	357	126	1804	74	412	345	67	44	192	429
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1796	1796	1796	1796	1796	1796	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	362	1166	368	130	1860	76	425	356	69	45	198	442
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	7	7	7	7	7	7	2	2	2	2	2	2
Cap, veh/h	553	1621	926	228	2134	87	461	474	91	58	207	357
Arrive On Green	0.17	0.47	0.47	0.13	0.44	0.44	0.13	0.16	0.16	0.03	0.06	0.06
Sat Flow, veh/h	3319	3413	1522	1711	4833	197	3456	2974	570	1781	3554	1585
Grp Volume(v), veh/h	362	1166	368	130	1257	679	425	211	214	45	198	442
Grp Sat Flow(s),veh/h/ln	1659	1706	1522	1711	1635	1761	1728	1777	1768	1781	1777	1585
Q Serve(g_s), s	12.2	32.7	4.1	8.6	41.9	42.0	14.6	13.6	13.9	3.0	6.7	6.4
Cycle Q Clear(g_c), s	12.2	32.7	4.1	8.6	41.9	42.0	14.6	13.6	13.9	3.0	6.7	6.4
Prop In Lane	1.00		1.00	1.00		0.11	1.00		0.32	1.00		1.00
Lane Grp Cap(c), veh/h	553	1621	926	228	1444	778	461	283	281	58	207	357
V/C Ratio(X)	0.65	0.72	0.40	0.57	0.87	0.87	0.92	0.75	0.76	0.78	0.96	1.24
Avail Cap(c_a), veh/h	553	1621	926	228	1444	778	461	283	281	74	207	357
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.31	0.31	0.31	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.8	25.1	3.6	48.8	30.4	30.4	51.4	48.1	48.2	57.6	56.3	21.3
Incr Delay (d2), s/veh	2.8	2.8	1.3	1.1	2.5	4.6	24.1	16.4	17.4	31.8	51.8	129.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	8.8	18.6	3.4	5.3	19.3	21.1	12.4	11.7	12.0	3.4	7.9	28.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	49.5	27.9	4.9	49.8	32.9	35.0	75.5	64.5	65.7	89.5	108.2	150.8
LnGrp LOS	D	C	A	D	C	C	E	E	E	F	F	F
Approach Vol, veh/h		1896			2066			850			685	
Approach Delay, s/veh		27.6			34.6			70.3			134.4	
Approach LOS		C			C			E			F	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	32.0	63.0	22.0	13.0	26.0	59.0	9.9	25.1				
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0				
Max Green Setting (Gmax), s	10.0	57.0	16.0	7.0	20.0	53.0	5.0	18.0				
Max Q Clear Time (g_c+10), s	10.0	34.7	16.6	8.7	14.2	44.0	5.0	15.9				
Green Ext Time (p_c), s	0.1	9.6	0.0	0.0	0.6	6.8	0.0	0.5				
Intersection Summary												
HCM 6th Ctrl Delay					50.1							
HCM 6th LOS					D							

HCM 6th Signalized Intersection Summary
 3: SR 70 & Uihlein Rd

2045 Build AM
 09/13/2018



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↔↔	↕↕	↕↕	↔	↔	↔
Traffic Volume (veh/h)	430	846	1242	137	142	663
Future Volume (veh/h)	430	846	1242	137	142	663
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1796	1796	1796	1796	1870	1870
Adj Flow Rate, veh/h	453	891	1307	91	149	487
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	7	7	7	7	2	2
Cap, veh/h	530	2678	1975	1068	219	448
Arrive On Green	0.16	0.78	0.58	0.58	0.12	0.12
Sat Flow, veh/h	3319	3503	3503	1522	1781	1585
Grp Volume(v), veh/h	453	891	1307	91	149	487
Grp Sat Flow(s),veh/h/ln	1659	1706	1706	1522	1781	1585
Q Serve(g_s), s	17.3	9.9	34.0	2.5	10.4	16.0
Cycle Q Clear(g_c), s	17.3	9.9	34.0	2.5	10.4	16.0
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	530	2678	1975	1068	219	448
V/C Ratio(X)	0.85	0.33	0.66	0.09	0.68	1.09
Avail Cap(c_a), veh/h	1047	2678	1975	1068	219	448
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.62	0.62	0.63	0.63	1.00	1.00
Uniform Delay (d), s/veh	53.2	4.1	18.7	6.1	54.5	46.6
Incr Delay (d2), s/veh	2.6	0.2	1.1	0.1	8.2	67.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	10.5	4.2	17.0	2.0	8.9	48.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	55.7	4.3	19.8	6.2	62.7	114.5
LnGrp LOS	E	A	B	A	E	F
Approach Vol, veh/h		1344	1398		636	
Approach Delay, s/veh		21.6	18.9		102.4	
Approach LOS		C	B		F	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		108.0		22.0	26.8	81.2
Change Period (Y+Rc), s		6.0		6.0	6.0	6.0
Max Green Setting (Gmax), s		102.0		16.0	41.0	55.0
Max Q Clear Time (g_c+I1), s		11.9		18.0	19.3	36.0
Green Ext Time (p_c), s		6.4		0.0	1.5	8.9
Intersection Summary						
HCM 6th Ctrl Delay			35.7			
HCM 6th LOS			D			

HCM 6th Signalized Intersection Summary
 29: Del Webb Blvd & SR 70

2045 Build AM
 10/16/2018

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↓	↑↑	↓	↓
Traffic Volume (veh/h)	793	150	38	1155	125	45
Future Volume (veh/h)	793	150	38	1155	125	45
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1796	1796	1796	1796	1870	1870
Adj Flow Rate, veh/h	835	158	40	1216	132	47
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	7	7	7	7	2	2
Cap, veh/h	1388	619	77	2014	236	281
Arrive On Green	0.41	0.41	0.04	0.59	0.13	0.13
Sat Flow, veh/h	3503	1522	1711	3503	1781	1585
Grp Volume(v), veh/h	835	158	40	1216	132	47
Grp Sat Flow(s),veh/h/ln	1706	1522	1711	1706	1781	1585
Q Serve(g_s), s	7.6	2.7	0.9	9.0	2.8	1.0
Cycle Q Clear(g_c), s	7.6	2.7	0.9	9.0	2.8	1.0
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1388	619	77	2014	236	281
V/C Ratio(X)	0.60	0.26	0.52	0.60	0.56	0.17
Avail Cap(c_a), veh/h	6495	2897	712	8388	1414	1330
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	9.2	7.8	18.5	5.2	16.1	13.8
Incr Delay (d2), s/veh	0.4	0.2	5.4	0.3	2.1	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	2.7	0.9	0.7	1.4	2.0	0.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	9.7	8.0	23.9	5.5	18.2	14.1
LnGrp LOS	A	A	C	A	B	B
Approach Vol, veh/h	993			1256	179	
Approach Delay, s/veh	9.4			6.1	17.1	
Approach LOS	A			A	B	
Timer - Assigned Phs		2	3	4		8
Phs Duration (G+Y+Rc), s		10.8	7.3	21.6		28.9
Change Period (Y+Rc), s		5.5	5.5	5.5		5.5
Max Green Setting (Gmax), s		31.5	16.5	75.5		97.5
Max Q Clear Time (g_c+I1), s		4.8	2.9	9.6		11.0
Green Ext Time (p_c), s		0.5	0.0	6.5		10.8
Intersection Summary						
HCM 6th Ctrl Delay			8.2			
HCM 6th LOS			A			

HCM 6th Signalized Intersection Summary

2045 Build AM

4: Bournside Blvd & SR 70

09/13/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	211	532	95	93	840	209	173	45	104	108	20	180
Future Volume (veh/h)	211	532	95	93	840	209	173	45	104	108	20	180
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1796	1796	1796	1796	1796	1796	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	222	560	100	98	884	220	182	47	109	114	21	189
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	7	7	7	7	7	7	2	2	2	2	2	2
Cap, veh/h	330	1334	595	387	1147	512	446	341	289	400	272	231
Arrive On Green	0.11	0.39	0.39	0.06	0.34	0.34	0.11	0.18	0.18	0.07	0.15	0.15
Sat Flow, veh/h	1711	3413	1522	1711	3413	1522	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	222	560	100	98	884	220	182	47	109	114	21	189
Grp Sat Flow(s),veh/h/ln	1711	1706	1522	1711	1706	1522	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	6.6	9.7	3.5	3.0	18.8	9.1	6.8	1.7	4.9	4.3	0.8	9.4
Cycle Q Clear(g_c), s	6.6	9.7	3.5	3.0	18.8	9.1	6.8	1.7	4.9	4.3	0.8	9.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	330	1334	595	387	1147	512	446	341	289	400	272	231
V/C Ratio(X)	0.67	0.42	0.17	0.25	0.77	0.43	0.41	0.14	0.38	0.29	0.08	0.82
Avail Cap(c_a), veh/h	542	2027	904	566	1773	791	601	463	392	599	440	373
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.7	17.9	16.1	16.0	24.0	20.8	24.9	27.7	29.0	26.3	29.8	33.5
Incr Delay (d2), s/veh	2.4	0.2	0.1	0.3	1.1	0.6	0.6	0.2	0.8	0.4	0.1	7.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	4.2	5.9	1.9	1.9	11.1	5.3	5.2	1.4	3.2	3.3	0.6	6.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	20.1	18.2	16.2	16.4	25.2	21.4	25.5	27.9	29.8	26.7	30.0	40.9
LnGrp LOS	C	B	B	B	C	C	C	C	C	C	C	D
Approach Vol, veh/h		882			1202			338			324	
Approach Delay, s/veh		18.4			23.8			27.2			35.2	
Approach LOS		B			C			C			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.0	20.7	10.5	37.6	15.0	17.8	15.0	33.2				
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0				
Max Green Setting (Gmax), s	15.0	20.0	13.0	48.0	16.0	19.0	19.0	42.0				
Max Q Clear Time (g_c+I1), s	10.3	6.9	5.0	11.7	8.8	11.4	8.6	20.8				
Green Ext Time (p_c), s	0.2	0.4	0.1	3.8	0.3	0.4	0.4	6.4				

Intersection Summary

HCM 6th Ctrl Delay	23.8
HCM 6th LOS	C

Intersection												
Int Delay, s/veh	2.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↗	↘	↘	↗	↘	↘	↗	↘		↕	
Traffic Vol, veh/h	26	577	110	10	967	10	38	5	20	15	5	96
Future Vol, veh/h	26	577	110	10	967	10	38	5	20	15	5	96
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	510	-	510	510	-	510	150	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	7	7	7	7	7	7	7	0	25	50	0	3
Mvmt Flow	27	607	116	11	1018	11	40	5	21	16	5	101

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1029	0	0	723	0	0	1195	1712	304	1400	1817	509
Stage 1	-	-	-	-	-	-	661	661	-	1040	1040	-
Stage 2	-	-	-	-	-	-	534	1051	-	360	777	-
Critical Hdwy	4.24	-	-	4.24	-	-	7.64	6.5	7.4	8.5	6.5	6.96
Critical Hdwy Stg 1	-	-	-	-	-	-	6.64	5.5	-	7.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.64	5.5	-	7.5	5.5	-
Follow-up Hdwy	2.27	-	-	2.27	-	-	3.57	4	3.55	4	4	3.33
Pot Cap-1 Maneuver	642	-	-	843	-	-	136	91	628	65	79	507
Stage 1	-	-	-	-	-	-	406	463	-	174	310	-
Stage 2	-	-	-	-	-	-	485	306	-	516	410	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	642	-	-	843	-	-	102	86	628	59	75	507
Mov Cap-2 Maneuver	-	-	-	-	-	-	215	191	-	132	189	-
Stage 1	-	-	-	-	-	-	389	444	-	167	306	-
Stage 2	-	-	-	-	-	-	377	302	-	472	393	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.4			0.1			20.9			20.6		
HCM LOS							C			C		

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	215	431	642	-	-	843	-	-	352
HCM Lane V/C Ratio	0.186	0.061	0.043	-	-	0.012	-	-	0.347
HCM Control Delay (s)	25.5	13.9	10.9	-	-	9.3	-	-	20.6
HCM Lane LOS	D	B	B	-	-	A	-	-	C
HCM 95th %tile Q(veh)	0.7	0.2	0.1	-	-	0	-	-	1.5

Intersection						
Int Delay, s/veh	0.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↗	↘	↑↑	↘	↗
Traffic Vol, veh/h	630	10	5	976	25	5
Future Vol, veh/h	630	10	5	976	25	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	510	570	-	180	0
Veh in Median Storage, #	0	-	-	0	1	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	7	7	7	7	0	0
Mvmt Flow	663	11	5	1027	26	5

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	674	0	1187
Stage 1	-	-	-	-	663
Stage 2	-	-	-	-	524
Critical Hdwy	-	-	4.24	-	6.8
Critical Hdwy Stg 1	-	-	-	-	5.8
Critical Hdwy Stg 2	-	-	-	-	5.8
Follow-up Hdwy	-	-	2.27	-	3.5
Pot Cap-1 Maneuver	-	-	880	-	184
Stage 1	-	-	-	-	480
Stage 2	-	-	-	-	564
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	880	-	183
Mov Cap-2 Maneuver	-	-	-	-	318
Stage 1	-	-	-	-	477
Stage 2	-	-	-	-	564

Approach	EB	WB	NB
HCM Control Delay, s	0	0	16.2
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	318	670	-	-	880	-
HCM Lane V/C Ratio	0.083	0.008	-	-	0.006	-
HCM Control Delay (s)	17.3	10.4	-	-	9.1	-
HCM Lane LOS	C	B	-	-	A	-
HCM 95th %tile Q(veh)	0.3	0	-	-	0	-

Intersection						
Int Delay, s/veh	0.3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↵	↕↕	↕↔		↵	
Traffic Vol, veh/h	20	633	976	5	5	10
Future Vol, veh/h	20	633	976	5	5	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	410	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	1	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	7	7	7	7	0	0
Mvmt Flow	21	666	1027	5	5	11

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	1032	0	-	0	1405 516
Stage 1	-	-	-	-	1030 -
Stage 2	-	-	-	-	375 -
Critical Hdwy	4.24	-	-	-	6.8 6.9
Critical Hdwy Stg 1	-	-	-	-	5.8 -
Critical Hdwy Stg 2	-	-	-	-	5.8 -
Follow-up Hdwy	2.27	-	-	-	3.5 3.3
Pot Cap-1 Maneuver	640	-	-	-	133 509
Stage 1	-	-	-	-	310 -
Stage 2	-	-	-	-	671 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	640	-	-	-	129 509
Mov Cap-2 Maneuver	-	-	-	-	235 -
Stage 1	-	-	-	-	300 -
Stage 2	-	-	-	-	671 -

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	15.3
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	640	-	-	-	367
HCM Lane V/C Ratio	0.033	-	-	-	0.043
HCM Control Delay (s)	10.8	-	-	-	15.3
HCM Lane LOS	B	-	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	-	0.1

Intersection												
Int Delay, s/veh	1.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↗	↘	↘	↗	↘		↗	↘		↗	↘
Traffic Vol, veh/h	15	596	32	10	913	10	60	5	15	15	5	20
Future Vol, veh/h	15	596	32	10	913	10	60	5	15	15	5	20
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	500	-	400	600	-	490	-	-	100	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	7	7	7	7	7	7	2	0	0	0	100	6
Mvmt Flow	16	627	34	11	961	11	63	5	16	16	5	21

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	972	0	0	661	0	0	1164	1653	314	1331	1676	481
Stage 1	-	-	-	-	-	-	659	659	-	983	983	-
Stage 2	-	-	-	-	-	-	505	994	-	348	693	-
Critical Hdwy	4.24	-	-	4.24	-	-	7.54	6.5	6.9	7.5	8.5	7.02
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.5	-	6.5	7.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.5	-	6.5	7.5	-
Follow-up Hdwy	2.27	-	-	2.27	-	-	3.52	4	3.3	3.5	5	3.36
Pot Cap-1 Maneuver	675	-	-	890	-	-	150	99	688	115	36	521
Stage 1	-	-	-	-	-	-	419	464	-	271	170	-
Stage 2	-	-	-	-	-	-	518	326	-	647	265	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	675	-	-	890	-	-	135	95	688	107	35	521
Mov Cap-2 Maneuver	-	-	-	-	-	-	259	208	-	206	107	-
Stage 1	-	-	-	-	-	-	409	453	-	264	168	-
Stage 2	-	-	-	-	-	-	476	322	-	610	259	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.2			0.1			21.7			22		
HCM LOS							C			C		

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	254	688	675	-	-	890	-	-	253
HCM Lane V/C Ratio	0.269	0.023	0.023	-	-	0.012	-	-	0.166
HCM Control Delay (s)	24.3	10.4	10.5	-	-	9.1	-	-	22
HCM Lane LOS	C	B	B	-	-	A	-	-	C
HCM 95th %tile Q(veh)	1.1	0.1	0.1	-	-	0	-	-	0.6

Intersection												
Int Delay, s/veh	2.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↵	↕↗		↵	↕↗			↕↘		↵	↕	
Traffic Vol, veh/h	107	493	26	51	719	0	45	10	25	121	10	193
Future Vol, veh/h	107	493	26	51	719	0	45	10	25	121	10	193
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	Free
Storage Length	520	-	-	150	-	-	-	-	-	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	7	7	7	7	7	7	0	0	0	15	0	7
Mvmt Flow	113	519	27	54	757	0	47	11	26	127	11	203

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	757	0	0	546	0	0	1251	1624	273	1356	1637	-
Stage 1	-	-	-	-	-	-	759	759	-	865	865	-
Stage 2	-	-	-	-	-	-	492	865	-	491	772	-
Critical Hdwy	4.24	-	-	4.24	-	-	7.5	6.5	6.9	7.8	6.5	-
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.8	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.8	5.5	-
Follow-up Hdwy	2.27	-	-	2.27	-	-	3.5	4	3.3	3.65	4	-
Pot Cap-1 Maneuver	818	-	-	985	-	-	131	104	731	~ 96	102	0
Stage 1	-	-	-	-	-	-	369	418	-	289	374	0
Stage 2	-	-	-	-	-	-	532	374	-	495	412	0
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	818	-	-	985	-	-	108	85	731	~ 76	83	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	206	168	-	166	186	-
Stage 1	-	-	-	-	-	-	318	360	-	249	353	-
Stage 2	-	-	-	-	-	-	488	353	-	399	355	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	1.7			0.6			25.8					
HCM LOS							D					

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	256	818	-	-	985	-	-	166	-
HCM Lane V/C Ratio	0.329	0.138	-	-	0.055	-	-	0.767	-
HCM Control Delay (s)	25.8	10.1	-	-	8.9	-	-	75.5	-
HCM Lane LOS	D	B	-	-	A	-	-	F	-
HCM 95th %tile Q(veh)	1.4	0.5	-	-	0.2	-	-	4.9	-

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

Intersection						
Int Delay, s/veh	0					
Movement	NBT	NBR	SBL	SBT	NWL	NWR
Lane Configurations	↑			↑		↑
Traffic Vol, veh/h	117	0	0	324	0	92
Future Vol, veh/h	117	0	0	324	0	92
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	16974	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	123	0	0	341	0	97

























Major/Minor	Minor2	Major2			
Conflicting Flow All	341	-	-	-	-
Stage 1	341	-	-	-	-
Stage 2	0	-	-	-	-
Critical Hdwy	6.52	-	-	-	-
Critical Hdwy Stg 1	5.52	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	4.018	-	-	-	-
Pot Cap-1 Maneuver	581	0	0	-	-
Stage 1	639	0	0	-	-
Stage 2	-	0	0	-	-
Platoon blocked, %					-
Mov Cap-1 Maneuver	0	-	-	-	-
Mov Cap-2 Maneuver	0	-	-	-	-
Stage 1	0	-	-	-	-
Stage 2	0	-	-	-	-

Approach	NB	SB
HCM Control Delay, s		0
HCM LOS	-	

Minor Lane/Major Mvmt	NBLn1	SBT
Capacity (veh/h)	-	-
HCM Lane V/C Ratio	-	-
HCM Control Delay (s)	-	-
HCM Lane LOS	-	-
HCM 95th %tile Q(veh)	-	-

HCM 6th Signalized Intersection Summary
1: Lorraine Rd & SR 70

2045 Build PM
09/13/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	341	2243	642	228	1455	156	552	381	339	196	219	163
Future Volume (veh/h)	341	2243	642	228	1455	156	552	381	339	196	219	163
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1796	1796	1796	1796	1796	1796	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	352	2312	662	235	1500	161	569	393	349	202	226	168
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	7	7	7	7	7	7	3	3	3	3	3	3
Cap, veh/h	3166	6299	2212	255	2037	857	578	605	391	261	561	1750
Arrive On Green	0.95	1.00	1.00	0.08	0.42	0.42	0.17	0.17	0.17	0.15	0.16	0.16
Sat Flow, veh/h	3319	4904	1522	3319	4904	1522	3428	3526	1572	1767	3526	1572
Grp Volume(v), veh/h	352	2312	662	235	1500	161	569	393	349	202	226	168
Grp Sat Flow(s),veh/h/ln	1659	1635	1522	1659	1635	1522	1714	1763	1572	1767	1763	1572
Q Serve(g_s), s	0.7	0.0	0.0	9.1	33.5	0.0	21.5	13.5	22.3	14.3	7.5	2.4
Cycle Q Clear(g_c), s	0.7	0.0	0.0	9.1	33.5	0.0	21.5	13.5	22.3	14.3	7.5	2.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	3166	6299	2212	255	2037	857	578	605	391	261	561	1750
V/C Ratio(X)	0.11	0.37	0.30	0.92	0.74	0.19	0.99	0.65	0.89	0.77	0.40	0.10
Avail Cap(c_a), veh/h	3166	6299	2212	255	2037	857	578	605	391	261	561	1750
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.2	0.0	0.0	59.6	32.0	13.9	53.9	50.2	274.9	53.3	49.1	13.4
Incr Delay (d2), s/veh	0.0	0.2	0.3	35.7	2.4	0.5	33.6	2.5	22.0	13.5	0.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	0.2	0.4	8.7	18.8	4.4	17.6	10.3	4.3	11.8	6.0	3.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.2	0.2	0.3	95.4	34.4	14.4	87.4	52.7	296.9	66.8	49.6	13.4
LnGrp LOS	A	A	A	F	C	B	F	D	F	E	D	B
Approach Vol, veh/h		3326			1896			1311			596	
Approach Delay, s/veh		0.2			40.3			132.8			45.2	
Approach LOS		A			D			F			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	15.2	174.9	26.0	25.9	131.9	58.2	24.4	27.5				
Change Period (Y+Rc), s	8.2	* 7.7	7.1	8.2	7.7	7.2	8.2	* 8.2				
Max Green Setting (Gmax), s	7.0	* 58	18.9	15.0	14.9	51.0	16.2	* 19				
Max Q Clear Time (g_c+I1), s	11.1	2.0	23.5	9.5	2.7	35.5	16.3	24.3				
Green Ext Time (p_c), s	0.0	38.4	0.0	1.0	0.9	9.0	0.0	0.0				
Intersection Summary												
HCM 6th Ctrl Delay			39.0									
HCM 6th LOS			D									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 6th Signalized Intersection Summary
 2: Greenbrook Blvd/Post Blvd & SR 70

2045 Build PM
 09/13/2018



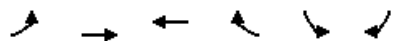
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↕↕	↗	↗	↕↕↕		↗↗	↕↕		↗	↕↕	↗
Traffic Volume (veh/h)	358	1856	502	65	1169	42	329	243	124	75	304	386
Future Volume (veh/h)	358	1856	502	65	1169	42	329	243	124	75	304	386
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1796	1796	1796	1796	1796	1796	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	369	1913	518	67	1205	43	339	251	128	77	313	398
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	7	7	7	7	7	7	2	2	2	2	2	2
Cap, veh/h	689	1995	1054	66	2019	72	372	284	140	123	301	463
Arrive On Green	0.21	0.58	0.58	0.04	0.42	0.42	0.11	0.12	0.12	0.07	0.08	0.08
Sat Flow, veh/h	3319	3413	1522	1711	4861	173	3456	2304	1138	1781	3554	1585
Grp Volume(v), veh/h	369	1913	518	67	810	438	339	192	187	77	313	398
Grp Sat Flow(s),veh/h/ln	1659	1706	1522	1711	1635	1765	1728	1777	1666	1781	1777	1585
Q Serve(g_s), s	12.9	68.9	8.8	5.0	25.0	25.1	12.6	13.8	14.4	5.5	11.0	6.7
Cycle Q Clear(g_c), s	12.9	68.9	8.8	5.0	25.0	25.1	12.6	13.8	14.4	5.5	11.0	6.7
Prop In Lane	1.00		1.00	1.00		0.10	1.00		0.68	1.00		1.00
Lane Grp Cap(c), veh/h	689	1995	1054	66	1358	733	372	219	205	123	301	463
V/C Ratio(X)	0.54	0.96	0.49	1.02	0.60	0.60	0.91	0.88	0.91	0.62	1.04	0.86
Avail Cap(c_a), veh/h	689	1995	1054	66	1358	733	372	219	205	123	301	463
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	0.82	0.82	0.82	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	45.9	25.5	2.4	62.5	29.5	29.5	57.4	56.0	56.3	58.9	59.5	20.5
Incr Delay (d2), s/veh	0.8	12.5	1.6	105.6	1.6	2.9	25.9	30.4	39.8	9.4	63.0	14.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	36.5	6.6	7.1	14.2	15.5	11.1	12.7	13.1	5.0	12.3	14.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	46.7	38.0	4.0	168.1	31.1	32.5	83.2	86.5	96.1	68.3	122.5	35.5
LnGrp LOS	D	D	A	F	C	C	F	F	F	E	F	D
Approach Vol, veh/h		2800			1315			718			788	
Approach Delay, s/veh		32.9			38.6			87.5			73.2	
Approach LOS		C			D			F			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	1.0	82.0	20.0	17.0	33.0	60.0	15.0	22.0				
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0				
Max Green Setting (Gmax), s	76.0	14.0	11.0	27.0	54.0	9.0	16.0					
Max Q Clear Time (g_c+I1), s	70.9	14.6	13.0	14.9	27.1	7.5	16.4					
Green Ext Time (p_c), s	0.0	4.6	0.0	0.0	1.0	8.5	0.0	0.0				

Intersection Summary

HCM 6th Ctrl Delay	46.8
HCM 6th LOS	D

HCM 6th Signalized Intersection Summary
3: SR 70 & Uihlein Rd







2045 Build PM
09/13/2018



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↔↔	↕↕	↕↕	↔	↔	↔
Traffic Volume (veh/h)	698	1256	781	120	114	411
Future Volume (veh/h)	698	1256	781	120	114	411
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1796	1796	1796	1796	1870	1870
Adj Flow Rate, veh/h	735	1322	822	73	120	222
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	7	7	7	7	2	2
Cap, veh/h	820	2686	1685	935	215	583
Arrive On Green	0.25	0.79	0.49	0.49	0.12	0.12
Sat Flow, veh/h	3319	3503	3503	1522	1781	1585
Grp Volume(v), veh/h	735	1322	822	73	120	222
Grp Sat Flow(s),veh/h/ln	1659	1706	1706	1522	1781	1585
Q Serve(g_s), s	27.8	17.5	20.9	2.5	8.3	13.4
Cycle Q Clear(g_c), s	27.8	17.5	20.9	2.5	8.3	13.4
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	820	2686	1685	935	215	583
V/C Ratio(X)	0.90	0.49	0.49	0.08	0.56	0.38
Avail Cap(c_a), veh/h	1098	2686	1685	935	247	611
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.19	0.19	0.87	0.87	1.00	1.00
Uniform Delay (d), s/veh	47.3	4.8	21.9	10.2	53.9	30.2
Incr Delay (d2), s/veh	1.7	0.1	0.9	0.1	2.3	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	13.5	5.5	12.4	2.1	6.9	19.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	49.0	4.9	22.8	10.3	56.1	30.6
LnGrp LOS	D	A	C	B	E	C
Approach Vol, veh/h		2057	895		342	
Approach Delay, s/veh		20.7	21.8		39.6	
Approach LOS		C	C		D	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		108.3		21.7	38.1	70.2
Change Period (Y+Rc), s		6.0		6.0	6.0	6.0
Max Green Setting (Gmax), s		100.0		18.0	43.0	51.0
Max Q Clear Time (g_c+I1), s		19.5		15.4	29.8	22.9
Green Ext Time (p_c), s		11.9		0.3	2.3	5.8
Intersection Summary						
HCM 6th Ctrl Delay			22.9			
HCM 6th LOS			C			

HCM 6th Signalized Intersection Summary
 29: Del Webb Blvd & SR 70

2045 Build PM
 10/16/2018

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↑	↑↑	↑	↑
Traffic Volume (veh/h)	1182	140	46	771	147	25
Future Volume (veh/h)	1182	140	46	771	147	25
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1796	1796	1796	1796	1870	1870
Adj Flow Rate, veh/h	1244	147	48	812	155	26
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	7	7	7	7	2	2
Cap, veh/h	1781	795	81	2287	229	279
Arrive On Green	0.52	0.52	0.05	0.67	0.13	0.13
Sat Flow, veh/h	3503	1522	1711	3503	1781	1585
Grp Volume(v), veh/h	1244	147	48	812	155	26
Grp Sat Flow(s),veh/h/ln	1706	1522	1711	1706	1781	1585
Q Serve(g_s), s	15.0	2.8	1.5	5.6	4.5	0.8
Cycle Q Clear(g_c), s	15.0	2.8	1.5	5.6	4.5	0.8
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1781	795	81	2287	229	279
V/C Ratio(X)	0.70	0.19	0.59	0.36	0.68	0.09
Avail Cap(c_a), veh/h	5095	2272	423	6282	930	902
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	9.8	6.9	25.5	3.9	22.7	18.9
Incr Delay (d2), s/veh	0.5	0.1	6.7	0.1	3.5	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	6.0	1.0	1.2	1.3	3.6	0.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	10.3	7.0	32.2	4.0	26.2	19.0
LnGrp LOS	B	A	C	A	C	B
Approach Vol, veh/h	1391			860	181	
Approach Delay, s/veh	10.0			5.6	25.2	
Approach LOS	A			A	C	
Timer - Assigned Phs		2	3	4		8
Phs Duration (G+Y+Rc), s		12.5	8.1	34.0		42.1
Change Period (Y+Rc), s		5.5	5.5	5.5		5.5
Max Green Setting (Gmax), s		28.5	13.5	81.5		100.5
Max Q Clear Time (g_c+I1), s		6.5	3.5	17.0		7.6
Green Ext Time (p_c), s		0.5	0.0	11.5		5.9
Intersection Summary						
HCM 6th Ctrl Delay			9.5			
HCM 6th LOS			A			

HCM 6th Signalized Intersection Summary
 4: Bournside Blvd & SR 70

2045 Build PM
 09/13/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	191	833	183	104	501	108	97	21	92	207	45	219
Future Volume (veh/h)	191	833	183	104	501	108	97	21	92	207	45	219
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1796	1796	1796	1796	1796	1796	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	201	877	193	109	527	114	102	22	97	218	47	231
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	7	7	7	7	7	7	2	2	2	2	2	2
Cap, veh/h	423	1188	530	275	1034	461	349	209	177	471	331	281
Arrive On Green	0.11	0.35	0.35	0.06	0.30	0.30	0.07	0.11	0.11	0.13	0.18	0.18
Sat Flow, veh/h	1711	3413	1522	1711	3413	1522	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	201	877	193	109	527	114	102	22	97	218	47	231
Grp Sat Flow(s),veh/h/ln	1711	1706	1522	1711	1706	1522	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	5.5	15.9	6.7	3.0	9.0	4.0	3.5	0.7	4.1	7.3	1.5	9.9
Cycle Q Clear(g_c), s	5.5	15.9	6.7	3.0	9.0	4.0	3.5	0.7	4.1	7.3	1.5	9.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	423	1188	530	275	1034	461	349	209	177	471	331	281
V/C Ratio(X)	0.48	0.74	0.36	0.40	0.51	0.25	0.29	0.11	0.55	0.46	0.14	0.82
Avail Cap(c_a), veh/h	697	2326	1038	480	2035	908	630	531	450	611	505	428
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	14.5	20.1	17.1	16.5	20.2	18.5	25.0	28.1	29.6	22.3	24.5	27.9
Incr Delay (d2), s/veh	0.8	0.9	0.4	0.9	0.4	0.3	0.5	0.2	2.6	0.7	0.2	7.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	8.2	9.1	3.7	1.9	5.6	2.2	2.6	0.6	2.8	5.4	1.2	7.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	15.4	21.1	17.6	17.4	20.6	18.8	25.5	28.3	32.2	23.0	24.7	35.5
LnGrp LOS	B	C	B	B	C	B	C	C	C	C	C	D
Approach Vol, veh/h		1271			750			221			496	
Approach Delay, s/veh		19.6			19.9			28.7			29.0	
Approach LOS		B			B			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	15.5	13.9	10.5	30.5	10.9	18.5	13.7	27.3				
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0				
Max Green Setting (Gmax), s	15.0	20.0	13.0	48.0	16.0	19.0	19.0	42.0				
Max Q Clear Time (g_c+I), s	19.3	6.1	5.0	17.9	5.5	11.9	7.5	11.0				
Green Ext Time (p_c), s	0.3	0.3	0.1	6.6	0.2	0.6	0.4	3.7				
Intersection Summary												
HCM 6th Ctrl Delay					22.1							
HCM 6th LOS					C							

Intersection												
Int Delay, s/veh	3.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↗	↘	↘	↗	↘	↘	↗	↘		↕	
Traffic Vol, veh/h	100	963	45	15	630	15	65	5	20	10	5	45
Future Vol, veh/h	100	963	45	15	630	15	65	5	20	10	5	45
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	510	-	510	510	-	510	150	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	7	7	7	7	7	7	7	0	25	50	0	3
Mvmt Flow	105	1014	47	16	663	16	68	5	21	11	5	47

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	679	0	0	1061	0	0	1590	1935	507	1415	1966	332
Stage 1	-	-	-	-	-	-	1224	1224	-	695	695	-
Stage 2	-	-	-	-	-	-	366	711	-	720	1271	-
Critical Hdwy	4.24	-	-	4.24	-	-	7.64	6.5	7.4	8.5	6.5	6.96
Critical Hdwy Stg 1	-	-	-	-	-	-	6.64	5.5	-	7.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.64	5.5	-	7.5	5.5	-
Follow-up Hdwy	2.27	-	-	2.27	-	-	3.57	4	3.55	4	4	3.33
Pot Cap-1 Maneuver	876	-	-	623	-	-	69	67	454	63	64	661
Stage 1	-	-	-	-	-	-	182	254	-	304	447	-
Stage 2	-	-	-	-	-	-	612	439	-	292	241	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	876	-	-	623	-	-	55	57	454	52	55	661
Mov Cap-2 Maneuver	-	-	-	-	-	-	126	146	-	135	144	-
Stage 1	-	-	-	-	-	-	160	224	-	268	435	-
Stage 2	-	-	-	-	-	-	547	428	-	239	212	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.9			0.2			50.5			18		
HCM LOS							F			C		

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	126	319	876	-	-	623	-	-	339
HCM Lane V/C Ratio	0.543	0.082	0.12	-	-	0.025	-	-	0.186
HCM Control Delay (s)	63.2	17.3	9.7	-	-	10.9	-	-	18
HCM Lane LOS	F	C	A	-	-	B	-	-	C
HCM 95th %tile Q(veh)	2.6	0.3	0.4	-	-	0.1	-	-	0.7

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

Intersection						
Int Delay, s/veh	0.4					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↗	↘	↑↑	↘	↗
Traffic Vol, veh/h	963	30	10	636	20	10
Future Vol, veh/h	963	30	10	636	20	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	510	570	-	180	0
Veh in Median Storage, #	0	-	-	0	1	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	7	7	7	7	0	0
Mvmt Flow	1014	32	11	669	21	11

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	1046	0	1371
Stage 1	-	-	-	-	1014
Stage 2	-	-	-	-	357
Critical Hdwy	-	-	4.24	-	6.8
Critical Hdwy Stg 1	-	-	-	-	5.8
Critical Hdwy Stg 2	-	-	-	-	5.8
Follow-up Hdwy	-	-	2.27	-	3.5
Pot Cap-1 Maneuver	-	-	632	-	140
Stage 1	-	-	-	-	316
Stage 2	-	-	-	-	685
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	632	-	138
Mov Cap-2 Maneuver	-	-	-	-	245
Stage 1	-	-	-	-	311
Stage 2	-	-	-	-	685

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	18.1
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	245	516	-	-	632	-
HCM Lane V/C Ratio	0.086	0.02	-	-	0.017	-
HCM Control Delay (s)	21.1	12.1	-	-	10.8	-
HCM Lane LOS	C	B	-	-	B	-
HCM 95th %tile Q(veh)	0.3	0.1	-	-	0.1	-

Intersection						
Int Delay, s/veh	0.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↵	↕↕	↕↔		↵	
Traffic Vol, veh/h	5	977	638	0	5	10
Future Vol, veh/h	5	977	638	0	5	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	410	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	1	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	7	7	7	7	0	0
Mvmt Flow	5	1028	672	0	5	11

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	672	0	-	0	1196 336
Stage 1	-	-	-	-	672 -
Stage 2	-	-	-	-	524 -
Critical Hdwy	4.24	-	-	-	6.8 6.9
Critical Hdwy Stg 1	-	-	-	-	5.8 -
Critical Hdwy Stg 2	-	-	-	-	5.8 -
Follow-up Hdwy	2.27	-	-	-	3.5 3.3
Pot Cap-1 Maneuver	882	-	-	-	182 666
Stage 1	-	-	-	-	474 -
Stage 2	-	-	-	-	564 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	882	-	-	-	181 666
Mov Cap-2 Maneuver	-	-	-	-	315 -
Stage 1	-	-	-	-	471 -
Stage 2	-	-	-	-	564 -

Approach	EB	WB	SB
HCM Control Delay, s	0	0	12.7
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	882	-	-	-	486
HCM Lane V/C Ratio	0.006	-	-	-	0.032
HCM Control Delay (s)	9.1	-	-	-	12.7
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Intersection												
Int Delay, s/veh	1.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↗	↘	↘	↗	↘		↗	↘		↗	↘
Traffic Vol, veh/h	20	925	75	15	597	10	49	10	10	5	5	20
Future Vol, veh/h	20	925	75	15	597	10	49	10	10	5	5	20
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	500	-	400	600	-	490	-	-	100	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	7	7	7	7	7	7	2	0	0	0	100	6
Mvmt Flow	21	974	79	16	628	11	52	11	11	5	5	21

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	639	0	0	1053	0	0	1365	1687	487	1195	1755	314
Stage 1	-	-	-	-	-	-	1016	1016	-	660	660	-
Stage 2	-	-	-	-	-	-	349	671	-	535	1095	-
Critical Hdwy	4.24	-	-	4.24	-	-	7.54	6.5	6.9	7.5	8.5	7.02
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.5	-	6.5	7.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.5	-	6.5	7.5	-
Follow-up Hdwy	2.27	-	-	2.27	-	-	3.52	4	3.3	3.5	5	3.36
Pot Cap-1 Maneuver	908	-	-	628	-	-	106	95	532	144	31	670
Stage 1	-	-	-	-	-	-	255	318	-	423	278	-
Stage 2	-	-	-	-	-	-	640	458	-	502	143	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	908	-	-	628	-	-	94	91	532	131	30	670
Mov Cap-2 Maneuver	-	-	-	-	-	-	193	204	-	256	89	-
Stage 1	-	-	-	-	-	-	249	311	-	413	271	-
Stage 2	-	-	-	-	-	-	592	447	-	464	140	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.2			0.3			29			19.3		
HCM LOS							D			C		

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	195	532	908	-	-	628	-	-	284
HCM Lane V/C Ratio	0.318	0.02	0.023	-	-	0.025	-	-	0.111
HCM Control Delay (s)	31.9	11.9	9.1	-	-	10.9	-	-	19.3
HCM Lane LOS	D	B	A	-	-	B	-	-	C
HCM 95th %tile Q(veh)	1.3	0.1	0.1	-	-	0.1	-	-	0.4

Intersection												
Int Delay, s/veh	2.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↵	↕↗		↵	↕↘			↕↔		↵	↗	
Traffic Vol, veh/h	181	724	25	20	461	0	40	10	25	110	6	85
Future Vol, veh/h	181	724	25	20	461	0	40	10	25	110	6	85
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	Free
Storage Length	520	-	-	150	-	-	-	-	-	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	7	7	7	7	7	7	0	0	0	15	0	7
Mvmt Flow	191	762	26	21	485	0	42	11	26	116	6	89

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	485	0	0	788	0	0	1445	1684	394	1296	1697	-
Stage 1	-	-	-	-	-	-	1157	1157	-	527	527	-
Stage 2	-	-	-	-	-	-	288	527	-	769	1170	-
Critical Hdwy	4.24	-	-	4.24	-	-	7.5	6.5	6.9	7.8	6.5	-
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.8	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.8	5.5	-
Follow-up Hdwy	2.27	-	-	2.27	-	-	3.5	4	3.3	3.65	4	-
Pot Cap-1 Maneuver	1040	-	-	796	-	-	94	95	611	~ 107	93	0
Stage 1	-	-	-	-	-	-	212	273	-	471	532	0
Stage 2	-	-	-	-	-	-	701	532	-	332	269	0
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1040	-	-	796	-	-	77	76	611	~ 82	74	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	141	154	-	164	157	-
Stage 1	-	-	-	-	-	-	173	223	-	384	518	-
Stage 2	-	-	-	-	-	-	674	518	-	247	220	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	1.8			0.4			36					
HCM LOS							E			-		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	193	1040	-	-	796	-	-	164	-
HCM Lane V/C Ratio	0.409	0.183	-	-	0.026	-	-	0.706	-
HCM Control Delay (s)	36	9.2	-	-	9.6	-	-	67.3	-
HCM Lane LOS	E	A	-	-	A	-	-	F	-
HCM 95th %tile Q(veh)	1.8	0.7	-	-	0.1	-	-	4.2	-

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

Intersection						
Int Delay, s/veh	0					
Movement	NBT	NBR	SBL	SBT	NWL	NWR
Lane Configurations	↑			↑		↑
Traffic Vol, veh/h	191	0	0	201	0	110
Future Vol, veh/h	191	0	0	201	0	110
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	16974	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	201	0	0	212	0	116

Major/Minor	Minor2	Major2			
Conflicting Flow All	212	-	-	-	-
Stage 1	212	-	-	-	-
Stage 2	0	-	-	-	-
Critical Hdwy	6.52	-	-	-	-
Critical Hdwy Stg 1	5.52	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	4.018	-	-	-	-
Pot Cap-1 Maneuver	685	0	0	-	-
Stage 1	727	0	0	-	-
Stage 2	-	0	0	-	-
Platoon blocked, %					-
Mov Cap-1 Maneuver	0	-	-	-	-
Mov Cap-2 Maneuver	0	-	-	-	-
Stage 1	0	-	-	-	-
Stage 2	0	-	-	-	-

Approach	NB	SB
HCM Control Delay, s		0
HCM LOS	-	

Minor Lane/Major Mvmt	NBLn1	SBT
Capacity (veh/h)	-	-
HCM Lane V/C Ratio	-	-
HCM Control Delay (s)	-	-
HCM Lane LOS	-	-
HCM 95th %tile Q(veh)	-	-

Appendix J

Roadway Analysis Outputs- Build

HIGHPLAN 2012 Conceptual Planning Analysis

Project Information

Analyst	JP/VHB	Highway Name	SR 70	Study Period	Kother
Date Prepared	8/23/2018 12:42:50 PM	From	Uihlien (M.P. 9.988)	Analysis Type	Multilane Segment
Agency	FDOT D1	To	Bourneside (M.P. 11.988)	Program	HIGHPLAN 2012
Area Type	Rural Undeveloped	Peak Direction	Westbound	Version Date	12/12/2012
File Name	\\vhb\proj\Orlando\62498.04 FDOT D1 SR 70 Re Eval\tech\Analysis\HIGHPLAN\1 - Uihlein to Bourneside\2025 AM B.xhp				
User Notes	2025 AM Build				

Highway Data

Roadway Variables				Traffic Variables			
Segment Length	2.000	Median	Yes	AADT	16000	PHF	0.950
# Thru Lanes	4	Left Turn Impact	No	K	0.095	% Heavy Vehicles	7.1
Terrain	Level	Pass Lane Length	N/A	D	0.605	Base Capacity	2200
Posted Speed	60	% NPZ	N/A	Peak Dir. Hrly. Vol.	920	Local Adj. Factor	0.73
Free Flow Speed	60	Class	1	Off Peak Dir. Hrly. Vol.	600	Adjusted Capacity	0

LOS Results

v/c Ratio	Infinity	Density	NaN	PTSF	N/A	ATS	-Infinity	% FFS	-Infinity
FFS Delay	-120.0	LOS Thresh. Delay	0.0	Service Measure	Density	LOS	F		

Service Volumes

Note: The maximum normally acceptable directional service volume for LOS E in Florida for this facility type and area type is 1600 veh/h/ln.

	A	B	C	D	E
Lanes	Hourly Volume In Peak Direction				
1					
2	480	1120	1760	2270	2590
3	720	1680	2650	3410	3890
4	960	2250	3530	4550	5190
Lanes	Hourly Volume In Both Directions				
2					
4	800	1860	2910	3760	4290
6	1200	2780	4390	5640	6430
8	1590	3720	5840	7530	8580
Lanes	Annual Average Daily Traffic				

2					
4	8500	19600	30700	39600	45200
6	12700	29300	46300	59400	67700
8	16800	39200	61500	79300	90400

* Cannot be achieved based on input data provided.

Performance measure results are no longer applicable with the presence of passing lanes. Refer to the service volume tables to obtain the LOS.

HIGHPLAN 2012 Conceptual Planning Analysis

Project Information

Analyst	JP/VHB	Highway Name	SR 70	Study Period	Kother
Date Prepared	8/23/2018 12:42:50 PM	From	Bourneside (M.P. 11.988)	Analysis Type	Multilane Segment
Agency	FDOT D1	To	Lindrick Ln./197th Street E. (M.P. 13.218)	Program	HIGHPLAN 2012
Area Type	Rural Undeveloped	Peak Direction	Westbound	Version Date	12/12/2012
File Name	\\vhb\proj\Orlando\62498.04 FDOT D1 SR 70 Re Eval\tech\Analysis\HIGHPLAN\Bourneside to Lindrick\2025 AM B.xhp				
User Notes	2025 AM Build				

Highway Data

Roadway Variables				Traffic Variables			
Segment Length	1.230	Median	Yes	AADT	15000	PHF	0.950
# Thru Lanes	4	Left Turn Impact	No	K	0.095	% Heavy Vehicles	7.1
Terrain	Level	Pass Lane Length	N/A	D	0.605	Base Capacity	2200
Posted Speed	60	% NPZ	N/A	Peak Dir. Hrly. Vol.	856	Local Adj. Factor	0.73
Free Flow Speed	60	Class	1	Off Peak Dir. Hrly. Vol.	559	Adjusted Capacity	0

LOS Results

v/c Ratio	Infinity	Density	NaN	PTSF	N/A	ATS	-Infinity	% FFS	-Infinity
FFS Delay	-73.8	LOS Thresh. Delay	0.0	Service Measure	Density	LOS	F		

Service Volumes

Note: The maximum normally acceptable directional service volume for LOS E in Florida for this facility type and area type is 1600 veh/h/ln.

	A	B	C	D	E
Lanes	Hourly Volume In Peak Direction				
1					
2	480	1120	1760	2270	2590
3	720	1680	2650	3410	3890
4	960	2250	3530	4550	5190
Lanes	Hourly Volume In Both Directions				
2					
4	800	1860	2910	3760	4290
6	1200	2780	4390	5640	6430

8	1590	3720	5840	7530	8580
Lanes	Annual Average Daily Traffic				
2					
4	8500	19600	30700	39600	45200
6	12700	29300	46300	59400	67700
8	16800	39200	61500	79300	90400

Cannot be achieved based on input data provided.

Performance measure results are no longer applicable with the presence of passing lanes. Refer to the service volume tables to obtain the LOS.

HIGHPLAN 2012 Conceptual Planning Analysis

Project Information

Analyst	VHB	Highway Name	SR 70	Study Period	Kother
Date Prepared	8/23/2018 12:42:50 PM	From	Lindrick Ln./197th Street E. (M.P. 13.218)	Analysis Type	Multilane Segment
Agency	FDOT D1	To	Meadow Dove Ln./CR 675 (M.P. 15.567)	Program	HIGHPLAN 2012
Area Type	Rural Undeveloped	Peak Direction	Westbound	Version Date	12/12/2012
File Name	\\vhb\proj\Orlando\62498.04 FDOT D1 SR 70 Re Eval\tech\Analysis\HIGHPLAN\Lindrick to CR 675\2025 AM B.xhp				
User Notes	2025 AM Build				

Highway Data

Roadway Variables				Traffic Variables			
Segment Length	2.300	Median	Yes	AADT	13000	PHF	0.950
# Thru Lanes	4	Left Turn Impact	No	K	0.095	% Heavy Vehicles	7.1
Terrain	Level	Pass Lane Length	N/A	D	0.605	Base Capacity	2200
Posted Speed	60	% NPZ	N/A	Peak Dir. Hrly. Vol.	741	Local Adj. Factor	0.73
Free Flow Speed	60	Class	1	Off Peak Dir. Hrly. Vol.	484	Adjusted Capacity	0

LOS Results

v/c Ratio	Infinity	Density	NaN	PTSF	N/A	ATS	-Infinity	% FFS	-Infinity
FFS Delay	-138.0	LOS Thresh. Delay	0.0	Service Measure	Density	LOS	F		

Service Volumes

Note: The maximum normally acceptable directional service volume for LOS E in Florida for this facility type and area type is 1600 veh/h/ln.

	A	B	C	D	E
Lanes	Hourly Volume In Peak Direction				
1					
2	480	1120	1760	2270	2590
3	720	1680	2650	3410	3890
4	960	2250	3530	4550	5190
Lanes	Hourly Volume In Both Directions				
2					
4	800	1860	2910	3760	4290
6	1200	2780	4390	5640	6430

8	1590	3720	5840	7530	8580
Lanes	Annual Average Daily Traffic				
2					
4	8500	19600	30700	39600	45200
6	12700	29300	46300	59400	67700
8	16800	39200	61500	79300	90400

* Cannot be achieved based on input data provided.

Performance measure results are no longer applicable with the presence of passing lanes. Refer to the service volume tables to obtain the LOS.

HIGHPLAN 2012 Conceptual Planning Analysis

Project Information

Analyst	JP/VHB	Highway Name	SR 70	Study Period	Kother
Date Prepared	8/23/2018 12:42:50 PM	From	Uihlein (M.P. 9.988)	Analysis Type	Multilane Segment
Agency	FDOT D1	To	Bourneside (M.P. 11.988)	Program	HIGHPLAN 2012
Area Type	Rural Undeveloped	Peak Direction	Eastbound	Version Date	12/12/2012
File Name	\\vhb\proj\Orlando\62498.04 FDOT D1 SR 70 Re Eval\tech\Analysis\HIGHPLAN\1 - Uihlein to Bourneside\2025 PM B.xhp				
User Notes	2025 PM Build				

Highway Data

Roadway Variables				Traffic Variables			
Segment Length	2.000	Median	Yes	AADT	16000	PHF	0.950
# Thru Lanes	4	Left Turn Impact	No	K	0.095	% Heavy Vehicles	7.1
Terrain	Level	Pass Lane Length	N/A	D	0.605	Base Capacity	2200
Posted Speed	60	% NPZ	N/A	Peak Dir. Hrly. Vol.	920	Local Adj. Factor	0.73
Free Flow Speed	60	Class	1	Off Peak Dir. Hrly. Vol.	600	Adjusted Capacity	0

LOS Results

v/c Ratio	Infinity	Density	NaN	PTSF	N/A	ATS	-Infinity	% FFS	-Infinity
FFS Delay	-120.0	LOS Thresh. Delay	0.0	Service Measure	Density	LOS	F		

Service Volumes

Note: The maximum normally acceptable directional service volume for LOS E in Florida for this facility type and area type is 1600 veh/h/ln.

	A	B	C	D	E
Lanes	Hourly Volume In Peak Direction				
1					
2	480	1120	1760	2270	2590
3	720	1680	2650	3410	3890
4	960	2250	3530	4550	5190
Lanes	Hourly Volume In Both Directions				
2					
4	800	1860	2910	3760	4290
6	1200	2780	4390	5640	6430
8	1590	3720	5840	7530	8580
Lanes	Annual Average Daily Traffic				

2					
4	8500	19600	30700	39600	45200
6	12700	29300	46300	59400	67700
8	16800	39200	61500	79300	90400

* Cannot be achieved based on input data provided.

Performance measure results are no longer applicable with the presence of passing lanes. Refer to the service volume tables to obtain the LOS.

HIGHPLAN 2012 Conceptual Planning Analysis

Project Information

Analyst	JP/VHB	Highway Name	SR 70	Study Period	Kother
Date Prepared	8/23/2018 12:42:50 PM	From	Bourneside (M.P. 11.988)	Analysis Type	Multilane Segment
Agency	FDOT D1	To	Lindrick Ln./197th Street E. (M.P. 13.218)	Program	HIGHPLAN 2012
Area Type	Rural Undeveloped	Peak Direction	Eastbound	Version Date	12/12/2012
File Name	\\vhb\proj\Orlando\62498.04 FDOT D1 SR 70 Re Eval\tech\Analysis\HIGHPLAN\Bourneside to Lindrick\2025 PM B.xhp				
User Notes	2025 PM Build				

Highway Data

Roadway Variables				Traffic Variables			
Segment Length	1.230	Median	Yes	AADT	15000	PHF	0.950
# Thru Lanes	4	Left Turn Impact	No	K	0.095	% Heavy Vehicles	7.1
Terrain	Level	Pass Lane Length	N/A	D	0.605	Base Capacity	2200
Posted Speed	60	% NPZ	N/A	Peak Dir. Hrly. Vol.	856	Local Adj. Factor	0.73
Free Flow Speed	60	Class	1	Off Peak Dir. Hrly. Vol.	559	Adjusted Capacity	0

LOS Results

v/c Ratio	Infinity	Density	NaN	PTSF	N/A	ATS	-Infinity	% FFS	-Infinity
FFS Delay	-73.8	LOS Thresh. Delay	0.0	Service Measure	Density	LOS	F		

Service Volumes

Note: The maximum normally acceptable directional service volume for LOS E in Florida for this facility type and area type is 1600 veh/h/ln.

	A	B	C	D	E
Lanes	Hourly Volume In Peak Direction				
1					
2	480	1120	1760	2270	2590
3	720	1680	2650	3410	3890
4	960	2250	3530	4550	5190
Lanes	Hourly Volume In Both Directions				
2					
4	800	1860	2910	3760	4290
6	1200	2780	4390	5640	6430

8	1590	3720	5840	7530	8580
Lanes	Annual Average Daily Traffic				
2					
4	8500	19600	30700	39600	45200
6	12700	29300	46300	59400	67700
8	16800	39200	61500	79300	90400

Cannot be achieved based on input data provided.

Performance measure results are no longer applicable with the presence of passing lanes. Refer to the service volume tables to obtain the LOS.

HIGHPLAN 2012 Conceptual Planning Analysis

Project Information

Analyst	AP/VHB	Highway Name	SR 70	Study Period	Kother
Date Prepared	8/23/2018 12:42:50 PM	From	Lindrick Ln./197th Street E. (M.P. 13.218)	Analysis Type	Multilane Segment
Agency	FDOT D1	To	Meadow Dove Ln./CR 675 (M.P. 15.567)	Program	HIGHPLAN 2012
Area Type	Rural Undeveloped	Peak Direction	Eastbound	Version Date	12/12/2012
File Name	\\vhb\proj\Orlando\62498.04 FDOT D1 SR 70 Re Eval\tech\Analysis\HIGHPLAN\Lindrick to CR 675\2025 PM B.xhp				
User Notes	2025 PM Build				

Highway Data

Roadway Variables				Traffic Variables			
Segment Length	2.300	Median	Yes	AADT	13000	PHF	0.950
# Thru Lanes	4	Left Turn Impact	No	K	0.095	% Heavy Vehicles	7.1
Terrain	Level	Pass Lane Length	N/A	D	0.605	Base Capacity	2200
Posted Speed	60	% NPZ	N/A	Peak Dir. Hrly. Vol.	747	Local Adj. Factor	0.73
Free Flow Speed	60	Class	1	Off Peak Dir. Hrly. Vol.	488	Adjusted Capacity	0

LOS Results

v/c Ratio	Infinity	Density	NaN	PTSF	N/A	ATS	-Infinity	% FFS	-Infinity
FFS Delay	-138.0	LOS Thresh. Delay	0.0	Service Measure	Density	LOS	F		

Service Volumes

Note: The maximum normally acceptable directional service volume for LOS E in Florida for this facility type and area type is 1600 veh/h/ln.

	A	B	C	D	E
Lanes	Hourly Volume In Peak Direction				
1					
2	480	1120	1760	2270	2590
3	720	1680	2650	3410	3890
4	960	2250	3530	4550	5190
Lanes	Hourly Volume In Both Directions				
2					
4	800	1860	2910	3760	4290
6	1200	2780	4390	5640	6430

8	1590	3720	5840	7530	8580
Lanes	Annual Average Daily Traffic				
2					
4	8500	19600	30700	39600	45200
6	12700	29300	46300	59400	67700
8	16800	39200	61500	79300	90400

* Cannot be achieved based on input data provided.

Performance measure results are no longer applicable with the presence of passing lanes. Refer to the service volume tables to obtain the LOS.

HIGHPLAN 2012 Conceptual Planning Analysis

Project Information

Analyst	JP/VHB	Highway Name	SR 70	Study Period	Kother
Date Prepared	8/23/2018 12:42:50 PM	From	Uihlien (M.P. 9.988)	Analysis Type	Multilane Segment
Agency	FDOT D1	To	Bourneside (M.P. 11.988)	Program	HIGHPLAN 2012
Area Type	Rural Undeveloped	Peak Direction	Westbound	Version Date	12/12/2012
File Name	\\vhb\proj\Orlando\62498.04 FDOT D1 SR 70 Re Eval\tech\Analysis\HIGHPLAN\1 - Uihlein to Bourneside\2035 AM B.xhp				
User Notes	2035 AM Build				

Highway Data

Roadway Variables				Traffic Variables			
Segment Length	2.000	Median	Yes	AADT	20000	PHF	0.950
# Thru Lanes	4	Left Turn Impact	No	K	0.095	% Heavy Vehicles	7.1
Terrain	Level	Pass Lane Length	N/A	D	0.605	Base Capacity	2200
Posted Speed	60	% NPZ	N/A	Peak Dir. Hrly. Vol.	1150	Local Adj. Factor	0.73
Free Flow Speed	60	Class	1	Off Peak Dir. Hrly. Vol.	751	Adjusted Capacity	0

LOS Results

v/c Ratio	Infinity	Density	NaN	PTSF	N/A	ATS	-Infinity	% FFS	-Infinity
FFS Delay	-120.0	LOS Thresh. Delay	0.0	Service Measure	Density	LOS	F		

Service Volumes

Note: The maximum normally acceptable directional service volume for LOS E in Florida for this facility type and area type is 1600 veh/h/ln.

	A	B	C	D	E
Lanes	Hourly Volume In Peak Direction				
1					
2	480	1120	1760	2270	2590
3	720	1680	2650	3410	3890
4	960	2250	3530	4550	5190
Lanes	Hourly Volume In Both Directions				
2					
4	800	1860	2910	3760	4290
6	1200	2780	4390	5640	6430
8	1590	3720	5840	7530	8580
Lanes	Annual Average Daily Traffic				

2					
4	8500	19600	30700	39600	45200
6	12700	29300	46300	59400	67700
8	16800	39200	61500	79300	90400

* Cannot be achieved based on input data provided.

Performance measure results are no longer applicable with the presence of passing lanes. Refer to the service volume tables to obtain the LOS.

HIGHPLAN 2012 Conceptual Planning Analysis

Project Information

Analyst	JP/VHB	Highway Name	SR 70	Study Period	Kother
Date Prepared	8/23/2018 12:42:50 PM	From	Bourneside (M.P. 11.988)	Analysis Type	Multilane Segment
Agency	FDOT D1	To	Lindrick Ln./197th Street E. (M.P. 13.218)	Program	HIGHPLAN 2012
Area Type	Rural Undeveloped	Peak Direction	Westbound	Version Date	12/12/2012
File Name	\\vhb\proj\Orlando\62498.04 FDOT D1 SR 70 Re Eval\tech\Analysis\HIGHPLAN\Bourneside to Lindrick\2035 AM B.xhp				
User Notes	2035 AM Build				

Highway Data

Roadway Variables				Traffic Variables			
Segment Length	1.230	Median	Yes	AADT	17000	PHF	0.950
# Thru Lanes	4	Left Turn Impact	No	K	0.095	% Heavy Vehicles	7.1
Terrain	Level	Pass Lane Length	N/A	D	0.605	Base Capacity	2200
Posted Speed	60	% NPZ	N/A	Peak Dir. Hrly. Vol.	971	Local Adj. Factor	0.73
Free Flow Speed	60	Class	1	Off Peak Dir. Hrly. Vol.	634	Adjusted Capacity	0

LOS Results

v/c Ratio	Infinity	Density	NaN	PTSF	N/A	ATS	-Infinity	% FFS	-Infinity
FFS Delay	-73.8	LOS Thresh. Delay	0.0	Service Measure	Density	LOS	F		

Service Volumes

Note: The maximum normally acceptable directional service volume for LOS E in Florida for this facility type and area type is 1600 veh/h/ln.

	A	B	C	D	E
Lanes	Hourly Volume In Peak Direction				
1					
2	480	1120	1760	2270	2590
3	720	1680	2650	3410	3890
4	960	2250	3530	4550	5190
Lanes	Hourly Volume In Both Directions				
2					
4	800	1860	2910	3760	4290
6	1200	2780	4390	5640	6430

8	1590	3720	5840	7530	8580
Lanes	Annual Average Daily Traffic				
2					
4	8500	19600	30700	39600	45200
6	12700	29300	46300	59400	67700
8	16800	39200	61500	79300	90400

Cannot be achieved based on input data provided.

Performance measure results are no longer applicable with the presence of passing lanes. Refer to the service volume tables to obtain the LOS.

HIGHPLAN 2012 Conceptual Planning Analysis

Project Information

Analyst	AP/VHB	Highway Name	SR 70	Study Period	Kother
Date Prepared	8/23/2018 12:42:50 PM	From	Lindrick Ln./197th Street E. (M.P. 13.218)	Analysis Type	Multilane Segment
Agency	FDOT D1	To	Meadow Dove Ln./CR 675 (M.P. 15.567)	Program	HIGHPLAN 2012
Area Type	Rural Undeveloped	Peak Direction	Westbound	Version Date	12/12/2012
File Name	\\vhb\proj\Orlando\62498.04 FDOT D1 SR 70 Re Eval\tech\Analysis\HIGHPLAN\Lindrick to CR 675\2035 AM B.xhp				
User Notes	2035 AM Build				

Highway Data

Roadway Variables				Traffic Variables			
Segment Length	2.300	Median	Yes	AADT	15000	PHF	0.950
# Thru Lanes	4	Left Turn Impact	No	K	0.095	% Heavy Vehicles	7.1
Terrain	Level	Pass Lane Length	N/A	D	0.605	Base Capacity	2200
Posted Speed	60	% NPZ	N/A	Peak Dir. Hrly. Vol.	862	Local Adj. Factor	0.73
Free Flow Speed	60	Class	1	Off Peak Dir. Hrly. Vol.	563	Adjusted Capacity	0

LOS Results

v/c Ratio	Infinity	Density	NaN	PTSF	N/A	ATS	-Infinity	% FFS	-Infinity
FFS Delay	-138.0	LOS Thresh. Delay	0.0	Service Measure	Density	LOS	F		

Service Volumes

Note: The maximum normally acceptable directional service volume for LOS E in Florida for this facility type and area type is 1600 veh/h/ln.

	A	B	C	D	E
Lanes	Hourly Volume In Peak Direction				
1					
2	480	1120	1760	2270	2590
3	720	1680	2650	3410	3890
4	960	2250	3530	4550	5190
Lanes	Hourly Volume In Both Directions				
2					
4	800	1860	2910	3760	4290
6	1200	2780	4390	5640	6430

8	1590	3720	5840	7530	8580
Lanes	Annual Average Daily Traffic				
2					
4	8500	19600	30700	39600	45200
6	12700	29300	46300	59400	67700
8	16800	39200	61500	79300	90400

* Cannot be achieved based on input data provided.

Performance measure results are no longer applicable with the presence of passing lanes. Refer to the service volume tables to obtain the LOS.

HIGHPLAN 2012 Conceptual Planning Analysis

Project Information

Analyst	JP/VHB	Highway Name	SR 70	Study Period	Kother
Date Prepared	8/23/2018 12:42:50 PM	From	Uihlein (M.P. 9.988)	Analysis Type	Multilane Segment
Agency	FDOT D1	To	Bourneside (M.P. 11.988)	Program	HIGHPLAN 2012
Area Type	Rural Undeveloped	Peak Direction	Eastbound	Version Date	12/12/2012
File Name	\\vhb\proj\Orlando\62498.04 FDOT D1 SR 70 Re Eval\tech\Analysis\HIGHPLAN\1 - Uihlein to Bourneside\2035 PM B.xhp				
User Notes	2035 PM Build				

Highway Data

Roadway Variables				Traffic Variables			
Segment Length	2.000	Median	Yes	AADT	20000	PHF	0.950
# Thru Lanes	4	Left Turn Impact	No	K	0.095	% Heavy Vehicles	7.1
Terrain	Level	Pass Lane Length	N/A	D	0.605	Base Capacity	2200
Posted Speed	60	% NPZ	N/A	Peak Dir. Hrly. Vol.	1150	Local Adj. Factor	0.73
Free Flow Speed	60	Class	1	Off Peak Dir. Hrly. Vol.	751	Adjusted Capacity	0

LOS Results

v/c Ratio	Infinity	Density	NaN	PTSF	N/A	ATS	-Infinity	% FFS	-Infinity
FFS Delay	-120.0	LOS Thresh. Delay	0.0	Service Measure	Density	LOS	F		

Service Volumes

Note: The maximum normally acceptable directional service volume for LOS E in Florida for this facility type and area type is 1600 veh/h/ln.

	A	B	C	D	E
Lanes	Hourly Volume In Peak Direction				
1					
2	480	1120	1760	2270	2590
3	720	1680	2650	3410	3890
4	960	2250	3530	4550	5190
Lanes	Hourly Volume In Both Directions				
2					
4	800	1860	2910	3760	4290
6	1200	2780	4390	5640	6430
8	1590	3720	5840	7530	8580
Lanes	Annual Average Daily Traffic				

2					
4	8500	19600	30700	39600	45200
6	12700	29300	46300	59400	67700
8	16800	39200	61500	79300	90400

* Cannot be achieved based on input data provided.

Performance measure results are no longer applicable with the presence of passing lanes. Refer to the service volume tables to obtain the LOS.

HIGHPLAN 2012 Conceptual Planning Analysis

Project Information

Analyst	JP/VHB	Highway Name	SR 70	Study Period	Kother
Date Prepared	8/23/2018 12:42:50 PM	From	Bourneside (M.P. 11.988)	Analysis Type	Multilane Segment
Agency	FDOT D1	To	Lindrick Ln./197th Street E. (M.P. 13.218)	Program	HIGHPLAN 2012
Area Type	Rural Undeveloped	Peak Direction	Eastbound	Version Date	12/12/2012
File Name	\\vhb\proj\Orlando\62498.04 FDOT D1 SR 70 Re Eval\tech\Analysis\HIGHPLAN\Bourneside to Lindrick\2035 PM B.xhp				
User Notes	2035 PM Build				

Highway Data

Roadway Variables				Traffic Variables			
Segment Length	1.230	Median	Yes	AADT	17000	PHF	0.950
# Thru Lanes	4	Left Turn Impact	No	K	0.095	% Heavy Vehicles	7.1
Terrain	Level	Pass Lane Length	N/A	D	0.605	Base Capacity	2200
Posted Speed	60	% NPZ	N/A	Peak Dir. Hrly. Vol.	971	Local Adj. Factor	0.73
Free Flow Speed	60	Class	1	Off Peak Dir. Hrly. Vol.	634	Adjusted Capacity	0

LOS Results

v/c Ratio	Infinity	Density	NaN	PTSF	N/A	ATS	-Infinity	% FFS	-Infinity
FFS Delay	-73.8	LOS Thresh. Delay	0.0	Service Measure	Density	LOS	F		

Service Volumes

Note: The maximum normally acceptable directional service volume for LOS E in Florida for this facility type and area type is 1600 veh/h/ln.

	A	B	C	D	E
Lanes	Hourly Volume In Peak Direction				
1					
2	480	1120	1760	2270	2590
3	720	1680	2650	3410	3890
4	960	2250	3530	4550	5190
Lanes	Hourly Volume In Both Directions				
2					
4	800	1860	2910	3760	4290
6	1200	2780	4390	5640	6430

8	1590	3720	5840	7530	8580
Lanes	Annual Average Daily Traffic				
2					
4	8500	19600	30700	39600	45200
6	12700	29300	46300	59400	67700
8	16800	39200	61500	79300	90400

Cannot be achieved based on input data provided.

Performance measure results are no longer applicable with the presence of passing lanes. Refer to the service volume tables to obtain the LOS.

HIGHPLAN 2012 Conceptual Planning Analysis

Project Information

Analyst	AP/VHB	Highway Name	SR 70	Study Period	Kother
Date Prepared	8/23/2018 12:42:50 PM	From	Lindrick Ln./197th Street E. (M.P. 13.218)	Analysis Type	Multilane Segment
Agency	FDOT D1	To	Meadow Dove Ln./CR 675 (M.P. 15.567)	Program	HIGHPLAN 2012
Area Type	Rural Undeveloped	Peak Direction	Eastbound	Version Date	12/12/2012
File Name	\\vhb\proj\Orlando\62498.04 FDOT D1 SR 70 Re Eval\tech\Analysis\HIGHPLAN\Lindrick to CR 675\2035 PM B.xhp				
User Notes	2035 PM Build				

Highway Data

Roadway Variables				Traffic Variables			
Segment Length	2.300	Median	Yes	AADT	15000	PHF	0.950
# Thru Lanes	4	Left Turn Impact	No	K	0.095	% Heavy Vehicles	7.1
Terrain	Level	Pass Lane Length	N/A	D	0.605	Base Capacity	2200
Posted Speed	60	% NPZ	N/A	Peak Dir. Hrly. Vol.	862	Local Adj. Factor	0.73
Free Flow Speed	60	Class	1	Off Peak Dir. Hrly. Vol.	563	Adjusted Capacity	0

LOS Results

v/c Ratio	Infinity	Density	NaN	PTSF	N/A	ATS	-Infinity	% FFS	-Infinity
FFS Delay	-138.0	LOS Thresh. Delay	0.0	Service Measure	Density	LOS	F		

Service Volumes

Note: The maximum normally acceptable directional service volume for LOS E in Florida for this facility type and area type is 1600 veh/h/ln.

	A	B	C	D	E
Lanes	Hourly Volume In Peak Direction				
1					
2	480	1120	1760	2270	2590
3	720	1680	2650	3410	3890
4	960	2250	3530	4550	5190
Lanes	Hourly Volume In Both Directions				
2					
4	800	1860	2910	3760	4290
6	1200	2780	4390	5640	6430

8	1590	3720	5840	7530	8580
Lanes	Annual Average Daily Traffic				
2					
4	8500	19600	30700	39600	45200
6	12700	29300	46300	59400	67700
8	16800	39200	61500	79300	90400

* Cannot be achieved based on input data provided.

Performance measure results are no longer applicable with the presence of passing lanes. Refer to the service volume tables to obtain the LOS.

HIGHPLAN 2012 Conceptual Planning Analysis

Project Information

Analyst	JP/VHB	Highway Name	SR 70	Study Period	Kother
Date Prepared	8/23/2018 12:42:50 PM	From	Uihlien (M.P. 9.988)	Analysis Type	Multilane Segment
Agency	FDOT D1	To	Bourneside (M.P. 11.988)	Program	HIGHPLAN 2012
Area Type	Rural Undeveloped	Peak Direction	Westbound	Version Date	12/12/2012
File Name	\\vhb\proj\Orlando\62498.04 FDOT D1 SR 70 Re Eval\tech\Analysis\HIGHPLAN\1 - Uihlein to Bourneside\2045 AM B.xhp				
User Notes	2045 AM Build				

Highway Data

Roadway Variables				Traffic Variables			
Segment Length	2.000	Median	Yes	AADT	24000	PHF	0.950
# Thru Lanes	4	Left Turn Impact	No	K	0.095	% Heavy Vehicles	7.1
Terrain	Level	Pass Lane Length	N/A	D	0.605	Base Capacity	2200
Posted Speed	60	% NPZ	N/A	Peak Dir. Hrly. Vol.	1379	Local Adj. Factor	0.73
Free Flow Speed	60	Class	1	Off Peak Dir. Hrly. Vol.	901	Adjusted Capacity	0

LOS Results

v/c Ratio	Infinity	Density	NaN	PTSF	N/A	ATS	-Infinity	% FFS	-Infinity
FFS Delay	-120.0	LOS Thresh. Delay	0.0	Service Measure	Density	LOS	F		

Service Volumes

Note: The maximum normally acceptable directional service volume for LOS E in Florida for this facility type and area type is 1600 veh/h/ln.

	A	B	C	D	E
Lanes	Hourly Volume In Peak Direction				
1					
2	480	1120	1760	2270	2590
3	720	1680	2650	3410	3890
4	960	2250	3530	4550	5190
Lanes	Hourly Volume In Both Directions				
2					
4	800	1860	2910	3760	4290
6	1200	2780	4390	5640	6430
8	1590	3720	5840	7530	8580
Lanes	Annual Average Daily Traffic				

2					
4	8500	19600	30700	39600	45200
6	12700	29300	46300	59400	67700
8	16800	39200	61500	79300	90400

* Cannot be achieved based on input data provided.

Performance measure results are no longer applicable with the presence of passing lanes. Refer to the service volume tables to obtain the LOS.

HIGHPLAN 2012 Conceptual Planning Analysis

Project Information

Analyst	JP/VHB	Highway Name	SR 70	Study Period	Kother
Date Prepared	8/23/2018 12:42:50 PM	From	Bourneside (M.P. 11.988)	Analysis Type	Multilane Segment
Agency	FDOT D1	To	Lindrick Ln./197th Street E. (M.P. 13.218)	Program	HIGHPLAN 2012
Area Type	Rural Undeveloped	Peak Direction	Westbound	Version Date	12/12/2012
File Name	\\vhb\proj\Orlando\62498.04 FDOT D1 SR 70 Re Eval\tech\Analysis\HIGHPLAN\Bourneside to Lindrick\2045 AM B.xhp				
User Notes	2045 AM Build				

Highway Data

Roadway Variables				Traffic Variables			
Segment Length	1.230	Median	Yes	AADT	19000	PHF	0.950
# Thru Lanes	4	Left Turn Impact	No	K	0.095	% Heavy Vehicles	7.1
Terrain	Level	Pass Lane Length	N/A	D	0.605	Base Capacity	2200
Posted Speed	60	% NPZ	N/A	Peak Dir. Hrly. Vol.	1092	Local Adj. Factor	0.73
Free Flow Speed	60	Class	1	Off Peak Dir. Hrly. Vol.	713	Adjusted Capacity	0

LOS Results

v/c Ratio	Infinity	Density	NaN	PTSF	N/A	ATS	-Infinity	% FFS	-Infinity
FFS Delay	-73.8	LOS Thresh. Delay	0.0	Service Measure	Density	LOS	F		

Service Volumes

Note: The maximum normally acceptable directional service volume for LOS E in Florida for this facility type and area type is 1600 veh/h/ln.

	A	B	C	D	E
Lanes	Hourly Volume In Peak Direction				
1					
2	480	1120	1760	2270	2590
3	720	1680	2650	3410	3890
4	960	2250	3530	4550	5190
Lanes	Hourly Volume In Both Directions				
2					
4	800	1860	2910	3760	4290
6	1200	2780	4390	5640	6430

8	1590	3720	5840	7530	8580
Lanes	Annual Average Daily Traffic				
2					
4	8500	19600	30700	39600	45200
6	12700	29300	46300	59400	67700
8	16800	39200	61500	79300	90400

Cannot be achieved based on input data provided.

Performance measure results are no longer applicable with the presence of passing lanes. Refer to the service volume tables to obtain the LOS.

HIGHPLAN 2012 Conceptual Planning Analysis

Project Information

Analyst	AP/VHB	Highway Name	SR 70	Study Period	Kother
Date Prepared	8/23/2018 12:42:50 PM	From	Lindrick Ln./197th Street E. (M.P. 13.218)	Analysis Type	Multilane Segment
Agency	FDOT D1	To	Meadow Dove Ln./CR 675 (M.P. 15.567)	Program	HIGHPLAN 2012
Area Type	Rural Undeveloped	Peak Direction	Westbound	Version Date	12/12/2012
File Name	\\vhb\proj\Orlando\62498.04 FDOT D1 SR 70 Re Eval\tech\Analysis\HIGHPLAN\Lindrick to CR 675\2045 AM B.xhp				
User Notes	2045 AM Build				

Highway Data

Roadway Variables				Traffic Variables			
Segment Length	2.300	Median	Yes	AADT	17000	PHF	0.950
# Thru Lanes	4	Left Turn Impact	No	K	0.095	% Heavy Vehicles	7.1
Terrain	Level	Pass Lane Length	N/A	D	0.605	Base Capacity	2200
Posted Speed	60	% NPZ	N/A	Peak Dir. Hrly. Vol.	983	Local Adj. Factor	0.73
Free Flow Speed	60	Class	1	Off Peak Dir. Hrly. Vol.	642	Adjusted Capacity	0

LOS Results

v/c Ratio	Infinity	Density	NaN	PTSF	N/A	ATS	-Infinity	% FFS	-Infinity
FFS Delay	-138.0	LOS Thresh. Delay	0.0	Service Measure	Density	LOS	F		

Service Volumes

Note: The maximum normally acceptable directional service volume for LOS E in Florida for this facility type and area type is 1600 veh/h/ln.

	A	B	C	D	E
Lanes	Hourly Volume In Peak Direction				
1					
2	480	1120	1760	2270	2590
3	720	1680	2650	3410	3890
4	960	2250	3530	4550	5190
Lanes	Hourly Volume In Both Directions				
2					
4	800	1860	2910	3760	4290
6	1200	2780	4390	5640	6430

8	1590	3720	5840	7530	8580
Lanes	Annual Average Daily Traffic				
2					
4	8500	19600	30700	39600	45200
6	12700	29300	46300	59400	67700
8	16800	39200	61500	79300	90400

* Cannot be achieved based on input data provided.

Performance measure results are no longer applicable with the presence of passing lanes. Refer to the service volume tables to obtain the LOS.

HIGHPLAN 2012 Conceptual Planning Analysis

Project Information

Analyst	JP/VHB	Highway Name	SR 70	Study Period	Kother
Date Prepared	8/23/2018 12:42:50 PM	From	Uihlein (M.P. 9.988)	Analysis Type	Multilane Segment
Agency	FDOT D1	To	Bourneside (M.P. 11.988)	Program	HIGHPLAN 2012
Area Type	Rural Undeveloped	Peak Direction	Eastbound	Version Date	12/12/2012
File Name	\\vhb\proj\Orlando\62498.04 FDOT D1 SR 70 Re Eval\tech\Analysis\HIGHPLAN\1 - Uihlein to Bourneside\2045 PM B.xhp				
User Notes	2045 PM Build				

Highway Data

Roadway Variables				Traffic Variables			
Segment Length	2.000	Median	Yes	AADT	24000	PHF	0.950
# Thru Lanes	4	Left Turn Impact	No	K	0.095	% Heavy Vehicles	7.1
Terrain	Level	Pass Lane Length	N/A	D	0.605	Base Capacity	2200
Posted Speed	60	% NPZ	N/A	Peak Dir. Hrly. Vol.	1379	Local Adj. Factor	0.73
Free Flow Speed	60	Class	1	Off Peak Dir. Hrly. Vol.	901	Adjusted Capacity	0

LOS Results

v/c Ratio	Infinity	Density	NaN	PTSF	N/A	ATS	-Infinity	% FFS	-Infinity
FFS Delay	-120.0	LOS Thresh. Delay	0.0	Service Measure	Density	LOS	F		

Service Volumes

Note: The maximum normally acceptable directional service volume for LOS E in Florida for this facility type and area type is 1600 veh/h/ln.

	A	B	C	D	E
Lanes	Hourly Volume In Peak Direction				
1					
2	480	1120	1760	2270	2590
3	720	1680	2650	3410	3890
4	960	2250	3530	4550	5190
Lanes	Hourly Volume In Both Directions				
2					
4	800	1860	2910	3760	4290
6	1200	2780	4390	5640	6430
8	1590	3720	5840	7530	8580
Lanes	Annual Average Daily Traffic				

2					
4	8500	19600	30700	39600	45200
6	12700	29300	46300	59400	67700
8	16800	39200	61500	79300	90400

* Cannot be achieved based on input data provided.

Performance measure results are no longer applicable with the presence of passing lanes. Refer to the service volume tables to obtain the LOS.

HIGHPLAN 2012 Conceptual Planning Analysis

Project Information

Analyst	JP/VHB	Highway Name	SR 70	Study Period	Kother
Date Prepared	8/23/2018 12:42:50 PM	From	Bourneside (M.P. 11.988)	Analysis Type	Multilane Segment
Agency	FDOT D1	To	Lindrick Ln./197th Street E. (M.P. 13.218)	Program	HIGHPLAN 2012
Area Type	Rural Undeveloped	Peak Direction	Eastbound	Version Date	12/12/2012
File Name	\\vhb\proj\Orlando\62498.04 FDOT D1 SR 70 Re Eval\tech\Analysis\HIGHPLAN\Bourneside to Lindrick\2045 PM B.xhp				
User Notes	2045 PM Build				

Highway Data

Roadway Variables				Traffic Variables			
Segment Length	1.230	Median	Yes	AADT	19000	PHF	0.950
# Thru Lanes	4	Left Turn Impact	No	K	0.095	% Heavy Vehicles	7.1
Terrain	Level	Pass Lane Length	N/A	D	0.605	Base Capacity	2200
Posted Speed	60	% NPZ	N/A	Peak Dir. Hrly. Vol.	1092	Local Adj. Factor	0.73
Free Flow Speed	60	Class	1	Off Peak Dir. Hrly. Vol.	713	Adjusted Capacity	0

LOS Results

v/c Ratio	Infinity	Density	NaN	PTSF	N/A	ATS	-Infinity	% FFS	-Infinity
FFS Delay	-73.8	LOS Thresh. Delay	0.0	Service Measure	Density	LOS	F		

Service Volumes

Note: The maximum normally acceptable directional service volume for LOS E in Florida for this facility type and area type is 1600 veh/h/ln.

	A	B	C	D	E
Lanes	Hourly Volume In Peak Direction				
1					
2	480	1120	1760	2270	2590
3	720	1680	2650	3410	3890
4	960	2250	3530	4550	5190
Lanes	Hourly Volume In Both Directions				
2					
4	800	1860	2910	3760	4290
6	1200	2780	4390	5640	6430

8	1590	3720	5840	7530	8580
Lanes	Annual Average Daily Traffic				
2					
4	8500	19600	30700	39600	45200
6	12700	29300	46300	59400	67700
8	16800	39200	61500	79300	90400

Cannot be achieved based on input data provided.

Performance measure results are no longer applicable with the presence of passing lanes. Refer to the service volume tables to obtain the LOS.

HIGHPLAN 2012 Conceptual Planning Analysis

Project Information

Analyst	AP/VHB	Highway Name	SR 70	Study Period	Kother
Date Prepared	8/23/2018 12:42:50 PM	From	Lindrick Ln./197th Street E. (M.P. 13.218)	Analysis Type	Multilane Segment
Agency	FDOT D1	To	Meadow Dove Ln./CR 675 (M.P. 15.567)	Program	HIGHPLAN 2012
Area Type	Rural Undeveloped	Peak Direction	Eastbound	Version Date	12/12/2012
File Name	\\vhb\proj\Orlando\62498.04 FDOT D1 SR 70 Re Eval\tech\Analysis\HIGHPLAN\Lindrick to CR 675\2045 PM B.xhp				
User Notes	2045 PM Build				

Highway Data

Roadway Variables				Traffic Variables			
Segment Length	2.300	Median	Yes	AADT	17000	PHF	0.950
# Thru Lanes	4	Left Turn Impact	No	K	0.095	% Heavy Vehicles	7.1
Terrain	Level	Pass Lane Length	N/A	D	0.605	Base Capacity	2200
Posted Speed	60	% NPZ	N/A	Peak Dir. Hrly. Vol.	983	Local Adj. Factor	0.73
Free Flow Speed	60	Class	1	Off Peak Dir. Hrly. Vol.	642	Adjusted Capacity	0

LOS Results

v/c Ratio	Infinity	Density	NaN	PTSF	N/A	ATS	-Infinity	% FFS	-Infinity
FFS Delay	-138.0	LOS Thresh. Delay	0.0	Service Measure	Density	LOS	F		

Service Volumes

Note: The maximum normally acceptable directional service volume for LOS E in Florida for this facility type and area type is 1600 veh/h/ln.

	A	B	C	D	E
Lanes	Hourly Volume In Peak Direction				
1					
2	480	1120	1760	2270	2590
3	720	1680	2650	3410	3890
4	960	2250	3530	4550	5190
Lanes	Hourly Volume In Both Directions				
2					
4	800	1860	2910	3760	4290
6	1200	2780	4390	5640	6430

8	1590	3720	5840	7530	8580
Lanes	Annual Average Daily Traffic				
2					
4	8500	19600	30700	39600	45200
6	12700	29300	46300	59400	67700
8	16800	39200	61500	79300	90400

* Cannot be achieved based on input data provided.

Performance measure results are no longer applicable with the presence of passing lanes. Refer to the service volume tables to obtain the LOS.

Appendix K

SIDRA Roundabout Analysis Outputs

INTERSECTION SUMMARY

 Site: 1 [SR 70 & Ulhein Rd_2045 NB AM]

2045 No Build AM
Roundabout

Intersection Performance - Hourly Values		
Performance Measure	Vehicles	Persons
Travel Speed (Average)	13.6 mph	13.6 mph
Travel Distance (Total)	2032.7 veh-mi/h	2439.2 pers-mi/h
Travel Time (Total)	149.7 veh-h/h	179.7 pers-h/h
Demand Flows (Total)	3193 veh/h	3832 pers/h
Percent Heavy Vehicles (Demand)	5.7 %	
Degree of Saturation	1.631	
Practical Spare Capacity	-47.9 %	
Effective Intersection Capacity	1958 veh/h	
Control Delay (Total)	95.56 veh-h/h	114.67 pers-h/h
Control Delay (Average)	107.7 sec	107.7 sec
Control Delay (Worst Lane)	317.9 sec	
Control Delay (Worst Movement)	317.9 sec	317.9 sec
Geometric Delay (Average)	0.0 sec	
Stop-Line Delay (Average)	107.7 sec	
Idling Time (Average)	83.1 sec	
Intersection Level of Service (LOS)	LOS F	
95% Back of Queue - Vehicles (Worst Lane)	102.2 veh	
95% Back of Queue - Distance (Worst Lane)	2596.8 ft	
Queue Storage Ratio (Worst Lane)	0.65	
Total Effective Stops	5662 veh/h	6795 pers/h
Effective Stop Rate	1.77 per veh	1.77 per pers
Proportion Queued	0.83	0.83
Performance Index	323.8	323.8
Cost (Total)	2367.72 \$/h	2367.72 \$/h
Fuel Consumption (Total)	132.4 gal/h	
Carbon Dioxide (Total)	1191.0 kg/h	
Hydrocarbons (Total)	0.119 kg/h	
Carbon Monoxide (Total)	1.242 kg/h	
NOx (Total)	2.518 kg/h	

Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Sign Control.

Intersection LOS value for Vehicles is based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Intersection Performance - Annual Values		
Performance Measure	Vehicles	Persons
Demand Flows (Total)	1,532,676 veh/y	1,839,211 pers/y
Delay	45,867 veh-h/y	55,040 pers-h/y
Effective Stops	2,717,881 veh/y	3,261,457 pers/y
Travel Distance	975,689 veh-mi/y	1,170,827 pers-mi/y
Travel Time	71,866 veh-h/y	86,239 pers-h/y
Cost	1,136,507 \$/y	1,136,507 \$/y
Fuel Consumption	63,565 gal/y	
Carbon Dioxide	571,679 kg/y	
Hydrocarbons	57 kg/y	
Carbon Monoxide	596 kg/y	
NOx	1,209 kg/y	

INTERSECTION SUMMARY

 Site: 1 [SR 70 & Ulhein Rd_2045 NB PM]

2045 No Build PM
Roundabout

Intersection Performance - Hourly Values		
Performance Measure	Vehicles	Persons
Travel Speed (Average)	25.1 mph	25.1 mph
Travel Distance (Total)	1984.3 veh-mi/h	2381.2 pers-mi/h
Travel Time (Total)	78.9 veh-h/h	94.7 pers-h/h
Demand Flows (Total)	3098 veh/h	3718 pers/h
Percent Heavy Vehicles (Demand)	6.1 %	
Degree of Saturation	0.965	
Practical Spare Capacity	-11.9 %	
Effective Intersection Capacity	3212 veh/h	
Control Delay (Total)	25.59 veh-h/h	30.71 pers-h/h
Control Delay (Average)	29.7 sec	29.7 sec
Control Delay (Worst Lane)	50.2 sec	
Control Delay (Worst Movement)	50.2 sec	50.2 sec
Geometric Delay (Average)	0.0 sec	
Stop-Line Delay (Average)	29.7 sec	
Idling Time (Average)	20.9 sec	
Intersection Level of Service (LOS)	LOS D	
95% Back of Queue - Vehicles (Worst Lane)	28.6 veh	
95% Back of Queue - Distance (Worst Lane)	755.0 ft	
Queue Storage Ratio (Worst Lane)	0.19	
Total Effective Stops	2915 veh/h	3498 pers/h
Effective Stop Rate	0.94 per veh	0.94 per pers
Proportion Queued	0.91	0.91
Performance Index	146.2	146.2
Cost (Total)	1379.37 \$/h	1379.37 \$/h
Fuel Consumption (Total)	107.5 gal/h	
Carbon Dioxide (Total)	968.9 kg/h	
Hydrocarbons (Total)	0.088 kg/h	
Carbon Monoxide (Total)	1.095 kg/h	
NOx (Total)	2.430 kg/h	

Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Sign Control.

Intersection LOS value for Vehicles is based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Intersection Performance - Annual Values		
Performance Measure	Vehicles	Persons
Demand Flows (Total)	1,487,226 veh/y	1,784,671 pers/y
Delay	12,284 veh-h/y	14,741 pers-h/y
Effective Stops	1,399,169 veh/y	1,679,003 pers/y
Travel Distance	952,478 veh-mi/y	1,142,974 pers-mi/y
Travel Time	37,884 veh-h/y	45,461 pers-h/y
Cost	662,095 \$/y	662,095 \$/y
Fuel Consumption	51,588 gal/y	
Carbon Dioxide	465,084 kg/y	
Hydrocarbons	42 kg/y	
Carbon Monoxide	525 kg/y	
NOx	1,166 kg/y	

INTERSECTION SUMMARY

 Site: 1 [SR 70 & Del Webb Blvd_2045 NB AM]

2045 No Build AM
Roundabout

Intersection Performance - Hourly Values		
Performance Measure	Vehicles	Persons
Travel Speed (Average)	28.0 mph	28.0 mph
Travel Distance (Total)	1338.0 veh-mi/h	1605.6 pers-mi/h
Travel Time (Total)	47.8 veh-h/h	57.3 pers-h/h
Demand Flows (Total)	2099 veh/h	2519 pers/h
Percent Heavy Vehicles (Demand)	6.6 %	
Degree of Saturation	0.932	
Practical Spare Capacity	-8.8 %	
Effective Intersection Capacity	2252 veh/h	
Control Delay (Total)	12.76 veh-h/h	15.32 pers-h/h
Control Delay (Average)	21.9 sec	21.9 sec
Control Delay (Worst Lane)	32.2 sec	
Control Delay (Worst Movement)	32.2 sec	32.2 sec
Geometric Delay (Average)	0.0 sec	
Stop-Line Delay (Average)	21.9 sec	
Idling Time (Average)	16.1 sec	
Intersection Level of Service (LOS)	LOS C	
95% Back of Queue - Vehicles (Worst Lane)	26.6 veh	
95% Back of Queue - Distance (Worst Lane)	703.3 ft	
Queue Storage Ratio (Worst Lane)	0.18	
Total Effective Stops	1103 veh/h	1324 pers/h
Effective Stop Rate	0.53 per veh	0.53 per pers
Proportion Queued	0.77	0.77
Performance Index	113.7	113.7
Cost (Total)	808.18 \$/h	808.18 \$/h
Fuel Consumption (Total)	67.3 gal/h	
Carbon Dioxide (Total)	607.6 kg/h	
Hydrocarbons (Total)	0.053 kg/h	
Carbon Monoxide (Total)	0.686 kg/h	
NOx (Total)	1.574 kg/h	

Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Sign Control.

Intersection LOS value for Vehicles is based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Intersection Performance - Annual Values		
Performance Measure	Vehicles	Persons
Demand Flows (Total)	1,007,478 veh/y	1,208,974 pers/y
Delay	6,126 veh-h/y	7,351 pers-h/y
Effective Stops	529,498 veh/y	635,397 pers/y
Travel Distance	642,236 veh-mi/y	770,683 pers-mi/y
Travel Time	22,940 veh-h/y	27,528 pers-h/y
Cost	387,928 \$/y	387,928 \$/y
Fuel Consumption	32,308 gal/y	
Carbon Dioxide	291,629 kg/y	
Hydrocarbons	25 kg/y	
Carbon Monoxide	329 kg/y	
NOx	755 kg/y	

INTERSECTION SUMMARY

 Site: 1 [SR 70 & Del Webb Blvd_2045 NB PM]

2045 No Build PM
Roundabout

Intersection Performance - Hourly Values		
Performance Measure	Vehicles	Persons
Travel Speed (Average)	26.6 mph	26.6 mph
Travel Distance (Total)	1337.2 veh-mi/h	1604.7 pers-mi/h
Travel Time (Total)	50.4 veh-h/h	60.4 pers-h/h
Demand Flows (Total)	2097 veh/h	2516 pers/h
Percent Heavy Vehicles (Demand)	6.6 %	
Degree of Saturation	0.963	
Practical Spare Capacity	-11.7 %	
Effective Intersection Capacity	2177 veh/h	
Control Delay (Total)	15.27 veh-h/h	18.33 pers-h/h
Control Delay (Average)	26.2 sec	26.2 sec
Control Delay (Worst Lane)	35.9 sec	
Control Delay (Worst Movement)	35.9 sec	35.9 sec
Geometric Delay (Average)	0.0 sec	
Stop-Line Delay (Average)	26.2 sec	
Idling Time (Average)	20.4 sec	
Intersection Level of Service (LOS)	LOS D	
95% Back of Queue - Vehicles (Worst Lane)	44.5 veh	
95% Back of Queue - Distance (Worst Lane)	1173.6 ft	
Queue Storage Ratio (Worst Lane)	0.30	
Total Effective Stops	1084 veh/h	1301 pers/h
Effective Stop Rate	0.52 per veh	0.52 per pers
Proportion Queued	0.90	0.90
Performance Index	141.4	141.4
Cost (Total)	852.38 \$/h	852.38 \$/h
Fuel Consumption (Total)	68.8 gal/h	
Carbon Dioxide (Total)	620.7 kg/h	
Hydrocarbons (Total)	0.055 kg/h	
Carbon Monoxide (Total)	0.701 kg/h	
NOx (Total)	1.592 kg/h	

Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Sign Control.

Intersection LOS value for Vehicles is based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Intersection Performance - Annual Values		
Performance Measure	Vehicles	Persons
Demand Flows (Total)	1,006,435 veh/y	1,207,722 pers/y
Delay	7,330 veh-h/y	8,796 pers-h/y
Effective Stops	520,550 veh/y	624,660 pers/y
Travel Distance	641,867 veh-mi/y	770,241 pers-mi/y
Travel Time	24,171 veh-h/y	29,005 pers-h/y
Cost	409,141 \$/y	409,141 \$/y
Fuel Consumption	33,015 gal/y	
Carbon Dioxide	297,950 kg/y	
Hydrocarbons	26 kg/y	
Carbon Monoxide	336 kg/y	
NOx	764 kg/y	

INTERSECTION SUMMARY

 Site: 1 [SR 70 & Bourneside_2045 NB AM]

2045 No Build AM
Roundabout

Intersection Performance - Hourly Values		
Performance Measure	Vehicles	Persons
Travel Speed (Average)	19.5 mph	19.5 mph
Travel Distance (Total)	1531.0 veh-mi/h	1837.2 pers-mi/h
Travel Time (Total)	78.4 veh-h/h	94.1 pers-h/h
Demand Flows (Total)	2403 veh/h	2883 pers/h
Percent Heavy Vehicles (Demand)	5.6 %	
Degree of Saturation	1.173	
Practical Spare Capacity	-27.5 %	
Effective Intersection Capacity	2048 veh/h	
Control Delay (Total)	37.43 veh-h/h	44.92 pers-h/h
Control Delay (Average)	56.1 sec	56.1 sec
Control Delay (Worst Lane)	109.5 sec	
Control Delay (Worst Movement)	109.5 sec	109.5 sec
Geometric Delay (Average)	0.0 sec	
Stop-Line Delay (Average)	56.1 sec	
Idling Time (Average)	37.5 sec	
Intersection Level of Service (LOS)	LOS F	
95% Back of Queue - Vehicles (Worst Lane)	69.3 veh	
95% Back of Queue - Distance (Worst Lane)	1829.9 ft	
Queue Storage Ratio (Worst Lane)	0.46	
Total Effective Stops	4007 veh/h	4809 pers/h
Effective Stop Rate	1.67 per veh	1.67 per pers
Proportion Queued	0.95	0.95
Performance Index	320.1	320.1
Cost (Total)	1330.73 \$/h	1330.73 \$/h
Fuel Consumption (Total)	90.4 gal/h	
Carbon Dioxide (Total)	813.9 kg/h	
Hydrocarbons (Total)	0.079 kg/h	
Carbon Monoxide (Total)	0.901 kg/h	
NOx (Total)	1.909 kg/h	

Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Sign Control.

Intersection LOS value for Vehicles is based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Intersection Performance - Annual Values		
Performance Measure	Vehicles	Persons
Demand Flows (Total)	1,153,205 veh/y	1,383,846 pers/y
Delay	17,967 veh-h/y	21,560 pers-h/y
Effective Stops	1,923,537 veh/y	2,308,245 pers/y
Travel Distance	734,878 veh-mi/y	881,854 pers-mi/y
Travel Time	37,653 veh-h/y	45,183 pers-h/y
Cost	638,749 \$/y	638,749 \$/y
Fuel Consumption	43,395 gal/y	
Carbon Dioxide	390,686 kg/y	
Hydrocarbons	38 kg/y	
Carbon Monoxide	433 kg/y	
NOx	916 kg/y	

INTERSECTION SUMMARY

 Site: 1 [SR 70 & Bourneside_2045 NB PM]

2045 Build PM
Roundabout

Intersection Performance - Hourly Values		
Performance Measure	Vehicles	Persons
Travel Speed (Average)	18.1 mph	18.1 mph
Travel Distance (Total)	1524.0 veh-mi/h	1828.8 pers-mi/h
Travel Time (Total)	84.3 veh-h/h	101.1 pers-h/h
Demand Flows (Total)	2392 veh/h	2870 pers/h
Percent Heavy Vehicles (Demand)	5.5 %	
Degree of Saturation	1.219	
Practical Spare Capacity	-30.3 %	
Effective Intersection Capacity	1962 veh/h	
Control Delay (Total)	43.40 veh-h/h	52.08 pers-h/h
Control Delay (Average)	65.3 sec	65.3 sec
Control Delay (Worst Lane)	127.2 sec	
Control Delay (Worst Movement)	127.2 sec	127.2 sec
Geometric Delay (Average)	0.0 sec	
Stop-Line Delay (Average)	65.3 sec	
Idling Time (Average)	45.0 sec	
Intersection Level of Service (LOS)	LOS F	
95% Back of Queue - Vehicles (Worst Lane)	83.9 veh	
95% Back of Queue - Distance (Worst Lane)	2214.2 ft	
Queue Storage Ratio (Worst Lane)	0.56	
Total Effective Stops	4332 veh/h	5199 pers/h
Effective Stop Rate	1.81 per veh	1.81 per pers
Proportion Queued	0.94	0.94
Performance Index	355.0	355.0
Cost (Total)	1419.91 \$/h	1419.91 \$/h
Fuel Consumption (Total)	92.8 gal/h	
Carbon Dioxide (Total)	835.4 kg/h	
Hydrocarbons (Total)	0.082 kg/h	
Carbon Monoxide (Total)	0.922 kg/h	
NOx (Total)	1.933 kg/h	

Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Sign Control.

Intersection LOS value for Vehicles is based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Intersection Performance - Annual Values		
Performance Measure	Vehicles	Persons
Demand Flows (Total)	1,147,998 veh/y	1,377,598 pers/y
Delay	20,833 veh-h/y	25,000 pers-h/y
Effective Stops	2,079,490 veh/y	2,495,388 pers/y
Travel Distance	731,531 veh-mi/y	877,837 pers-mi/y
Travel Time	40,449 veh-h/y	48,538 pers-h/y
Cost	681,558 \$/y	681,558 \$/y
Fuel Consumption	44,553 gal/y	
Carbon Dioxide	400,991 kg/y	
Hydrocarbons	40 kg/y	
Carbon Monoxide	443 kg/y	
NOx	928 kg/y	

INTERSECTION SUMMARY

 Site: 1 [SR 70 & CR 675_2045 NB AM]

2045 No Build AM
Roundabout

Intersection Performance - Hourly Values		
Performance Measure	Vehicles	Persons
Travel Speed (Average)	30.6 mph	30.6 mph
Travel Distance (Total)	1113.3 veh-mi/h	1335.9 pers-mi/h
Travel Time (Total)	36.4 veh-h/h	43.7 pers-h/h
Demand Flows (Total)	1747 veh/h	2096 pers/h
Percent Heavy Vehicles (Demand)	7.3 %	
Degree of Saturation	0.719	
Practical Spare Capacity	18.3 %	
Effective Intersection Capacity	2431 veh/h	
Control Delay (Total)	6.87 veh-h/h	8.24 pers-h/h
Control Delay (Average)	14.2 sec	14.2 sec
Control Delay (Worst Lane)	21.5 sec	
Control Delay (Worst Movement)	22.2 sec	22.2 sec
Geometric Delay (Average)	0.0 sec	
Stop-Line Delay (Average)	14.2 sec	
Idling Time (Average)	9.5 sec	
Intersection Level of Service (LOS)	LOS B	
95% Back of Queue - Vehicles (Worst Lane)	8.2 veh	
95% Back of Queue - Distance (Worst Lane)	215.7 ft	
Queue Storage Ratio (Worst Lane)	0.05	
Total Effective Stops	1058 veh/h	1270 pers/h
Effective Stop Rate	0.61 per veh	0.61 per pers
Proportion Queued	0.76	0.76
Performance Index	87.6	87.6
Cost (Total)	641.70 \$/h	641.70 \$/h
Fuel Consumption (Total)	56.7 gal/h	
Carbon Dioxide (Total)	512.6 kg/h	
Hydrocarbons (Total)	0.044 kg/h	
Carbon Monoxide (Total)	0.576 kg/h	
NOx (Total)	1.430 kg/h	

Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Sign Control.

Intersection LOS value for Vehicles is based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Intersection Performance - Annual Values		
Performance Measure	Vehicles	Persons
Demand Flows (Total)	838,505 veh/y	1,006,206 pers/y
Delay	3,296 veh-h/y	3,956 pers-h/y
Effective Stops	507,941 veh/y	609,529 pers/y
Travel Distance	534,360 veh-mi/y	641,232 pers-mi/y
Travel Time	17,487 veh-h/y	20,984 pers-h/y
Cost	308,014 \$/y	308,014 \$/y
Fuel Consumption	27,212 gal/y	
Carbon Dioxide	246,025 kg/y	
Hydrocarbons	21 kg/y	
Carbon Monoxide	276 kg/y	
NOx	686 kg/y	

INTERSECTION SUMMARY

 Site: 1 [SR 70 & CR 675_2045 NB PM]

2045 No Build PM
Roundabout

Intersection Performance - Hourly Values		
Performance Measure	Vehicles	Persons
Travel Speed (Average)	31.0 mph	31.0 mph
Travel Distance (Total)	1052.8 veh-mi/h	1263.3 pers-mi/h
Travel Time (Total)	34.0 veh-h/h	40.8 pers-h/h
Demand Flows (Total)	1649 veh/h	1979 pers/h
Percent Heavy Vehicles (Demand)	7.2 %	
Degree of Saturation	0.747	
Practical Spare Capacity	13.8 %	
Effective Intersection Capacity	2208 veh/h	
Control Delay (Total)	5.87 veh-h/h	7.04 pers-h/h
Control Delay (Average)	12.8 sec	12.8 sec
Control Delay (Worst Lane)	16.1 sec	
Control Delay (Worst Movement)	16.1 sec	16.1 sec
Geometric Delay (Average)	0.0 sec	
Stop-Line Delay (Average)	12.8 sec	
Idling Time (Average)	8.3 sec	
Intersection Level of Service (LOS)	LOS B	
95% Back of Queue - Vehicles (Worst Lane)	10.1 veh	
95% Back of Queue - Distance (Worst Lane)	266.2 ft	
Queue Storage Ratio (Worst Lane)	0.07	
Total Effective Stops	948 veh/h	1137 pers/h
Effective Stop Rate	0.57 per veh	0.57 per pers
Proportion Queued	0.76	0.76
Performance Index	80.0	80.0
Cost (Total)	607.95 \$/h	607.95 \$/h
Fuel Consumption (Total)	54.0 gal/h	
Carbon Dioxide (Total)	488.3 kg/h	
Hydrocarbons (Total)	0.041 kg/h	
Carbon Monoxide (Total)	0.547 kg/h	
NOx (Total)	1.351 kg/h	

Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Sign Control.

Intersection LOS value for Vehicles is based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Intersection Performance - Annual Values		
Performance Measure	Vehicles	Persons
Demand Flows (Total)	791,581 veh/y	949,897 pers/y
Delay	2,816 veh-h/y	3,379 pers-h/y
Effective Stops	454,902 veh/y	545,883 pers/y
Travel Distance	505,326 veh-mi/y	606,392 pers-mi/y
Travel Time	16,305 veh-h/y	19,565 pers-h/y
Cost	291,818 \$/y	291,818 \$/y
Fuel Consumption	25,932 gal/y	
Carbon Dioxide	234,376 kg/y	
Hydrocarbons	20 kg/y	
Carbon Monoxide	262 kg/y	
NOx	648 kg/y	

INTERSECTION SUMMARY

 Site: 1 [SR 70 & Ulhein Rd_2045 B AM]

2045 Build AM
Roundabout

Intersection Performance - Hourly Values		
Performance Measure	Vehicles	Persons
Travel Speed (Average)	18.9 mph	18.9 mph
Travel Distance (Total)	2355.5 veh-mi/h	2826.6 pers-mi/h
Travel Time (Total)	124.6 veh-h/h	149.5 pers-h/h
Demand Flows (Total)	3700 veh/h	4440 pers/h
Percent Heavy Vehicles (Demand)	5.9 %	
Degree of Saturation	1.497	
Practical Spare Capacity	-43.2 %	
Effective Intersection Capacity	2471 veh/h	
Control Delay (Total)	62.12 veh-h/h	74.55 pers-h/h
Control Delay (Average)	60.4 sec	60.4 sec
Control Delay (Worst Lane)	258.4 sec	
Control Delay (Worst Movement)	258.4 sec	258.4 sec
Geometric Delay (Average)	0.0 sec	
Stop-Line Delay (Average)	60.4 sec	
Idling Time (Average)	44.6 sec	
Intersection Level of Service (LOS)	LOS F	
95% Back of Queue - Vehicles (Worst Lane)	82.1 veh	
95% Back of Queue - Distance (Worst Lane)	2086.0 ft	
Queue Storage Ratio (Worst Lane)	0.52	
Total Effective Stops	4476 veh/h	5371 pers/h
Effective Stop Rate	1.21 per veh	1.21 per pers
Proportion Queued	0.84	0.84
Performance Index	240.9	240.9
Cost (Total)	2008.60 \$/h	2008.60 \$/h
Fuel Consumption (Total)	132.4 gal/h	
Carbon Dioxide (Total)	1192.4 kg/h	
Hydrocarbons (Total)	0.110 kg/h	
Carbon Monoxide (Total)	1.285 kg/h	
NOx (Total)	2.653 kg/h	

Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Sign Control.

Intersection LOS value for Vehicles is based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Intersection Performance - Annual Values		
Performance Measure	Vehicles	Persons
Demand Flows (Total)	1,775,823 veh/y	2,130,987 pers/y
Delay	29,818 veh-h/y	35,782 pers-h/y
Effective Stops	2,148,583 veh/y	2,578,299 pers/y
Travel Distance	1,130,632 veh-mi/y	1,356,759 pers-mi/y
Travel Time	59,790 veh-h/y	71,748 pers-h/y
Cost	964,127 \$/y	964,127 \$/y
Fuel Consumption	63,572 gal/y	
Carbon Dioxide	572,370 kg/y	
Hydrocarbons	53 kg/y	
Carbon Monoxide	617 kg/y	
NOx	1,274 kg/y	

INTERSECTION SUMMARY

 Site: 1 [SR 70 & Ulhein Rd_2045 B PM]

2045 Build PM
Roundabout

Intersection Performance - Hourly Values		
Performance Measure	Vehicles	Persons
Travel Speed (Average)	28.6 mph	28.6 mph
Travel Distance (Total)	2311.2 veh-mi/h	2773.4 pers-mi/h
Travel Time (Total)	80.8 veh-h/h	97.0 pers-h/h
Demand Flows (Total)	3612 veh/h	4334 pers/h
Percent Heavy Vehicles (Demand)	6.2 %	
Degree of Saturation	0.808	
Practical Spare Capacity	5.2 %	
Effective Intersection Capacity	4468 veh/h	
Control Delay (Total)	19.04 veh-h/h	22.84 pers-h/h
Control Delay (Average)	19.0 sec	19.0 sec
Control Delay (Worst Lane)	26.7 sec	
Control Delay (Worst Movement)	24.1 sec	24.1 sec
Geometric Delay (Average)	0.0 sec	
Stop-Line Delay (Average)	19.0 sec	
Idling Time (Average)	12.6 sec	
Intersection Level of Service (LOS)	LOS C	
95% Back of Queue - Vehicles (Worst Lane)	13.0 veh	
95% Back of Queue - Distance (Worst Lane)	343.3 ft	
Queue Storage Ratio (Worst Lane)	0.09	
Total Effective Stops	2695 veh/h	3234 pers/h
Effective Stop Rate	0.75 per veh	0.75 per pers
Proportion Queued	0.88	0.88
Performance Index	134.3	134.3
Cost (Total)	1432.38 \$/h	1432.38 \$/h
Fuel Consumption (Total)	119.9 gal/h	
Carbon Dioxide (Total)	1081.3 kg/h	
Hydrocarbons (Total)	0.095 kg/h	
Carbon Monoxide (Total)	1.228 kg/h	
NOx (Total)	2.755 kg/h	

Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.

Intersection LOS value for Vehicles is based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Intersection Performance - Annual Values		
Performance Measure	Vehicles	Persons
Demand Flows (Total)	1,733,653 veh/y	2,080,384 pers/y
Delay	9,138 veh-h/y	10,965 pers-h/y
Effective Stops	1,293,671 veh/y	1,552,405 pers/y
Travel Distance	1,109,365 veh-mi/y	1,331,238 pers-mi/y
Travel Time	38,799 veh-h/y	46,559 pers-h/y
Cost	687,543 \$/y	687,543 \$/y
Fuel Consumption	57,545 gal/y	
Carbon Dioxide	519,040 kg/y	
Hydrocarbons	45 kg/y	
Carbon Monoxide	589 kg/y	
NOx	1,322 kg/y	

INTERSECTION SUMMARY

 Site: 1 [SR 70 & Del Webb Blvd_2045 B AM]

2045 Build AM
Roundabout

Intersection Performance - Hourly Values		
Performance Measure	Vehicles	Persons
Travel Speed (Average)	29.9 mph	29.9 mph
Travel Distance (Total)	1598.0 veh-mi/h	1917.6 pers-mi/h
Travel Time (Total)	53.5 veh-h/h	64.1 pers-h/h
Demand Flows (Total)	2507 veh/h	3008 pers/h
Percent Heavy Vehicles (Demand)	6.6 %	
Degree of Saturation	0.912	
Practical Spare Capacity	-6.8 %	
Effective Intersection Capacity	2747 veh/h	
Control Delay (Total)	11.69 veh-h/h	14.03 pers-h/h
Control Delay (Average)	16.8 sec	16.8 sec
Control Delay (Worst Lane)	25.7 sec	
Control Delay (Worst Movement)	25.7 sec	25.7 sec
Geometric Delay (Average)	0.0 sec	
Stop-Line Delay (Average)	16.8 sec	
Idling Time (Average)	12.0 sec	
Intersection Level of Service (LOS)	LOS C	
95% Back of Queue - Vehicles (Worst Lane)	22.3 veh	
95% Back of Queue - Distance (Worst Lane)	588.1 ft	
Queue Storage Ratio (Worst Lane)	0.15	
Total Effective Stops	1064 veh/h	1276 pers/h
Effective Stop Rate	0.42 per veh	0.42 per pers
Proportion Queued	0.68	0.68
Performance Index	82.7	82.7
Cost (Total)	901.07 \$/h	901.07 \$/h
Fuel Consumption (Total)	77.9 gal/h	
Carbon Dioxide (Total)	703.6 kg/h	
Hydrocarbons (Total)	0.060 kg/h	
Carbon Monoxide (Total)	0.798 kg/h	
NOx (Total)	1.838 kg/h	

Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Sign Control.

Intersection LOS value for Vehicles is based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Intersection Performance - Annual Values		
Performance Measure	Vehicles	Persons
Demand Flows (Total)	1,203,130 veh/y	1,443,757 pers/y
Delay	5,611 veh-h/y	6,733 pers-h/y
Effective Stops	510,542 veh/y	612,651 pers/y
Travel Distance	767,022 veh-mi/y	920,426 pers-mi/y
Travel Time	25,658 veh-h/y	30,790 pers-h/y
Cost	432,515 \$/y	432,515 \$/y
Fuel Consumption	37,400 gal/y	
Carbon Dioxide	337,714 kg/y	
Hydrocarbons	29 kg/y	
Carbon Monoxide	383 kg/y	
NOx	882 kg/y	

INTERSECTION SUMMARY

 Site: 1 [SR 70 & Del Webb Blvd_2045 B PM]

2045 Build PM
Roundabout

Intersection Performance - Hourly Values		
Performance Measure	Vehicles	Persons
Travel Speed (Average)	30.0 mph	30.0 mph
Travel Distance (Total)	1601.9 veh-mi/h	1922.3 pers-mi/h
Travel Time (Total)	53.4 veh-h/h	64.1 pers-h/h
Demand Flows (Total)	2512 veh/h	3014 pers/h
Percent Heavy Vehicles (Demand)	6.6 %	
Degree of Saturation	0.863	
Practical Spare Capacity	-1.5 %	
Effective Intersection Capacity	2911 veh/h	
Control Delay (Total)	11.43 veh-h/h	13.72 pers-h/h
Control Delay (Average)	16.4 sec	16.4 sec
Control Delay (Worst Lane)	37.0 sec	
Control Delay (Worst Movement)	37.0 sec	37.0 sec
Geometric Delay (Average)	0.0 sec	
Stop-Line Delay (Average)	16.4 sec	
Idling Time (Average)	11.7 sec	
Intersection Level of Service (LOS)	LOS C	
95% Back of Queue - Vehicles (Worst Lane)	20.6 veh	
95% Back of Queue - Distance (Worst Lane)	545.1 ft	
Queue Storage Ratio (Worst Lane)	0.14	
Total Effective Stops	965 veh/h	1158 pers/h
Effective Stop Rate	0.38 per veh	0.38 per pers
Proportion Queued	0.67	0.67
Performance Index	85.6	85.6
Cost (Total)	902.81 \$/h	902.81 \$/h
Fuel Consumption (Total)	77.9 gal/h	
Carbon Dioxide (Total)	703.7 kg/h	
Hydrocarbons (Total)	0.060 kg/h	
Carbon Monoxide (Total)	0.797 kg/h	
NOx (Total)	1.822 kg/h	

Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Sign Control.

Intersection LOS value for Vehicles is based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Intersection Performance - Annual Values		
Performance Measure	Vehicles	Persons
Demand Flows (Total)	1,205,739 veh/y	1,446,887 pers/y
Delay	5,488 veh-h/y	6,585 pers-h/y
Effective Stops	463,251 veh/y	555,902 pers/y
Travel Distance	768,906 veh-mi/y	922,688 pers-mi/y
Travel Time	25,625 veh-h/y	30,750 pers-h/y
Cost	433,349 \$/y	433,349 \$/y
Fuel Consumption	37,412 gal/y	
Carbon Dioxide	337,799 kg/y	
Hydrocarbons	29 kg/y	
Carbon Monoxide	382 kg/y	
NOx	875 kg/y	

INTERSECTION SUMMARY

 Site: 1 [SR 70 & Bourneside_2045 B AM]

2045 Build AM
Roundabout

Intersection Performance - Hourly Values		
Performance Measure	Vehicles	Persons
Travel Speed (Average)	30.4 mph	30.4 mph
Travel Distance (Total)	1793.7 veh-mi/h	2152.5 pers-mi/h
Travel Time (Total)	58.9 veh-h/h	70.7 pers-h/h
Demand Flows (Total)	2815 veh/h	3378 pers/h
Percent Heavy Vehicles (Demand)	5.8 %	
Degree of Saturation	0.771	
Practical Spare Capacity	10.2 %	
Effective Intersection Capacity	3650 veh/h	
Control Delay (Total)	11.02 veh-h/h	13.23 pers-h/h
Control Delay (Average)	14.1 sec	14.1 sec
Control Delay (Worst Lane)	35.9 sec	
Control Delay (Worst Movement)	35.9 sec	35.9 sec
Geometric Delay (Average)	0.0 sec	
Stop-Line Delay (Average)	14.1 sec	
Idling Time (Average)	8.9 sec	
Intersection Level of Service (LOS)	LOS B	
95% Back of Queue - Vehicles (Worst Lane)	6.5 veh	
95% Back of Queue - Distance (Worst Lane)	171.9 ft	
Queue Storage Ratio (Worst Lane)	0.04	
Total Effective Stops	1989 veh/h	2387 pers/h
Effective Stop Rate	0.71 per veh	0.71 per pers
Proportion Queued	0.75	0.75
Performance Index	112.5	112.5
Cost (Total)	1020.57 \$/h	1020.57 \$/h
Fuel Consumption (Total)	87.6 gal/h	
Carbon Dioxide (Total)	789.3 kg/h	
Hydrocarbons (Total)	0.068 kg/h	
Carbon Monoxide (Total)	0.903 kg/h	
NOx (Total)	1.886 kg/h	

Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Sign Control.

Intersection LOS value for Vehicles is based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Intersection Performance - Annual Values		
Performance Measure	Vehicles	Persons
Demand Flows (Total)	1,351,239 veh/y	1,621,487 pers/y
Delay	5,291 veh-h/y	6,349 pers-h/y
Effective Stops	954,684 veh/y	1,145,621 pers/y
Travel Distance	860,985 veh-mi/y	1,033,181 pers-mi/y
Travel Time	28,282 veh-h/y	33,939 pers-h/y
Cost	489,875 \$/y	489,875 \$/y
Fuel Consumption	42,029 gal/y	
Carbon Dioxide	378,843 kg/y	
Hydrocarbons	33 kg/y	
Carbon Monoxide	433 kg/y	
NOx	905 kg/y	

INTERSECTION SUMMARY

 Site: 1 [SR 70 & Bourneside_2045 B PM]

2045 Build PM
Roundabout

Intersection Performance - Hourly Values		
Performance Measure	Vehicles	Persons
Travel Speed (Average)	30.0 mph	30.0 mph
Travel Distance (Total)	1786.8 veh-mi/h	2144.1 pers-mi/h
Travel Time (Total)	59.5 veh-h/h	71.4 pers-h/h
Demand Flows (Total)	2804 veh/h	3365 pers/h
Percent Heavy Vehicles (Demand)	5.7 %	
Degree of Saturation	0.805	
Practical Spare Capacity	5.6 %	
Effective Intersection Capacity	3483 veh/h	
Control Delay (Total)	11.75 veh-h/h	14.10 pers-h/h
Control Delay (Average)	15.1 sec	15.1 sec
Control Delay (Worst Lane)	29.4 sec	
Control Delay (Worst Movement)	29.4 sec	29.4 sec
Geometric Delay (Average)	0.0 sec	
Stop-Line Delay (Average)	15.1 sec	
Idling Time (Average)	9.5 sec	
Intersection Level of Service (LOS)	LOS C	
95% Back of Queue - Vehicles (Worst Lane)	7.8 veh	
95% Back of Queue - Distance (Worst Lane)	198.5 ft	
Queue Storage Ratio (Worst Lane)	0.05	
Total Effective Stops	2127 veh/h	2552 pers/h
Effective Stop Rate	0.76 per veh	0.76 per pers
Proportion Queued	0.79	0.79
Performance Index	118.2	118.2
Cost (Total)	1032.46 \$/h	1032.46 \$/h
Fuel Consumption (Total)	87.7 gal/h	
Carbon Dioxide (Total)	790.7 kg/h	
Hydrocarbons (Total)	0.068 kg/h	
Carbon Monoxide (Total)	0.904 kg/h	
NOx (Total)	1.865 kg/h	

Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Sign Control.

Intersection LOS value for Vehicles is based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Intersection Performance - Annual Values		
Performance Measure	Vehicles	Persons
Demand Flows (Total)	1,346,017 veh/y	1,615,221 pers/y
Delay	5,642 veh-h/y	6,770 pers-h/y
Effective Stops	1,020,988 veh/y	1,225,185 pers/y
Travel Distance	857,642 veh-mi/y	1,029,171 pers-mi/y
Travel Time	28,559 veh-h/y	34,270 pers-h/y
Cost	495,582 \$/y	495,582 \$/y
Fuel Consumption	42,118 gal/y	
Carbon Dioxide	379,553 kg/y	
Hydrocarbons	33 kg/y	
Carbon Monoxide	434 kg/y	
NOx	895 kg/y	

INTERSECTION SUMMARY

 Site: 1 [SR 70 & CR 675_2045 B AM]

2045 Build AM
Roundabout

Intersection Performance - Hourly Values		
Performance Measure	Vehicles	Persons
Travel Speed (Average)	33.0 mph	33.0 mph
Travel Distance (Total)	1299.0 veh-mi/h	1558.8 pers-mi/h
Travel Time (Total)	39.4 veh-h/h	47.2 pers-h/h
Demand Flows (Total)	2040 veh/h	2448 pers/h
Percent Heavy Vehicles (Demand)	7.2 %	
Degree of Saturation	0.650	
Practical Spare Capacity	30.7 %	
Effective Intersection Capacity	3137 veh/h	
Control Delay (Total)	4.97 veh-h/h	5.96 pers-h/h
Control Delay (Average)	8.8 sec	8.8 sec
Control Delay (Worst Lane)	22.0 sec	
Control Delay (Worst Movement)	22.9 sec	22.9 sec
Geometric Delay (Average)	0.0 sec	
Stop-Line Delay (Average)	8.8 sec	
Idling Time (Average)	5.4 sec	
Intersection Level of Service (LOS)	LOS A	
95% Back of Queue - Vehicles (Worst Lane)	4.3 veh	
95% Back of Queue - Distance (Worst Lane)	116.2 ft	
Queue Storage Ratio (Worst Lane)	0.03	
Total Effective Stops	842 veh/h	1011 pers/h
Effective Stop Rate	0.41 per veh	0.41 per pers
Proportion Queued	0.53	0.53
Performance Index	64.3	64.3
Cost (Total)	683.24 \$/h	683.24 \$/h
Fuel Consumption (Total)	62.9 gal/h	
Carbon Dioxide (Total)	568.6 kg/h	
Hydrocarbons (Total)	0.047 kg/h	
Carbon Monoxide (Total)	0.643 kg/h	
NOx (Total)	1.573 kg/h	

Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Sign Control.

Intersection LOS value for Vehicles is based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Intersection Performance - Annual Values		
Performance Measure	Vehicles	Persons
Demand Flows (Total)	979,062 veh/y	1,174,875 pers/y
Delay	2,384 veh-h/y	2,861 pers-h/y
Effective Stops	404,334 veh/y	485,201 pers/y
Travel Distance	623,533 veh-mi/y	748,239 pers-mi/y
Travel Time	18,897 veh-h/y	22,676 pers-h/y
Cost	327,957 \$/y	327,957 \$/y
Fuel Consumption	30,181 gal/y	
Carbon Dioxide	272,923 kg/y	
Hydrocarbons	23 kg/y	
Carbon Monoxide	309 kg/y	
NOx	755 kg/y	

INTERSECTION SUMMARY

 Site: 1 [SR 70 & CR 675_2045 B PM]

2045 Build PM
Roundabout

Intersection Performance - Hourly Values		
Performance Measure	Vehicles	Persons
Travel Speed (Average)	33.8 mph	33.8 mph
Travel Distance (Total)	1240.3 veh-mi/h	1488.4 pers-mi/h
Travel Time (Total)	36.7 veh-h/h	44.0 pers-h/h
Demand Flows (Total)	1944 veh/h	2333 pers/h
Percent Heavy Vehicles (Demand)	7.2 %	
Degree of Saturation	0.400	
Practical Spare Capacity	112.3 %	
Effective Intersection Capacity	4855 veh/h	
Control Delay (Total)	3.70 veh-h/h	4.43 pers-h/h
Control Delay (Average)	6.8 sec	6.8 sec
Control Delay (Worst Lane)	10.3 sec	
Control Delay (Worst Movement)	10.8 sec	10.8 sec
Geometric Delay (Average)	0.0 sec	
Stop-Line Delay (Average)	6.8 sec	
Idling Time (Average)	3.9 sec	
Intersection Level of Service (LOS)	LOS A	
95% Back of Queue - Vehicles (Worst Lane)	3.2 veh	
95% Back of Queue - Distance (Worst Lane)	83.5 ft	
Queue Storage Ratio (Worst Lane)	0.02	
Total Effective Stops	707 veh/h	849 pers/h
Effective Stop Rate	0.36 per veh	0.36 per pers
Proportion Queued	0.51	0.51
Performance Index	55.8	55.8
Cost (Total)	647.25 \$/h	647.25 \$/h
Fuel Consumption (Total)	60.3 gal/h	
Carbon Dioxide (Total)	545.6 kg/h	
Hydrocarbons (Total)	0.045 kg/h	
Carbon Monoxide (Total)	0.615 kg/h	
NOx (Total)	1.512 kg/h	

Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Sign Control.

Intersection LOS value for Vehicles is based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Intersection Performance - Annual Values		
Performance Measure	Vehicles	Persons
Demand Flows (Total)	933,020 veh/y	1,119,624 pers/y
Delay	1,774 veh-h/y	2,129 pers-h/y
Effective Stops	339,557 veh/y	407,468 pers/y
Travel Distance	595,363 veh-mi/y	714,435 pers-mi/y
Travel Time	17,620 veh-h/y	21,144 pers-h/y
Cost	310,679 \$/y	310,679 \$/y
Fuel Consumption	28,962 gal/y	
Carbon Dioxide	261,869 kg/y	
Hydrocarbons	22 kg/y	
Carbon Monoxide	295 kg/y	
NOx	726 kg/y	

Appendix L

Noise Analysis Spreadsheets

**TRAFFIC DATA FOR NOISE STUDIES - SUMMARY OUTPUT
FDOT DISTRICT 1**

Federal Aid Number(s): _____
 FPID Number(s): 414506-2
 State/Federal Route No.: _____
 Road Name: SR 70
 Project Description: SR 70 from Lorraine Road to CR 675 - Design Traffic Report
 Segment Description: SR 70 from Lorraine Rd to Post Blvd
 Section Number: 13160000
 Mile Post To/From: 9.476 - 10.137

Existing Facility:		D =	60.50%	%
		T24 =	14.20%	% of 24 Hour Volume
Year:	2016	Tpeak =	7.10%	% of Design Hour Volume
		MT =	1.98%	% of Design Hour Volume
LOS C Peak Hour Directional Volume:	850	HT =	5.12%	% of Design Hour Volume
Demand Peak Hour Volume:	862	B =	0.07%	% of Design Hour Volume
Posted Speed:	50	MC =	0.37%	% of Design Hour Volume

No Build Alternative (Design Year):		D =	60.50%	%
		T24 =	14.20%	% of 24 Hour Volume
Year:	2045	Tpeak =	7.10%	% of Design Hour Volume
		MT =	1.98%	% of Design Hour Volume
LOS C Peak Hour Directional Volume:	850	HT =	5.12%	% of Design Hour Volume
Demand Peak Hour Volume:	2529	B =	0.07%	% of Design Hour Volume
Posted Speed:	50	MC =	0.37%	% of Design Hour Volume

Build Alternative (Design Year):		D =	60.50%	%
		T24 =	14.20%	% of 24 Hour Volume
Year:	2045	Tpeak =	7.10%	% of Design Hour Volume
		MT =	1.98%	% of Design Hour Volume
LOS C Peak Hour Directional Volume:	2360	HT =	5.12%	% of Design Hour Volume
Demand Peak Hour Volume:	2816	B =	0.07%	% of Design Hour Volume
Posted Speed:	50	MC =	0.37%	% of Design Hour Volume

I certify that the above information is accurate and appropriate for use with the traffic noise analysis.

Prepared By: Rajashekar Pemmanaboina Date: 10/17/2018
 Print Name Signature

I have reviewed and concur that the above information is appropriate for use with the traffic noise analysis.

FDOT Reviewer: Christopher L. Simpron Date: _____
 Print Name Signature

**TRAFFIC DATA FOR NOISE STUDIES - SUMMARY OUTPUT
FDOT DISTRICT 1**

Federal Aid Number(s): _____
 FPID Number(s): 414506-2
 State/Federal Route No.: _____
 Road Name: SR 70
 Project Description: SR 70 from Lorraine Road to CR 675 - Design Traffic Report
 Segment Description: SR 70 from Post Blvd to Uihlein Rd
 Section Number: 13160000
 Mile Post To/From: 10.137 - 10.850

Existing Facility:		D =	60.50%	%
		T24 =	14.20%	% of 24 Hour Volume
Year:	2016	Tpeak =	7.10%	% of Design Hour Volume
		MT =	1.98%	% of Design Hour Volume
LOS C Peak Hour Directional Volume:	850	HT =	5.12%	% of Design Hour Volume
Demand Peak Hour Volume:	747	B =	0.07%	% of Design Hour Volume
Posted Speed:	60	MC =	0.37%	% of Design Hour Volume

No Build Alternative (Design Year):		D =	60.50%	%
		T24 =	14.20%	% of 24 Hour Volume
Year:	2045	Tpeak =	7.10%	% of Design Hour Volume
		MT =	1.98%	% of Design Hour Volume
LOS C Peak Hour Directional Volume:	850	HT =	5.12%	% of Design Hour Volume
Demand Peak Hour Volume:	1667	B =	0.07%	% of Design Hour Volume
Posted Speed:	60	MC =	0.37%	% of Design Hour Volume

Build Alternative (Design Year):		D =	60.50%	%
		T24 =	14.20%	% of 24 Hour Volume
Year:	2045	Tpeak =	7.10%	% of Design Hour Volume
		MT =	1.98%	% of Design Hour Volume
LOS C Peak Hour Directional Volume:	1530	HT =	5.12%	% of Design Hour Volume
Demand Peak Hour Volume:	1954	B =	0.07%	% of Design Hour Volume
Posted Speed:	60	MC =	0.37%	% of Design Hour Volume

I certify that the above information is accurate and appropriate for use with the traffic noise analysis.

Prepared By: Rajashekar Pemmanaboina Date: 10/17/2018
 Print Name Signature

I have reviewed and concur that the above information is appropriate for use with the traffic noise analysis.

FDOT Reviewer: Christopher L. Simpron Date: _____
 Print Name Signature

**TRAFFIC DATA FOR NOISE STUDIES - SUMMARY OUTPUT
FDOT DISTRICT 1**

Federal Aid Number(s): _____
 FPID Number(s): 414506-2
 State/Federal Route No.: _____
 Road Name: SR 70
 Project Description: SR 70 from Lorraine Road to CR 675 - Design Traffic Report
 Segment Description: SR 70 from Uihlein Rd to Bourneside Dr
 Section Number: 13160000
 Mile Post To/From: 10.850 - 11.97

Existing Facility:		D =	60.50%	%
		T24 =	14.20%	% of 24 Hour Volume
Year:	2016	Tpeak =	7.10%	% of Design Hour Volume
		MT =	1.98%	% of Design Hour Volume
LOS C Peak Hour Directional Volume:	850	HT =	5.12%	% of Design Hour Volume
Demand Peak Hour Volume:	747	B =	0.07%	% of Design Hour Volume
Posted Speed:	60	MC =	0.37%	% of Design Hour Volume

No Build Alternative (Design Year):		D =	60.50%	%
		T24 =	14.20%	% of 24 Hour Volume
Year:	2045	Tpeak =	7.10%	% of Design Hour Volume
		MT =	1.98%	% of Design Hour Volume
LOS C Peak Hour Directional Volume:	850	HT =	5.12%	% of Design Hour Volume
Demand Peak Hour Volume:	1092	B =	0.07%	% of Design Hour Volume
Posted Speed:	60	MC =	0.37%	% of Design Hour Volume

Build Alternative (Design Year):		D =	60.50%	%
		T24 =	14.20%	% of 24 Hour Volume
Year:	2045	Tpeak =	7.10%	% of Design Hour Volume
		MT =	1.98%	% of Design Hour Volume
LOS C Peak Hour Directional Volume:	1530	HT =	5.12%	% of Design Hour Volume
Demand Peak Hour Volume:	1379	B =	0.07%	% of Design Hour Volume
Posted Speed:	60	MC =	0.37%	% of Design Hour Volume

I certify that the above information is accurate and appropriate for use with the traffic noise analysis.

Prepared By: Rajashekar Pemmanaboina Date: 10/17/2018
 Print Name Signature

I have reviewed and concur that the above information is appropriate for use with the traffic noise analysis.

FDOT Reviewer: Christopher L. Simpron Date: _____
 Print Name Signature

**TRAFFIC DATA FOR NOISE STUDIES - SUMMARY OUTPUT
FDOT DISTRICT 1**

Federal Aid Number(s): _____
 FPID Number(s): 414506-2
 State/Federal Route No.: _____
 Road Name: SR 70
 Project Description: SR 70 from Lorraine Road to CR 675 - Design Traffic Report
 Segment Description: SR 70 from Bourneside Dr to CR 675
 Section Number: 13160000
 Mile Post To/From: 11.97 - 15.567

Existing Facility:		D =	60.50%	%
		T24 =	14.20%	% of 24 Hour Volume
Year:	2016	Tpeak =	7.10%	% of Design Hour Volume
		MT =	1.98%	% of Design Hour Volume
LOS C Peak Hour Directional Volume:	850	HT =	5.12%	% of Design Hour Volume
Demand Peak Hour Volume:	747	B =	0.07%	% of Design Hour Volume
Posted Speed:	60	MC =	0.37%	% of Design Hour Volume

No Build Alternative (Design Year):		D =	60.50%	%
		T24 =	14.20%	% of 24 Hour Volume
Year:	2045	Tpeak =	7.10%	% of Design Hour Volume
		MT =	1.98%	% of Design Hour Volume
LOS C Peak Hour Directional Volume:	850	HT =	5.12%	% of Design Hour Volume
Demand Peak Hour Volume:	862	B =	0.07%	% of Design Hour Volume
Posted Speed:	60	MC =	0.37%	% of Design Hour Volume

Build Alternative (Design Year):		D =	60.50%	%
		T24 =	14.20%	% of 24 Hour Volume
Year:	2045	Tpeak =	7.10%	% of Design Hour Volume
		MT =	1.98%	% of Design Hour Volume
LOS C Peak Hour Directional Volume:	2120	HT =	5.12%	% of Design Hour Volume
Demand Peak Hour Volume:	1092	B =	0.07%	% of Design Hour Volume
Posted Speed:	60	MC =	0.37%	% of Design Hour Volume

I certify that the above information is accurate and appropriate for use with the traffic noise analysis.

Prepared By: Rajashekar Pemmanaboina Date: 10/17/2018
 Print Name Signature

I have reviewed and concur that the above information is appropriate for use with the traffic noise analysis.

FDOT Reviewer: Christopher L. Simpron Date: _____
 Print Name Signature

Appendix M

Air Quality

TRAFFIC DATA FOR AIR QUALITY ANALYSIS

Date: 9/6/2018

Prepared by: VHB, Inc

Financial Management Number(s): 414506-2

Federal Aid Number(s): _____

Project Description: **SR 70 Reevaluation - Project Traffic Report**

NOTE: Traffic data should be provided for the intersection that is forecast to have the highest total approach traffic volume. Notably, the intersection may not be the same for the Build and No-Build alternatives. The number of lanes should be the number of intersection approach through lanes. The traffic volumes should be representative of vehicles per hour (vph) and vehicle speeds should be representative of posted speeds if intersection cruise approach speeds are unknown. This traffic data sheet was prepared to assist in obtaining appropriate traffic data for the FDOT CO Florida 2004 Intersection Screening Model. Notably, additional traffic data is required for diamond interchanges (see User's Guide).

=====
Opening Year: 2025

Land Use: Urban X, Suburban _____, or Rural _____

Build/No Build	SR 70 - EB			SR 70 - WB			Lorraine Rd - NB			Lorraine Rd - SB		
	No. of Lanes	VPH	Speed	No. of Lanes	VPH	Speed	No. of Lanes	VPH	Speed	No. of Lanes	VPH	Speed
Build	3	1,677	50	3	929	50	2	849	35	2	369	50
No Build	2	1,603	50	2	871	50	1	851	35	1	369	50

=====
Design Year: 2045

Build/No Build	SR 70 - EB			SR 70 - WB			Lorraine Rd - NB			Lorraine Rd - SB		
	No. of Lanes	VPH	Speed	No. of Lanes	VPH	Speed	No. of Lanes	VPH	Speed	No. of Lanes	VPH	Speed
Build	3	3,226	50	3	1,839	50	2	1,272	35	2	578	50
No Build	2	2,989	50	2	1,651	50	1	1,278	35	1	578	50

Figure 16-4 Example Traffic Data Input Sheet

Appendix N

Queue Analysis Spreadsheets

95th Percentile Queue Information

Intersection Movement	95th Percentile Queue (veh/ln)		95th Percentile Queue (Feet/ln)		Recommended Storage (ft)
	2045 Build AM	2045 Build PM	2045 Build AM	2045 Build PM	
SR 70 & Lorraine Rd					
EB Left	5.4	0.0	135	0	150
EB Right	10.9	0.4	273	10	275
WB Left	9.0	8.7	225	218	250
WB Right	2.6	4.4	65	110	125
NB Left	20.1	17.6	503	440	525
NB Right	6.6	4.3	165	108	175
SB Left	10.5	11.8	263	295	300
SB Right	5.6	3.7	140	93	150
SR 70 & Greenbrook Blvd/Post Blvd					
EB Left	8.8	9.0	220	225	250
EB Right	3.4	6.6	85	165	175
WB Left	5.3	7.1	133	178	200
NB Left	12.4	11.1	310	278	325
SB Left	3.4	5.0	85	125	150
SB Right	28.1	14.2	703	355	725
SR 70 & Uihlein Rd					
EB Left	10.5	13.5	263	338	350
WB Right	2.0	2.1	50	53	75
SB Left	8.9	6.9	223	173	225
SB Right	48.1	19.1	1203	478	1225
SR 70 & Del Webb Blvd					
EB Right	0.9	1.0	23	25	50
WB Left	0.7	1.2	18	30	50
NB Left	2.0	3.6	50	90	100
NB Right	0.5	0.4	13	10	25
SR 70 & Bourneside Blvd					
EB Left	4.2	3.2	105	80	125
EB Right	1.9	3.7	48	93	100
WB Left	1.9	1.9	48	48	50
WB Right	5.3	2.2	133	55	150
NB Left	5.2	2.6	130	65	150
NB Right	3.2	2.8	80	70	100
SB Left	3.3	5.4	83	135	150
SB Right	6.8	7.1	170	178	200