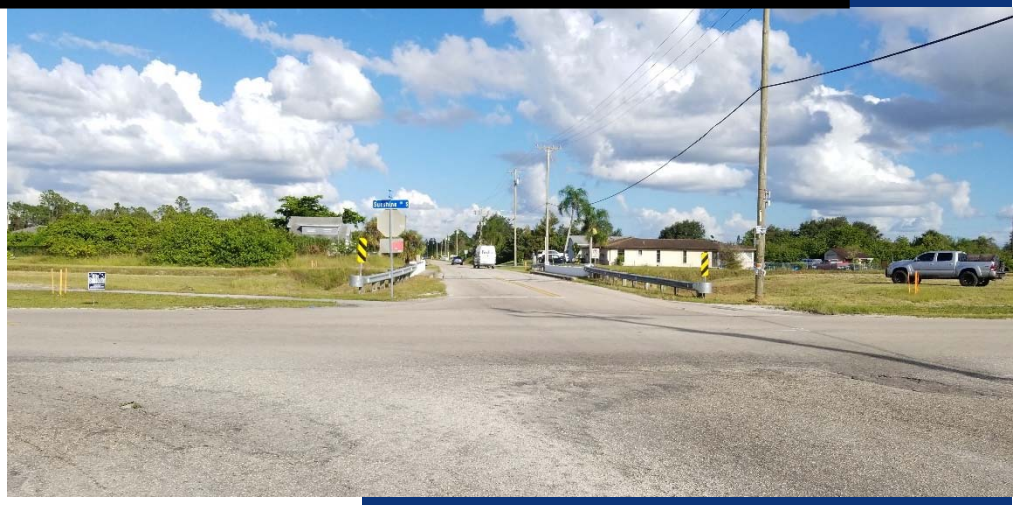
2019

Sunshine Blvd. S. and 8th St. SW. Intersection



Prepared For:
Lee County Department of Transportation

Lee County
Southwest Florida

Prepared By:

DDAI

David Douglas Associates, Inc.
1821 Victoria Ave
Fort Myers, Florida 33901
(239) 337-3330
www.ddai-engineers.com

Rich Batewell, III, E.I.
Professional Engineer: Clair Wright, III, P.E.
FL PE 64089
February 2019

THIS DOCUMENT HAS BEEN DIGITALLY SIGNED AND SEALED BY:

Clair E Wright III
2019.02.14 17:27:56 -05'00'

PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED. THE SIGNATURE MUST BE VERIFIED ON THE ELECTRONIC DOCUMENTS.

CLAIR E. WRIGHT III
LICENSE
No 64089
STATE OF FLORIDA
PROFESSIONAL ENGINEER

*Digital Signature Excludes Appendix C Data. Appendix C Data Signed and Sealed is Located in a Separate File

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INTRODUCTION

David Douglas Associates, Inc. (DDAI) has been tasked by Lee County Department of Transportation (LCDOT) to assist them in evaluating the Sunshine Boulevard South and 8th Street Southwest intersection improvements in Lehigh Acres. ***Specifically, this report has been prepared to evaluate four conceptual designs, including utilizing two roundabout alternatives, a multi-way stop, and a conventional signalized intersection.*** DDAI's evaluation included assessments for the intersection's existing traffic volumes and the 20-year forecasted traffic volumes based on the traffic movement count data provided by Trebilcock Consulting Solutions, PA (TCS) collected Tuesday, October 16, 2018, for a 24-hour period located within Appendix C.

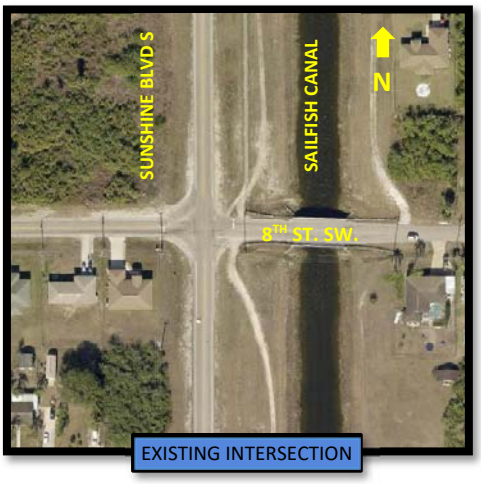
DDAI utilized the following as the primary governing documents for the intersection's evaluation:

- 2016 Manual of Uniform Minimum Standards for Design, Construction, and Maintenance for Streets and Highways. Commonly known as the "Florida Greenbook" (FGB)
- 2010 National Cooperative Highway Research Program (NCHRP) Report 672 (2nd Edition)
- 2009 Manual on Uniform Traffic Control Devices (MUTCD)
    - Section 2B.07: Multi-Way Stop Application
    - Section 4C: Traffic Control Signal Needs Studies
- 1998 FDOT Florida Roundabout Guide (2nd Edition)
- LCDOT 4-year crash history data from 2015-2018

Analysis of the intersection (other than supplied traffic data, Lee County GIS property data & aerial photography) has been made utilizing the following programs:

- Capacity Analysis for Planning Junctions (CAP-X) Ver. 2.0 Developed by the Federal Highway Administration
- FDOT Design Manual – Section 212.11.1 Stop Control (AASHTO Case B)

It should be noted that this report is not an operational analysis, and has been prepared as a preliminary planning tool for evaluating acceptable intersection improvement alternatives and evaluations. Additionally, the probable construction cost opinions are based on 2018 prices and have been provided for planning and comparison purposes only refer to Appendix E. These costs are subject to change over the life of the project and do not include costs associated with R/W acquisition, utility relocations, engineering, permitting, environmental impacts, ETC.



EXISTING INTERSECTION

1.0 EXISTING CONDITIONS

The intersection of Sunshine Blvd. S. (major street) and 8th St. SW. (minor street) is a two-way stop intersection (Sunshine Blvd. S. is uncontrolled) located within Lee County, Florida; S35, T44S, R26E. The intersection serves as one of three Sailfish Canal crossings and allows traffic to have access to Gunnery Rd. (to the west), Lee Blvd.

(to the north) and State Rd. 82 (to the south). The immediate limits of the intersection are bordered by single-family residential properties to the west and the Sailfish Canal's bridge to the east with additional single-family residential properties located east of the canal. Additionally, the orientation of the Sailfish Canal limits the east-west access within this corridor. An Overall Project Location Map and Location Map are provided within Appendix A.

1.1 Sunshine Boulevard South

Sunshine Blvd. S. is a two-lane rural facility with 11' travel lanes, 4'+/- paved shoulders and a posted speed of 45 mph with a normal crown at center and drains to adjacent roadside swales. Sunshine Blvd. S. is generally laid out north and south and lies within a 106' R/W. Per Map 3B: "Future Functional Classification Map of Unincorporated Lee County and State/County Roads in Cities" (provided in Appendix D), Sunshine Blvd. S. is classified as an arterial road. The southbound approach mirrors the northbound approach and there are no traffic control devices in either direction.

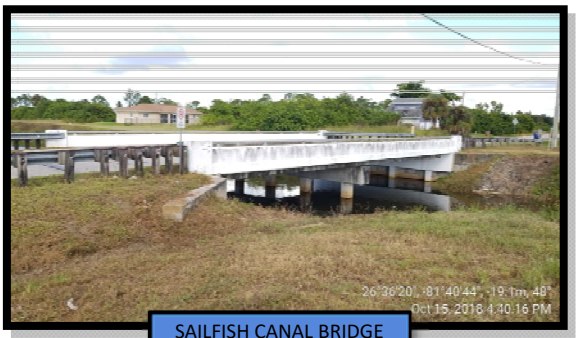

SUNSHINE BLVD S LOOKING SOUTH

1.2 8th Street Southwest

8th St. SW. is also a two-lane rural facility with 10' travel lanes with 2'+/- paved shoulders and has a posted speed limit of 30 mph east of the intersection and a posted speed limit of 35 mph west of the intersection. Since 8th St. SW. has two different posted speed limits, 35 mph was the speed limit used for this roads evaluations throughout this report as a conservative approach. 8th St. SW. is generally laid out east and west and lies within a 50' R/W. Per Map 3B: "Future Functional Classification Map of Unincorporated Lee County and State/County Roads in Cities" (provided in Appendix D), 8th St. SW. is classified as a collector road west of the intersection (Sunshine Blvd. S. to Gunnery Rd.), however, to the east of the intersection it is not classified on Map 3B. Traffic traveling along 8th St. SW. is controlled via stop signs for vehicles entering the intersection, however, turn lanes are not present for either approach.

8TH ST. SW. LOOKING WEST

Immediately east of the intersection spans a two-lane bridge (Bridge #124906) over the Sailfish Canal on 8th St. SW. The bridge is bound by a 2'-8"± tall standard concrete barrier walls on each side with handrails and is owned and maintained by the Lehigh Acres Municipal Services Improvement District (LAMSID).


SAILFISH CANAL BRIDGE

1.3 Existing and Projected Traffic Data

The data provided by TCS collected Tuesday, October 16, 2018, for a 24-hour period was analyzed in both the northbound and southbound directions along Sunshine Blvd. S., and in the eastbound and westbound directions along 8th St. SW. The collected approach volumes were processed and the highest eight hour volume at the proposed intersection was determined. The eight highest hourly volumes are from 6:00 to 9:00 and from 15:00 to 20:00. These times are also consistent with the information contained within the Lee County 2017 Traffic Count Report (most recent adopted). For the purposes of this report, traffic hourly volumes were adjusted for peak season conditions by utilizing the Florida Department of Transportation (FDOT) Peak Season Conversion Factor (PSCF) of 1.37 as illustrated in the Peak Season Factor Category Report for Lehigh Acres (year 2017 – most current available). Refer to **Appendix C for FDOT 2017 Peak Season Factor Category Report (Excerpt) and the raw and adjusted vehicular volumes provided by TCS.**

Summarizing the traffic report provided by TCS a total of 14,386 movements (raw counts / all directions) entered the intersection during this 24 hour period. After the adjustment factor (1.37) was applied the movements totaled 19,761 (adjusted counts / all directions). The eight highest hourly volumes are from 6:00 to 9:00 and from 15:00 to 20:00. The highest hour of the eight occurred during 17:00 (5:00 PM to 6:00 PM) totaling 1,195 turning movements (raw counts / all directions). After the adjustment factor (1.37) was applied the turning movements totaled 1,638 (adjusted counts / all directions. All movements (raw and adjusted counts) can be seen in Tables 1, 2 & 3 located within Appendix C.

LCDOT has a traffic counting station (#406) located 4 blocks north of the Sunshine Blvd. S. and 8th St. SW. intersection. Within the LCDOT count station #406 data a "Volume Trend Table" gives the annual growth percentages for various years (2013, 2014 & 2016). DDAI calculated a ***3.67% annual traffic growth factor*** based upon the average of years provided by the LCDOT count station data and it was applied to forecast the 20-year traffic volumes. The LCDOT Count Station #406 is found in Appendix B.

Table 1 below provides a summary of the peak hour turning movements used as the basis for this analysis included in Appendix C.

Table 1: Peak Hour Turning Movement Summary (Hour 17:00)

	EASTBOUND			WESTBOUND			SOUTHBOUND			NORTHBOUND			TOTAL TURNING MOVEMENTS
YEAR	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	
2018[1]	139	96	85	25	16	44	70	492	144	66	428	36	1,638[3]
2038[2]	286	197	175	51	33	90	144	1,011	296	136	879	74	3,372

All numbers in the above table have has been adjusted to reflect peak season by applying a factor of 1.37

[1] Turning Movement Count provided by TCS collected on October 16, 2018. Located in Appendix C.

[2] Turning Movement Count forecasted using 3.67% annual traffic growth factor.

[3] Due to rounding, this number is slightly lower than the added components, however, was provided by TCS

It should be noted that DDAI estimates this intersection is potentially receiving higher traffic volume due to the FDOT construction of the Daniels Parkway and State Rd. 82's intersection, which is one of the main arteries allowing traffic into Lehigh Acres. LCDOT's traffic counting station (#406) reported 9,022

vehicles on February, 1st 2018 in the northbound and southbound directions. According to the FDOT 2017 Peak Season Factor Category Report (Excerpt) provided by TCS the peak season months for Lehigh Acres are January through April (marked with a * as can be seen in Appendix C). The traffic movement count data provided by TCS for the northbound and southbound directions counted a total of 11,013 movements (raw counts / N/S directions), after the adjustment factor (1.37) was applied, the movements totaled 15,115 refer to Tables 1 and 2 located within Appendix C.

This suggests that after the peak season adjustments are included, there are an additional 68% more vehicles driving in the northbound and southbound directions in comparison to the LCDOT February counts. DDAI believes this is due to local drivers finding alternative routes to avoid the FDOT construction on Daniels Parkway and State Rd. 82's intersection and could potentially affect the results of the warrant studies.

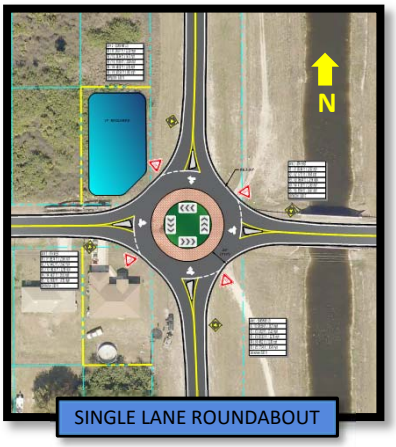
2.0 PROPOSED ALTERNATIVE IMPROVEMENTS

Four intersection improvements were analyzed for this preliminary evaluation. This included two roundabout configurations, a multi-way stop, and a conventional signalized intersection.

The program "Capacity Analysis for Planning Junctions (CAP-X) Ver. 2.0" developed by the Federal Highway Administration was used to analyze the roundabouts and conventional signalized intersection, however, the CAP-X Ver. 2.0 cannot analyze a multi-way stop because it is not part of its features. The CAP-X Ver. 2.0 program produces ***spreadsheets that use a critical volume approach to determine the capacity of the two roundabout and signalized intersection by comparing the critical lane volume to the theoretical capacity.*** The spreadsheets provide a volume to capacity ratio (V/C) and where the ratio is greater than 1 it indicates that particular zone has exceeded the theoretical capacity. The produced sets of spreadsheets were utilized to verify results of each intersection configuration and are located within Appendix F. Acceptable zones are indicated in green, whereas zones exceeding theoretical capacity are indicated in red.

The pedestrian and bicycle traffic has not been discussed in detail. There are currently no connected pedestrian facilities within the area.

2.1 Alternative 1: Single Lane Roundabout

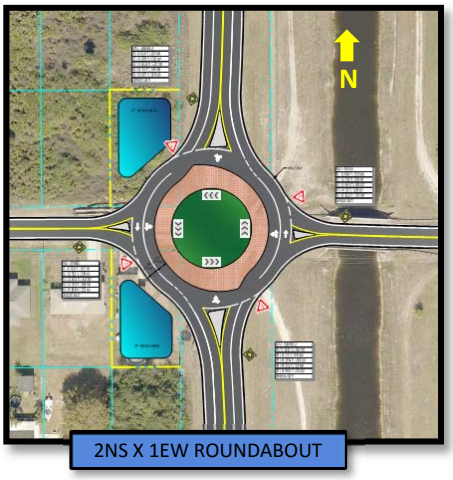


Alternative 1 included the preliminary evaluation of a single lane roundabout. This configuration is able to accommodate the current turning movement volumes for 2018 (1,638 movements from Table 1 located above); however, the projected 2038 turning movement volumes (3,372 movements from Table 1 located above) exceed the capacity of a single-lane roundabout. A single lane roundabout will be efficient until 2026. According to the CAP-X analysis, the 2038 projected northbound, southbound & eastbound approaches have a V/C ratio above 1.60 which exceeds the theoretical maximum volume to capacity ratio of 1.0 (Refer to the CAP-X Analysis Results Spreadsheets per FHWA located in Appendix F for 2038).

Even though the single lane roundabout capacity is exceeded before 2038 a conceptual design of the roundabout was created using Autodesk Vehicle Tracking 2019 and Autodesk Civil 3D. A maximum entering design speed based on a theoretical fastest path of 25 mph was used for the design of the roundabout in accordance with section 6.2.1 of the 2010 NCHRP Report 672 Roundabouts Guide. Additionally, the Florida Interstate Semitrailer (WB-50) was used as the controlling vehicle for geometric design of the roundabout per coordination with LCDOT. Due to the current constraint of the Sailfish Canal and bridge along 8th St. SW., this roundabout was analyzed to avoid impacts to the existing bridge. Consequently, no further impact or cost considerations were given to this alternative. The single lane roundabout alternative plan can be found in Appendix G.

2.2 Alternative 2: Two-Lane N/S & One-Lane E/W Roundabout

Alternative 2 included the preliminary evaluation of a two-lane N/S and one-lane E/W roundabout. This configuration is able to accommodate the current turning movement volumes for 2018 (1,638 movements from Table 1 located above); however, the projected 2038 turning movement volumes (3,372 movements from Table 1) exceed the capacity of a two-lane N/S and one-lane E/W roundabout after 2033. According to the CAP-X analysis, the 2038 projected southbound approach has a V/C ratio of 1.35 which exceeds the theoretical maximum volume to capacity ratio of 1.0 (Refer to the CAP-X Analysis Results Spreadsheets per FHWA located in Appendix F for 2038).



The conceptual design utilized the same design parameters as the single land analysis and avoided impacts to the Sailfish Canal Bridge. Other notable impacts for this configuration include road widening along both directions of Sunshine Blvd. S. due to the addition of turn lanes and merge lanes in each north and south direction, the reconstruction of one driveway, and the need for additional right-of-way (R/W) for the roundabout geometry. DDAI estimates the roundabout geometry will require acquisition of the two west adjacent residential lots (strap #'s 35-44-26-10-00090.0090 & 35-44-26-11-00099.0090) and the remaining parcel could be used for stormwater management if needed. The overhead power along the west side of Sunshine Blvd S. and south side of 8th St. SW. may be in conflict with proposed road widening as well. Utility relocations will require further coordination during the design phase to determine the extent of the relocations if any. Even though the preliminary analysis indicates that this configuration is not capable of facilitating the projected traffic volumes for 2038, ***DDAI believes this roundabout will be efficient longer than 2033 based upon the potentially inflated traffic volumes due to the FDOT construction Daniels Parkway and State Rd. 82's intersection.***

The construction cost to implement this option has been estimated at $1,053,500 as noted in Appendix E. The construction cost opinion was based upon Lee County GIS data, aerial photography and topographical survey, however, it did not have the benefit of design plans, or final permits to provide complete pay items and quantities. R/W acquisition, utility relocations, engineering, permitting, and

environmental costs have not been included in this analysis. The two-lane N/S and one-lane E/W roundabout alternative plan is included in Appendix G.

2.3 Multi-Way Stop Evaluation

This evaluation focused on whether the intersection meets the criteria necessary to warrant a multi-way stop by analyzing traffic data obtained from TCS. Multi-way stops are considered if the volume of traffic on the intersecting roads is approximately equal or as an interim measure that can be installed quickly to control traffic while other arrangements are being made for the intersection.

The data analyzed included 4-years of reported crashes and vehicular volume for all approaches to the intersection during peak hours of the morning and afternoon along Sunshine Blvd. S. (major street) and 8th St. SW. (minor street). Based on the requirements of Section 2B.07 of the MUTCD Guidance A, B, C-1, C-2 & C-3 are met and this intersection **warrants a multi-way stop**, however, since the traffic on the intersecting roads is not approximately equal **it should be used for an interim measure only**. DDAI's full analysis for a multi-way stop is located in Appendix H.

The construction cost to implement this option has been estimated at $10,500 as noted in Appendix E. The construction cost opinion was based upon Lee County GIS data, aerial photography and topographical survey, however, it did not have the benefit of design plans or final permits to provide complete pay items and quantities. Utility relocations, engineering, permitting, and environmental costs have not been included in this analysis.

2.4 Conventional Signalized Intersection Evaluation

This evaluation focused on whether the intersection meets the criteria necessary to warrant a conventional signalized intersection by analyzing traffic data obtained from TCS.

The data analyzed included 4-years of reported crashes, existing speed limit and vehicular volume for all approaches to the intersection during peak hours of the morning and afternoon along Sunshine Blvd. S. (major street) and 8th St. SW. (minor street). The MUTCD states th*e satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic signal.* Of the 9 warrants presented in MUTCD Chapter 4C, Warrants 1 & 2 are satisfied, therefore this intersection **warrants a conventional signal**. DDAI's full analysis for a conventional signal is located in Appendix I.

Notable impacts for this configuration include road widening along both directions of Sunshine Blvd. S. due to the addition of a deceleration right turn lane and a deceleration left turn lane and the overhead power along the west side of Sunshine Blvd. S. and south side of 8th St. SW. may be in conflict with proposed road widening as well. Utility relocations will require further coordination during the design phase to determine the extent of the relocations, if any. ***Our preliminary analysis indicates that this configuration is also capable of facilitating the current and projected traffic volumes for 2038.*** The V/C Ratio for the intersection was 0.93 (Refer to the CAP-X Analysis Results Spreadsheets per FHWA located in Appendix F for 2038).

The construction cost to implement this option has been estimated at $1,068,000 as noted in Appendix E. The construction cost opinion was based upon Lee County GIS data, aerial photography and

topographical survey, however, it did not have the benefit of design plans, or final permits to provide complete pay items and quantities. Utility relocations, engineering, permitting, and environmental costs have not been included in this analysis.

3.0 SUMMARY OF PROPOSED ALTERNATIVES & EVALUATIONS

The results of this preliminary analysis are indicated in Table 2 below and it shows the current & projected V/C ratio for most critical movement provided, as well as if the current & projected movements meet the capacity requirements, also if additional R/W is anticipated and what the approximate probable construction costs are. The current & projected V/C ratio and capacities can be found in Appendix F and the approximate probable construction costs can be found in Appendix E.

Table 2: Proposed Alternative Matrix

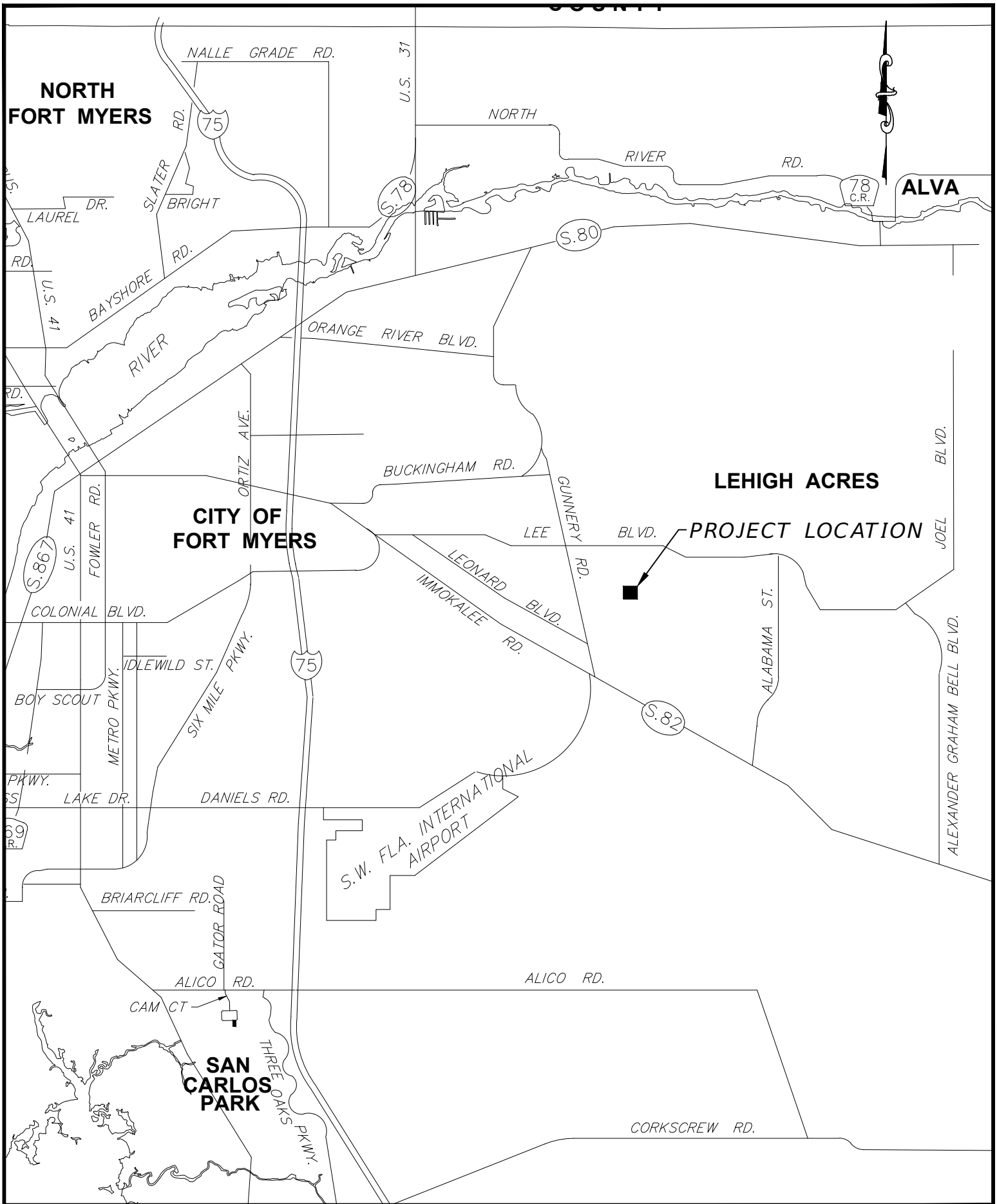
CRITERIA	ALTERNATIVE 1: SINGLE LANE ROUNDABOUT	ALTERNATIVE 2: 2 LANE N/S x 1 LANE E/W ROUNDABOUT	MULTI-WAY STOP EVALUATION	CONVENTIONAL SIGNALIZED INTERSECTION EVALUATION
CURRENT V/C RATIO FOR MOST CRITICAL MOVEMENT (2018)	0.70	0.43	N/A	0.45
PROJECTED V/C RATIO FOR MOST CRITICAL MOVEMENT (2038)	<1.60	1.35	N/A	0.93
MEETS CURRENT CAPACITY REQUIREMENTS (2018)	YES	YES	YES	YES
MEETS PROJECTED CAPACITY REQUIREMENTS (2038)	NO	NO	N/A	YES
ADDITIONAL R/W REQUIRED	YES	YES	NO	NO
APPROXIMATE PROBABLE CONSTRUCTION COST[1]	N/A	$1,053,500	$10,500	$1,068,000

[1] Cost includes 20% contingency.

4.0 RECOMMENDATION

Based on the results of the studied alternatives and evaluations, Alternative 2 (two-land N/S & one-lane E/W roundabout), multi-way stop, and a signalized intersection are warranted options for the intersection improvements. The multi-way stop is the least expensive option, however, should be used as an interim measure only and not as a permanent solution. Alternative 2 has a much lower operational and maintenance cost associated with it than a signaled intersection, however, may not be capable of facilitating the projected traffic volumes for 2038 and requires the acquisition of a residential home. Therefore, DDAI does not consider it to be a desirable solution. ***DDAI recommends incorporation of the signalized intersection as the most beneficial improvement option for this intersection.*** It may be the most expensive option with the highest operational and maintenance costs, however, it is capable of facilitating the current and projected traffic volumes through 2038 and will not currently require the acquisition of any parcels with residential homes Located on them.

Appendix A – Overall Project Location and Location Map



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DATE : 11-15-18
SCALE : N.T.S.
DESIGN : RB
CAD : JP

NO.	REVISION

DAVID DOUGLAS ASSOCIATES, INC.
CIVIL ENGINEERS - LAND PLANNERS - CONTRACT ADMINISTRATORS
1821 Victoria Ave, Fort Myers, Florida 33901
Ph. 239-337-3330
Web: www.ddai-engineers.com
Florida Certificate of Authorization # 7568

OVERALL PROJECT LOCATION

SUNSHINE BLVD S &
8TH STREET SW
INTERSECTION

EXHIBIT A
DDAI JOB NUMBER 18-0047

FILE : H:\18-0047 LCS LC-SUNSHINE & 8TH ST SW\CADD\DWG\01-18-0047-SITE DISTANCE EXHIBIT.DWG

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PROJECT LOCATION

SUNSHINE BLVD S &
8TH STREET SW
INTERSECTION

EXHIBIT
B
DDAI JOB
NUMBER
18-0047

Appendix B – LCDOT Count Station #406

Not secure | lee.ms2soft.com/tcds/tsearch.asp?loc=Lee&mod=

Apps | CARDNO | COUNTIES | UTILITIES | FEDERAL AGENCIES | WATER MANAGE DIS | STUFF | VERTCON | NOI | Web Soil | LABINS Map | Map Direct Default | OTISS

Auto-Locate OFF

List View | All DIRs

Record 1 of 1 Goto Record go

Location ID	406	MPO ID	
Type	SPOT	HPMS ID	
On NHS		On HPMS	
LRS ID		LRS Loc Pt.	
SF Group	5	Route Type	
AF Group		Route	
GF Group		Active	Yes
Class Dist Grp		Category	
Seas Clss Grp			
WIM Group			
QC Group	Default		
Fnct'l Class	-	Milepost	
Located On	Sunshine Blvd		
Loc On Alias			
SOUTH OF	Lee Blvd		

PR	MP	PT

More Detail

STATION DATA

Directions: 2-WAY | NB | SB

AADT

	Year	AADT	DHV-30	K %	D %	PA	BC	Src
	2016	7,500	661	9	51			
	2014	7,138						
	2013	6,116						
	2012	6,700	527	8				

Travel Demand Model

	Model Year	Model AADT	AM PHV	AM PPV	MD PHV	MD PPV	PM PHV	PM PPV	NT PHV	NT PPV

VOLUME COUNT

	Date	Int	Total
	Thu 2/1/2018	15	9,022
	Wed 1/31/2018	15	8,578
	Tue 1/30/2018	15	8,701
	Thu 1/21/2016	15	8,042
	Wed 1/20/2016	15	7,793
	Tue 1/19/2016	15	7,806
	Thu 2/13/2014	15	8,204
	Wed 2/12/2014	15	7,986
	Tue 2/11/2014	15	7,957
	Thu 2/21/2013	15	7,157

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mm/dd/yyyy To Date

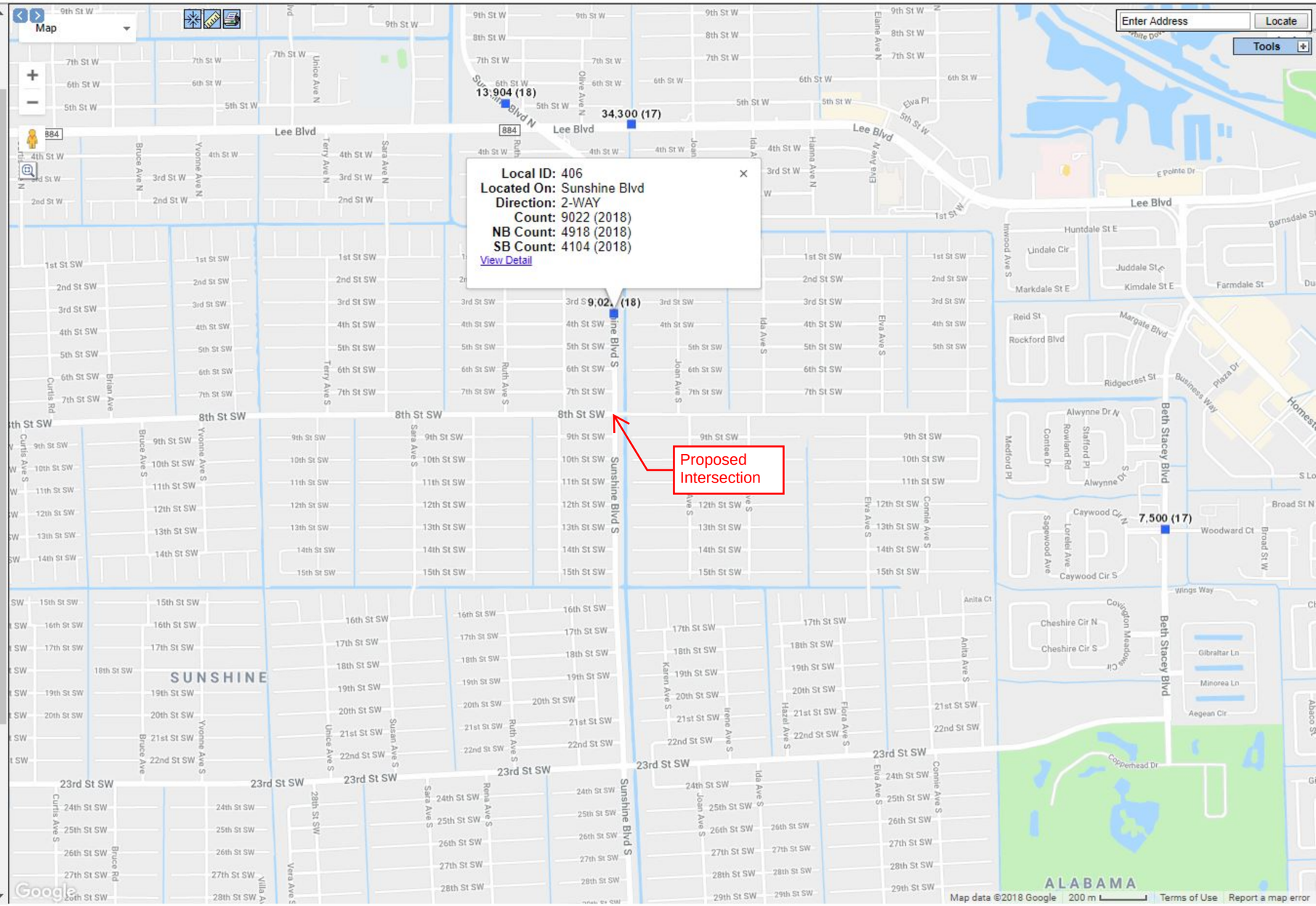
VOLUME TREND

Year	Annual Growth
2016	3%
2014	17%
2013	-9%

Average the above percentages
(3+17+(-9))/3 = 3.67%

SPEED

CLASSIFICATION



Appendix C –Existing Traffic Report by TCS & Projected Traffic Analysis

20 YEAR TURNING MOVEMENT COUNT PROJECTIONS

DDAI No. 18-0047

INTERSECTION OF SUNSHINE BOULEVARD SOUTH AND 8TH STREET SOUTHWEST

YEAR	EB LEFT	EB THRU	EB RIGHT	WB LEFT	WB THRU	WB RIGHT	SB LEFT	SB THRU	SB RIGHT	NB LEFT	NB THRU	NB RIGHT
2018 (CURRENT) 5:00 PM	**139**	**96**	**85**	**25**	**16**	**44**	**70**	**492**	144	**66**	**428**	**36**
2019	144	100	88	26	17	46	73	510	149	68	444	37
2020	149	103	91	27	17	47	75	529	155	71	460	39
2021	155	107	95	28	18	49	78	548	160	74	477	40
2022	161	111	98	29	18	51	81	568	166	76	494	42
2023	166	115	102	30	19	53	84	589	172	79	512	43
2024	173	119	106	31	20	55	87	611	179	82	531	45
2025	179	124	109	32	21	57	90	633	185	85	551	46
2026 [1]	185	128	113	33	21	59	93	656	192	88	571	48
2027	192	133	118	35	22	61	97	680	199	91	592	50
2028	199	138	122	36	23	63	100	705	206	95	614	52
2029	207	143	126	37	24	65	104	731	214	98	636	53
2030	214	148	131	39	25	68	108	758	222	102	659	55
2031	222	153	136	40	26	70	112	786	230	105	684	57
2032	230	159	141	41	26	73	116	815	238	109	709	60
2033 [2]	239	165	146	43	27	76	120	844	247	113	735	62
2034	247	171	151	44	28	78	125	875	256	117	762	64
2035	256	177	157	46	30	81	129	907	266	122	789	66
2036	266	184	163	48	31	84	134	941	275	126	818	69
2037	276	190	168	50	32	87	139	975	285	131	848	71
2038 - Year 20	**286**	**197**	**175**	**51**	**33**	**90**	**144**	**1011**	**296**	**136**	**879**	**74**

* 2018 turning movement data provided by Trebilcock Consulting Solutions, PA and adjust to reflect peak season.

** Projections calculated based on the 3.67% annual traffic growth rate averaged from LCDOT Count Station #406 "Volume Trend".

[1] 1x1 Roundabout Max

[2] 2x1 Roundabout Max

LCDOT Count Station #406 "Volume Trend"

2016	2014	2013	AVG	
17	3	-9	3.67	%

David Douglas Associates Inc.
1821 Victoria Avenue • Fort Myers, FL 33901
Ph: (239) 337-3330
Business License No. 7568

2017 PEAK SEASON FACTOR CATEGORY REPORT - REPORT TYPE: ALL
CATEGORY: 1247 LEHIGH ACRES

WEEK	DATES	SF	MOCF: 0.91 PSCF
1	01/01/2017 - 01/07/2017	1.17	1.29
2	01/08/2017 - 01/14/2017	1.07	1.18
3	01/15/2017 - 01/21/2017	0.96	1.05
* 4	01/22/2017 - 01/28/2017	0.94	1.03
* 5	01/29/2017 - 02/04/2017	0.93	1.02
* 6	02/05/2017 - 02/11/2017	0.91	1.00
* 7	02/12/2017 - 02/18/2017	0.89	0.98
* 8	02/19/2017 - 02/25/2017	0.89	0.98
* 9	02/26/2017 - 03/04/2017	0.89	0.98
*10	03/05/2017 - 03/11/2017	0.88	0.97
*11	03/12/2017 - 03/18/2017	0.88	0.97
*12	03/19/2017 - 03/25/2017	0.90	0.99
*13	03/26/2017 - 04/01/2017	0.91	1.00
*14	04/02/2017 - 04/08/2017	0.93	1.02
*15	04/09/2017 - 04/15/2017	0.94	1.03
*16	04/16/2017 - 04/22/2017	0.95	1.04
17	04/23/2017 - 04/29/2017	0.96	1.05
18	04/30/2017 - 05/06/2017	0.96	1.05
19	05/07/2017 - 05/13/2017	0.97	1.07
20	05/14/2017 - 05/20/2017	0.98	1.08
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	1.03	1.13
24	06/11/2017 - 06/17/2017	1.05	1.15
25	06/18/2017 - 06/24/2017	1.06	1.16
26	06/25/2017 - 07/01/2017	1.06	1.16
27	07/02/2017 - 07/08/2017	1.07	1.18
28	07/09/2017 - 07/15/2017	1.07	1.18
29	07/16/2017 - 07/22/2017	1.07	1.18
30	07/23/2017 - 07/29/2017	1.07	1.18
31	07/30/2017 - 08/05/2017	1.06	1.16
32	08/06/2017 - 08/12/2017	1.06	1.16
33	08/13/2017 - 08/19/2017	1.06	1.16
34	08/20/2017 - 08/26/2017	1.12	1.23
35	08/27/2017 - 09/02/2017	1.18	1.30
36	09/03/2017 - 09/09/2017	1.24	1.36
37	09/10/2017 - 09/16/2017	1.30	1.43
38	09/17/2017 - 09/23/2017	1.29	1.42
39	09/24/2017 - 09/30/2017	1.28	1.41
40	10/01/2017 - 10/07/2017	1.27	1.40
41	10/08/2017 - 10/14/2017	1.26	1.38
42	10/15/2017 - 10/21/2017	1.25	1.37
43	10/22/2017 - 10/28/2017	1.24	1.36
44	10/29/2017 - 11/04/2017	1.23	1.35
45	11/05/2017 - 11/11/2017	1.22	1.34
46	11/12/2017 - 11/18/2017	1.21	1.33
47	11/19/2017 - 11/25/2017	1.20	1.32
48	11/26/2017 - 12/02/2017	1.19	1.31
49	12/03/2017 - 12/09/2017	1.18	1.30
50	12/10/2017 - 12/16/2017	1.17	1.29
51	12/17/2017 - 12/23/2017	1.10	1.21
52	12/24/2017 - 12/30/2017	1.03	1.13
53	12/31/2017 - 12/31/2017	0.96	1.05

* PEAK SEASON

02-MAR-2018 15:35:05 830UPD 1_1247_PKSEASON.TXT

Traffic Count Report

Sunshine Blvd S and 8th St SW Intersection

Lehigh Acres, Lee County, FL
11/26/2018

Prepared for:

David Douglas Associates, Inc.
1821 Victoria Avenue
Fort Myers, FL 33901
Phone: 239.337.3330

Prepared by:

Trebilcock Consulting Solutions, PA
1205 Piper Boulevard, Suite 202
Naples, FL 34110
Phone: 239.566.9551
Email: ntrebilcock@trebilcock.biz

Statement of Certification

I certify that this Traffic Count Report has been prepared by me or under my immediate supervision and that I have experience and training in the field of Traffic and Transportation Engineering.

Norman J. Trebilcock, AICP, P.E.
FL Registration No. 47116
Trebilcock Consulting Solutions, PA
1205 Piper Boulevard, Suite 202
Naples, FL 34110
Company Cert. of Auth. No. 27796

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Intersection Traffic Counts

Trebilcock Consulting Solutions, PA has coordinated the following traffic data collection at Sunshine Blvd S and 8th St SW intersection: 24-hour machine (tube) counts for each intersection leg; and 8-hour turning movement counts.

The traffic data was collected on Tuesday, October 16, 2018 for a 24-hour period in 15-minute and one-hour intervals. Refer to **Appendix A: 24-Hour Raw Machine Counts**.

The collected approach volumes were processed and a determination was made to identify the eight highest hourly volumes at the proposed intersection. The turning movement count periods selected include the hours 6:00 AM to 9:00 AM and 3:00 PM to 8:00 PM. A summary of the raw 24-hour approach counts is illustrated in **Table 1**.

According to these counts, a total of 5,171 northbound, 5,842 southbound, 2,089 eastbound and 1,284 westbound vehicles approached the intersection on the day of the study.

The traffic volumes were adjusted to reflect peak season traffic conditions. Consistent with the information contained within the Lee County 2017 Traffic Count Report (most recent adopted), Lee County Department of Transportation (DOT) does not operate a Permanent Count Station (PCS) on Sunshine Boulevard S. For the purposes of this report, traffic hourly volumes were adjusted for peak season conditions by utilizing the Florida Department of Transportation (FDOT) Peak Season Conversion Factor (PSCF) as illustrated in the Peak Season Factor Category Report for Lehigh Acres (year 2017 – most current available). For details refer to **Appendix B: FDOT 2017 Peak Season Factor Category Report (Excerpt)**.

A summary of the peak season 24-hour approach counts is illustrated in **Table 2**.

Table 1 – Raw 24-hour Approach Counts

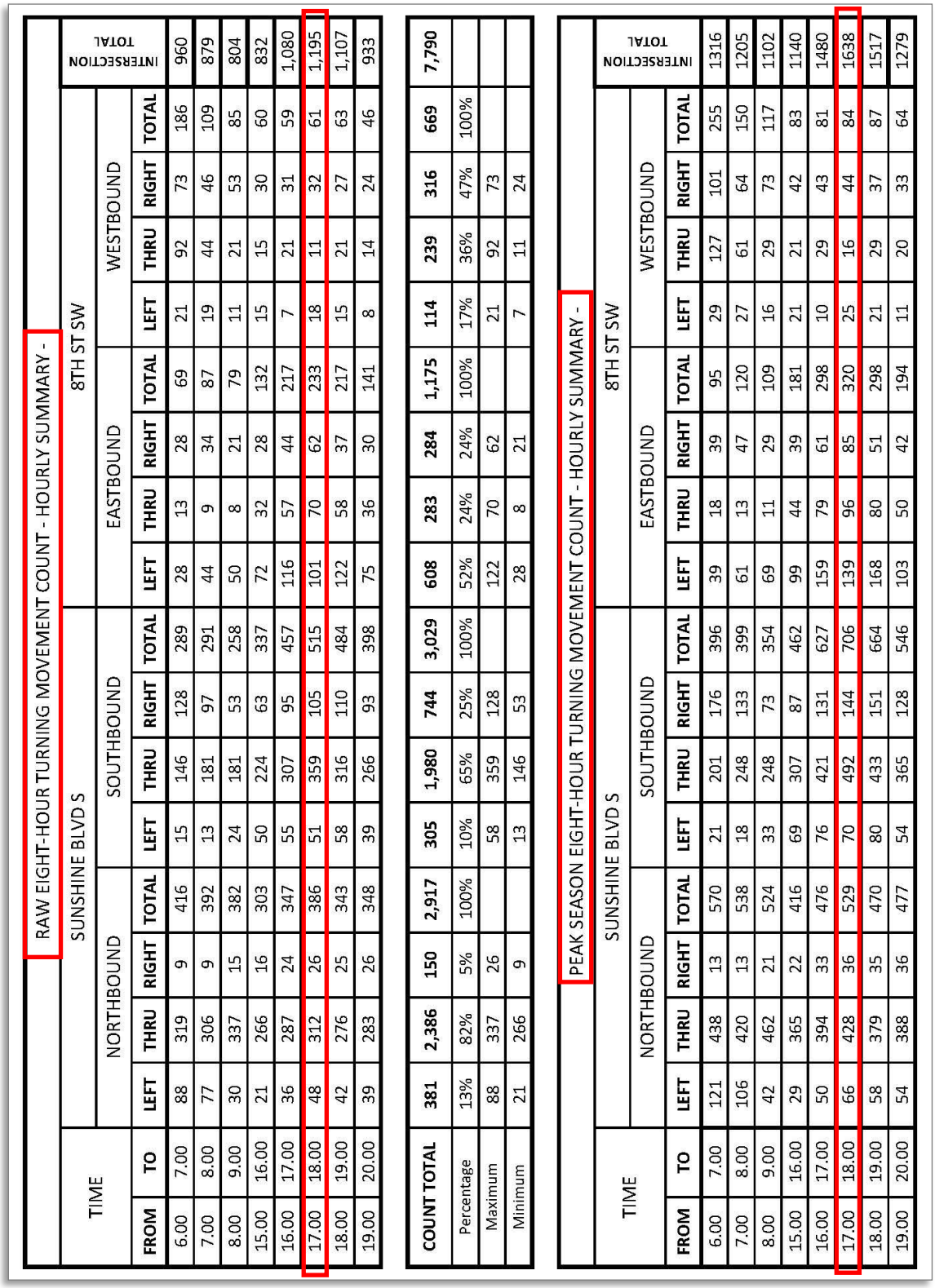
RAW 24-HOUR APPROACH COUNTS - HOURLY SUMMARY								
FROM	**TO**	SUNSHINE BLVD S			8TH ST SW			GRAND TOTAL
		SB	NB	TOTAL	WB	EB	TOTAL	
0.00	1.00	44	39	83	1	19	20	**103**
1.00	2.00	17	17	34	4	6	10	**44**
2.00	3.00	13	15	28	5	2	7	**35**
3.00	4.00	20	16	36	8	4	12	**48**
4.00	5.00	36	22	58	24	12	36	**94**
5.00	6.00	121	116	237	87	30	117	**354**
6.00	7.00	322	427	749	216	64	280	**1,029**
7.00	8.00	323	399	722	117	86	203	**925**
8.00	9.00	290	386	676	87	82	169	**845**
9.00	10.00	244	249	493	78	100	178	**671**
10.00	11.00	244	211	455	46	98	144	**599**
11.00	12.00	267	219	486	50	88	138	**624**
12.00	13.00	265	234	499	51	75	126	**625**
13.00	14.00	318	253	571	56	85	141	**712**
14.00	15.00	334	295	629	69	114	183	**812**
15.00	16.00	348	303	651	59	137	196	**847**
16.00	17.00	471	358	829	63	223	286	**1,115**
17.00	18.00	523	389	912	64	237	301	**1,213**
18.00	19.00	490	339	829	65	240	305	**1,134**
19.00	20.00	401	349	750	46	133	179	**929**
20.00	21.00	318	214	532	36	111	147	**679**
21.00	22.00	226	149	375	25	76	101	**476**
22.00	23.00	139	114	253	17	46	63	**316**
23.00	24.00	68	58	126	10	21	31	**157**
Total		5,842	5,171	11,013	1,284	2,089	3,373	**14,386**

Table 2 – Peak Season 24-hour Approach Counts

PEAK SEASON 24-HOUR APPROACH COUNTS - HOURLY SUMMARY								
FROM	**TO**	SUNSHINE BLVD S			8TH ST SW			GRAND TOTAL
		SB	NB	TOTAL	WB	EB	TOTAL	
0.00	1.00	61	54	115	2	27	29	**144**
1.00	2.00	24	24	48	6	9	15	**63**
2.00	3.00	18	21	39	7	3	10	**49**
3.00	4.00	28	22	50	11	6	17	**67**
4.00	5.00	50	31	81	33	17	50	**131**
5.00	6.00	166	159	325	120	42	162	**487**
6.00	7.00	442	585	1,027	296	88	384	**1,411**
7.00	8.00	443	547	990	161	118	279	**1,269**
8.00	9.00	398	529	927	120	113	233	**1,160**
9.00	10.00	335	342	677	107	137	244	**921**
10.00	11.00	335	290	625	64	135	199	**824**
11.00	12.00	366	301	667	69	121	190	**857**
12.00	13.00	364	321	685	70	103	173	**858**
13.00	14.00	436	347	783	77	117	194	**977**
14.00	15.00	458	405	863	95	157	252	**1,115**
15.00	16.00	477	416	893	81	188	269	**1,162**
16.00	17.00	646	491	1,137	87	306	393	**1,530**
17.00	18.00	717	533	1,250	88	325	413	**1,663**
18.00	19.00	672	465	1,137	90	329	419	**1,556**
19.00	20.00	550	479	1,029	64	183	247	**1,276**
20.00	21.00	436	294	730	50	153	203	**933**
21.00	22.00	310	205	515	35	105	140	**655**
22.00	23.00	191	157	348	24	64	88	**436**
23.00	24.00	94	80	174	14	29	43	**217**
Total		8,017	7,098	15,115	1,771	2,875	4,646	**19,761**

The raw 8-hour turning movement count is included in **Appendix C: 8-Hour Raw Turning Movement Count**. A summary of the turning movement counts for current and peak season conditions is illustrated in **Table 3**.

Table 3 – Summary 8-hour Turning Movement Counts



RAW EIGHT-HOUR TURNING MOVEMENT COUNT - HOURLY SUMMARY -

TIME		SUNSHINE BLVD S								8TH ST SW								INTERSECTION TOTAL
		NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
FROM	TO	LEFT	THRU	RIGHT	TOTAL	LEFT	THRU	RIGHT	TOTAL	LEFT	THRU	RIGHT	TOTAL	LEFT	THRU	RIGHT	TOTAL	
6.00	7.00	88	319	9	416	15	146	128	289	28	13	28	69	21	92	73	186	960
7.00	8.00	77	306	9	392	13	181	97	291	44	9	34	87	19	44	46	109	879
8.00	9.00	30	337	15	382	24	181	53	258	50	8	21	79	11	21	53	85	804
15.00	16.00	21	266	16	303	50	224	63	337	72	32	28	132	15	15	30	60	832
16.00	17.00	36	287	24	347	55	307	95	457	116	57	44	217	7	21	31	59	1,080
17.00	18.00	48	312	26	386	51	359	105	515	101	70	62	233	18	11	32	61	1,195
18.00	19.00	42	276	25	343	58	316	110	484	122	58	37	217	15	21	27	63	1,107
19.00	20.00	39	283	26	348	39	266	93	398	75	36	30	141	8	14	24	46	933

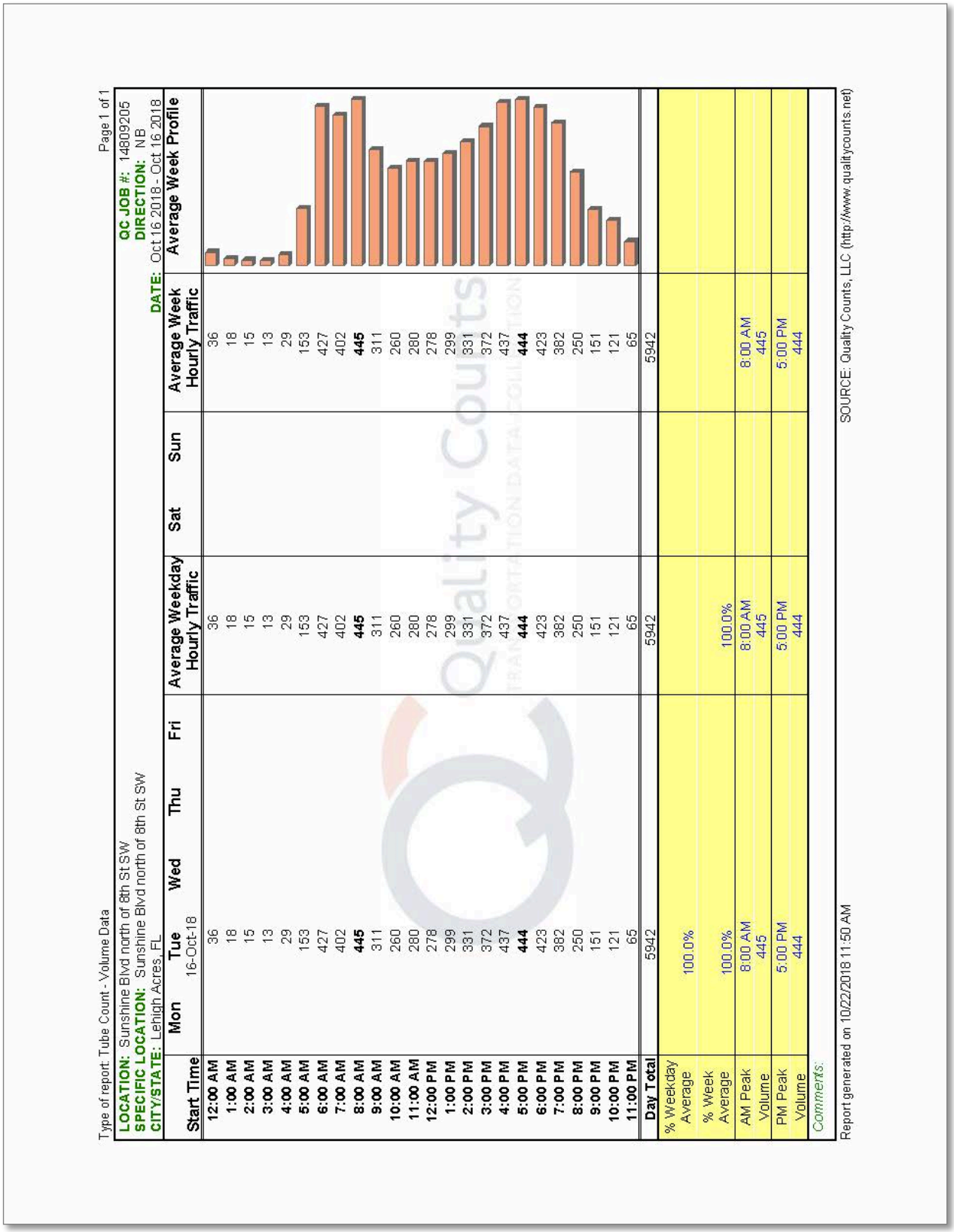
COUNT TOTAL	381	2,386	150	2,917	305	1,980	744	3,029	608	283	284	1,175	114	239	316	669	7,790
Percentage	13%	82%	5%	100%	10%	65%	25%	100%	52%	24%	24%	100%	17%	36%	47%	100%	
Maximum	88	337	26		58	359	128		122	70	62		21	92	73		
Minimum	21	266	9		13	146	53		28	8	21		7	11	24		

PEAK SEASON EIGHT-HOUR TURNING MOVEMENT COUNT - HOURLY SUMMARY -

TIME		SUNSHINE BLVD S								8TH ST SW								INTERSECTION TOTAL
		NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
FROM	TO	LEFT	THRU	RIGHT	TOTAL	LEFT	THRU	RIGHT	TOTAL	LEFT	THRU	RIGHT	TOTAL	LEFT	THRU	RIGHT	TOTAL	
6.00	7.00	121	438	13	570	21	201	176	396	39	18	39	95	29	127	101	255	1316
7.00	8.00	106	420	13	538	18	248	133	399	61	13	47	120	27	61	64	150	1205
8.00	9.00	42	462	21	524	33	248	73	354	69	11	29	109	16	29	73	117	1102
15.00	16.00	29	365	22	416	69	307	87	462	99	44	39	181	21	21	42	83	1140
16.00	17.00	50	394	33	476	76	421	131	627	159	79	61	298	10	29	43	81	1480
17.00	18.00	66	428	36	529	70	492	144	706	139	96	85	320	25	16	44	84	1638
18.00	19.00	58	379	35	470	80	433	151	664	168	80	51	298	21	29	37	87	1517
19.00	20.00	54	388	36	477	54	365	128	546	103	50	42	194	11	20	33	64	1279

Appendix A: 24-Hour Raw Machine Counts

One-hour Interval Reports



Page 1 of 1

Type of report: Tube Count - Volume Data

LOCATION: Sunshine Blvd north of 8th St SW
SPECIFIC LOCATION: Sunshine Blvd north of 8th St SW
CITY/STATE: Lehigh Acres, FL

QC JOB #: 14809205
DIRECTION: NB
DATE: Oct 16 2018 - Oct 16 2018

Start Time	Mon	Tue 16-Oct-18	Wed	Thu	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
12:00 AM		36				36			36	
1:00 AM		18				18			18	
2:00 AM		15				15			15	
3:00 AM		13				13			13	
4:00 AM		29				29			29	
5:00 AM		153				153			153	
6:00 AM		427				427			427	
7:00 AM		402				402			402	
8:00 AM		**445**				**445**			**445**	
9:00 AM		311				311			311	
10:00 AM		260				260			260	
11:00 AM		280				280			280	
12:00 PM		278				278			278	
1:00 PM		299				299			299	
2:00 PM		331				331			331	
3:00 PM		372				372			372	
4:00 PM		437				437			437	
5:00 PM		**444**				**444**			**444**	
6:00 PM		423				423			423	
7:00 PM		382				382			382	
8:00 PM		250				250			250	
9:00 PM		151				151			151	
10:00 PM		121				121			121	
11:00 PM		65				65			65	
Day Total		5942				5942			5942	
% Weekday Average		100.0%								
% Week Average		100.0%				100.0%				
AM Peak Volume		8:00 AM 445				8:00 AM 445			8:00 AM 445	
PM Peak Volume		5:00 PM 444				5:00 PM 444			5:00 PM 444	

Comments:

Report generated on 10/22/2018 11:50 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

Type of report: Tube Count - Volume Data

LOCATION: Sunshine Blvd north of 8th St SW
SPECIFIC LOCATION: Sunshine Blvd north of 8th St SW
CITY/STATE: Lehigh Acres, FL

QC JOB #: 14809205
DIRECTION: SB
DATE: Oct 16 2018 - Oct 16 2018

Start Time	Mon	Tue 16-Oct-18	Wed	Thu	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
12:00 AM		44				44			44	
1:00 AM		17				17			17	
2:00 AM		13				13			13	
3:00 AM		20				20			20	
4:00 AM		36				36			36	
5:00 AM		121				121			121	
6:00 AM		322				322			322	
7:00 AM		**323**				**323**			**323**	
8:00 AM		290				290			290	
9:00 AM		244				244			244	
10:00 AM		244				244			244	
11:00 AM		267				267			267	
12:00 PM		265				265			265	
1:00 PM		318				318			318	
2:00 PM		334				334			334	
3:00 PM		348				348			348	
4:00 PM		471				471			471	
5:00 PM		**523**				**523**			**523**	
6:00 PM		490				490			490	
7:00 PM		401				401			401	
8:00 PM		318				318			318	
9:00 PM		226				226			226	
10:00 PM		139				139			139	
11:00 PM		68				68			68	
Day Total		5842				5842			5842	
% Weekday Average		100.0%								
% Week Average		100.0%				100.0%				
AM Peak Volume		7:00 AM 323				7:00 AM 323			7:00 AM 323	
PM Peak Volume		5:00 PM 523				5:00 PM 523			5:00 PM 523	

Comments:

Report generated on 10/22/2018 11:50 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

Type of report: Tube Count - Volume Data

LOCATION: Sunshine Blvd south of 8th St SW
SPECIFIC LOCATION: Sunshine Blvd south of 8th St SW
CITY/STATE: Lehigh Acres, FL

QC JOB #: 14809206
DIRECTION: NB
DATE: Oct 16 2018 - Oct 16 2018

Start Time	Mon	Tue 16-Oct-18	Wed	Thu	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
12:00 AM		39				39			39	
1:00 AM		17				17			17	
2:00 AM		15				15			15	
3:00 AM		16				16			16	
4:00 AM		22				22			22	
5:00 AM		116				116			116	
6:00 AM		**427**				**427**			**427**	
7:00 AM		399				399			399	
8:00 AM		386				386			386	
9:00 AM		249				249			249	
10:00 AM		211				211			211	
11:00 AM		219				219			219	
12:00 PM		234				234			234	
1:00 PM		253				253			253	
2:00 PM		295				295			295	
3:00 PM		303				303			303	
4:00 PM		358				358			358	
5:00 PM		**389**				**389**			**389**	
6:00 PM		339				339			339	
7:00 PM		349				349			349	
8:00 PM		214				214			214	
9:00 PM		149				149			149	
10:00 PM		114				114			114	
11:00 PM		58				58			58	
Day Total		5171				5171			5171	
% Weekday Average		100.0%								
% Week Average		100.0%				100.0%				
AM Peak		6:00 AM				6:00 AM			6:00 AM	
Volume		427				427			427	
PM Peak		5:00 PM				5:00 PM			5:00 PM	
Volume		389				389			389	

Comments:

Report generated on 10/22/2018 11:50 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

Type of report: Tube Count - Volume Data

Page 1 of 1

LOCATION: Sunshine Blvd south of 8th St SW
SPECIFIC LOCATION: Sunshine Blvd south of 8th St SW
CITY/STATE: Lehigh Acres, FL

QC JOB #: 14809206
DIRECTION: SB
DATE: Oct 16 2018 - Oct 16 2018

Start Time	Mon	Tue 16-Oct-18	Wed	Thu	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
12:00 AM		26				26			26	
1:00 AM		16				16			16	
2:00 AM		11				11			11	
3:00 AM		23				23			23	
4:00 AM		44				44			44	
5:00 AM		119				119			119	
6:00 AM		196				196			196	
7:00 AM		**249**				**249**			**249**	
8:00 AM		221				221			221	
9:00 AM		215				215			215	
10:00 AM		194				194			194	
11:00 AM		206				206			206	
12:00 PM		205				205			205	
1:00 PM		252				252			252	
2:00 PM		272				272			272	
3:00 PM		272				272			272	
4:00 PM		359				359			359	
5:00 PM		**439**				**439**			**439**	
6:00 PM		381				381			381	
7:00 PM		299				299			299	
8:00 PM		232				232			232	
9:00 PM		186				186			186	
10:00 PM		106				106			106	
11:00 PM		49				49			49	
Day Total		4572				4572			4572	
% Weekday Average		100.0%								
% Week Average		100.0%				100.0%				
AM Peak		7:00 AM				7:00 AM			7:00 AM	
Volume		249				249			249	
PM Peak		5:00 PM				5:00 PM			5:00 PM	
Volume		439				439			439	

Comments:

Report generated on 10/22/2018 11:50 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

Type of report: Tube Count - Volume Data

LOCATION: 8th St SW east of Sunshine Blvd
SPECIFIC LOCATION: 8th St SW east of Sunshine Blvd
CITY/STATE: Lehigh Acres, FL

QC JOB #: 14809207
DIRECTION: EB
DATE: Oct 16 2018 - Oct 16 2018

Start Time	Mon	Tue 16-Oct-18	Wed	Thu	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
12:00 AM		17				17			17	
1:00 AM		3				3			3	
2:00 AM		3				3			3	
3:00 AM		4				4			4	
4:00 AM		3				3			3	
5:00 AM		17				17			17	
6:00 AM		**61**				**61**			**61**	
7:00 AM		37				37			37	
8:00 AM		47				47			47	
9:00 AM		53				53			53	
10:00 AM		58				58			58	
11:00 AM		44				44			44	
12:00 PM		53				53			53	
1:00 PM		48				48			48	
2:00 PM		79				79			79	
3:00 PM		103				103			103	
4:00 PM		138				138			138	
5:00 PM		**158**				**158**			**158**	
6:00 PM		143				143			143	
7:00 PM		107				107			107	
8:00 PM		88				88			88	
9:00 PM		49				49			49	
10:00 PM		36				36			36	
11:00 PM		14				14			14	
Day Total		1363				1363			1363	
% Weekday Average		100.0%								
% Week Average		100.0%				100.0%				
AM Peak		6:00 AM				6:00 AM			6:00 AM	
Volume		61				61			61	
PM Peak		5:00 PM				5:00 PM			5:00 PM	
Volume		158				158			158	

Comments:

Report generated on 10/22/2018 11:50 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

Type of report: Tube Count - Volume Data

LOCATION: 8th St SW east of Sunshine Blvd
SPECIFIC LOCATION: 8th St SW east of Sunshine Blvd
CITY/STATE: Lehigh Acres, FL

QC JOB #: 14809207
DIRECTION: WB
DATE: Oct 16 2018 - Oct 16 2018

Start Time	Mon	Tue 16-Oct-18	Wed	Thu	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
12:00 AM		1				1			1	
1:00 AM		4				4			4	
2:00 AM		5				5			5	
3:00 AM		8				8			8	
4:00 AM		24				24			24	
5:00 AM		87				87			87	
6:00 AM		**216**				**216**			**216**	
7:00 AM		117				117			117	
8:00 AM		87				87			87	
9:00 AM		78				78			78	
10:00 AM		46				46			46	
11:00 AM		50				50			50	
12:00 PM		51				51			51	
1:00 PM		56				56			56	
2:00 PM		**69**				**69**			**69**	
3:00 PM		59				59			59	
4:00 PM		63				63			63	
5:00 PM		64				64			64	
6:00 PM		65				65			65	
7:00 PM		46				46			46	
8:00 PM		36				36			36	
9:00 PM		25				25			25	
10:00 PM		17				17			17	
11:00 PM		10				10			10	
Day Total		1284				1284			1284	
% Weekday Average		100.0%								
% Week Average		100.0%				100.0%				
AM Peak		6:00 AM				6:00 AM			6:00 AM	
Volume		216				216			216	
PM Peak		2:00 PM				2:00 PM			2:00 PM	
Volume		69				69			69	

Comments:

Report generated on 10/22/2018 11:50 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

Type of report: Tube Count - Volume Data

LOCATION: 8th St SW west of Sunshine Blvd
SPECIFIC LOCATION: 8th St SW west of Sunshine Blvd
CITY/STATE: Lehigh Acres, FL

QC JOB #: 14809208
DIRECTION: EB
DATE: Oct 16 2018 - Oct 16 2018

Start Time	Mon	Tue 16-Oct-18	Wed	Thu	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
12:00 AM		19				19			19	
1:00 AM		6				6			6	
2:00 AM		2				2			2	
3:00 AM		4				4			4	
4:00 AM		12				12			12	
5:00 AM		30				30			30	
6:00 AM		64				64			64	
7:00 AM		86				86			86	
8:00 AM		82				82			82	
9:00 AM		**100**				**100**			**100**	
10:00 AM		98				98			98	
11:00 AM		88				88			88	
12:00 PM		75				75			75	
1:00 PM		85				85			85	
2:00 PM		114				114			114	
3:00 PM		137				137			137	
4:00 PM		223				223			223	
5:00 PM		237				237			237	
6:00 PM		**240**				**240**			**240**	
7:00 PM		133				133			133	
8:00 PM		111				111			111	
9:00 PM		76				76			76	
10:00 PM		46				46			46	
11:00 PM		21				21			21	
Day Total		2089				2089			2089	
% Weekday Average		100.0%								
% Week Average		100.0%				100.0%				
AM Peak		9:00 AM				9:00 AM			9:00 AM	
Volume		100				100			100	
PM Peak		6:00 PM				6:00 PM			6:00 PM	
Volume		240				240			240	

Comments:

Report generated on 10/22/2018 11:50 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

Type of report: Tube Count - Volume Data

LOCATION: 8th St SW west of Sunshine Blvd
SPECIFIC LOCATION: 8th St SW west of Sunshine Blvd
CITY/STATE: Lehigh Acres, FL

QC JOB #: 14809208
DIRECTION: WB
DATE: Oct 16 2018 - Oct 16 2018

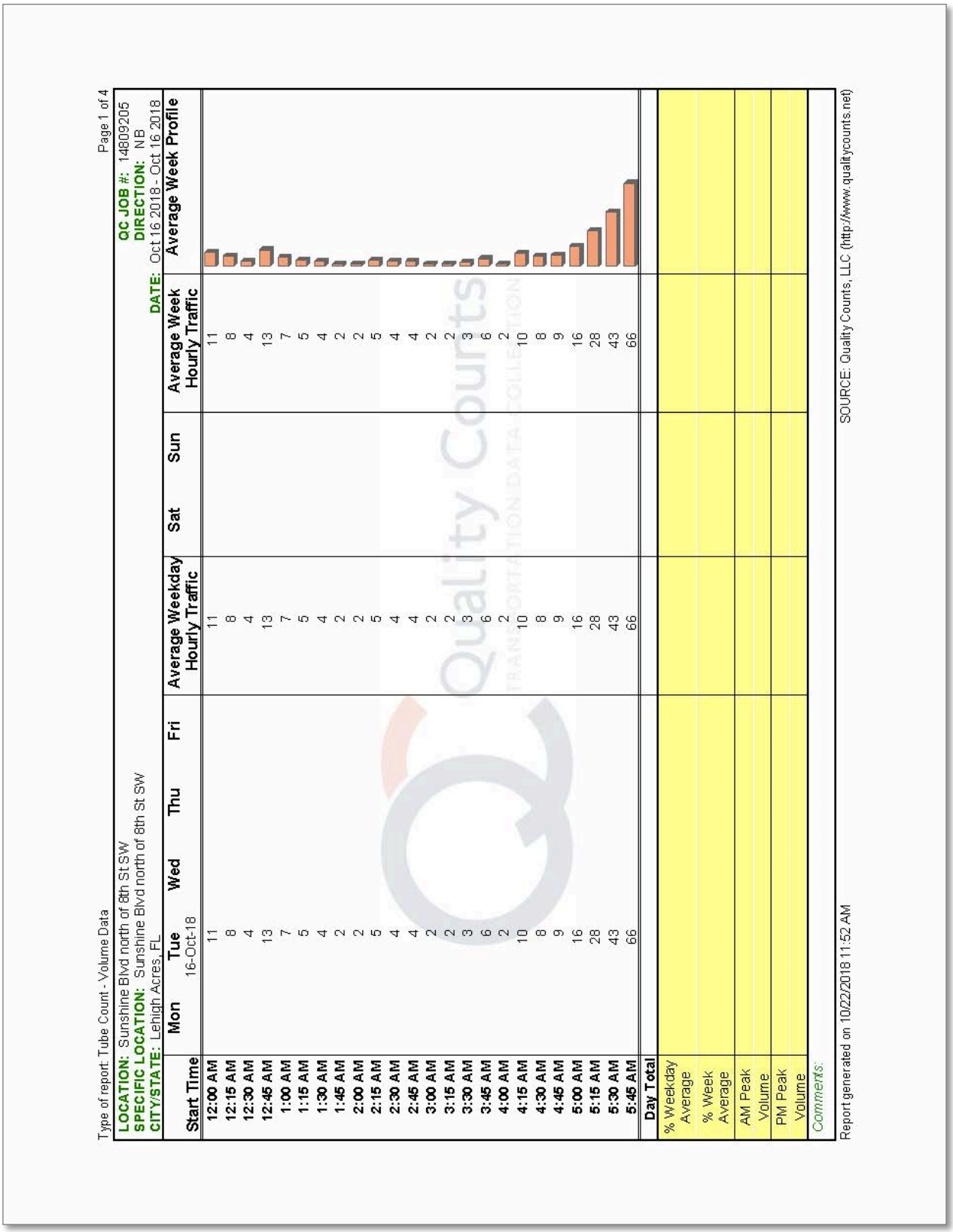
Start Time	Mon	Tue 16-Oct-18	Wed	Thu	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
12:00 AM		25				25			25	
1:00 AM		8				8			8	
2:00 AM		6				6			6	
3:00 AM		7				7			7	
4:00 AM		15				15			15	
5:00 AM		62				62			62	
6:00 AM		**312**				**312**			**312**	
7:00 AM		227				227			227	
8:00 AM		109				109			109	
9:00 AM		99				99			99	
10:00 AM		73				73			73	
11:00 AM		106				106			106	
12:00 PM		93				93			93	
1:00 PM		106				106			106	
2:00 PM		122				122			122	
3:00 PM		102				102			102	
4:00 PM		153				153			153	
5:00 PM		166				166			166	
6:00 PM		**170**				**170**			**170**	
7:00 PM		155				155			155	
8:00 PM		101				101			101	
9:00 PM		94				94			94	
10:00 PM		49				49			49	
11:00 PM		30				30			30	
Day Total		2390				2390			2390	
% Weekday Average		100.0%								
% Week Average		100.0%				100.0%				
AM Peak Volume		6:00 AM 312				6:00 AM 312			6:00 AM 312	
PM Peak Volume		6:00 PM 170				6:00 PM 170			6:00 PM 170	

Comments:

Report generated on 10/22/2018 11:50 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

15-Minute Interval Reports



Page 1 of 4

Type of report: Tube Count - Volume Data

LOCATION: Sunshine Blvd north of 8th St SW
SPECIFIC LOCATION: Sunshine Blvd north of 8th St SW
CITY/STATE: Lehigh Acres, FL

QC JOB #: 14809205
DIRECTION: NB
DATE: Oct 16 2018 - Oct 16 2018

Start Time	Mon	Tue 16-Oct-18	Wed	Thu	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
12:00 AM		11				11			11	
12:15 AM		8				8			8	
12:30 AM		4				4			4	
12:45 AM		13				13			13	
1:00 AM		7				7			7	
1:15 AM		5				5			5	
1:30 AM		4				4			4	
1:45 AM		2				2			2	
2:00 AM		2				2			2	
2:15 AM		5				5			5	
2:30 AM		4				4			4	
2:45 AM		4				4			4	
3:00 AM		2				2			2	
3:15 AM		2				2			2	
3:30 AM		3				3			3	
3:45 AM		6				6			6	
4:00 AM		2				2			2	
4:15 AM		10				10			10	
4:30 AM		8				8			8	
4:45 AM		9				9			9	
5:00 AM		16				16			16	
5:15 AM		28				28			28	
5:30 AM		43				43			43	
5:45 AM		66				66			66	
Day Total										
% Weekday Average										
% Week Average										
AM Peak Volume										
PM Peak Volume										

Comments:

Report generated on 10/22/2018 11:52 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

Type of report: Tube Count - Volume Data

LOCATION: Sunshine Blvd north of 8th St SW
SPECIFIC LOCATION: Sunshine Blvd north of 8th St SW
CITY/STATE: Lehigh Acres, FL

QC JOB #: 14809205
DIRECTION: NB
DATE: Oct 16 2018 - Oct 16 2018

Start Time	Mon	Tue 16-Oct-18	Wed	Thu	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
6:00 AM		90				90			90	
6:15 AM		119				119			119	
6:30 AM		107				107			107	
6:45 AM		111				111			111	
7:00 AM		95				95			95	
7:15 AM		111				111			111	
7:30 AM		76				76			76	
7:45 AM		120				120			120	
8:00 AM		109				109			109	
8:15 AM		**132**				**132**			**132**	
8:30 AM		115				115			115	
8:45 AM		89				89			89	
9:00 AM		100				100			100	
9:15 AM		85				85			85	
9:30 AM		53				53			53	
9:45 AM		73				73			73	
10:00 AM		61				61			61	
10:15 AM		66				66			66	
10:30 AM		65				65			65	
10:45 AM		68				68			68	
11:00 AM		73				73			73	
11:15 AM		63				63			63	
11:30 AM		74				74			74	
11:45 AM		70				70			70	
Day Total										
% Weekday Average										
% Week Average										
AM Peak Volume										
PM Peak Volume										

Comments:

Report generated on 10/22/2018 11:52 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

Type of report: Tube Count - Volume Data

LOCATION: Sunshine Blvd north of 8th St SW
SPECIFIC LOCATION: Sunshine Blvd north of 8th St SW
CITY/STATE: Lehigh Acres, FL

QC JOB #: 14809205
DIRECTION: NB
DATE: Oct 16 2018 - Oct 16 2018

Start Time	Mon	Tue 16-Oct-18	Wed	Thu	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
12:00 PM		70				70			70	
12:15 PM		64				64			64	
12:30 PM		70				70			70	
12:45 PM		74				74			74	
1:00 PM		73				73			73	
1:15 PM		65				65			65	
1:30 PM		80				80			80	
1:45 PM		81				81			81	
2:00 PM		93				93			93	
2:15 PM		85				85			85	
2:30 PM		93				93			93	
2:45 PM		60				60			60	
3:00 PM		68				68			68	
3:15 PM		85				85			85	
3:30 PM		104				104			104	
3:45 PM		115				115			115	
4:00 PM		111				111			111	
4:15 PM		91				91			91	
4:30 PM		115				115			115	
4:45 PM		120				120			120	
5:00 PM		123				123			123	
5:15 PM		111				111			111	
5:30 PM		107				107			107	
5:45 PM		103				103			103	
Day Total										
% Weekday Average										
% Week Average										
AM Peak Volume										
PM Peak Volume										

Comments:

Report generated on 10/22/2018 11:52 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

Type of report: Tube Count - Volume Data

LOCATION: Sunshine Blvd north of 8th St SW
SPECIFIC LOCATION: Sunshine Blvd north of 8th St SW
CITY/STATE: Lehigh Acres, FL

QC JOB #: 14809205
DIRECTION: NB
DATE: Oct 16 2018 - Oct 16 2018

Start Time	Mon	Tue 16-Oct-18	Wed	Thu	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
6:00 PM		88				88			88	
6:15 PM		100				100			100	
6:30 PM		104				104			104	
6:45 PM		**131**				**131**			**131**	
7:00 PM		118				118			118	
7:15 PM		101				101			101	
7:30 PM		82				82			82	
7:45 PM		81				81			81	
8:00 PM		81				81			81	
8:15 PM		62				62			62	
8:30 PM		56				56			56	
8:45 PM		51				51			51	
9:00 PM		49				49			49	
9:15 PM		36				36			36	
9:30 PM		31				31			31	
9:45 PM		35				35			35	
10:00 PM		42				42			42	
10:15 PM		32				32			32	
10:30 PM		26				26			26	
10:45 PM		21				21			21	
11:00 PM		32				32			32	
11:15 PM		12				12			12	
11:30 PM		11				11			11	
11:45 PM		10				10			10	
Day Total		5942				5942			5942	
% Weekday Average		100.0%								
% Week Average		100.0%				100.0%				
AM Peak		8:15 AM				8:15 AM			8:15 AM	
Volume		132				132			132	
PM Peak		6:45 PM				6:45 PM			6:45 PM	
Volume		131				131			131	

Comments:

Report generated on 10/22/2018 11:52 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

Type of report: Tube Count - Volume Data

LOCATION: Sunshine Blvd north of 8th St SW
SPECIFIC LOCATION: Sunshine Blvd north of 8th St SW
CITY/STATE: Lehigh Acres, FL

QC JOB #: 14809205
DIRECTION: SB
DATE: Oct 16 2018 - Oct 16 2018

Start Time	Mon	Tue 16-Oct-18	Wed	Thu	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
12:00 AM		15				15			15	
12:15 AM		12				12			12	
12:30 AM		14				14			14	
12:45 AM		3				3			3	
1:00 AM		4				4			4	
1:15 AM		6				6			6	
1:30 AM		6				6			6	
1:45 AM		1				1			1	
2:00 AM		1				1			1	
2:15 AM		3				3			3	
2:30 AM		3				3			3	
2:45 AM		6				6			6	
3:00 AM		6				6			6	
3:15 AM		1				1			1	
3:30 AM		5				5			5	
3:45 AM		8				8			8	
4:00 AM		14				14			14	
4:15 AM		5				5			5	
4:30 AM		9				9			9	
4:45 AM		8				8			8	
5:00 AM		14				14			14	
5:15 AM		32				32			32	
5:30 AM		35				35			35	
5:45 AM		40				40			40	
Day Total										
% Weekday Average										
% Week Average										
AM Peak Volume										
PM Peak Volume										

Comments:

Report generated on 10/22/2018 11:52 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

Type of report: Tube Count - Volume Data

LOCATION: Sunshine Blvd north of 8th St SW
SPECIFIC LOCATION: Sunshine Blvd north of 8th St SW
CITY/STATE: Lehigh Acres, FL

QC JOB #: 14809205
DIRECTION: SB
DATE: Oct 16 2018 - Oct 16 2018

Start Time	Mon	Tue 16-Oct-18	Wed	Thu	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
6:00 AM		86				86			86	
6:15 AM		78				78			78	
6:30 AM		86				86			86	
6:45 AM		72				72			72	
7:00 AM		**103**				**103**			**103**	
7:15 AM		80				80			80	
7:30 AM		74				74			74	
7:45 AM		66				66			66	
8:00 AM		91				91			91	
8:15 AM		59				59			59	
8:30 AM		66				66			66	
8:45 AM		74				74			74	
9:00 AM		60				60			60	
9:15 AM		51				51			51	
9:30 AM		76				76			76	
9:45 AM		57				57			57	
10:00 AM		59				59			59	
10:15 AM		56				56			56	
10:30 AM		55				55			55	
10:45 AM		74				74			74	
11:00 AM		63				63			63	
11:15 AM		80				80			80	
11:30 AM		73				73			73	
11:45 AM		51				51			51	
Day Total										
% Weekday Average										
% Week Average										
AM Peak Volume										
PM Peak Volume										

Comments:

Report generated on 10/22/2018 11:52 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

Type of report: Tube Count - Volume Data

LOCATION: Sunshine Blvd north of 8th St SW
SPECIFIC LOCATION: Sunshine Blvd north of 8th St SW
CITY/STATE: Lehigh Acres, FL

QC JOB #: 14809205
DIRECTION: SB
DATE: Oct 16 2018 - Oct 16 2018

Start Time	Mon	Tue 16-Oct-18	Wed	Thu	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
12:00 PM		69				69			69	
12:15 PM		70				70			70	
12:30 PM		70				70			70	
12:45 PM		56				56			56	
1:00 PM		79				79			79	
1:15 PM		70				70			70	
1:30 PM		72				72			72	
1:45 PM		97				97			97	
2:00 PM		90				90			90	
2:15 PM		81				81			81	
2:30 PM		84				84			84	
2:45 PM		79				79			79	
3:00 PM		71				71			71	
3:15 PM		94				94			94	
3:30 PM		96				96			96	
3:45 PM		87				87			87	
4:00 PM		107				107			107	
4:15 PM		**148**				**148**			**148**	
4:30 PM		111				111			111	
4:45 PM		105				105			105	
5:00 PM		116				116			116	
5:15 PM		133				133			133	
5:30 PM		143				143			143	
5:45 PM		131				131			131	
Day Total										
% Weekday Average										
% Week Average										
AM Peak Volume										
PM Peak Volume										

Comments:

Report generated on 10/22/2018 11:52 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

Type of report: Tube Count - Volume Data

LOCATION: Sunshine Blvd north of 8th St SW
SPECIFIC LOCATION: Sunshine Blvd north of 8th St SW
CITY/STATE: Lehigh Acres, FL

QC JOB #: 14809205
DIRECTION: SB
DATE: Oct 16 2018 - Oct 16 2018

Start Time	Mon	Tue 16-Oct-18	Wed	Thu	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
6:00 PM		116				116			116	
6:15 PM		139				139			139	
6:30 PM		128				128			128	
6:45 PM		107				107			107	
7:00 PM		98				98			98	
7:15 PM		109				109			109	
7:30 PM		106				106			106	
7:45 PM		88				88			88	
8:00 PM		87				87			87	
8:15 PM		84				84			84	
8:30 PM		72				72			72	
8:45 PM		75				75			75	
9:00 PM		70				70			70	
9:15 PM		68				68			68	
9:30 PM		47				47			47	
9:45 PM		41				41			41	
10:00 PM		43				43			43	
10:15 PM		28				28			28	
10:30 PM		27				27			27	
10:45 PM		41				41			41	
11:00 PM		33				33			33	
11:15 PM		10				10			10	
11:30 PM		17				17			17	
11:45 PM		8				8			8	
Day Total		5842				5842			5842	
% Weekday Average		100.0%								
% Week Average		100.0%				100.0%				
AM Peak		7:00 AM				7:00 AM			7:00 AM	
Volume		103				103			103	
PM Peak		4:15 PM				4:15 PM			4:15 PM	
Volume		148				148			148	

Comments:

Report generated on 10/22/2018 11:52 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

Type of report: Tube Count - Volume Data

LOCATION: Sunshine Blvd south of 8th St SW
SPECIFIC LOCATION: Sunshine Blvd south of 8th St SW
CITY/STATE: Lehigh Acres, FL

QC JOB #: 14809206
DIRECTION: NB
DATE: Oct 16 2018 - Oct 16 2018

Start Time	Mon	Tue 16-Oct-18	Wed	Thu	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
12:00 AM		13				13			13	
12:15 AM		8				8			8	
12:30 AM		3				3			3	
12:45 AM		15				15			15	
1:00 AM		9				9			9	
1:15 AM		4				4			4	
1:30 AM		3				3			3	
1:45 AM		1				1			1	
2:00 AM		2				2			2	
2:15 AM		6				6			6	
2:30 AM		4				4			4	
2:45 AM		3				3			3	
3:00 AM		3				3			3	
3:15 AM		3				3			3	
3:30 AM		1				1			1	
3:45 AM		9				9			9	
4:00 AM		2				2			2	
4:15 AM		9				9			9	
4:30 AM		6				6			6	
4:45 AM		5				5			5	
5:00 AM		12				12			12	
5:15 AM		18				18			18	
5:30 AM		31				31			31	
5:45 AM		55				55			55	
Day Total										
% Weekday Average										
% Week Average										
AM Peak Volume										
PM Peak Volume										

Comments:

Report generated on 10/22/2018 11:52 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

Type of report: Tube Count - Volume Data

LOCATION: Sunshine Blvd south of 8th St SW
SPECIFIC LOCATION: Sunshine Blvd south of 8th St SW
CITY/STATE: Lehigh Acres, FL

QC JOB #: 14809206
DIRECTION: NB
DATE: Oct 16 2018 - Oct 16 2018

Start Time	Mon	Tue 16-Oct-18	Wed	Thu	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
6:00 AM		94				94			94	
6:15 AM		**123**				**123**			**123**	
6:30 AM		95				95			95	
6:45 AM		115				115			115	
7:00 AM		112				112			112	
7:15 AM		112				112			112	
7:30 AM		67				67			67	
7:45 AM		108				108			108	
8:00 AM		97				97			97	
8:15 AM		113				113			113	
8:30 AM		98				98			98	
8:45 AM		78				78			78	
9:00 AM		81				81			81	
9:15 AM		66				66			66	
9:30 AM		41				41			41	
9:45 AM		61				61			61	
10:00 AM		41				41			41	
10:15 AM		56				56			56	
10:30 AM		49				49			49	
10:45 AM		65				65			65	
11:00 AM		56				56			56	
11:15 AM		52				52			52	
11:30 AM		62				62			62	
11:45 AM		49				49			49	
Day Total										
% Weekday Average										
% Week Average										
AM Peak Volume										
PM Peak Volume										

Comments:

Report generated on 10/22/2018 11:52 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

Type of report: Tube Count - Volume Data

LOCATION: Sunshine Blvd south of 8th St SW
SPECIFIC LOCATION: Sunshine Blvd south of 8th St SW
CITY/STATE: Lehigh Acres, FL

QC JOB #: 14809206
DIRECTION: NB
DATE: Oct 16 2018 - Oct 16 2018

Start Time	Mon	Tue 16-Oct-18	Wed	Thu	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
12:00 PM		54				54			54	
12:15 PM		57				57			57	
12:30 PM		64				64			64	
12:45 PM		59				59			59	
1:00 PM		64				64			64	
1:15 PM		53				53			53	
1:30 PM		59				59			59	
1:45 PM		77				77			77	
2:00 PM		75				75			75	
2:15 PM		79				79			79	
2:30 PM		85				85			85	
2:45 PM		56				56			56	
3:00 PM		56				56			56	
3:15 PM		72				72			72	
3:30 PM		87				87			87	
3:45 PM		88				88			88	
4:00 PM		93				93			93	
4:15 PM		87				87			87	
4:30 PM		82				82			82	
4:45 PM		96				96			96	
5:00 PM		104				104			104	
5:15 PM		88				88			88	
5:30 PM		98				98			98	
5:45 PM		99				99			99	
Day Total										
% Weekday Average										
% Week Average										
AM Peak Volume										
PM Peak Volume										

Comments:

Report generated on 10/22/2018 11:52 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

Type of report: Tube Count - Volume Data

LOCATION: Sunshine Blvd south of 8th St SW
SPECIFIC LOCATION: Sunshine Blvd south of 8th St SW
CITY/STATE: Lehigh Acres, FL

QC JOB #: 14809206
DIRECTION: NB
DATE: Oct 16 2018 - Oct 16 2018

Start Time	Mon	Tue 16-Oct-18	Wed	Thu	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
6:00 PM		70				70			70	
6:15 PM		79				79			79	
6:30 PM		73				73			73	
6:45 PM		**117**				**117**			**117**	
7:00 PM		103				103			103	
7:15 PM		89				89			89	
7:30 PM		83				83			83	
7:45 PM		74				74			74	
8:00 PM		71				71			71	
8:15 PM		53				53			53	
8:30 PM		44				44			44	
8:45 PM		46				46			46	
9:00 PM		50				50			50	
9:15 PM		33				33			33	
9:30 PM		36				36			36	
9:45 PM		30				30			30	
10:00 PM		40				40			40	
10:15 PM		32				32			32	
10:30 PM		22				22			22	
10:45 PM		20				20			20	
11:00 PM		25				25			25	
11:15 PM		10				10			10	
11:30 PM		15				15			15	
11:45 PM		8				8			8	
Day Total		5171				5171			5171	
% Weekday Average		100.0%								
% Week Average		100.0%				100.0%				
AM Peak		6:15 AM				6:15 AM			6:15 AM	
Volume		123				123			123	
PM Peak		6:45 PM				6:45 PM			6:45 PM	
Volume		117				117			117	

Comments:

Report generated on 10/22/2018 11:52 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

Type of report: Tube Count - Volume Data

LOCATION: Sunshine Blvd south of 8th St SW
SPECIFIC LOCATION: Sunshine Blvd south of 8th St SW
CITY/STATE: Lehigh Acres, FL

QC JOB #: 14809206
DIRECTION: SB
DATE: Oct 16 2018 - Oct 16 2018

Start Time	Mon	Tue 16-Oct-18	Wed	Thu	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
12:00 AM		7				7			7	
12:15 AM		7				7			7	
12:30 AM		9				9			9	
12:45 AM		3				3			3	
1:00 AM		3				3			3	
1:15 AM		5				5			5	
1:30 AM		7				7			7	
1:45 AM		1				1			1	
2:00 AM		0				0			0	
2:15 AM		3				3			3	
2:30 AM		1				1			1	
2:45 AM		7				7			7	
3:00 AM		5				5			5	
3:15 AM		2				2			2	
3:30 AM		5				5			5	
3:45 AM		11				11			11	
4:00 AM		16				16			16	
4:15 AM		9				9			9	
4:30 AM		10				10			10	
4:45 AM		9				9			9	
5:00 AM		19				19			19	
5:15 AM		31				31			31	
5:30 AM		35				35			35	
5:45 AM		34				34			34	
Day Total										
% Weekday Average										
% Week Average										
AM Peak										
Volume										
PM Peak										
Volume										

Comments:

Report generated on 10/22/2018 11:52 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

Type of report: Tube Count - Volume Data

LOCATION: Sunshine Blvd south of 8th St SW
SPECIFIC LOCATION: Sunshine Blvd south of 8th St SW
CITY/STATE: Lehigh Acres, FL

QC JOB #: 14809206
DIRECTION: SB
DATE: Oct 16 2018 - Oct 16 2018

Start Time	Mon	Tue 16-Oct-18	Wed	Thu	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
6:00 AM		52				52			52	
6:15 AM		46				46			46	
6:30 AM		57				57			57	
6:45 AM		41				41			41	
7:00 AM		59				59			59	
7:15 AM		62				62			62	
7:30 AM		**69**				**69**			**69**	
7:45 AM		59				59			59	
8:00 AM		60				60			60	
8:15 AM		48				48			48	
8:30 AM		50				50			50	
8:45 AM		63				63			63	
9:00 AM		55				55			55	
9:15 AM		45				45			45	
9:30 AM		60				60			60	
9:45 AM		55				55			55	
10:00 AM		52				52			52	
10:15 AM		47				47			47	
10:30 AM		49				49			49	
10:45 AM		46				46			46	
11:00 AM		50				50			50	
11:15 AM		61				61			61	
11:30 AM		52				52			52	
11:45 AM		43				43			43	
Day Total										
% Weekday Average										
% Week Average										
AM Peak Volume										
PM Peak Volume										

Comments:

Report generated on 10/22/2018 11:52 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

Type of report: Tube Count - Volume Data

LOCATION: Sunshine Blvd south of 8th St SW
SPECIFIC LOCATION: Sunshine Blvd south of 8th St SW
CITY/STATE: Lehigh Acres, FL

QC JOB #: 14809206
DIRECTION: SB
DATE: Oct 16 2018 - Oct 16 2018

Start Time	Mon	Tue 16-Oct-18	Wed	Thu	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
12:00 PM		53				53			53	
12:15 PM		61				61			61	
12:30 PM		45				45			45	
12:45 PM		46				46			46	
1:00 PM		57				57			57	
1:15 PM		62				62			62	
1:30 PM		56				56			56	
1:45 PM		77				77			77	
2:00 PM		80				80			80	
2:15 PM		73				73			73	
2:30 PM		59				59			59	
2:45 PM		60				60			60	
3:00 PM		47				47			47	
3:15 PM		71				71			71	
3:30 PM		70				70			70	
3:45 PM		84				84			84	
4:00 PM		82				82			82	
4:15 PM		120				120			120	
4:30 PM		83				83			83	
4:45 PM		74				74			74	
5:00 PM		101				101			101	
5:15 PM		96				96			96	
5:30 PM		**125**				**125**			**125**	
5:45 PM		117				117			117	
Day Total										
% Weekday Average										
% Week Average										
AM Peak Volume										
PM Peak Volume										

Comments:

Report generated on 10/22/2018 11:52 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

Type of report: Tube Count - Volume Data

LOCATION: Sunshine Blvd south of 8th St SW
SPECIFIC LOCATION: Sunshine Blvd south of 8th St SW
CITY/STATE: Lehigh Acres, FL

QC JOB #: 14809206
DIRECTION: SB
DATE: Oct 16 2018 - Oct 16 2018

Start Time	Mon	Tue 16-Oct-18	Wed	Thu	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
6:00 PM		94				94			94	
6:15 PM		102				102			102	
6:30 PM		105				105			105	
6:45 PM		80				80			80	
7:00 PM		66				66			66	
7:15 PM		87				87			87	
7:30 PM		78				78			78	
7:45 PM		68				68			68	
8:00 PM		68				68			68	
8:15 PM		61				61			61	
8:30 PM		48				48			48	
8:45 PM		55				55			55	
9:00 PM		65				65			65	
9:15 PM		51				51			51	
9:30 PM		35				35			35	
9:45 PM		35				35			35	
10:00 PM		40				40			40	
10:15 PM		21				21			21	
10:30 PM		17				17			17	
10:45 PM		28				28			28	
11:00 PM		23				23			23	
11:15 PM		5				5			5	
11:30 PM		14				14			14	
11:45 PM		7				7			7	
Day Total		4572				4572			4572	
% Weekday Average		100.0%								
% Week Average		100.0%				100.0%				
AM Peak		7:30 AM				7:30 AM			7:30 AM	
Volume		69				69			69	
PM Peak		5:30 PM				5:30 PM			5:30 PM	
Volume		125				125			125	

Comments:

Report generated on 10/22/2018 11:52 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

Type of report: Tube Count - Volume Data

LOCATION: 8th St SW east of Sunshine Blvd
SPECIFIC LOCATION: 8th St SW east of Sunshine Blvd
CITY/STATE: Lehigh Acres, FL

QC JOB #: 14809207
DIRECTION: EB
DATE: Oct 16 2018 - Oct 16 2018

Start Time	Mon	Tue 16-Oct-18	Wed	Thu	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
12:00 AM		4				4			4	
12:15 AM		6				6			6	
12:30 AM		4				4			4	
12:45 AM		3				3			3	
1:00 AM		0				0			0	
1:15 AM		0				0			0	
1:30 AM		1				1			1	
1:45 AM		2				2			2	
2:00 AM		0				0			0	
2:15 AM		1				1			1	
2:30 AM		2				2			2	
2:45 AM		0				0			0	
3:00 AM		0				0			0	
3:15 AM		1				1			1	
3:30 AM		0				0			0	
3:45 AM		3				3			3	
4:00 AM		0				0			0	
4:15 AM		0				0			0	
4:30 AM		1				1			1	
4:45 AM		2				2			2	
5:00 AM		1				1			1	
5:15 AM		3				3			3	
5:30 AM		4				4			4	
5:45 AM		9				9			9	
Day Total										
% Weekday Average										
% Week Average										
AM Peak Volume										
PM Peak Volume										

Comments:

Report generated on 10/22/2018 11:52 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

Type of report: Tube Count - Volume Data

LOCATION: 8th St SW east of Sunshine Blvd
SPECIFIC LOCATION: 8th St SW east of Sunshine Blvd
CITY/STATE: Lehigh Acres, FL

QC JOB #: 14809207
DIRECTION: EB
DATE: Oct 16 2018 - Oct 16 2018

Start Time	Mon	Tue 16-Oct-18	Wed	Thu	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
6:00 AM		**23**				**23**			**23**	
6:15 AM		19				19			19	
6:30 AM		12				12			12	
6:45 AM		7				7			7	
7:00 AM		18				18			18	
7:15 AM		6				6			6	
7:30 AM		7				7			7	
7:45 AM		6				6			6	
8:00 AM		15				15			15	
8:15 AM		13				13			13	
8:30 AM		13				13			13	
8:45 AM		6				6			6	
9:00 AM		13				13			13	
9:15 AM		14				14			14	
9:30 AM		14				14			14	
9:45 AM		12				12			12	
10:00 AM		17				17			17	
10:15 AM		16				16			16	
10:30 AM		11				11			11	
10:45 AM		14				14			14	
11:00 AM		14				14			14	
11:15 AM		11				11			11	
11:30 AM		11				11			11	
11:45 AM		8				8			8	
Day Total										
% Weekday Average										
% Week Average										
AM Peak Volume										
PM Peak Volume										

Comments:

Report generated on 10/22/2018 11:52 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

Type of report: Tube Count - Volume Data

LOCATION: 8th St SW east of Sunshine Blvd
SPECIFIC LOCATION: 8th St SW east of Sunshine Blvd
CITY/STATE: Lehigh Acres, FL

QC JOB #: 14809207
DIRECTION: EB
DATE: Oct 16 2018 - Oct 16 2018

Start Time	Mon	Tue 16-Oct-18	Wed	Thu	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
12:00 PM		13				13			13	
12:15 PM		13				13			13	
12:30 PM		18				18			18	
12:45 PM		9				9			9	
1:00 PM		7				7			7	
1:15 PM		12				12			12	
1:30 PM		10				10			10	
1:45 PM		19				19			19	
2:00 PM		22				22			22	
2:15 PM		19				19			19	
2:30 PM		24				24			24	
2:45 PM		14				14			14	
3:00 PM		18				18			18	
3:15 PM		19				19			19	
3:30 PM		29				29			29	
3:45 PM		37				37			37	
4:00 PM		32				32			32	
4:15 PM		37				37			37	
4:30 PM		37				37			37	
4:45 PM		32				32			32	
5:00 PM		43				43			43	
5:15 PM		32				32			32	
5:30 PM		37				37			37	
5:45 PM		46				46			46	
Day Total										
% Weekday Average										
% Week Average										
AM Peak Volume										
PM Peak Volume										

Comments:

Report generated on 10/22/2018 11:52 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

Type of report: Tube Count - Volume Data

LOCATION: 8th St SW east of Sunshine Blvd
SPECIFIC LOCATION: 8th St SW east of Sunshine Blvd
CITY/STATE: Lehigh Acres, FL

QC JOB #: 14809207
DIRECTION: EB
DATE: Oct 16 2018 - Oct 16 2018

Start Time	Mon	Tue 16-Oct-18	Wed	Thu	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
6:00 PM		**47**				**47**			**47**	
6:15 PM		32				32			32	
6:30 PM		32				32			32	
6:45 PM		32				32			32	
7:00 PM		29				29			29	
7:15 PM		25				25			25	
7:30 PM		30				30			30	
7:45 PM		23				23			23	
8:00 PM		22				22			22	
8:15 PM		19				19			19	
8:30 PM		27				27			27	
8:45 PM		20				20			20	
9:00 PM		19				19			19	
9:15 PM		9				9			9	
9:30 PM		12				12			12	
9:45 PM		9				9			9	
10:00 PM		16				16			16	
10:15 PM		4				4			4	
10:30 PM		10				10			10	
10:45 PM		6				6			6	
11:00 PM		4				4			4	
11:15 PM		3				3			3	
11:30 PM		4				4			4	
11:45 PM		3				3			3	
Day Total		1363				1363			1363	
% Weekday Average		100.0%								
% Week Average		100.0%				100.0%				
AM Peak		6:00 AM				6:00 AM			6:00 AM	
Volume		23				23			23	
PM Peak		6:00 PM				6:00 PM			6:00 PM	
Volume		47				47			47	

Comments:

Report generated on 10/22/2018 11:52 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

Type of report: Tube Count - Volume Data

LOCATION: 8th St SW east of Sunshine Blvd
SPECIFIC LOCATION: 8th St SW east of Sunshine Blvd
CITY/STATE: Lehigh Acres, FL

QC JOB #: 14809207
DIRECTION: WB
DATE: Oct 16 2018 - Oct 16 2018

Start Time	Mon	Tue 16-Oct-18	Wed	Thu	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
12:00 AM		0				0			0	
12:15 AM		0				0			0	
12:30 AM		1				1			1	
12:45 AM		0				0			0	
1:00 AM		2				2			2	
1:15 AM		0				0			0	
1:30 AM		1				1			1	
1:45 AM		1				1			1	
2:00 AM		0				0			0	
2:15 AM		0				0			0	
2:30 AM		2				2			2	
2:45 AM		3				3			3	
3:00 AM		0				0			0	
3:15 AM		0				0			0	
3:30 AM		3				3			3	
3:45 AM		5				5			5	
4:00 AM		3				3			3	
4:15 AM		4				4			4	
4:30 AM		9				9			9	
4:45 AM		8				8			8	
5:00 AM		7				7			7	
5:15 AM		18				18			18	
5:30 AM		30				30			30	
5:45 AM		32				32			32	
Day Total										
% Weekday Average										
% Week Average										
AM Peak Volume										
PM Peak Volume										

Comments:

Report generated on 10/22/2018 11:52 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

Type of report: Tube Count - Volume Data

LOCATION: 8th St SW east of Sunshine Blvd
SPECIFIC LOCATION: 8th St SW east of Sunshine Blvd
CITY/STATE: Lehigh Acres, FL

QC JOB #: 14809207
DIRECTION: WB
DATE: Oct 16 2018 - Oct 16 2018

Start Time	Mon	Tue 16-Oct-18	Wed	Thu	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
6:00 AM		58				58			58	
6:15 AM		**64**				**64**			**64**	
6:30 AM		50				50			50	
6:45 AM		44				44			44	
7:00 AM		30				30			30	
7:15 AM		29				29			29	
7:30 AM		28				28			28	
7:45 AM		30				30			30	
8:00 AM		22				22			22	
8:15 AM		24				24			24	
8:30 AM		20				20			20	
8:45 AM		21				21			21	
9:00 AM		33				33			33	
9:15 AM		21				21			21	
9:30 AM		13				13			13	
9:45 AM		11				11			11	
10:00 AM		12				12			12	
10:15 AM		10				10			10	
10:30 AM		12				12			12	
10:45 AM		12				12			12	
11:00 AM		12				12			12	
11:15 AM		10				10			10	
11:30 AM		12				12			12	
11:45 AM		16				16			16	
Day Total										
% Weekday Average										
% Week Average										
AM Peak Volume										
PM Peak Volume										

Comments:

Report generated on 10/22/2018 11:52 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

Type of report: Tube Count - Volume Data

LOCATION: 8th St SW east of Sunshine Blvd
SPECIFIC LOCATION: 8th St SW east of Sunshine Blvd
CITY/STATE: Lehigh Acres, FL

QC JOB #: 14809207
DIRECTION: WB
DATE: Oct 16 2018 - Oct 16 2018

Start Time	Mon	Tue 16-Oct-18	Wed	Thu	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
12:00 PM		12				12			12	
12:15 PM		12				12			12	
12:30 PM		9				9			9	
12:45 PM		18				18			18	
1:00 PM		15				15			15	
1:15 PM		10				10			10	
1:30 PM		16				16			16	
1:45 PM		15				15			15	
2:00 PM		17				17			17	
2:15 PM		25				25			25	
2:30 PM		19				19			19	
2:45 PM		8				8			8	
3:00 PM		11				11			11	
3:15 PM		17				17			17	
3:30 PM		18				18			18	
3:45 PM		13				13			13	
4:00 PM		**26**				**26**			**26**	
4:15 PM		13				13			13	
4:30 PM		15				15			15	
4:45 PM		9				9			9	
5:00 PM		18				18			18	
5:15 PM		14				14			14	
5:30 PM		16				16			16	
5:45 PM		16				16			16	
Day Total										
% Weekday Average										
% Week Average										
AM Peak Volume										
PM Peak Volume										

Comments:

Report generated on 10/22/2018 11:52 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

Type of report: Tube Count - Volume Data

LOCATION: 8th St SW east of Sunshine Blvd
SPECIFIC LOCATION: 8th St SW east of Sunshine Blvd
CITY/STATE: Lehigh Acres, FL

QC JOB #: 14809207
DIRECTION: WB
DATE: Oct 16 2018 - Oct 16 2018

Start Time	Mon	Tue 16-Oct-18	Wed	Thu	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
6:00 PM		21				21			21	
6:15 PM		11				11			11	
6:30 PM		15				15			15	
6:45 PM		18				18			18	
7:00 PM		6				6			6	
7:15 PM		11				11			11	
7:30 PM		16				16			16	
7:45 PM		13				13			13	
8:00 PM		12				12			12	
8:15 PM		9				9			9	
8:30 PM		7				7			7	
8:45 PM		8				8			8	
9:00 PM		8				8			8	
9:15 PM		4				4			4	
9:30 PM		9				9			9	
9:45 PM		4				4			4	
10:00 PM		6				6			6	
10:15 PM		6				6			6	
10:30 PM		2				2			2	
10:45 PM		3				3			3	
11:00 PM		2				2			2	
11:15 PM		4				4			4	
11:30 PM		2				2			2	
11:45 PM		2				2			2	
Day Total		1284				1284			1284	
% Weekday Average		100.0%								
% Week Average		100.0%				100.0%				
AM Peak		6:15 AM				6:15 AM			6:15 AM	
Volume		64				64			64	
PM Peak		4:00 PM				4:00 PM			4:00 PM	
Volume		26				26			26	

Comments:

Report generated on 10/22/2018 11:52 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

Type of report: Tube Count - Volume Data

LOCATION: 8th St SW west of Sunshine Blvd
SPECIFIC LOCATION: 8th St SW west of Sunshine Blvd
CITY/STATE: Lehigh Acres, FL

QC JOB #: 14809208
DIRECTION: EB
DATE: Oct 16 2018 - Oct 16 2018

Start Time	Mon	Tue 16-Oct-18	Wed	Thu	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
12:00 AM		3				3			3	
12:15 AM		7				7			7	
12:30 AM		3				3			3	
12:45 AM		6				6			6	
1:00 AM		0				0			0	
1:15 AM		2				2			2	
1:30 AM		1				1			1	
1:45 AM		3				3			3	
2:00 AM		0				0			0	
2:15 AM		0				0			0	
2:30 AM		0				0			0	
2:45 AM		2				2			2	
3:00 AM		0				0			0	
3:15 AM		1				1			1	
3:30 AM		2				2			2	
3:45 AM		1				1			1	
4:00 AM		1				1			1	
4:15 AM		2				2			2	
4:30 AM		3				3			3	
4:45 AM		6				6			6	
5:00 AM		4				4			4	
5:15 AM		8				8			8	
5:30 AM		4				4			4	
5:45 AM		14				14			14	
Day Total										
% Weekday Average										
% Week Average										
AM Peak Volume										
PM Peak Volume										

Comments:

Report generated on 10/22/2018 11:52 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

Type of report: Tube Count - Volume Data

LOCATION: 8th St SW west of Sunshine Blvd
SPECIFIC LOCATION: 8th St SW west of Sunshine Blvd
CITY/STATE: Lehigh Acres, FL

QC JOB #: 14809208
DIRECTION: EB
DATE: Oct 16 2018 - Oct 16 2018

Start Time	Mon	Tue 16-Oct-18	Wed	Thu	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
6:00 AM		16				16			16	
6:15 AM		14				14			14	
6:30 AM		19				19			19	
6:45 AM		15				15			15	
7:00 AM		21				21			21	
7:15 AM		23				23			23	
7:30 AM		20				20			20	
7:45 AM		22				22			22	
8:00 AM		23				23			23	
8:15 AM		19				19			19	
8:30 AM		18				18			18	
8:45 AM		22				22			22	
9:00 AM		20				20			20	
9:15 AM		28				28			28	
9:30 AM		26				26			26	
9:45 AM		26				26			26	
10:00 AM		31				31			31	
10:15 AM		26				26			26	
10:30 AM		24				24			24	
10:45 AM		17				17			17	
11:00 AM		22				22			22	
11:15 AM		18				18			18	
11:30 AM		15				15			15	
11:45 AM		**33**				**33**			**33**	
Day Total										
% Weekday Average										
% Week Average										
AM Peak Volume										
PM Peak Volume										

Comments:

Report generated on 10/22/2018 11:52 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

Type of report: Tube Count - Volume Data

LOCATION: 8th St SW west of Sunshine Blvd
SPECIFIC LOCATION: 8th St SW west of Sunshine Blvd
CITY/STATE: Lehigh Acres, FL

QC JOB #: 14809208
DIRECTION: EB
DATE: Oct 16 2018 - Oct 16 2018

Start Time	Mon	Tue 16-Oct-18	Wed	Thu	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
12:00 PM		16				16			16	
12:15 PM		23				23			23	
12:30 PM		25				25			25	
12:45 PM		11				11			11	
1:00 PM		14				14			14	
1:15 PM		16				16			16	
1:30 PM		27				27			27	
1:45 PM		28				28			28	
2:00 PM		33				33			33	
2:15 PM		23				23			23	
2:30 PM		31				31			31	
2:45 PM		27				27			27	
3:00 PM		23				23			23	
3:15 PM		25				25			25	
3:30 PM		38				38			38	
3:45 PM		51				51			51	
4:00 PM		46				46			46	
4:15 PM		49				49			49	
4:30 PM		57				57			57	
4:45 PM		71				71			71	
5:00 PM		60				60			60	
5:15 PM		62				62			62	
5:30 PM		54				54			54	
5:45 PM		61				61			61	
Day Total										
% Weekday Average										
% Week Average										
AM Peak Volume										
PM Peak Volume										

Comments:

Report generated on 10/22/2018 11:52 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

Type of report: Tube Count - Volume Data

LOCATION: 8th St SW west of Sunshine Blvd
SPECIFIC LOCATION: 8th St SW west of Sunshine Blvd
CITY/STATE: Lehigh Acres, FL

QC JOB #: 14809208
DIRECTION: EB
DATE: Oct 16 2018 - Oct 16 2018

Start Time	Mon	Tue 16-Oct-18	Wed	Thu	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
6:00 PM		**72**				**72**			**72**	
6:15 PM		60				60			60	
6:30 PM		49				49			49	
6:45 PM		59				59			59	
7:00 PM		42				42			42	
7:15 PM		37				37			37	
7:30 PM		26				26			26	
7:45 PM		28				28			28	
8:00 PM		31				31			31	
8:15 PM		26				26			26	
8:30 PM		30				30			30	
8:45 PM		24				24			24	
9:00 PM		30				30			30	
9:15 PM		18				18			18	
9:30 PM		12				12			12	
9:45 PM		16				16			16	
10:00 PM		21				21			21	
10:15 PM		7				7			7	
10:30 PM		11				11			11	
10:45 PM		7				7			7	
11:00 PM		11				11			11	
11:15 PM		3				3			3	
11:30 PM		4				4			4	
11:45 PM		3				3			3	
Day Total		2089				2089			2089	
% Weekday Average		100.0%								
% Week Average		100.0%				100.0%				
AM Peak		11:45 AM				11:45 AM			11:45 AM	
Volume		33				33			33	
PM Peak		6:00 PM				6:00 PM			6:00 PM	
Volume		72				72			72	

Comments:

Report generated on 10/22/2018 11:52 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

Type of report: Tube Count - Volume Data

LOCATION: 8th St SW west of Sunshine Blvd
SPECIFIC LOCATION: 8th St SW west of Sunshine Blvd
CITY/STATE: Lehigh Acres, FL

QC JOB #: 14809208
DIRECTION: WB
DATE: Oct 16 2018 - Oct 16 2018

Start Time	Mon	Tue 16-Oct-18	Wed	Thu	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
12:00 AM		12				12			12	
12:15 AM		5				5			5	
12:30 AM		4				4			4	
12:45 AM		4				4			4	
1:00 AM		6				6			6	
1:15 AM		1				1			1	
1:30 AM		1				1			1	
1:45 AM		0				0			0	
2:00 AM		1				1			1	
2:15 AM		0				0			0	
2:30 AM		1				1			1	
2:45 AM		4				4			4	
3:00 AM		2				2			2	
3:15 AM		1				1			1	
3:30 AM		1				1			1	
3:45 AM		3				3			3	
4:00 AM		3				3			3	
4:15 AM		2				2			2	
4:30 AM		5				5			5	
4:45 AM		5				5			5	
5:00 AM		2				2			2	
5:15 AM		13				13			13	
5:30 AM		16				16			16	
5:45 AM		31				31			31	
Day Total										
% Weekday Average										
% Week Average										
AM Peak Volume										
PM Peak Volume										

Comments:

Report generated on 10/22/2018 11:52 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

Type of report: Tube Count - Volume Data

LOCATION: 8th St SW west of Sunshine Blvd
SPECIFIC LOCATION: 8th St SW west of Sunshine Blvd
CITY/STATE: Lehigh Acres, FL

QC JOB #: 14809208
DIRECTION: WB
DATE: Oct 16 2018 - Oct 16 2018

Start Time	Mon	Tue 16-Oct-18	Wed	Thu	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
6:00 AM		68				68			68	
6:15 AM		**98**				**98**			**98**	
6:30 AM		70				70			70	
6:45 AM		76				76			76	
7:00 AM		77				77			77	
7:15 AM		63				63			63	
7:30 AM		46				46			46	
7:45 AM		41				41			41	
8:00 AM		37				37			37	
8:15 AM		23				23			23	
8:30 AM		21				21			21	
8:45 AM		28				28			28	
9:00 AM		35				35			35	
9:15 AM		22				22			22	
9:30 AM		21				21			21	
9:45 AM		21				21			21	
10:00 AM		14				14			14	
10:15 AM		14				14			14	
10:30 AM		16				16			16	
10:45 AM		29				29			29	
11:00 AM		28				28			28	
11:15 AM		26				26			26	
11:30 AM		24				24			24	
11:45 AM		28				28			28	
Day Total										
% Weekday Average										
% Week Average										
AM Peak Volume										
PM Peak Volume										

Comments:

Report generated on 10/22/2018 11:52 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

Type of report: Tube Count - Volume Data

LOCATION: 8th St SW west of Sunshine Blvd
SPECIFIC LOCATION: 8th St SW west of Sunshine Blvd
CITY/STATE: Lehigh Acres, FL

QC JOB #: 14809208
DIRECTION: WB
DATE: Oct 16 2018 - Oct 16 2018

Start Time	Mon	Tue 16-Oct-18	Wed	Thu	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
12:00 PM		20				20			20	
12:15 PM		22				22			22	
12:30 PM		27				27			27	
12:45 PM		24				24			24	
1:00 PM		28				28			28	
1:15 PM		22				22			22	
1:30 PM		30				30			30	
1:45 PM		26				26			26	
2:00 PM		23				23			23	
2:15 PM		37				37			37	
2:30 PM		29				29			29	
2:45 PM		33				33			33	
3:00 PM		34				34			34	
3:15 PM		23				23			23	
3:30 PM		29				29			29	
3:45 PM		16				16			16	
4:00 PM		45				45			45	
4:15 PM		40				40			40	
4:30 PM		29				29			29	
4:45 PM		39				39			39	
5:00 PM		39				39			39	
5:15 PM		**49**				**49**			**49**	
5:30 PM		37				37			37	
5:45 PM		41				41			41	
Day Total										
% Weekday Average										
% Week Average										
AM Peak Volume										
PM Peak Volume										

Comments:

Report generated on 10/22/2018 11:52 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

Type of report: Tube Count - Volume Data

LOCATION: 8th St SW west of Sunshine Blvd
SPECIFIC LOCATION: 8th St SW west of Sunshine Blvd
CITY/STATE: Lehigh Acres, FL

QC JOB #: 14809208
DIRECTION: WB
DATE: Oct 16 2018 - Oct 16 2018

Start Time	Mon	Tue 16-Oct-18	Wed	Thu	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
6:00 PM		45				45			45	
6:15 PM		44				44			44	
6:30 PM		40				40			40	
6:45 PM		41				41			41	
7:00 PM		41				41			41	
7:15 PM		39				39			39	
7:30 PM		38				38			38	
7:45 PM		37				37			37	
8:00 PM		20				20			20	
8:15 PM		34				34			34	
8:30 PM		24				24			24	
8:45 PM		23				23			23	
9:00 PM		24				24			24	
9:15 PM		25				25			25	
9:30 PM		31				31			31	
9:45 PM		14				14			14	
10:00 PM		12				12			12	
10:15 PM		12				12			12	
10:30 PM		8				8			8	
10:45 PM		17				17			17	
11:00 PM		10				10			10	
11:15 PM		6				6			6	
11:30 PM		11				11			11	
11:45 PM		3				3			3	
Day Total		2390				2390			2390	
% Weekday Average		100.0%								
% Week Average		100.0%				100.0%				
AM Peak		6:15 AM				6:15 AM			6:15 AM	
Volume		98				98			98	
PM Peak		5:15 PM				5:15 PM			5:15 PM	
Volume		49				49			49	

Comments:

Report generated on 10/22/2018 11:52 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

Appendix B: FDOT 2017 Peak Season Factor Category Report (Excerpt)

2017 PEAK SEASON FACTOR CATEGORY REPORT - REPORT TYPE: ALL
CATEGORY: 1247 LEHIGH ACRES

MOCF: 0.91

WEEK	DATES	SF	PSCF
1	01/01/2017 - 01/07/2017	1.17	1.29
2	01/08/2017 - 01/14/2017	1.07	1.18
3	01/15/2017 - 01/21/2017	0.96	1.05
* 4	01/22/2017 - 01/28/2017	0.94	1.03
* 5	01/29/2017 - 02/04/2017	0.93	1.02
* 6	02/05/2017 - 02/11/2017	0.91	1.00
* 7	02/12/2017 - 02/18/2017	0.89	0.98
* 8	02/19/2017 - 02/25/2017	0.89	0.98
* 9	02/26/2017 - 03/04/2017	0.89	0.98
*10	03/05/2017 - 03/11/2017	0.88	0.97
*11	03/12/2017 - 03/18/2017	0.88	0.97
*12	03/19/2017 - 03/25/2017	0.90	0.99
*13	03/26/2017 - 04/01/2017	0.91	1.00
*14	04/02/2017 - 04/08/2017	0.93	1.02
*15	04/09/2017 - 04/15/2017	0.94	1.03
*16	04/16/2017 - 04/22/2017	0.95	1.04
17	04/23/2017 - 04/29/2017	0.96	1.05
18	04/30/2017 - 05/06/2017	0.96	1.05
19	05/07/2017 - 05/13/2017	0.97	1.07
20	05/14/2017 - 05/20/2017	0.98	1.08
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	1.03	1.13
24	06/11/2017 - 06/17/2017	1.05	1.15
25	06/18/2017 - 06/24/2017	1.06	1.16
26	06/25/2017 - 07/01/2017	1.06	1.16
27	07/02/2017 - 07/08/2017	1.07	1.18
28	07/09/2017 - 07/15/2017	1.07	1.18
29	07/16/2017 - 07/22/2017	1.07	1.18
30	07/23/2017 - 07/29/2017	1.07	1.18
31	07/30/2017 - 08/05/2017	1.06	1.16
32	08/06/2017 - 08/12/2017	1.06	1.16
33	08/13/2017 - 08/19/2017	1.06	1.16
34	08/20/2017 - 08/26/2017	1.12	1.23
35	08/27/2017 - 09/02/2017	1.18	1.30
36	09/03/2017 - 09/09/2017	1.24	1.36
37	09/10/2017 - 09/16/2017	1.30	1.43
38	09/17/2017 - 09/23/2017	1.29	1.42
39	09/24/2017 - 09/30/2017	1.28	1.41
40	10/01/2017 - 10/07/2017	1.27	1.40
41	10/08/2017 - 10/14/2017	1.26	1.38
42	10/15/2017 - 10/21/2017	1.25	1.37
43	10/22/2017 - 10/28/2017	1.24	1.36
44	10/29/2017 - 11/04/2017	1.23	1.35
45	11/05/2017 - 11/11/2017	1.22	1.34
46	11/12/2017 - 11/18/2017	1.21	1.33
47	11/19/2017 - 11/25/2017	1.20	1.32
48	11/26/2017 - 12/02/2017	1.19	1.31
49	12/03/2017 - 12/09/2017	1.18	1.30
50	12/10/2017 - 12/16/2017	1.17	1.29
51	12/17/2017 - 12/23/2017	1.10	1.21
52	12/24/2017 - 12/30/2017	1.03	1.13
53	12/31/2017 - 12/31/2017	0.96	1.05

* PEAK SEASON

02-MAR-2018 15:35:05 830UPD 1_1247_PKSEASON.TXT

Appendix C: 8-Hour Raw Turning Movement Count

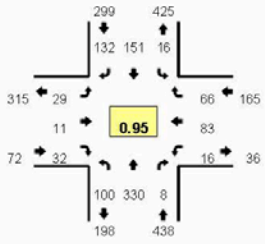
Type of peak hour being reported: Intersection Peak

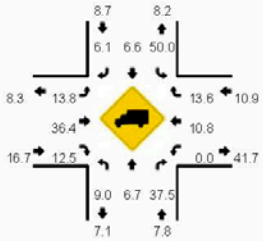
Method for determining peak hour: Total Entering Volume

LOCATION: Sunshine Blvd S -- 8th St SW
CITY/STATE: Lehigh Acres, FL

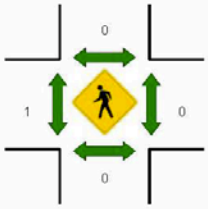
QC JOB #: 14809209
DATE: Tue, Oct 16 2018

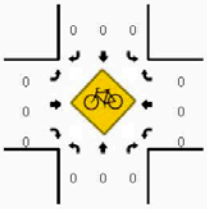
Peak-Hour: 6:15 AM -- 7:15 AM
Peak 15-Min: 6:15 AM -- 6:30 AM

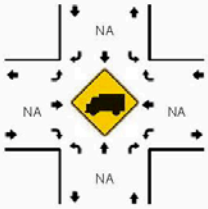


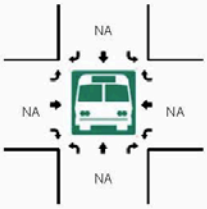


Quality Counts
TRANSPORTATION DATA COLLECTION SERVICES









15-Min Count Period Beginning At	Sunshine Blvd S (Northbound)				Sunshine Blvd S (Southbound)				8th St SW (Eastbound)				8th St SW (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
6:00 AM	19	69	4	0	4	39	35	0	5	7	5	0	7	25	17	0	236	
6:15 AM	31	85	2	0	6	35	30	0	3	3	8	0	3	23	27	0	256	
6:30 AM	12	79	3	0	3	41	34	0	9	0	7	0	5	28	18	0	239	
6:45 AM	26	86	0	0	2	31	29	0	11	3	8	0	5	16	11	1	229	960
7:00 AM	31	80	3	0	5	44	39	0	6	5	9	0	2	16	10	0	250	974
7:15 AM	20	85	2	0	1	45	27	0	12	3	10	0	5	10	11	0	231	949
7:30 AM	9	58	2	0	5	46	17	0	8	0	8	0	6	10	10	0	177	887
7:45 AM	17	85	2	0	2	46	14	0	18	1	7	0	6	8	15	0	221	879
8:00 AM	11	81	6	0	8	49	19	0	13	2	3	0	3	5	14	0	214	843
8:15 AM	5	96	6	0	3	38	10	0	13	4	7	0	2	3	18	0	205	817
8:30 AM	5	90	2	0	7	43	12	0	13	1	4	0	1	5	13	0	196	836
8:45 AM	9	70	1	0	6	51	12	0	11	1	7	0	5	8	8	0	189	804

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	124	340	8	0	24	140	120	0	12	12	32	0	12	92	108	0	1024
Heavy Trucks	24	28	4		20	12	4		0	4	12		0	12	24		144
Pedestrians		0				0				4				0			4
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 10/30/2018 6:28 AM

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

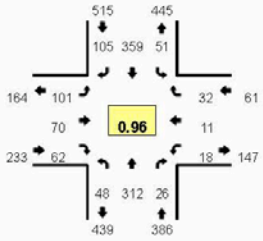
Type of peak hour being reported: Intersection Peak

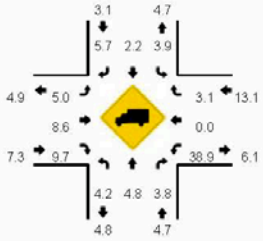
Method for determining peak hour: Total Entering Volume

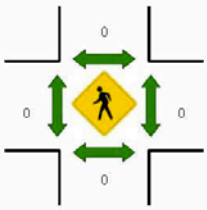
LOCATION: Sunshine Blvd S -- 8th St SW
CITY/STATE: Lehigh Acres, FL

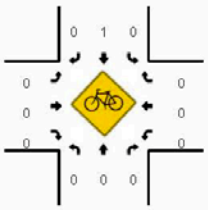
QC JOB #: 14809210
DATE: Tue, Oct 16 2018

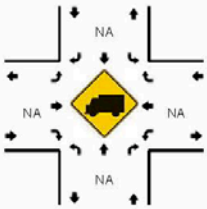
Peak-Hour: 5:00 PM -- 6:00 PM
Peak 15-Min: 5:30 PM -- 5:45 PM

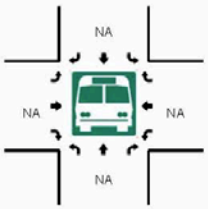












15-Min Count Period Beginning At	Sunshine Blvd S (Northbound)				Sunshine Blvd S (Southbound)				8th St SW (Eastbound)				8th St SW (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
3:00 PM	7	48	2	0	9	41	18	0	13	5	2	0	4	3	6	0	158	
3:15 PM	4	65	4	0	11	61	17	0	13	8	7	0	7	2	6	0	205	
3:30 PM	6	79	3	0	16	63	16	0	15	9	7	0	0	7	10	0	231	
3:45 PM	4	74	7	0	14	59	12	0	31	10	12	0	4	3	8	0	238	832
4:00 PM	6	80	6	0	9	70	24	0	28	12	9	0	4	12	5	0	265	939
4:15 PM	14	58	9	0	14	106	23	0	21	14	13	0	2	4	8	0	286	1020
4:30 PM	7	72	5	0	20	66	23	0	33	14	12	0	1	5	9	0	267	1056
4:45 PM	9	77	4	0	12	65	25	0	34	17	10	0	0	0	9	0	262	1080
5:00 PM	8	88	7	0	15	74	25	0	27	15	21	0	3	6	9	0	298	1113
5:15 PM	9	73	3	0	9	88	30	0	29	19	12	0	1	3	9	0	285	1112
5:30 PM	17	74	8	0	13	104	27	0	25	15	11	0	7	1	8	0	310	1155
5:45 PM	14	77	8	0	14	93	23	0	20	21	18	0	7	1	6	0	302	1195
6:00 PM	14	50	7	0	16	74	25	0	32	23	10	0	6	6	7	0	270	1167
6:15 PM	11	62	6	0	13	92	30	0	32	14	7	0	3	4	5	0	279	1161
6:30 PM	6	67	3	0	15	85	31	0	26	9	10	0	4	4	9	0	269	1120
6:45 PM	11	97	9	0	14	65	24	0	32	12	10	0	2	7	6	0	289	1107
7:00 PM	9	85	5	0	10	62	25	0	28	11	9	0	1	4	2	0	251	1088
7:15 PM	11	73	7	0	12	74	22	0	22	7	8	0	2	4	7	0	249	1058
7:30 PM	12	60	11	0	10	71	22	0	13	9	5	0	2	2	10	0	227	1016
7:45 PM	7	65	3	0	7	59	24	0	12	9	8	0	3	4	5	0	206	933

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	68	296	32	0	52	416	108	0	100	60	44	0	28	4	32	0	1240
Heavy Trucks	0	16	0		0	8	12		0	4	0		12	0	0		52
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 10/30/2018 6:28 AM

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

Appendix D – Lee County Map 3B: Future Functional Classification Map

PROPOSED INTERSECTION

MAP 3B
FUTURE FUNCTIONAL CLASSIFICATION MAP
UNINCORPORATED LEE COUNTY AND
STATE/COUNTY ROADS IN CITIES

INTERSTATE
EXPRESSWAY
ONE-WAY
2 LANES
3 LANES
4 LANES
6 LANES
8 LANES
10 LANES
ARTERIALS
COLLECTORS

INTERCHANGES
STATUS
Construction Programmed
Existing

THE LINES ON THIS PLAN REPRESENT ONLY THE GENERAL ROUTES. SPECIFIC ALIGNMENTS WILL BE DETERMINED THROUGH CORRIDOR AND DESIGN STUDIES.

N
W E
S

0 1 2 4 Miles

MAP 3B
PAGE 1 OF 1
(ADDED BY ORDINANCE # 06)

Prepared by Rob Lovell, Lee County DOT, July 18, 2006

Appendix E – Cost Opinions

Alternative 2: Two Lane Roundabout
Preliminary Construction Cost Opinion

DDAI No. 18-0047

ROADWAY					
Pay Item	Description	Unit	Qty	Unit Cost	Total Cost
101-1	Mobilization	LS	1	$50,000.00	$50,000.00
102-1	Maintenance of Traffic	LS	1	$60,000.00	$60,000.00
104-10-3	Sediment Barrier	LF	3,600	$2.00	$7,200.00
104-11	Floating Turbidity Barrier	LF	200	$15.00	$3,000.00
110-1-1	Clearing and Grubbing	LS	1	$20,000.00	$20,000.00
120-X	Earthwork	LS	1	$50,000.00	$50,000.00
160-4	Stabilization Type B (12")(LBR40)	SY	7,359	$6.00	$44,154.00
285-706	Optional Base Group 06 (Roadway) (Limerock)	SY	7,166	$20.00	$143,320.00
331-A	Asphaltic Concrete Type S-I (2.5")	TN	756	$140.00	$105,840.00
331-B	Asphaltic Concrete Type S-III (1")	TN	303	$140.00	$42,420.00
425	Drainage	LS	1	$75,000.00	$75,000.00
520-1-10	Concrete Curb and Gutter (Type F)	LF	2,445	$20.00	$48,900.00
520-2-8	Concrete Curb (Type RA)	LF	292	$35.00	$10,220.00
526-1-1	Pavers, Architectural (Roadway)	SY	887	$175.00	$155,225.00
570-1-2	Performance Turf (Sod)	SY	7,027	$2.50	$17,567.50
700-X	Lighting	LS	1	$30,000.00	$30,000.00
700-X	Signing & Marking	LS	1	$15,000.00	$15,000.00
				TOTAL	$877,846.50
				20% CONTINGENCY	$175,569.30
				ESTIMATED GRAND TOTAL	**$1,053,500**

Notes:

1. This cost opinion encompasses only items as described herein. No other construction is included.
2. This cost opinion is for on-site construction only.
3. Right of Way Acquisition, Utility Relocations, Permitting, Engineering, Environmental Impact costs, Irrigation/Landscaping, Sidewalk and demolition of structures are not included.

David Douglas Associates Inc.
1821 Victoria Avenue • Fort Myers, FL 33901
Ph: (239) 337-3330
Business License No. 7568

4 Way Stop Evaluation
Preliminary Construction Cost Opinion

DDAI No. 18-0047

ROADWAY					
Pay Item	Description	Unit	Qty	Unit Cost	Total Cost
101-1	Mobilization	LS	1	$1,250.00	$1,250.00
102-1	Maintenance of Traffic	LS	1	$2,500.00	$2,500.00
102-3	Detectable Warnings	SF	80	$0.00	$0.00
102-4	Signing & Marking	LS	1	$5,000.00	$5,000.00
				TOTAL	$8,750.00
				20% CONTINGENCY	$1,750.00
				GRAND TOTAL	**$10,500.00**

Notes:

1. This cost opinion encompasses only items as described herein. No other construction is included.
2. This cost opinion is for on-site construction only.
3. Right of Way Acquisition, Utility Relocations, Permitting, Engineering, and Environmental Impact costs are not included

David Douglas Associates Inc.
1821 Victoria Avenue • Fort Myers, FL 33901
Ph: (239) 337-3330
Business License No. 7568

Traffic Signal Evaluation
Preliminary Construction Cost Opinion

DDAI No. 18-0047

ROADWAY					
Pay Item	Description	Unit	Qty	Unit Cost	Total Cost
101-1	Mobilization	LS	1	$50,000.00	$50,000.00
102-1	Maintenance of Traffic	LS	1	$25,000.00	$25,000.00
104-10-3	Sediment Barrier	LF	3,600	$2.00	$7,200.00
104-11	Floating Turbidity Barrier	LF	200	$15.00	$3,000.00
110-1-1	Clearing and Grubbing	LS	1	$20,000.00	$20,000.00
120-X	Earthwork	LS	1	$35,000.00	$35,000.00
160-4	Stabilization Type B (12")(LBR40)	SY	2,225	$6.00	$13,350.00
285-706	Optional Base Group 06 (Roadway) (Limerock)	SY	2,106	$20.00	$42,120.00
327-70-01	Milling	SY	2,427	$2.75	$6,674.25
331-A	Asphaltic Concrete Type S-I (2.5")	TN	281	$140.00	$39,340.00
331-B	Asphaltic Concrete Type S-III (1")	TN	527	$140.00	$73,780.00
425	Drainage	LS	1	$100,000.00	$100,000.00
570-1-2	Performance Turf (Sod)	SY	11,787	$2.50	$29,467.50
632-7-1	Signalization	LS	1	$400,000.00	$400,000.00
700-X	Lighting	LS	1	$30,000.00	$30,000.00
700-X	Signing & Marking	LS	1	$15,000.00	$15,000.00
				TOTAL	$889,931.75
				20% CONTINGENCY	$177,986.35
				ESTIMATED GRAND TOTAL	**$1,068,000**

Notes:

1. This cost opinion encompasses only items as described herein. No other construction is included.
2. This cost opinion is for on-site construction only.
3. Right of Way Acquisition, Utility Relocations, Permitting, Engineering, Environmental Impact costs, Irrigation/Landscaping, Sidewalk and demolition of structures are not included.

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Appendix F – CAP-X Analysis Results Spreadsheets per FHWA

Capacity Analysis for Planning of Junctions

Input Worksheet

2018

Project Name:	*Sunshine Blvd. S. & 8th St. SW.*
Project Number:	*18-0047*
Location	*Lehigh Acres, FL*
Date	November 13, 2018

Traffic Volume Demand

	Volume (Veh/hr)				Percent (%)	
	U-Turn	**Left**	**Thru**	**Right**	Truck	Volume Growth
Eastbound	0	139	96	85	0.00%	0.00%
Westbound	0	25	16	44	0.00%	0.00%
Southbound	0	70	492	144	0.00%	0.00%
Northbound	0	66	428	36	0.00%	0.00%
Adjustment Factor	0.80	0.95		0.85		
Suggested	**0.80**	**0.95**		**0.85**		

Truck to PCE Factor	**Suggested = 2.00**	2.00
Critical Lane Volume	1600	

Equivalent Pasenger Car Volume

	Volume (Veh/hr)			
	U-Turn	**Left**	**Thru**	**Right**
Eastbound	0	139	96	85
Westbound	0	25	16	44
Southbound	0	70	492	144
Northbound	0	66	428	36

Notes:	
Left-Turn Adjustment Factor	*Conversion of left-turning vehicles to equivalent through vehicles*
Right-turn Adjustment Factor	*Conversion of right-turning vehicles to equivalent through vehicles*
U-turn Adjustment Factor	*Conversion of U-turning vehicles to equivalent through vehicles*
Truck to PCE Factor	*1 truck = X Passenger Car Equivalents*
Critical Lane Volume Sum Limit	*Saturation Value for Critical Lane Volume Sum at an intersection*

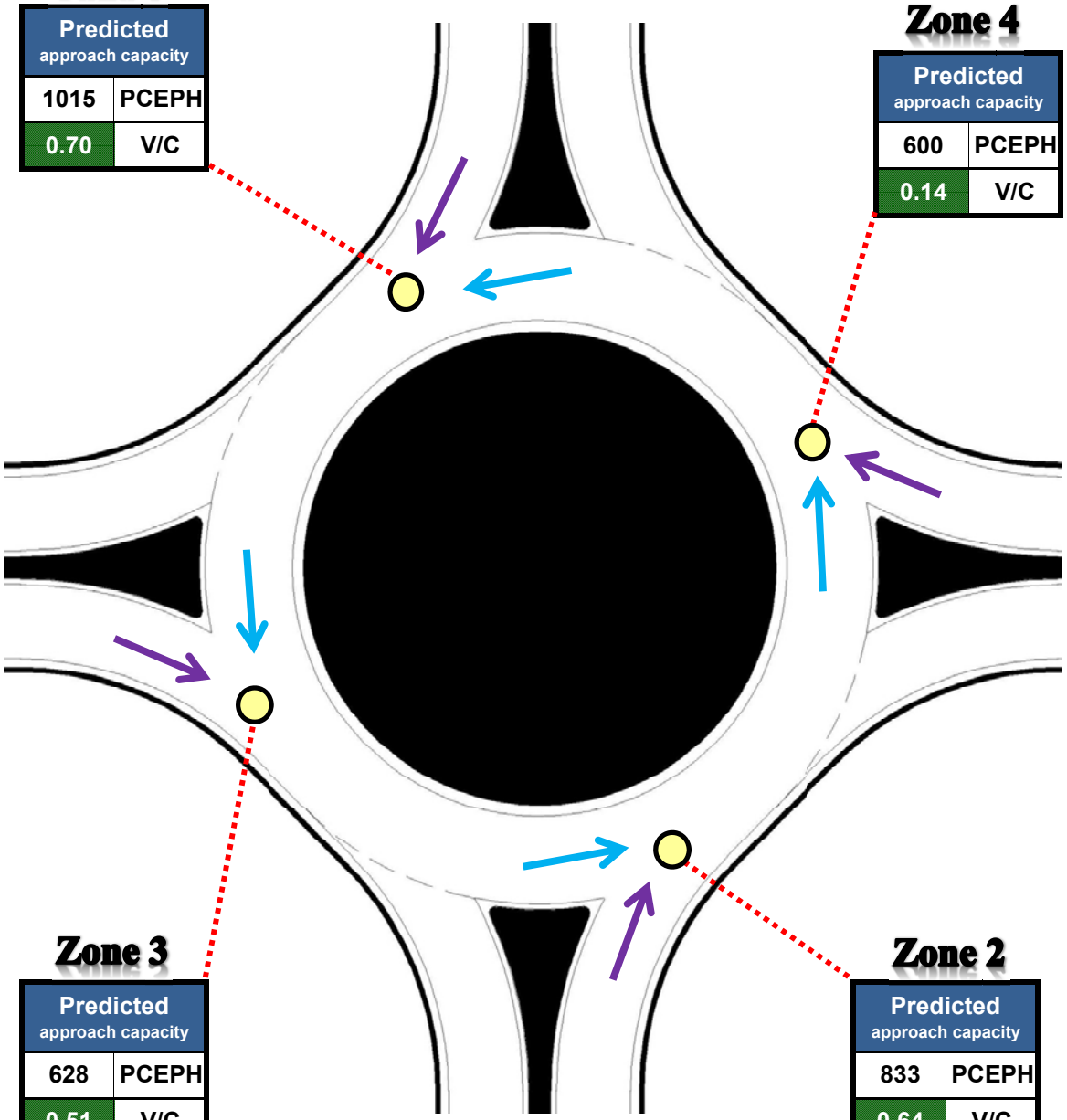
1 NS x 1 EW Roundabout

Design and Results 2018

Project Name:	*Sunshine Blvd. S. & 8th St. SW.*
Project Number:	*18-0047*
Location	*Lehigh Acres, FL*
Date	November 13, 2018

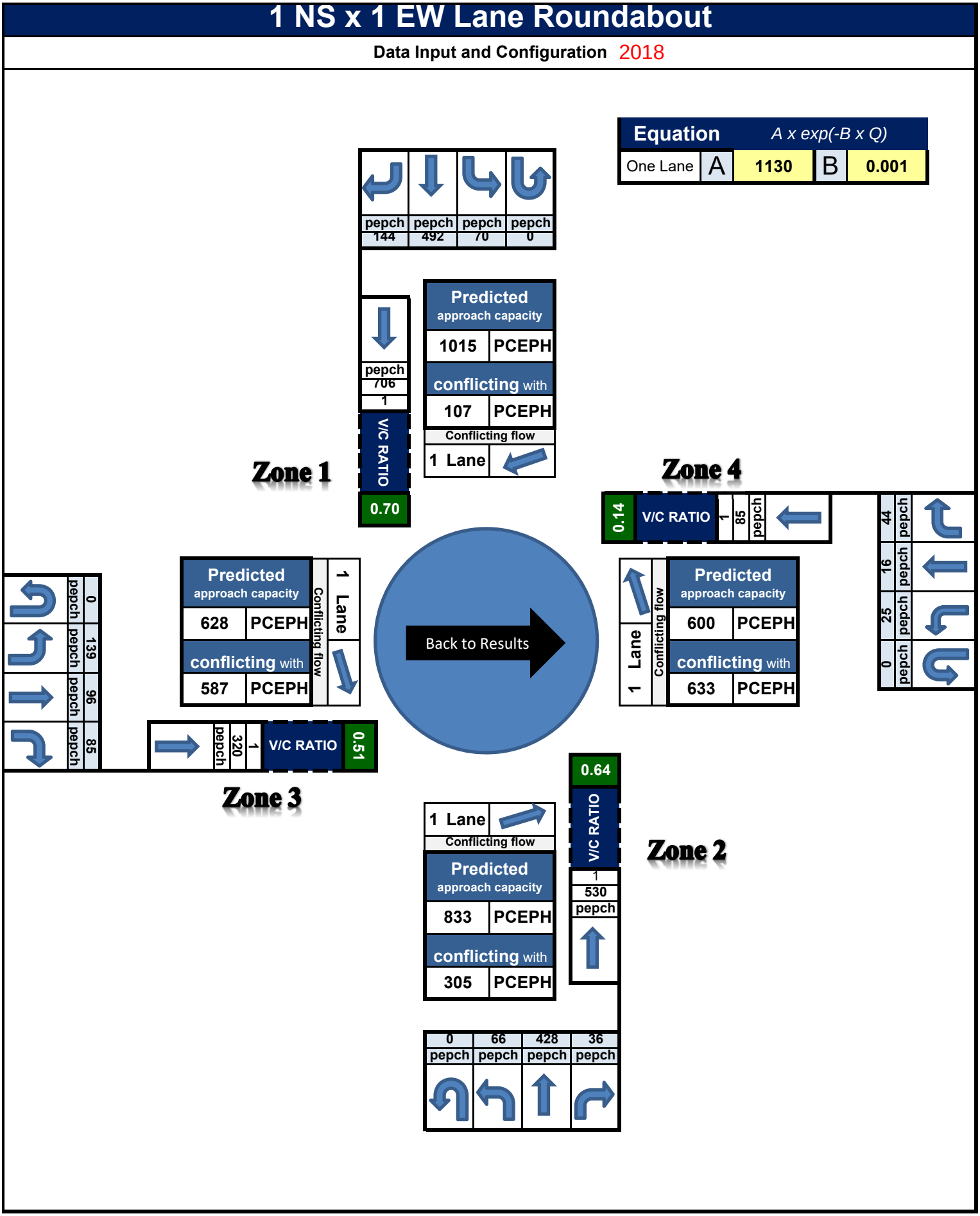
Critical Lane Volume Sum			
< 1200	**1200 - 1399**	**1400 - 1599**	**≥ 1600**

VOLUME / CAPACITY RATIO:			
Zone 1	**0.70**	**Zone 4**	**0.14**
Zone 3	**0.51**	**Zone 2**	**0.64**



1 NS x 1 EW Lane Roundabout

Data Input and Configuration 2018



2 NS x 1 EW Lane Roundabout

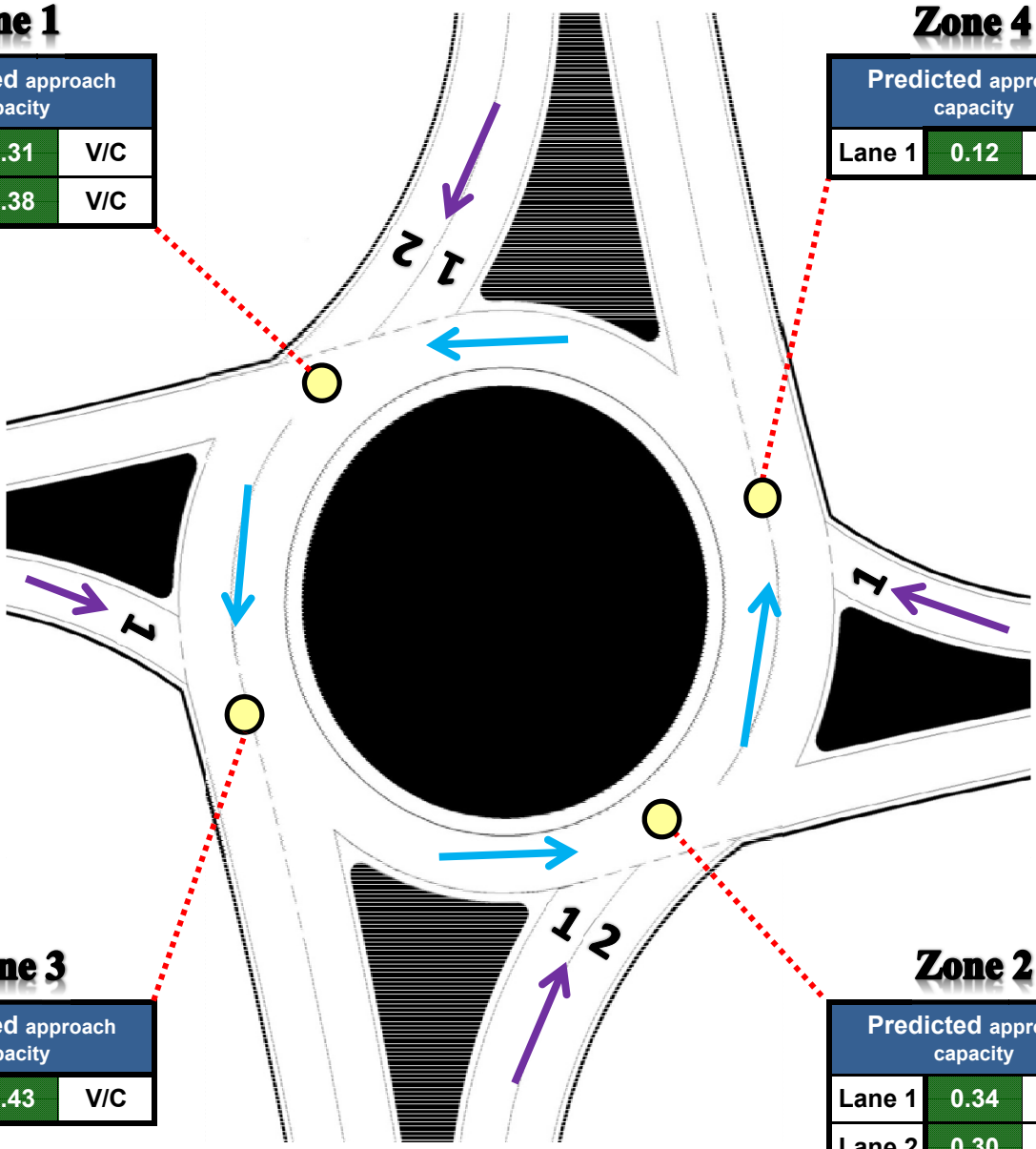
Design and Results 2018

Project Name:	*Sunshine Blvd. S. & 8th St. SW.*
Project Number:	*18-0047*
Location	*Lehigh Acres, FL*
Date	November 13, 2018

Critical Lane Volume Sum

< 1200	1200 - 1399	1400 - 1599	≥ 1600

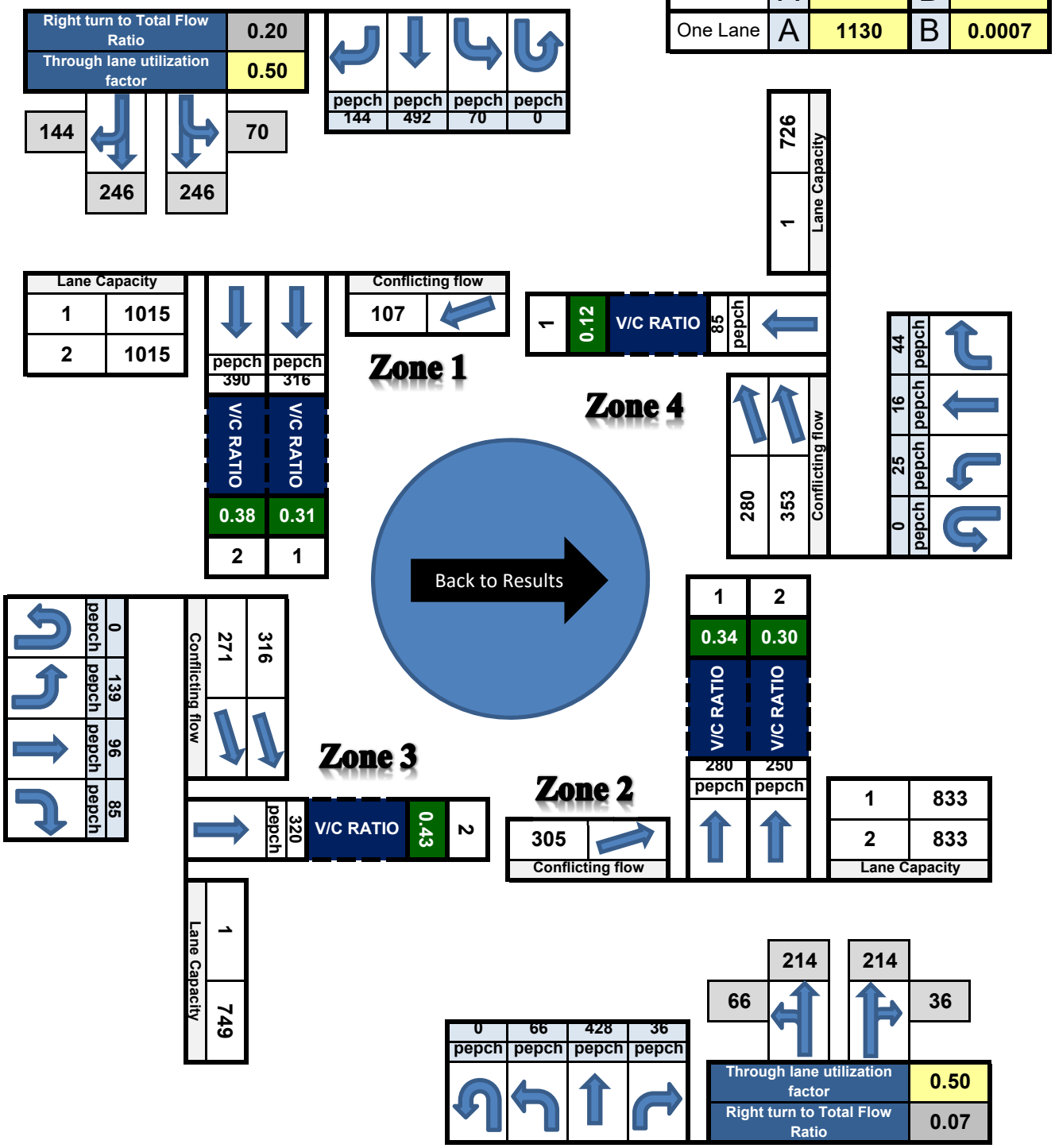
VOLUME / CAPACITY RATIO:				
Zone 1	0.38	Zone3	0.12
Zone 4	0.43	Zone 2	0.34



2 NS x 1 EW Lane Roundabout

Data Input and Configuration 2018

Equation	*A x exp(-B x Q)*			
LT Lane	A	1130	B	0.001
RT Lane	A	1130	B	0.001
One Lane	A	1130	B	0.0007

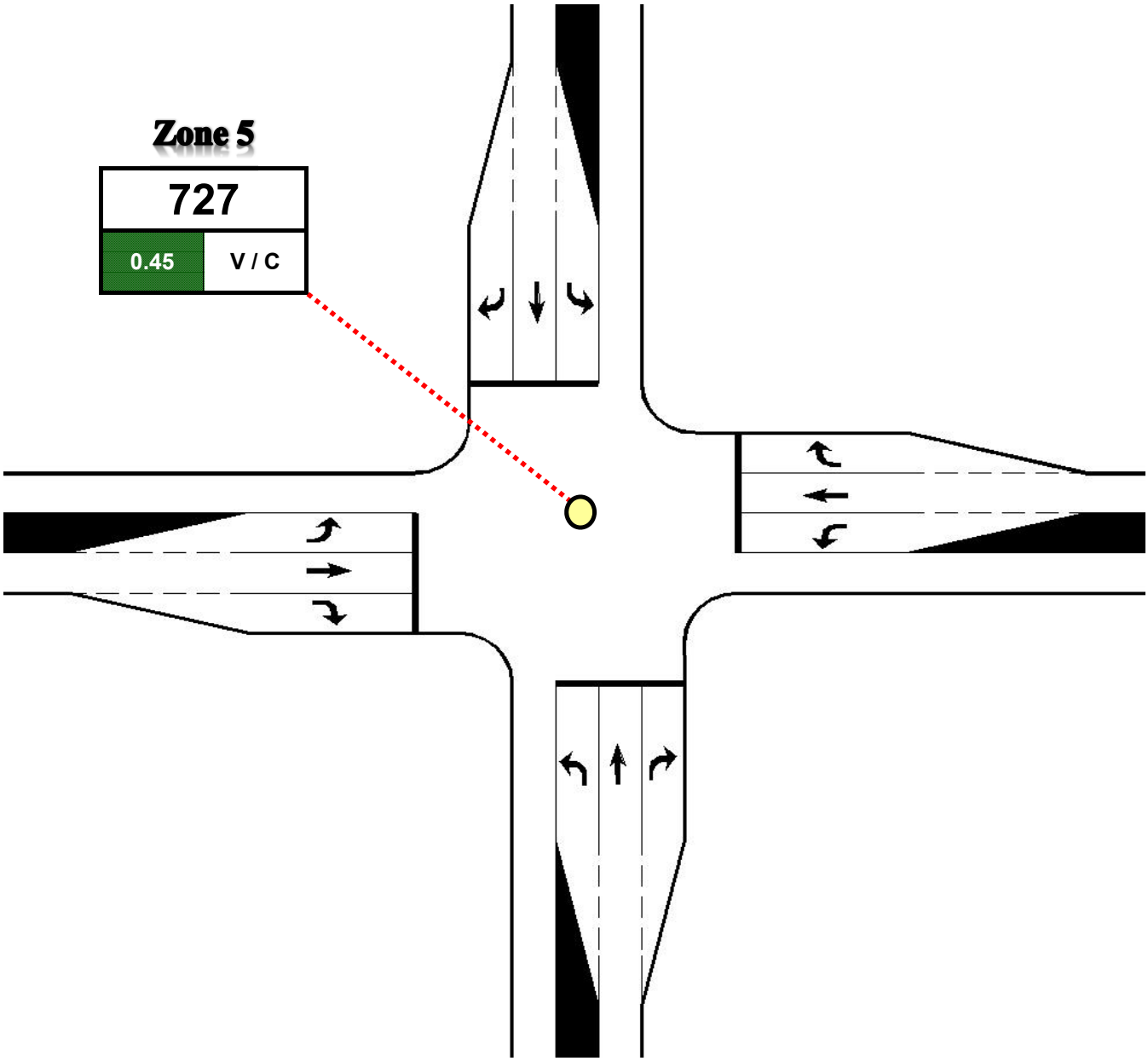


Conventional

Design and results 2018

Project Name:	*Sunshine Blvd. S. & 8th St. SW.*
Project Number:	*18-0047*
Location	*Lehigh Acres, FL*
Date	November 13, 2018

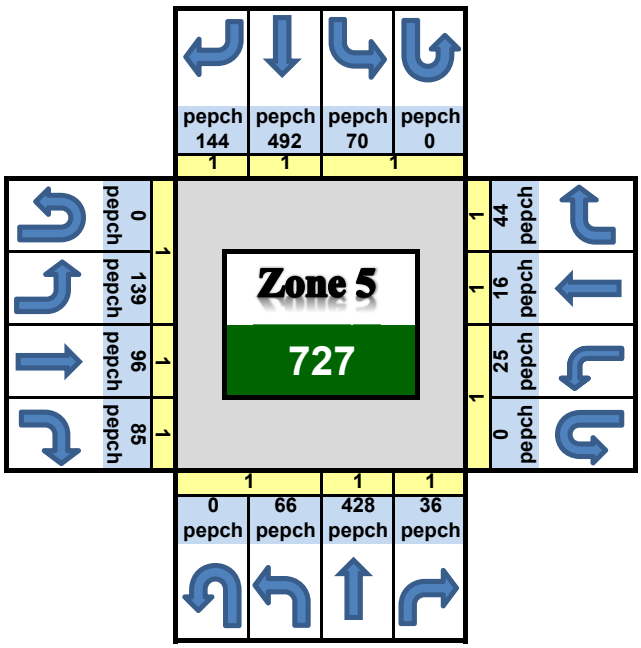
Critical Lane Volume Sum			
< 1200	**1200 - 1399**	**1400 - 1599**	**≥ 1600**
VOLUME / CAPACITY RATIO:		**0.45**	



Note: This diagram does not reflect the actual lane configuration of the Intersection

Conventional

Data Input and Configuration 2018



Back to Results

Capacity Analysis for Planning of Junctions

Input Worksheet

2038

Project Name:	*Sunshine Blvd. S. & 8th St. SW.*
Project Number:	*18-0047*
Location	*Lehigh Acres, FL*
Date	November 13, 2018

Traffic Volume Demand

	Volume (Veh/hr)				Percent (%)	
	U-Turn	**Left**	**Thru**	**Right**	Truck	Volume Growth
Eastbound	0	286	197	175	0.00%	0.00%
Westbound	0	51	33	90	0.00%	0.00%
Southbound	0	144	1011	296	0.00%	0.00%
Northbound	0	136	879	74	0.00%	0.00%
Adjustment Factor	0.80	0.95		0.85		
Suggested	**0.80**	**0.95**		**0.85**		

Truck to PCE Factor	**Suggested = 2.00**	2.00
Critical Lane Volume	1600	

Equivalent Pasenger Car Volume

	Volume (Veh/hr)			
	U-Turn	**Left**	**Thru**	**Right**
Eastbound	0	286	197	175
Westbound	0	51	33	90
Southbound	0	144	1011	296
Northbound	0	136	879	74

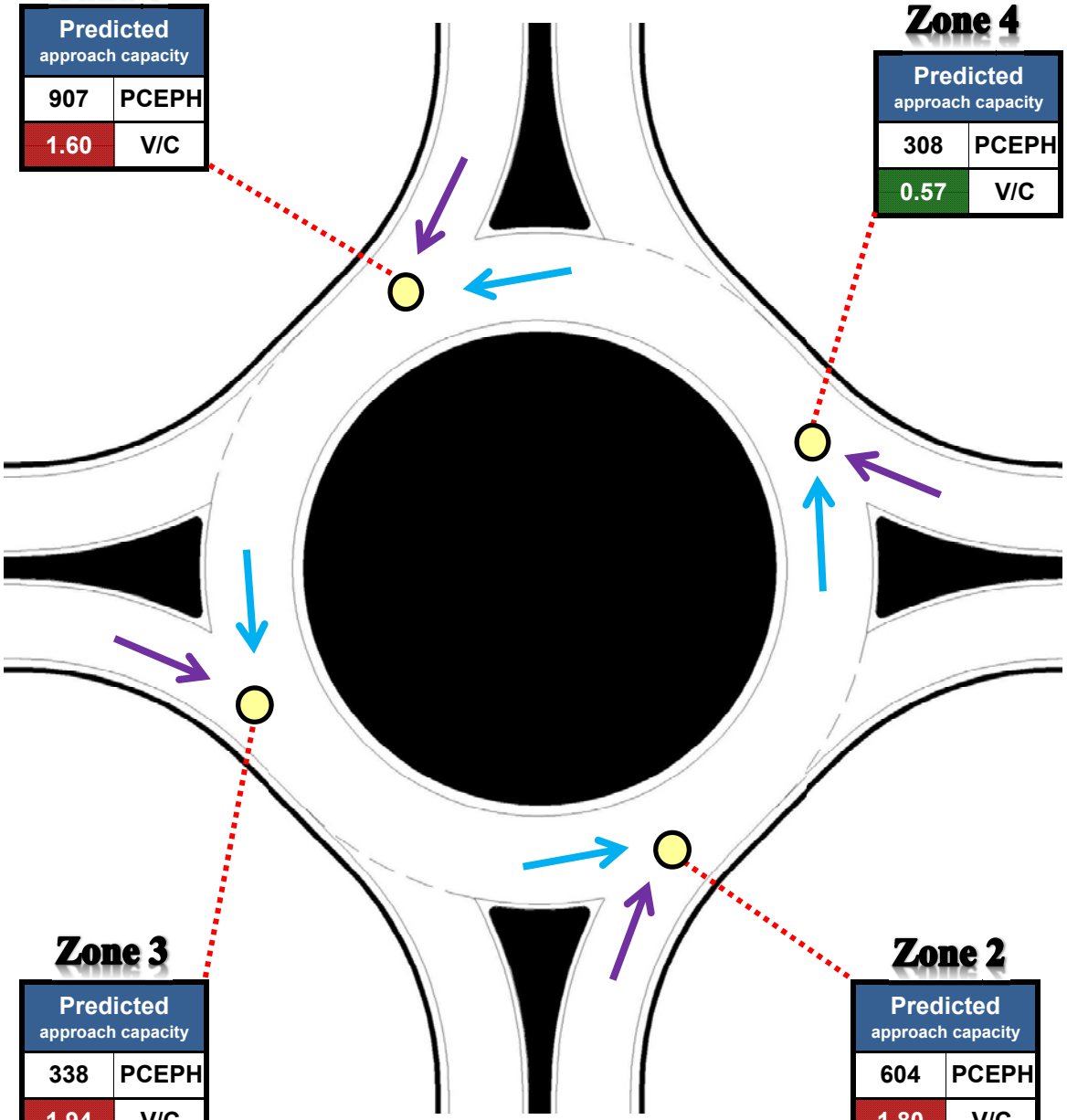
Notes:	
Left-Turn Adjustment Factor	*Conversion of left-turning vehicles to equivalent through vehicles*
Right-turn Adjustment Factor	*Conversion of right-turning vehicles to equivalent through vehicles*
U-turn Adjustment Factor	*Conversion of U-turning vehicles to equivalent through vehicles*
Truck to PCE Factor	*1 truck = X Passenger Car Equivalents*
Critical Lane Volume Sum Limit	*Saturation Value for Critical Lane Volume Sum at an intersection*

1 NS x 1 EW Roundabout

Design and Results 2038

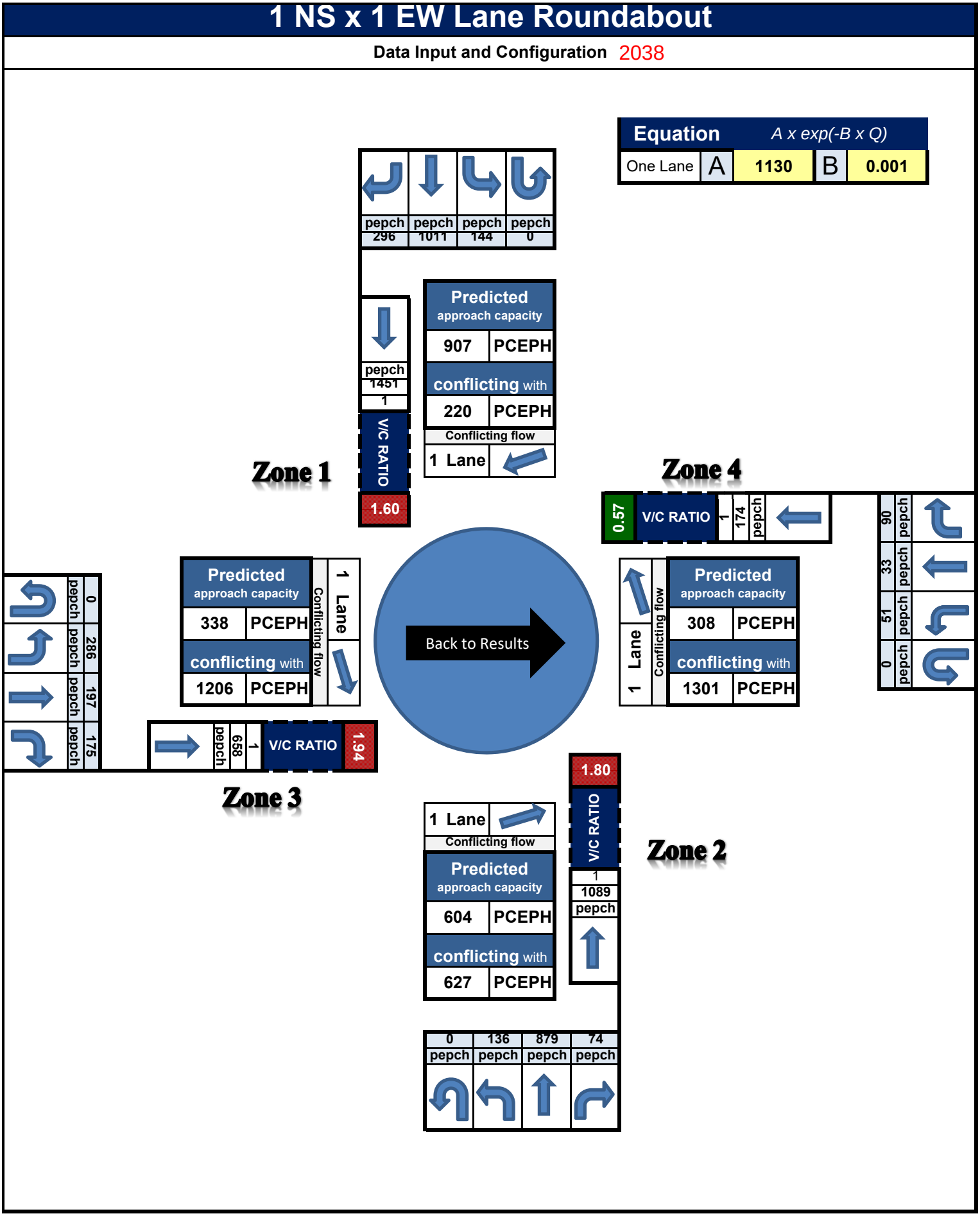
Project Name:	*Sunshine Blvd. S. & 8th St. SW.*
Project Number:	*18-0047*
Location	*Lehigh Acres, FL*
Date	November 13, 2018

Critical Lane Volume Sum				
< 1200	**1200 - 1399**	**1400 - 1599**	**≥ 1600**	
VOLUME / CAPACITY RATIO:	**Zone 1**	**1.60**	**Zone 4**	**0.57**
	Zone 3	**1.94**	**Zone 2**	**1.80**



1 NS x 1 EW Lane Roundabout

Data Input and Configuration 2038



2 NS x 1 EW Lane Roundabout

Design and Results 2038

Project Name:	*Sunshine Blvd. S. & 8th St. SW.*
Project Number:	*18-0047*
Location	*Lehigh Acres, FL*
Date	November 13, 2018

Critical Lane Volume Sum			
< 1200	**1200 - 1399**	**1400 - 1599**	**≥ 1600**

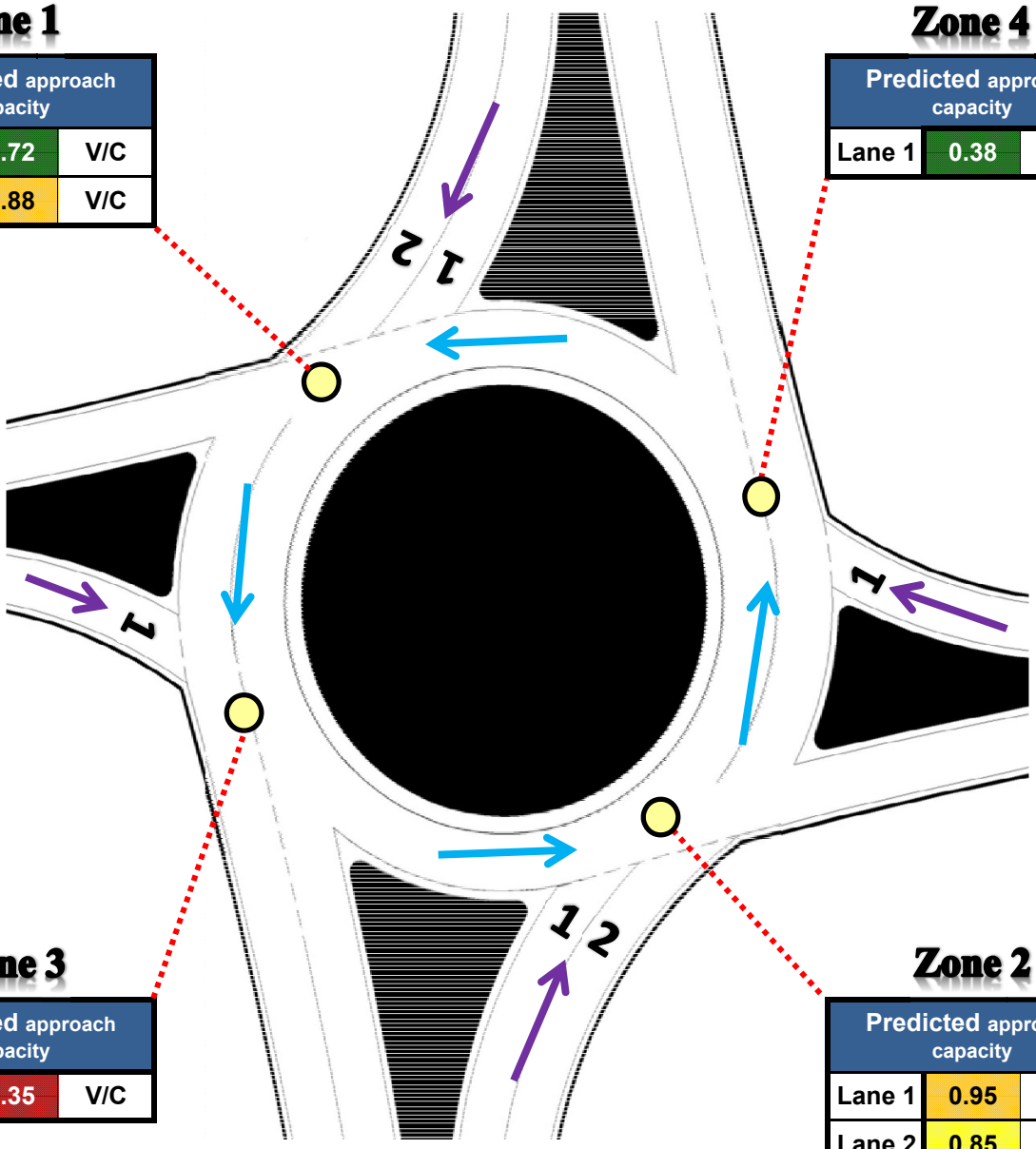
VOLUME / CAPACITY RATIO:				
Zone 1	**0.88**	**Zone3**	**0.38**
Zone 4	**1.35**	**Zone 2**	**0.95**

Zone 1

Predicted approach capacity		
Lane 1	0.72	V/C
Lane 2	0.88	V/C

Zone 4

Predicted approach capacity		
Lane 1	0.38	V/C



Zone 3

Predicted approach capacity		
Lane 1	1.35	V/C

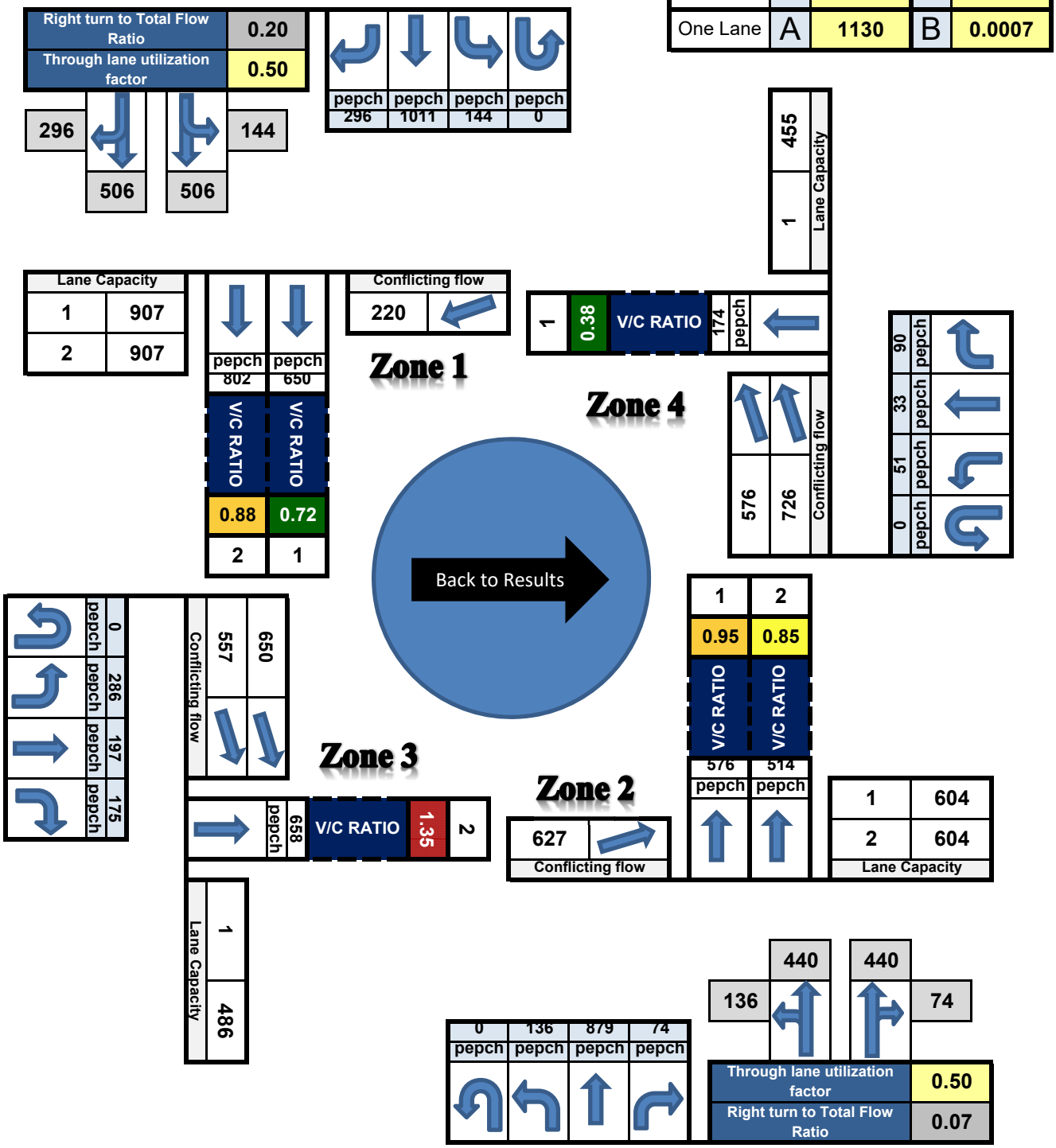
Zone 2

Predicted approach capacity		
Lane 1	0.95	V/C
Lane 2	0.85	V/C

2 NS x 1 EW Lane Roundabout

Data Input and Configuration 2038

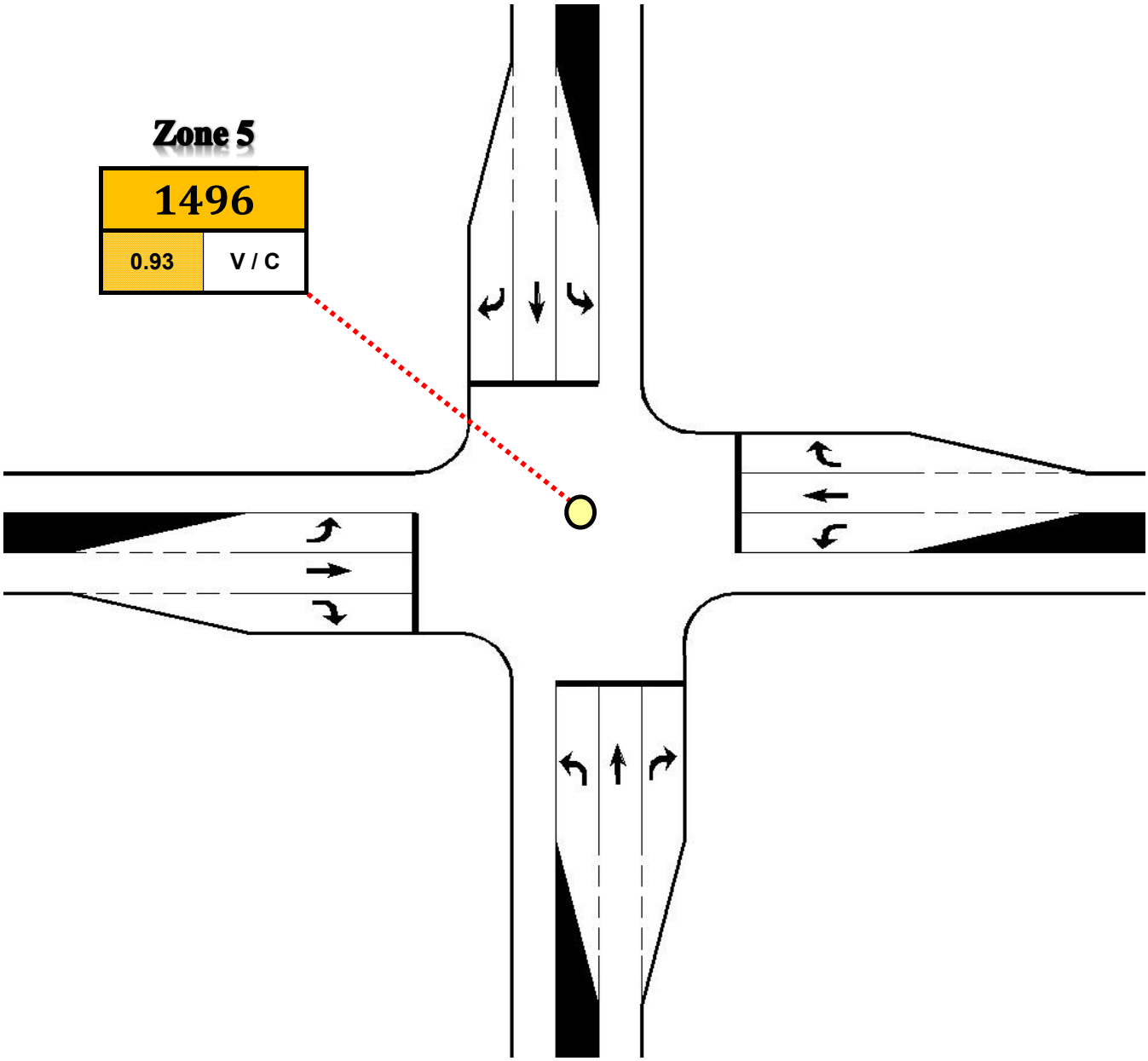
Equation	*A x exp(-B x Q)*			
LT Lane	A	1130	B	0.001
RT Lane	A	1130	B	0.001
One Lane	A	1130	B	0.0007



Conventional

Design and results 2038

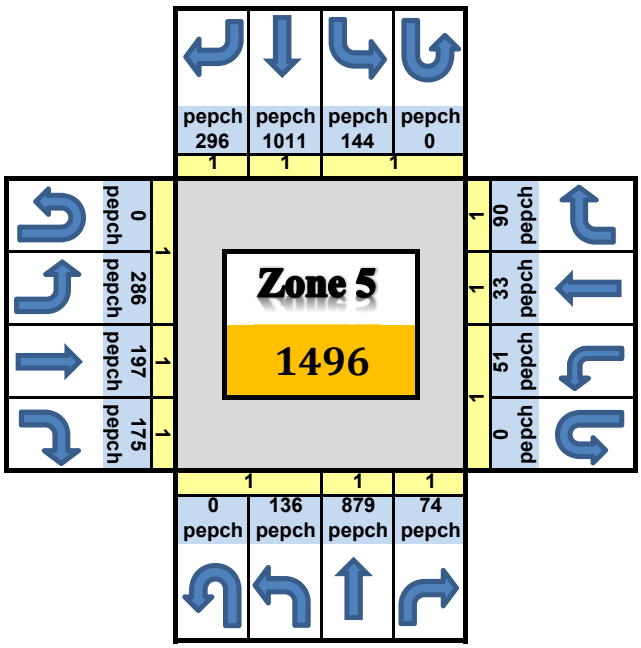
		Critical Lane Volume Sum			
Project Name:	*Sunshine Blvd. S. & 8th St. SW.*	**< 1200**	**1200 - 1399**	**1400 - 1599**	**≥ 1600**
Project Number:	*18-0047*				
Location	*Lehigh Acres, FL*	**VOLUME / CAPACITY RATIO:**		**0.93**	
Date	November 13, 2018				



Note: This diagram does not reflect the actual lane configuration of the Intersection

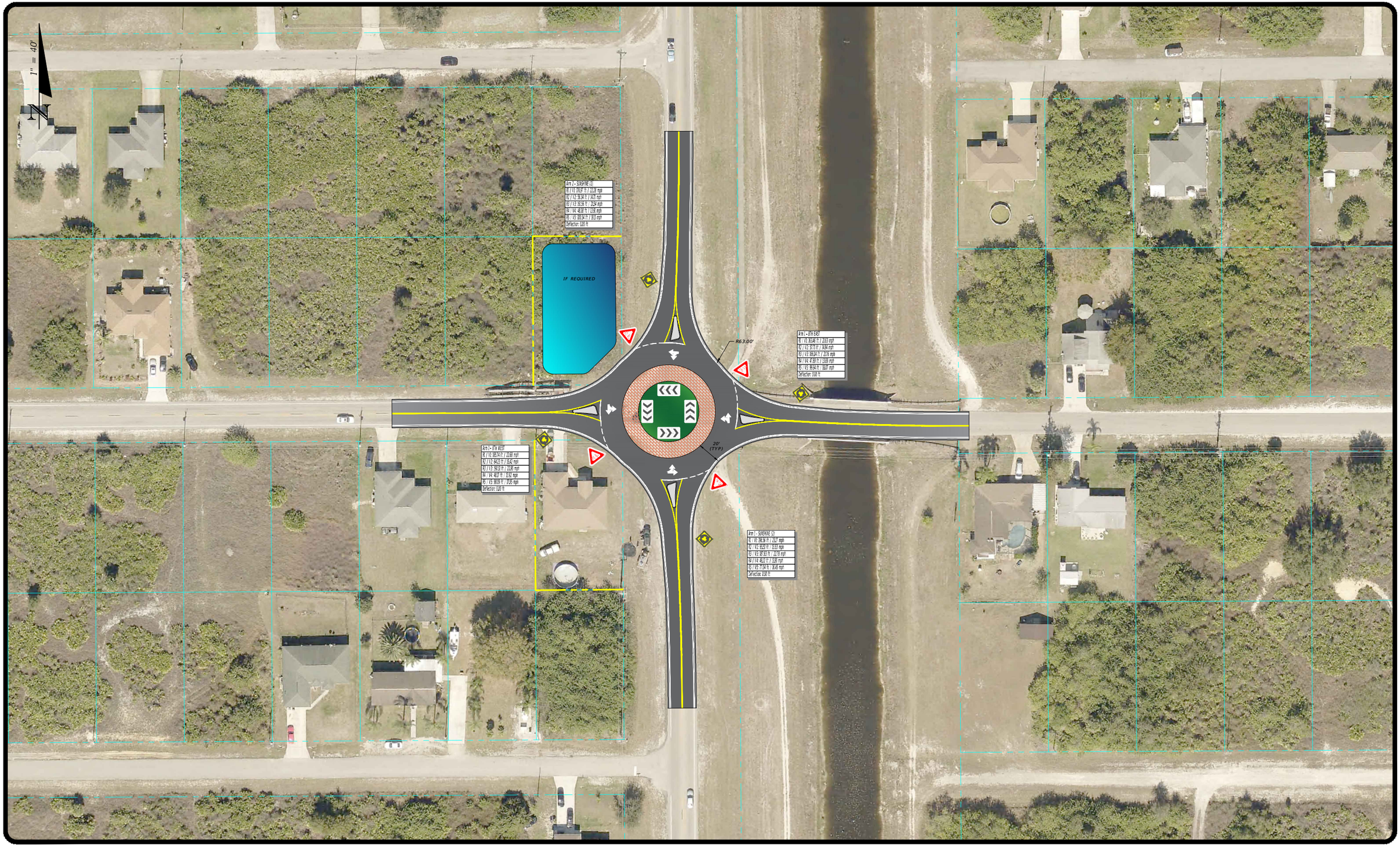
Conventional

Data Input and Configuration 2038



Back to Results

Appendix G – Roundabout Alternative Exhibits



Single lane Roundabout

Sunshine & 8th St. SW

JOB #18-0047

DATE: 11-12-18

DAVID DOUGLAS ASSOCIATES, INC.
11400 Overseas Highway, Suite 208, Marathon, Fl, 33050 Ph. (305) 517-6469

1" = 40'

N

IF REQUIRED

IF REQUIRED

R92.50'

12' (TYP)

13' (TYP)

MULTILANE ROUNDABOUT

JOB #18-0047

SUNSHINE & 8TH ST. SW

DATE: 11-12-18

DDAI
DAVID DOUGLAS ASSOCIATES, INC.
11400 Overseas Highway, Suite 208, Marathon, Fl, 33050 Ph. (305) 517-6469

Appendix H – Multi-Way Stop Report

Sunshine Boulevard South and 8th Street Southwest Intersection Evaluation

Multi-Way Stop

DAVID DOUGLAS ASSOCIATES, INC.
CIVIL ENGINEERS • LAND PLANNERS • CONTRACT ADMINISTRATORS

Table of Contents

INTRODUCTION

David Douglas Associates, Inc. (DDAI) has been tasked by Lee County Department of Transportation (LCDOT) to assist them in evaluating the Sunshine Boulevard South and 8th Street Southwest intersection improvements in Lehigh Acres. ***Specifically, this report has been prepared to evaluate whether this intersection warrants a multi-way stop.*** The vehicular volume and crash history data were considered in assessing the potential application of a multi-way stop. These parameters were evaluated in accordance with Section 2B.07 of the Manual on Uniform Traffic Control Devices (MUTCD). In addition, current sight distance triangles were created in general accordance with FDOT Design Manual (FDM) Section 212.11.1. The MUTCD and FDM references can be found in Appendix H.1. The results and recommendations of the evaluation are provided in the following sections.

1.0 TRAFFIC DATA COLLECTION

1.1 Intersection Evaluation Procedure

In order to properly determine if this intersection warrants the need for a multi-way stop, guidelines from Section 2B.07 of the MUTCD were utilized for the evaluation. According to Section 2B.07, ***Multi-way stop control can be useful as a safety measure at intersections if certain traffic conditions exist. Safety concerns associated with multi-way stops include pedestrians, bicyclists, and all other road users expecting other road users to stop. Multi-way stop control is used where the volume of traffic on the intersecting roads is approximately equal.***

The guidelines identify crash data, vehicular volume, speed, delays and sight distance as critical variables for the evaluation. These variables are further discussed in the following sections.

1.2 Vehicular Crashes

Section 2B.07 Guidance B of the MUTCD states the following in regards to vehicular crashes:
Five or more reported crashes in a 12-month period *that are susceptible to correction by a multi-way stop installation. Such crashes include right-turn and left-turn collisions as well as right-angle collisions.*

LCDOT provided DDAI with the reported collision history data for the intersection from 2015 to 2018. According to the data provided by LCDOT, the maximum number of crashes within any 12-month period was 22 crashes during 2017. It should be noted that only 17 of the crashes where within the intersection and could be considered potentially correctable by the use of a multi-way stop application. The remaining five crashes (four rear-end collisions and one vehicle running into a bush) are not correctable by the use of a multi-way stop per MUTCD and consequently were not considered in this evaluation. Of the 17 correctable crashes 14 were right-angle crashes (crashes involving through traffic) and the remaining crashes were right-hand turn or left-hand turn. Although no vehicle crash related fatalities were reported at this intersection, nine of the reported crashes did result in injuries. See Table 1 below for a summary of the types of crashes, per year, in the intersection. **Guidance B is met.**

Table 1. 4-Year Crash Summary

Date	Crash Type				Injury/Death
	Left Turn	Right Turn	Right-Angle	Total	
2015	2	0	6	8	4/0
2016	1	0	6	7	3/0
2017	1	2	14	17	9/0
2018	1	0	4	5	1/0
1/1/17 - 12/31/17 (Max 12 Month)	1	2	14	17	9/0

1.3 Vehicular Volume, Speed and Crashes

Section 2B.07 Guidance C of the MUTCD states the following in regards to vehicular volume, speed and delay:

C-1. *The vehicular volume entering the intersection from the **major street** approaches (total of both approaches) **averages at least 300 vehicles per hour for any 8 hours of an average day**; and*

C-2. *The combined vehicular, pedestrian, and bicycle volume entering the intersection from the **minor street** approaches (total of both approaches) averages **at least 200 units per hour for the same 8 hours**, with an **average delay to minor-vehicular traffic of at least 30 seconds per vehicle** during the highest hour; but*

C-3. *If the 85th –percentile approach speed of the **major street traffic exceeds 40 mph**, the minimum vehicular volume warrants are **70 percent** of the values provided in Items 1 and 2.*

D-1. *Where **no single criterion is satisfied**, but where **Criteria B, C.1, and C.2 are all satisfied to 80 percent** of the minimum values. Criterion C.3 is excluded from this condition.*

The data provided by Trebilcock Consulting Solutions, PA (TCS) collected Tuesday, October 16, 2018 for a 24-hour period was analyzed in both the northbound and southbound directions along Sunshine Blvd. S. (major street), and in the eastbound and westbound directions along 8th St. SW. (minor street). The collected approach volumes were processed and the highest eight hour volume at the proposed intersection was determined. The eight highest hourly volumes are from 6:00 AM to 9:00 AM and from 3:00 PM to 8:00 PM. These times are consistent with the information contained within the Lee County 2017 Traffic Count Report (most recent adopted). For the purposes of this report, traffic hourly volumes were adjusted for peak season conditions by utilizing the Florida Department of Transportation (FDOT) Peak Season Conversion Factor (PSCF) of 1.37 as illustrated in the Peak Season Factor Category Report for Lehigh Acres (year 2017 – most current available). Refer to **Appendix H.2 for FDOT 2017 Peak Season Factor Category Report (Excerpt) and the raw and adjusted vehicular volumes provided by TCS.**

The results presented within Tables 2 and 3 below are the eight highest hourly volumes for Sunshine Blvd. S. and 8th St. SW. and have been adjusted by TCS to reflect peak season traffic conditions.

Table 2. Sunshine Boulevard South

Major Street			
1-Hr Time Intervals (10/16/18)	**Average Southbound Volume (vph)***	**Average Northbound Volume (vph)***	**Average (both approaches) (vph)***
6:00 AM - 7:00 AM	442	585	1,027
7:00 AM - 8:00 AM	443	547	990
8:00 AM - 9:00 AM	398	529	927
3:00 PM - 4:00 PM	477	416	893
4:00 PM - 5:00 PM	646	491	1,137
5:00 PM - 6:00 PM	717	533	1,250
6:00 PM - 7:00 PM	672	465	1,137
7:00 PM - 8:00 PM	550	479	1,029
8-Hr Average Volume (vph)	543	506	1,049

*Values provided by Trebilcock Consulting Solutions, PA taken on October 16, 2018. Located in Appendix H.2.
*Values have been adjusted to reflect peak season by applying a factor of 1.37.

Table 3. 8th Street Southwest

Minor Street[1]			
1-Hr Time Intervals (2/12/16 - 2/16/16)	**Average Westbound Volume (vph)***	**Average Eastbound Volume (vph)***	**Average (both approaches) (vph)***
6:00 AM - 7:00 AM	296	88	384
7:00 AM - 8:00 AM	161	118	279
8:00 AM - 9:00 AM	120	113	233
9:00 AM - 10:00 AM	81	188	269
4:00 PM - 5:00 PM	87	306	393
5:00 PM - 6:00 PM	88	325	413
6:00 PM - 7:00 PM	90	329	419
7:00 PM - 8:00 PM	64	183	247
8-Hr Average Volume (vph)	123	206	330

[1] Due to the low number of measured pedestrian & bicycle volume, only vehicles per hour were considered
*Values provided by Trebilcock Consulting Solutions, PA taken on October 16, 2018. Located in Appendix H.2.
*Values have been adjusted to reflect peak season by applying a factor of 1.37.

MUTCD 2B.07.C-1 – The average vehicular volume along the major street can be seen in Table 2, which is 1,049 veh/hr during an 8 hour period of an average day and this exceeds the minimum vehicular volume criteria of 300 veh/hr. **C-1 is met.**

MUTCD 2B.07.C-2 – The average vehicular volume along the minor street can be seen in Table 3, which is 330 veh/hr. Also this section links the average delays along the minor street (8th St. SW.) measured during the peak hour to the minor street approach volume. Vehicular delays along the minor street were not analyzed during the traffic counts, however, the minor street exceeds the vehicular volume required criteria of 200 veh/hr. **C-2 is met.**

MUTCD 2B.07.C-3 – If the 85th–percentile approach speed of the major street traffic exceeds 40 mph, the minimum vehicular volume warrants are reduced to 70% of the values provided in tables 1 and 2. Vehicular approach speeds along the major street were not analyzed during the traffic counts, however the posted speed limit for Sunshine Blvd. S. is 45 MPH. DDAI has assumed the 85th–percentile approach speed of the major street traffic exceeds 40 MPH due to the posted speed limit of Sunshine Blvd. S. **C-3 is met.**

MUTCD 2B.07.D-1 – Since C-1, C-2 and C-3 are met, this guidance does not apply.

1.4 Other Criteria

Section 2B.07 Option 05 of the MUTCD states the following in regards to other criteria:

A. The need to control left-turn conflicts

Since there was only 1 left turn accident reported in the data that was given, **Option A was not considered a critical factor in this evaluation.**

B. The need to control vehicle/pedestrian conflicts near locations that generate high pedestrian volumes

Due to the low volume of pedestrian volume measured within this intersection, refer to Table 4 and 5,**Option B was not considered as a critical factor in this evaluation.**

Table 4. Morning Pedestrian Traffic

Pedestrian Volume (6:00 AM - 9:00 AM)		
Street	**Direction**	**Total Pedestrian Volume**
Sunshine Boulevard South	*Northbound*	1
	Southbound	0
8th Street Southwest	*Westbound*	0
	Eastbound	0

Table 5. Afternoon Pedestrian Traffic

Pedestrian Volume (3:00 PM - 8:00 PM)		
Street	**Direction**	**Total Pedestrian Volume**
Sunshine Boulevard South	*Northbound*	0
	Southbound	0
8th Street Southwest	*Westbound*	0
	Eastbound	0

C. Locations where a road user, after stopping, cannot see conflicting traffic and is not able to negotiate the intersection unless conflicting cross traffic is also required to stop

This intersection is void of any obstacles that would conflict the road user from seeing clearly, **Option C was not considered as a critical factor in this evaluation.** The sight distance triangle has been designed per FDM Section 212.11.1 with a 45 MPH road and can be found in Appendix H.1.

D. An intersection of two residential neighborhood collector (through) streets of similar design and operating characteristics where multi-way stop control would improve traffic operational characteristics of the intersection.

Since Sunshine Blvd. S. is classified as an Arterial road and not a residential neighborhood collector street, **Option D was not considered in this evaluation.**

2.0 CONCLUSIONS / RECOMMENDATIONS

This memorandum focused on evaluating whether the intersection of Sunshine Blvd. S. and 8th St. SW. meets the criteria necessary to warrant a multi-way stop application by analyzing traffic data obtained from TCS based on the requirements of Section 2B.07 of the MUTCD. The data analyzed included 4-years of reported crashes, vehicular volume for all approaches to the intersection during peak hours of the morning and afternoon along the major and minor street as well as sight distance triangles.

Table 6 summarizes the results of our analysis in comparison to the criteria set forth by the MUTCD Section 2B.07. Refer to Appendix H.3 for the traffic data grand totals.

Table 6. MUTCD Section 2B.07 Multi-way Application Criteria

Criteria	Criteria Requirement	Measured Value	Meets Criteria (Yes/No)
A.	Where traffic controls are justified, the multi way stop is an interim measure that can be installed quickly to control traffic while arrangements are being made.	Yes	Yes
B.	Five or more reported crashes in a 12-month period that are susceptible to correction by a multi-way stop installation.	17 Crashes	Yes
C.	Minimum Values		
1	The vehicular traffic entering the intersection from the major street approaches (total of both approaches) averages at least 300 vehicles per hour for any 8 hours of an average day.	1,049 veh/hr	Yes
2	The combined vehicular, pedestrian, and bicycle volume entering the intersection from the minor street approached (total of both approaches) averages at least 200 units per hour for the same 8 hours.	330 veh/hr	Yes
3	If the 85th–percentile approach speed of the major-street traffic exceeds 40 mph, the minimum vehicular volume warrants are 70 percent of the values provided in items 1 and 2.	Yes	Yes
5.	Other Criteria		
A	The need to control left-turn conflicts.	N/A	N/A
B	The need to control vehicle/pedestrian conflicts near location that generate high pedestrian volumes.	N/A	N/A
C	Locations where a road user, after stopping, cannot see conflicting traffic and is not able to negotiate the intersections unless conflicting cross traffic is also required to stop.	N/A	N/A
D	An intersection of two residential neighborhood collector (through) streets of similar design and operating characteristics where multi-way stop control would improve traffic operational characteristics of the intersection	N/A	N/A

Analyzing the data obtained and using the MUTCD guidelines, DDAI concludes the intersection of Sunshine Blvd. S. and 8th St. SW. warrants the application of a multi-way stop, however, since the traffic on the intersecting roads is not approximately **equal it should be used for an interim measure only.**

Appendix H.1 – Reference Materials

2009 Manual on Uniform Traffic Control Devices - Section 2B.07: Multi-Way Stop Application
2018 FDM Section 212.11.1.
Sight Distance Exhibit

Section 2B.06 STOP Sign Applications

Guidance:

01 *At intersections where a full stop is not necessary at all times, consideration should first be given to using less restrictive measures such as YIELD signs (see Sections 2B.08 and 2B.09).*

02 *The use of STOP signs on the minor-street approaches should be considered if engineering judgment indicates that a stop is always required because of one or more of the following conditions:*

A. The vehicular traffic volumes on the through street or highway exceed 6,000 vehicles per day;
B. A restricted view exists that requires road users to stop in order to adequately observe conflicting traffic on the through street or highway; and/or
C. Crash records indicate that three or more crashes that are susceptible to correction by the installation of a STOP sign have been reported within a 12-month period, or that five or more such crashes have been reported within a 2-year period. Such crashes include right-angle collisions involving road users on the minor-street approach failing to yield the right-of-way to traffic on the through street or highway.

Support:

03 The use of STOP signs at grade crossings is described in Sections 8B.04 and 8B.05.

Section 2B.07 Multi-Way Stop Applications

Support:

01 Multi-way stop control can be useful as a safety measure at intersections if certain traffic conditions exist. Safety concerns associated with multi-way stops include pedestrians, bicyclists, and all road users expecting other road users to stop. Multi-way stop control is used where the volume of traffic on the intersecting roads is approximately equal.

02 The restrictions on the use of STOP signs described in Section 2B.04 also apply to multi-way stop applications.

Guidance:

03 *The decision to install multi-way stop control should be based on an engineering study.*

04 *The following criteria should be considered in the engineering study for a multi-way STOP sign installation:*

A. Where traffic control signals are justified, the multi-way stop is an interim measure that can be installed quickly to control traffic while arrangements are being made for the installation of the traffic control signal.
B. Five or more reported crashes in a 12-month period that are susceptible to correction by a multi-way stop installation. Such crashes include right-turn and left-turn collisions as well as right-angle collisions.
C. Minimum volumes:
1. The vehicular volume entering the intersection from the major street approaches (total of both approaches) averages at least 300 vehicles per hour for any 8 hours of an average day; and
2. The combined vehicular, pedestrian, and bicycle volume entering the intersection from the minor street approaches (total of both approaches) averages at least 200 units per hour for the same 8 hours, with an average delay to minor-street vehicular traffic of at least 30 seconds per vehicle during the highest hour; but
3. If the 85th-percentile approach speed of the major-street traffic exceeds 40 mph, the minimum vehicular volume warrants are 70 percent of the values provided in Items 1 and 2.
D. Where no single criterion is satisfied, but where Criteria B, C.1, and C.2 are all satisfied to 80 percent of the minimum values. Criterion C.3 is excluded from this condition.

Option:

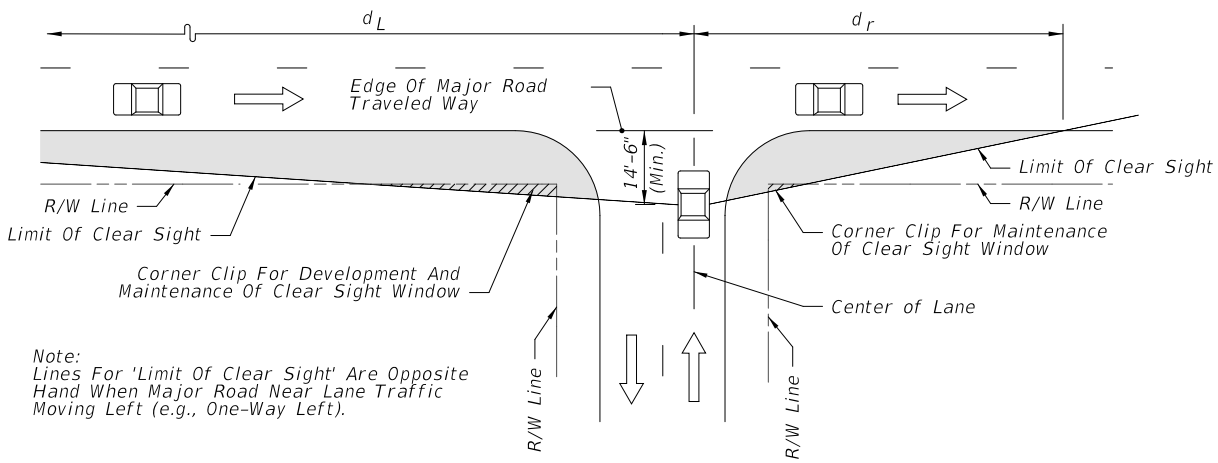
05 Other criteria that may be considered in an engineering study include:

A. The need to control left-turn conflicts;
B. The need to control vehicle/pedestrian conflicts near locations that generate high pedestrian volumes;
C. Locations where a road user, after stopping, cannot see conflicting traffic and is not able to negotiate the intersection unless conflicting cross traffic is also required to stop; and
D. An intersection of two residential neighborhood collector (through) streets of similar design and operating characteristics where multi-way stop control would improve traffic operational characteristics of the intersection.

212.11.1 Stop Control (AASHTO Case B)

Figure 212.11.1 illustrates clear sight triangles for intersections and driveways.

Figure 212.11.1 Clear Sight Triangles



The minimum driver-eye setback of 14.5 feet from the edge of the traveled way may be adjusted on any intersection leg only when justified by a documented, site-specific field study of vehicle stopping position and driver-eye position.

Exhibits 212-4 through ***212-7*** provide intersection sight distances for stop controlled intersections. The tables in the exhibits provide sight distance values for Passenger vehicles, Single Unit (SU) Trucks, and Combination vehicles for design speeds ranging from 30 mph to 65 mph. Intersection sight distance based on Passenger vehicles is suitable for most intersections; however, consider the values for SU Vehicles or Combination vehicles for intersections with high truck volumes.

The following guidance applies to ***Exhibits 212-4*** through ***212-7***:

(1) Limitations

(a) The exhibits apply to intersections in all context classifications with stop control or flashing beacon control.

(b) The exhibits apply only to intersections with intersecting angles between 60°and 120°, and where vertical and horizontal curves are not present.

(2) Dimensions

(a) Sight distance (d) is measured from the center of the entrance lane of the crossroad to the center of the near approach lane (right or left) of the highway.

(b) Distances 'd_L' and 'd_r' are measured from the centerline of the entrance lane of the crossroad to a point on the edge of the near side outer traffic lane on the highway.

(c) Distance 'd_m' is measured from the centerline of the entrance lane of the crossroad to a point on the median clear zone limit or horizontal clearance limit for the far side road of the highway.

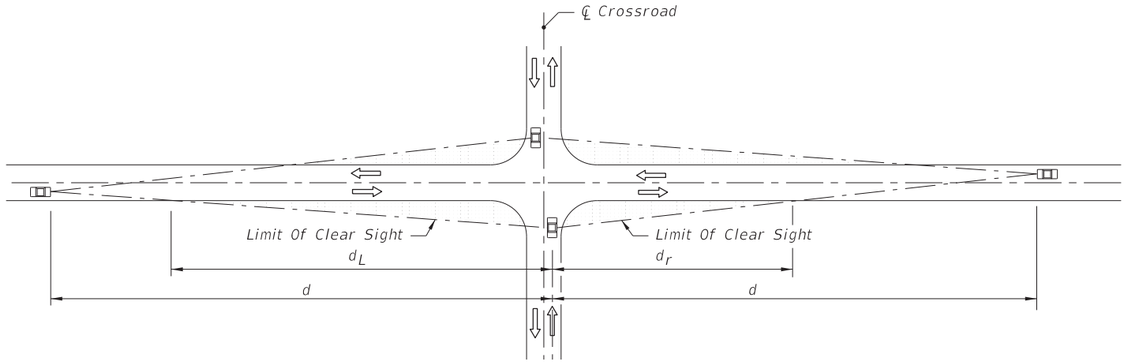
(3) Vertical limits

(a) Provide a clear sight window throughout the limits of all intersection sight triangles.

(b) Provide a clear line of sight between vehicles at intersection stop locations and vehicles on the highway throughout the limits of all intersection sight triangles.

(c) The reference datum between roadways is 3'-6" above respective pavements since observations are made in both directions along the line of sight.

INTERSECTION SIGHT DISTANCE: 2-LANE UNDIVIDED



2-LANE UNDIVIDED

Design Speed (mph)	d (Ft.)	d_L (Ft.)	d_r (Ft.)
30	335	240	155
35	390	275	175
40	445	315	200
45	500	355	225
50	555	395	250
55	610	435	275
60	665	470	300
65	720	510	325

Passenger Vehicle

Design Speed (mph)	d (Ft.)	d_L (Ft.)	d_r (Ft.)
30	420	300	190
35	490	350	220
40	560	400	250
45	630	450	285
50	700	495	315
55	770	545	345
60	840	595	375
65	910	645	410

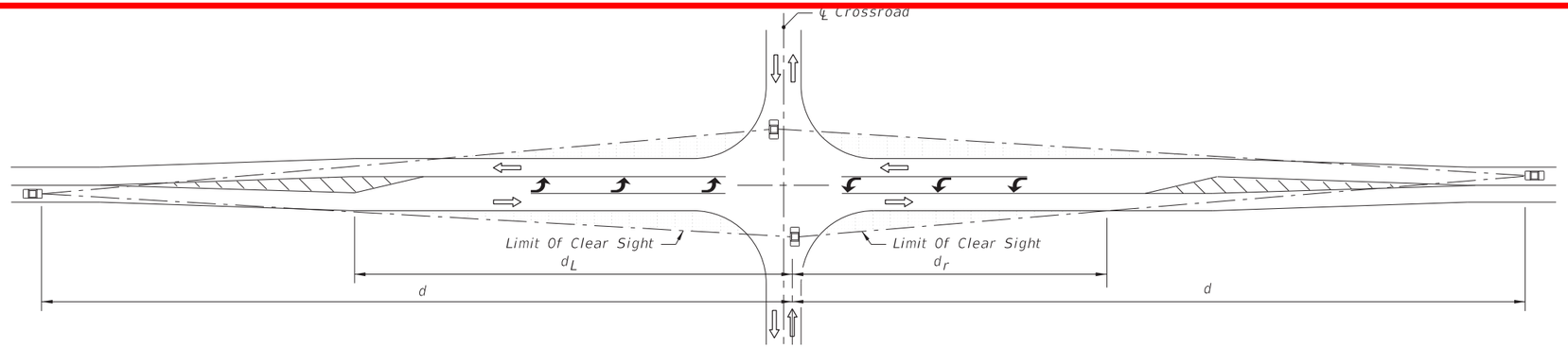
SU Vehicle

Design Speed (mph)	d (Ft.)	d_L (Ft.)	d_r (Ft.)
30	510	365	230
35	595	420	265
40	680	480	305
45	765	545	345
50	845	600	380
55	930	660	415
60	1015	720	455
65	1100	780	495

Combination Vehicle

SIGHT DISTANCE (d) AND RELATED DISTANCES (d_L, d_r) (FEET)

2 LANE UNDIVIDED



2-LANE WITH LEFT TURN LANE

Design Speed (mph)	d (Ft.)	d_L (Ft.)	d_r (Ft.)
30	355	195	135
35	415	230	160
40	475	260	180
45	530	290	200
50	590	325	225
55	650	355	245
60	710	390	270
65	765	420	290

Passenger Vehicle

Design Speed (mph)	d (Ft.)	d_L (Ft.)	d_r (Ft.)
30	450	250	170
35	525	290	200
40	600	330	230
45	675	370	255
50	750	410	285
55	825	455	315
60	900	495	340
65	975	535	370

SU Vehicle

Design Speed (mph)	d (Ft.)	d_L (Ft.)	d_r (Ft.)
30	540	295	205
35	630	345	240
40	720	395	275
45	810	445	305
50	900	495	340
55	990	545	375
60	1080	590	410
65	1170	640	440

Combination Vehicle

SIGHT DISTANCE (d) AND RELATED DISTANCES (d_L, d_r) (FEET)

2-LANE WITH LEFT TURN

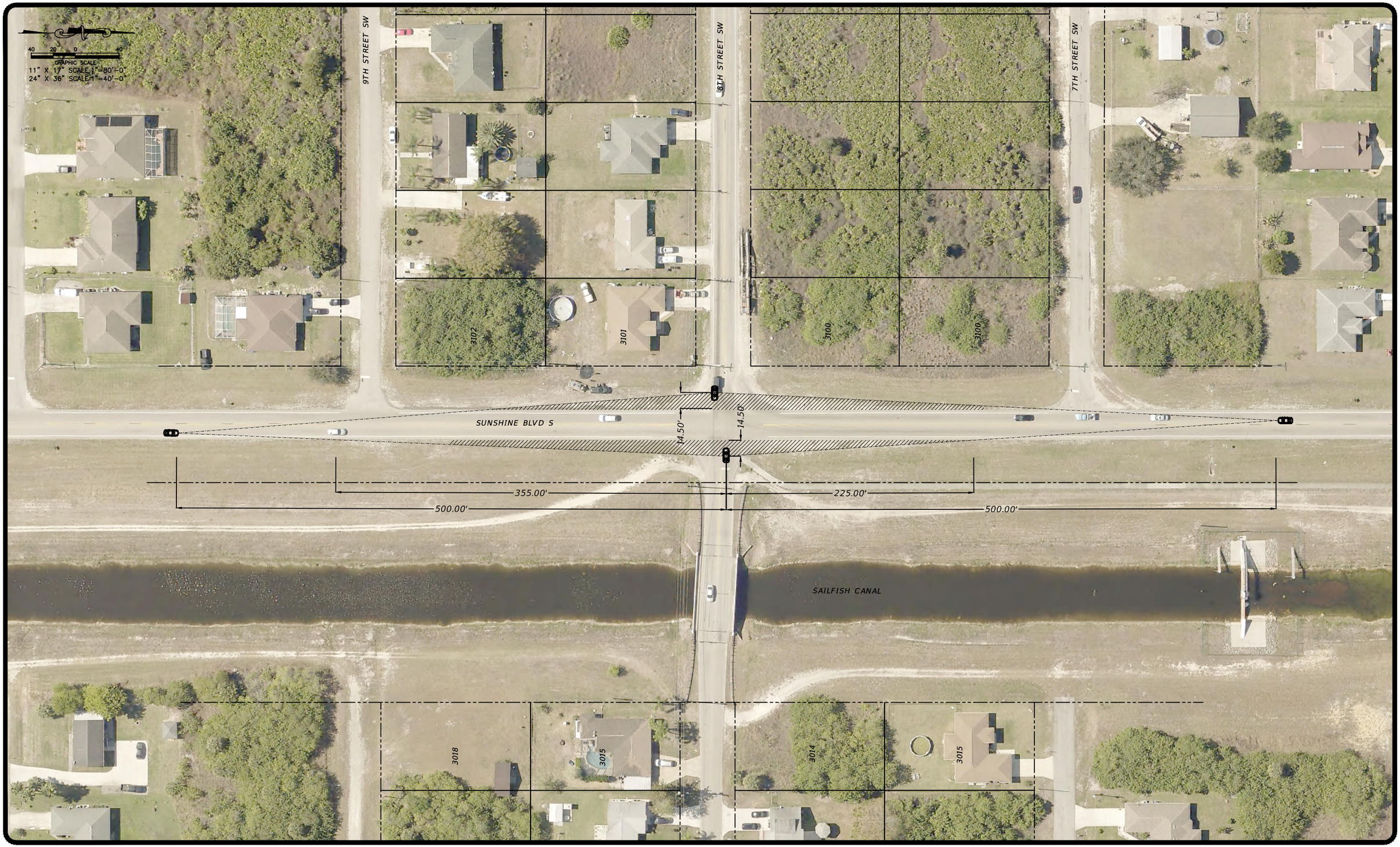
NOTE:
1. See Figure 212.11.1 for origin of clear sight line on the minor road.

LEGEND

Areas Free Of Sight Obstructions

NOT TO SCALE

EXHIBIT 212-4
01/01/2018



Site Distance Exhibit

JOB #18-0047

DDAI

DAVID DOUGLAS ASSOCIATES, INC.
1821 Victoria Ave., Suite 1, Fort Myers, Fl. 33901 Ph. (239) 337-3330

Sunshine Blvd S & 8th St. SW

DATE: 11-15-18

Appendix H.2 – Traffic Counts from Trebilcock Consulting Solutions, PA

Sunshine Blvd. S. Northbound Volume
Sunshine Blvd. S. Southbound Volume
8th St SW Eastbound Volume
8th St SW Westbound Volume
FDOT 2017 Peak Season Factor

2017 PEAK SEASON FACTOR CATEGORY REPORT - REPORT TYPE: ALL
CATEGORY: 1247 LEHIGH ACRES

WEEK	DATES	SF	MOCF: 0.91 PSCF
1	01/01/2017 - 01/07/2017	1.17	1.29
2	01/08/2017 - 01/14/2017	1.07	1.18
3	01/15/2017 - 01/21/2017	0.96	1.05
* 4	01/22/2017 - 01/28/2017	0.94	1.03
* 5	01/29/2017 - 02/04/2017	0.93	1.02
* 6	02/05/2017 - 02/11/2017	0.91	1.00
* 7	02/12/2017 - 02/18/2017	0.89	0.98
* 8	02/19/2017 - 02/25/2017	0.89	0.98
* 9	02/26/2017 - 03/04/2017	0.89	0.98
*10	03/05/2017 - 03/11/2017	0.88	0.97
*11	03/12/2017 - 03/18/2017	0.88	0.97
*12	03/19/2017 - 03/25/2017	0.90	0.99
*13	03/26/2017 - 04/01/2017	0.91	1.00
*14	04/02/2017 - 04/08/2017	0.93	1.02
*15	04/09/2017 - 04/15/2017	0.94	1.03
*16	04/16/2017 - 04/22/2017	0.95	1.04
17	04/23/2017 - 04/29/2017	0.96	1.05
18	04/30/2017 - 05/06/2017	0.96	1.05
19	05/07/2017 - 05/13/2017	0.97	1.07
20	05/14/2017 - 05/20/2017	0.98	1.08
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	1.03	1.13
24	06/11/2017 - 06/17/2017	1.05	1.15
25	06/18/2017 - 06/24/2017	1.06	1.16
26	06/25/2017 - 07/01/2017	1.06	1.16
27	07/02/2017 - 07/08/2017	1.07	1.18
28	07/09/2017 - 07/15/2017	1.07	1.18
29	07/16/2017 - 07/22/2017	1.07	1.18
30	07/23/2017 - 07/29/2017	1.07	1.18
31	07/30/2017 - 08/05/2017	1.06	1.16
32	08/06/2017 - 08/12/2017	1.06	1.16
33	08/13/2017 - 08/19/2017	1.06	1.16
34	08/20/2017 - 08/26/2017	1.12	1.23
35	08/27/2017 - 09/02/2017	1.18	1.30
36	09/03/2017 - 09/09/2017	1.24	1.36
37	09/10/2017 - 09/16/2017	1.30	1.43
38	09/17/2017 - 09/23/2017	1.29	1.42
39	09/24/2017 - 09/30/2017	1.28	1.41
40	10/01/2017 - 10/07/2017	1.27	1.40
41	10/08/2017 - 10/14/2017	1.26	1.38
42	10/15/2017 - 10/21/2017	1.25	1.37
43	10/22/2017 - 10/28/2017	1.24	1.36
44	10/29/2017 - 11/04/2017	1.23	1.35
45	11/05/2017 - 11/11/2017	1.22	1.34
46	11/12/2017 - 11/18/2017	1.21	1.33
47	11/19/2017 - 11/25/2017	1.20	1.32
48	11/26/2017 - 12/02/2017	1.19	1.31
49	12/03/2017 - 12/09/2017	1.18	1.30
50	12/10/2017 - 12/16/2017	1.17	1.29
51	12/17/2017 - 12/23/2017	1.10	1.21
52	12/24/2017 - 12/30/2017	1.03	1.13
53	12/31/2017 - 12/31/2017	0.96	1.05

* PEAK SEASON

02-MAR-2018 15:35:05 830UPD 1_1247_PKSEASON.TXT

Table 1 – Raw 24-hour Approach Counts

RAW 24-HOUR APPROACH COUNTS - HOURLY SUMMARY								
FROM	**TO**	SUNSHINE BLVD S			8TH ST SW			GRAND TOTAL
		SB	NB	TOTAL	WB	EB	TOTAL	
0.00	1.00	44	39	83	1	19	20	**103**
1.00	2.00	17	17	34	4	6	10	**44**
2.00	3.00	13	15	28	5	2	7	**35**
3.00	4.00	20	16	36	8	4	12	**48**
4.00	5.00	36	22	58	24	12	36	**94**
5.00	6.00	121	116	237	87	30	117	**354**
6.00	7.00	322	427	749	216	64	280	**1,029**
7.00	8.00	323	399	722	117	86	203	**925**
8.00	9.00	290	386	676	87	82	169	**845**
9.00	10.00	244	249	493	78	100	178	**671**
10.00	11.00	244	211	455	46	98	144	**599**
11.00	12.00	267	219	486	50	88	138	**624**
12.00	13.00	265	234	499	51	75	126	**625**
13.00	14.00	318	253	571	56	85	141	**712**
14.00	15.00	334	295	629	69	114	183	**812**
15.00	16.00	348	303	651	59	137	196	**847**
16.00	17.00	471	358	829	63	223	286	**1,115**
17.00	18.00	523	389	912	64	237	301	**1,213**
18.00	19.00	490	339	829	65	240	305	**1,134**
19.00	20.00	401	349	750	46	133	179	**929**
20.00	21.00	318	214	532	36	111	147	**679**
21.00	22.00	226	149	375	25	76	101	**476**
22.00	23.00	139	114	253	17	46	63	**316**
23.00	24.00	68	58	126	10	21	31	**157**
Total		5,842	5,171	11,013	1,284	2,089	3,373	**14,386**

Table 2 – Peak Season 24-hour Approach Counts

PEAK SEASON 24-HOUR APPROACH COUNTS - HOURLY SUMMARY								
FROM	**TO**	SUNSHINE BLVD S			8TH ST SW			GRAND TOTAL
		SB	NB	TOTAL	WB	EB	TOTAL	
0.00	1.00	61	54	115	2	27	29	**144**
1.00	2.00	24	24	48	6	9	15	**63**
2.00	3.00	18	21	39	7	3	10	**49**
3.00	4.00	28	22	50	11	6	17	**67**
4.00	5.00	50	31	81	33	17	50	**131**
5.00	6.00	166	159	325	120	42	162	**487**
6.00	7.00	442	585	1,027	296	88	384	**1,411**
7.00	8.00	443	547	990	161	118	279	**1,269**
8.00	9.00	398	529	927	120	113	233	**1,160**
9.00	10.00	335	342	677	107	137	244	**921**
10.00	11.00	335	290	625	64	135	199	**824**
11.00	12.00	366	301	667	69	121	190	**857**
12.00	13.00	364	321	685	70	103	173	**858**
13.00	14.00	436	347	783	77	117	194	**977**
14.00	15.00	458	405	863	95	157	252	**1,115**
15.00	16.00	477	416	893	81	188	269	**1,162**
16.00	17.00	646	491	1,137	87	306	393	**1,530**
17.00	18.00	717	533	1,250	88	325	413	**1,663**
18.00	19.00	672	465	1,137	90	329	419	**1,556**
19.00	20.00	550	479	1,029	64	183	247	**1,276**
20.00	21.00	436	294	730	50	153	203	**933**
21.00	22.00	310	205	515	35	105	140	**655**
22.00	23.00	191	157	348	24	64	88	**436**
23.00	24.00	94	80	174	14	29	43	**217**
Total		8,017	7,098	15,115	1,771	2,875	4,646	**19,761**

Appendix H.3 – Intersection Crashes Provided by LCDOT

Appendix I – Conventional Signalized Intersection Report

Report Number	84561630
Date	4/14/2015
Time	7:32 AM
Light Cond.	Daylight
Weather Cond.	Clear
Road Cond.	Dry
Pedestrian Involved	No
Bicyclist Involved	No
Witness	Yes
Crash in R/W	Yes
Crash at Inter.	Yes
Hit and Run	No
Vehicle 1	Toyota Camry
Vehicle 2	Ford Taurus
Type of Crash	T-Bone
Injuries Reported	Yes

Narrative

Vehicle 1 ran stop sign and proceeded forward in the path of Vehicle 2.

Report Number	84870334
Date	6/5/2015
Time	5:20 PM
Light Cond.	Daylight
Weather Cond.	Cloudy
Road Cond.	Dry
Pedestrian Involved	No
Bicyclist Involved	No
Witness	No
Crash in R/W	Yes
Crash at Inter.	Yes
Hit and Run	No
Vehicle 1	Hyundai Santa Fe
Vehicle 2	Pontiac Solstice
Type of Crash	Front-end Collision
Injuries Reported	No

Narrative

Vehicle 1 turned left while vehicle 2 proceeded to enter the intersection.

Report Number	85203653
Date	11/3/2015
Time	2:47 PM
Light Cond.	Daylight
Weather Cond.	Clear
Road Cond.	Dry
Pedestrian Involved	No
Bicyclist Involved	No
Witness	No
Crash in R/W	Yes
Crash at Inter.	Yes
Hit and Run	No
Vehicle 1	Toyota Corolla
Vehicle 2	Pontiac
Type of Crash	T-Bone
Injuries Reported	No

Narrative

Vehicle 1 proceeded to make a left turn onto Sunshine Blvd S while vehicle 2 occupied the intersection.

Report Number	85615287
Date	1/27/2015
Time	8:39 PM
Light Cond.	Daylight
Weather Cond.	Clear
Road Cond.	Dry
Pedestrian Involved	No
Bicyclist Involved	No
Witness	No
Crash in R/W	Yes
Crash at Inter.	Yes
Hit and Run	No
Vehicle 1	Hyundai Elantra
Vehicle 2	Honda Accord
Type of Crash	T-Bone
Injuries Reported	No

Narrative

Vehicle 1 proceeded to make a left turn onto Sunshine Blvd S while vehicle 2 occupied the intersection.

Report Number	85882346
Date	5/11/2015
Time	7:35 AM
Light Cond.	Daylight
Weather Cond.	Clear
Road Cond.	Dry
Pedestrian Involved	No
Bicyclist Involved	Yes
Witness	Yes
Crash in R/W	Yes
Crash at Inter.	Yes
Hit and Run	No
Vehicle 1	BMW 318I
Vehicle 2	Hyundai Sonata
Type of Crash	T-Bone
Injuries Reported	Yes

Narrative

Vehicle 1 pulled out in front of vehicle 2 while it was traveling through the intersection.

Report Number	86100968
Date	10/2/2015
Time	12:00 AM
Light Cond.	5:17 PM
Weather Cond.	Clear
Road Cond.	Dry
Pedestrian Involved	No
Bicyclist Involved	No
Witness	No
Crash in R/W	Yes
Crash at Inter.	Yes
Hit and Run	No
Vehicle 1	Nissan Altima
Vehicle 2	Chevy Cruse
Type of Crash	Left-Front
Injuries Reported	No

Narrative

Vehicle 1 stopped passed the stop bar and vehicle 2 turned into the front end of vehicle 1

Report Number	86102439
Date	11/30/2015
Time	7:04 AM
Light Cond.	Dawn
Weather Cond.	Clear
Road Cond.	Dry
Pedestrian Involved	No
Bicyclist Involved	No
Witness	No
Crash in R/W	Yes
Crash at Inter.	Yes
Hit and Run	No
Vehicle 1	Nissan Altima
Vehicle 2	Nissan Sprinter
Type of Crash	T-Bone
Injuries Reported	Yes

Narrative

Vehicle 1 pulled out in front of vehicle 2 while it was traveling through the intersection.

Report Number	86102982
Date	12/19/2015
Time	7:26 PM
Light Cond.	Dark-lighted
Weather Cond.	Clear
Road Cond.	Dry
Pedestrian Involved	No
Bicyclist Involved	No
Witness	Yes
Crash in R/W	Yes
Crash at Inter.	Yes
Hit and Run	No
V1 = Vehicle 1	Toyota Sequoia
V2 = Vehicle 2	Ford Ranger
Type of Crash	T-Bone
Injuries Reported	Yes

Narrative

V1 ran stop sign and pulled out in front of V2.

Report Number	85288581
Date	5/26/2016
Time	12:55 AM
Light Cond.	Dark - Not Lighted
Weather Cond.	Clear
Road Cond.	Dry
Pedestrian Involved	No
Bicyclist Involved	No
Witness	Yes
Crash in R/W	Yes
Crash at Inter.	Yes
Hit and Run	No
V1 = Vehicle 1	Chevy Cobalt
V2 = Vehicle 2	Suzuki GSX R 750
Type of Crash	T-Bone
Injuries Reported	Yes

Narrative

V1 attempted to make a left turn and pulled out in front of V2

Report Number	85362809
Date	8/24/2016
Time	6:58 PM
Light Cond.	Daylight
Weather Cond.	Cloudy
Road Cond.	Dry
Pedestrian Involved	No
Bicyclist Involved	No
Witness	No
Crash in R/W	Yes
Crash at Inter.	Yes
Hit and Run	No
V1 = Vehicle 1	Ford E150 Van
V2 = Vehicle 2	Toyota Prius
Type of Crash	T-Bone
Injuries Reported	No

Narrative

V1 pulled out in front of V2 while it was traveling through the intersection.

Report Number	86103541
Date	1/12/2016
Time	4:40 PM
Light Cond.	Daylight
Weather Cond.	Clear
Road Cond.	Dry
Pedestrian Involved	No
Bicyclist Involved	No
Witness	No
Crash in R/W	Yes
Crash at Inter.	No
Hit and Run	No
V1 = Vehicle 1	Chevy PT Cruiser
V2 = Vehicle 2	Toyota 4 Runner
Type of Crash	Front to Rear
Injuries Reported	Yes

Narrative

V1 and V2 were traveling south on Sunshine. V2 had stopped due to traffic and V1 didn't notice. V1 hit the rear end of V2

Report Number	86103867
Date	1/24/2016
Time	10:42 PM
Light Cond.	Dark-Lighted
Weather Cond.	Clear
Road Cond.	Dry
Pedestrian Involved	No
Bicyclist Involved	No
Witness	No
Crash in R/W	Yes
Crash at Inter.	No
Hit and Run	No
V1 = Vehicle 1	Toyota
V2 = Vehicle 2	Hyundai
Type of Crash	Front to Rear
Injuries Reported	Yes

Narrative

V1 and V2 were traveling east on 8th St Sw. V2 had stopped at the stop sign and V1 didn't notice. V1 hit the rear end of V2.

Report Number	86373736
Date	5/6/2016
Time	6:25 PM
Light Cond.	Daylight
Weather Cond.	Clear
Road Cond.	Dry
Pedestrian Involved	No
Bicyclist Involved	No
Witness	No
Crash in R/W	Yes
Crash at Inter.	Yes
Hit and Run	No
V1 = Vehicle 1	Toyota 4 Runner
V2 = Vehicle 2	Honda Accord
Type of Crash	T-Bone
Injuries Reported	No

Narrative

V1 drove into V2 while it was traveling through the intersection.

Report Number	86374188
Date	5/24/2016
Time	5:55 PM
Light Cond.	Daylight
Weather Cond.	Clear
Road Cond.	Dry
Pedestrian Involved	No
Bicyclist Involved	No
Witness	No
Crash in R/W	No
Crash at Inter.	No
Hit and Run	No
V1 = Vehicle 1	Kia Rio
V2 = Vehicle 2	Chevy Town&City
Type of Crash	T-Bone
Injuries Reported	No

Narrative

V1 turned in front of V2 while it turning onto the street.

Report Number	86374359
Date	5/31/2016
Time	12:11 PM
Light Cond.	Daylight
Weather Cond.	Cloudy
Road Cond.	Dry
Pedestrian Involved	No
Bicyclist Involved	No
Witness	No
Crash in R/W	Yes
Crash at Inter.	Yes
Hit and Run	No
V1 = Vehicle 1	Ford Focus
V2 = Vehicle 2	Kia Optima
Type of Crash	Head-on
Injuries Reported	Yes

Narrative

V1 drove into V2 while it was traveling through the intersection.

Report Number	86374391
Date	6/1/2016
Time	12:23 PM
Light Cond.	Daylight
Weather Cond.	Clear
Road Cond.	Dry
Pedestrian Involved	No
Bicyclist Involved	No
Witness	No
Crash in R/W	Yes
Crash at Inter.	Yes
Hit and Run	No
V1 = Vehicle 1	Ford Sedan
V2 = Vehicle 2	Dodge Pick-up
Type of Crash	Rear-end
Injuries Reported	No

Narrative

V1 and V2 were traveling south on Sunshine. V2 had stopped to turn onto 8th st SW and V1 didn’t notice. V1 hit the rear-end of V2

Report Number	86374804
Date	6/17/2016
Time	7:05 PM
Light Cond.	Daylight
Weather Cond.	Clear
Road Cond.	Dry
Pedestrian Involved	No
Bicyclist Involved	No
Witness	No
Crash in R/W	Yes
Crash at Inter.	Yes
Hit and Run	No
V1 = Vehicle 1	Dodge 4D
V2 = Vehicle 2	Honda 4D
Type of Crash	Rear end
Injuries Reported	No

Narrative

V1 and V2 were traveling east on 8th St Sw. V2 had stopped at the stop sign and V1 didn't notice. V1 hit the rear-end of V2.

Report Number	86377724
Date	10/14/2016
Time	6:10 PM
Light Cond.	Dark-Lighted
Weather Cond.	Clear
Road Cond.	Dry
Pedestrian Involved	No
Bicyclist Involved	No
Witness	No
Crash in R/W	Yes
Crash at Inter.	Yes
Hit and Run	No
V1 = Vehicle 1	Nissan
V2 = Vehicle 2	Hyundai
Type of Crash	T-Bone
Injuries Reported	No

Narrative

V1 drove in front of V2 while it was traveling through the intersection.

Report Number	86378698
Date	11/16/2016
Time	6:20 PM
Light Cond.	Dark-Lighted
Weather Cond.	Clear
Road Cond.	Dry
Pedestrian Involved	No
Bicyclist Involved	No
Witness	Yes
Crash in R/W	Yes
Crash at Inter.	Yes
Hit and Run	No
V1 = Vehicle 1	Nissan
V2 = Vehicle 2	Kia
Type of Crash	T-Bone
Injuries Reported	Yes

Narrative

V1 drove into the intersection from 8th St SW while V2 it was traveling south on sunshine.

Report Number	86379837
Date	12/27/2016
Time	11:40 AM
Light Cond.	Daylight
Weather Cond.	Clear
Road Cond.	Dry
Pedestrian Involved	No
Bicyclist Involved	No
Witness	No
Crash in R/W	Yes
Crash at Inter.	No
Hit and Run	No
V1 = Vehicle 1	Plymouth
V2 = Vehicle 2	Toyota Corolla
Type of Crash	Rear-end
Injuries Reported	No

Narrative

V1 and V2 were traveling south on Sunshine. V2 had stopped to turn onto 8th St SW and V1 didn't notice. V1 hit the rear-end of V2.

Report Number	86379943
Date	12/31/2016
Time	3:14 PM
Light Cond.	Daylight
Weather Cond.	Clear
Road Cond.	Dry
Pedestrian Involved	No
Bicyclist Involved	No
Witness	No
Crash in R/W	Yes
Crash at Inter.	No
Hit and Run	No
V1 = Vehicle 1	Hyundai Sonata
V2 = Vehicle 2	Nissan Altima
Type of Crash	Rear-end
Injuries Reported	No

Narrative

V1 and V2 were traveling north on Sunshine. V2 had stopped to turn onto 8th St SW and V1 didn't notice. V1 hit the rear-end of V2.

Report Number	85322085
Date	3/5/2017
Time	4:30 PM
Light Cond.	Daylight
Weather Cond.	Clear
Road Cond.	Dry
Pedestrian Involved	No
Bicyclist Involved	No
Witness	No
Crash in R/W	Yes
Crash at Inter.	Yes
Hit and Run	No
V1 = Vehicle 1	Toyota 4 Runner
V2 = Vehicle 2	Chevy Malibu
Type of Crash	T-Bone
Injuries Reported	No

Narrative

V1 drove into the intersection from 8th St SW while V2 it was traveling south on sunshine. V2 hit V1

Report Number	85420471
Date	1/15/2018
Time	3:40 PM
Light Cond.	Daylight
Weather Cond.	Clear
Road Cond.	Dry
Pedestrian Involved	No
Bicyclist Involved	Yes
Witness	No
Crash in R/W	Yes
Crash at Inter.	Yes
Hit and Run	No
V1 = Vehicle 1	Ford Explorer
V2 = Vehicle 2	N/A
Type of Crash	T-Bone
Injuries Reported	Yes

Narrative

Bicyclist rode in between two stopped cars and into the path of V1. V1 hit the bicyclist.

Report Number	85457537
Date	4/7/2017
Time	5:33 PM
Light Cond.	Daylight
Weather Cond.	Clear
Road Cond.	Dry
Pedestrian Involved	No
Bicyclist Involved	Yes
Witness	No
Crash in R/W	Yes
Crash at Inter.	Yes
Hit and Run	No
V1 = Vehicle 1	Isuzu Truck
V2 = Vehicle 2	Infiniti G37
Type of Crash	T-Bone
Injuries Reported	No

Narrative

V1 heading south on Sunshine turn left into the path of V2 while it was traveling through the intersection.

Report Number	85457894
Date	2/2/2017
Time	6:16 AM
Light Cond.	Dark-Not Lighted
Weather Cond.	Clear
Road Cond.	Dry
Pedestrian Involved	No
Bicyclist Involved	No
Witness	No
Crash in R/W	Yes
Crash at Inter.	Yes
Hit and Run	No
V1 = Vehicle 1	Hyundai Sonata
V2 = Vehicle 2	Dodge Charger
Type of Crash	T-Bone
Injuries Reported	No

Narrative

V1 and V2 were facing each other at 8th St SW stop signs. V1 and V2 left stop sign at the same time. V1 drove straight while V2 was turning, V2 hit V1.

Report Number	85473845
Date	4/17/2017
Time	6:34 PM
Light Cond.	Daylight
Weather Cond.	Clear
Road Cond.	Dry
Pedestrian Involved	No
Bicyclist Involved	No
Witness	No
Crash in R/W	Yes
Crash at Inter.	Yes
Hit and Run	No
V1 = Vehicle 1	Ford Fusion
V2 = Vehicle 2	Chevy Silverado
Type of Crash	T-Bone
Injuries Reported	Yes

Narrative

V1 was stopped at 8th st SW stop sign and drove into V2 while it was traveling through the intersection.

Report Number	85489651
Date	3/21/2017
Time	1:54 PM
Light Cond.	Daylight
Weather Cond.	Clear
Road Cond.	Dry
Pedestrian Involved	No
Bicyclist Involved	No
Witness	No
Crash in R/W	Yes
Crash at Inter.	Yes
Hit and Run	No
V1 = Vehicle 1	Ford Forte
V2 = Vehicle 2	Dodge Durango
Type of Crash	T-Bone
Injuries Reported	Yes

Narrative

V1 was stopped at 8th st SW stop sign and drove into the path of V2 while it was traveling through the intersection.

Report Number	85587682
Date	9/15/2017
Time	10:29 PM
Light Cond.	Dark-Not Lighted
Weather Cond.	Cloudy
Road Cond.	Wet
Pedestrian Involved	No
Bicyclist Involved	No
Witness	No
Crash in R/W	Yes
Crash at Inter.	Yes
Hit and Run	No
V1 = Vehicle 1	Hyundai Tucson
V2 = Vehicle 2	Dodge Avenger
Type of Crash	T-Bone
Injuries Reported	Yes

Narrative

V1 was failed to stop at 8th st SW stop sign and drove into V2 while it was traveling through the intersection.

Report Number	85587735
Date	11/27/2017
Time	5:45 PM
Light Cond.	Dark-Not Lighted
Weather Cond.	Clear
Road Cond.	Dry
Pedestrian Involved	No
Bicyclist Involved	No
Witness	No
Crash in R/W	Yes
Crash at Inter.	Yes
Hit and Run	No
V1 = Vehicle 1	Chevy Camaro
V2 = Vehicle 2	Chevy Silverado
Type of Crash	T-Bone
Injuries Reported	Yes

Narrative

V1 was stopped at 8th st SW stop sign and then drove into the path of V2 while it was traveling through the intersection.

Report Number	85591940
Date	11/21/2017
Time	6:03 PM
Light Cond.	Daylight
Weather Cond.	Clear
Road Cond.	Dry
Pedestrian Involved	No
Bicyclist Involved	No
Witness	No
Crash in R/W	Yes
Crash at Inter.	Yes
Hit and Run	No
V1 = Vehicle 1	Chevy Cavalier
V2 = Vehicle 2	BMW 325I
Type of Crash	T-Bone
Injuries Reported	No

Narrative

V1 was failed to stop at 8th st SW stop sign and drove into V2 while it was traveling through the intersection.

Report Number	86831388
Date	3/15/2017
Time	11:30 PM
Light Cond.	Dark-Lighted
Weather Cond.	Clear
Road Cond.	Dry
Pedestrian Involved	No
Bicyclist Involved	No
Witness	No
Crash in R/W	Yes
Crash at Inter.	Yes
Hit and Run	Yes
V1 = Vehicle 1	Dodge Journey
V2 = Vehicle 2	Dodge Avenger
Type of Crash	Sideswipe
Injuries Reported	No

Narrative

V1 was failed to stop at 8th st SW stop sign and drove into V2 while it was traveling through the intersection. V2 tried to avoid the collision by swerving.

Report Number	86831642
Date	3/22/2017
Time	6:50 AM
Light Cond.	Daylight
Weather Cond.	Fog, Smog, Smoke
Road Cond.	Dry
Pedestrian Involved	No
Bicyclist Involved	No
Witness	No
Crash in R/W	Yes
Crash at Inter.	No
Hit and Run	No
V1 = Vehicle 1	Jeep liberty
V2 = Vehicle 2	Ford Explorer
Type of Crash	Rear end
Injuries Reported	No

Narrative

V1 and V2 were traveling north on Sunshine. V2 had stopped because of a car that was crossing the intersection and V1 didn’t notice V2 stopped. V1 hit the rear-end of V2.

Report Number	86832080
Date	4/3/2017
Time	5:18 AM
Light Cond.	Dark-Lighted
Weather Cond.	Clear
Road Cond.	Dry
Pedestrian Involved	No
Bicyclist Involved	No
Witness	No
Crash in R/W	Yes
Crash at Inter.	Yes
Hit and Run	No
V1 = Vehicle 1	Cadillac Escalade
V2 = Vehicle 2	Honda Civic
Type of Crash	Head On
Injuries Reported	No

Narrative

V1 was not in the proper lane while stopped at 8th st SW stop sign. V1 began to turn north on Sunshine while V2 began to turn onto 8th st sw. V2 ran into V1 because V1 was in the wrong lane.

Report Number	87378194
Date	8/7/2017
Time	4:02 PM
Light Cond.	Daylight
Weather Cond.	Cloudy
Road Cond.	Wet
Pedestrian Involved	No
Bicyclist Involved	No
Witness	No
Crash in R/W	Yes
Crash at Inter.	Yes
Hit and Run	No
V1 = Vehicle 1	Lexus
V2 = Vehicle 2	Kia Optima
Type of Crash	Head on
Injuries Reported	Yes

Narrative

V1 was failed to stop at 8th st SW stop sign and drove into the front end of V2 while it was traveling through the intersection.

Report Number	87378405
Date	8/16/2017
Time	5:03 PM
Light Cond.	Daylight
Weather Cond.	Cloudy
Road Cond.	Wet
Pedestrian Involved	No
Bicyclist Involved	No
Witness	No
Crash in R/W	Yes
Crash at Inter.	No
Hit and Run	No
V1 = Vehicle 1	Dodge Stratus
V2 = Vehicle 2	Jeep Grand Cherokee
Type of Crash	Rear end
Injuries Reported	No

Narrative

V2 was stopped at 8th st SW stop sign with V1 behind it, V2 began to proceed through the intersection, However, stopped suddenly an V1 ran into the rear of V2.

Report Number	87379196
Date	9/13/2017
Time	11:36 AM
Light Cond.	Daylight
Weather Cond.	Clear
Road Cond.	Dry
Pedestrian Involved	No
Bicyclist Involved	No
Witness	No
Crash in R/W	Yes
Crash at Inter.	Yes
Hit and Run	No
V1 = Vehicle 1	Cadillac Sedan
V2 = Vehicle 2	Hyundai Sedan
Type of Crash	T-Bone
Injuries Reported	Yes

Narrative

V1 was failed to stop at 8th st SW stop sign and drove into V2 while it was traveling through the intersection.

Report Number	87379456
Date	9/22/2017
Time	4:50 AM
Light Cond.	Dark-Lighted
Weather Cond.	Clear
Road Cond.	Dry
Pedestrian Involved	No
Bicyclist Involved	No
Witness	No
Crash in R/W	No
Crash at Inter.	No
Hit and Run	No
V1 = Vehicle 1	Chrysler Sebring
V2 = Vehicle 2	NA
Type of Crash	Front end
Injuries Reported	No

Narrative

V1 drove off roadway and ran into shrubs.

Report Number	87380295
Date	10/16/2017
Time	6:30 AM
Light Cond.	Dawn
Weather Cond.	Clear
Road Cond.	Dry
Pedestrian Involved	No
Bicyclist Involved	No
Witness	No
Crash in R/W	Yes
Crash at Inter.	Yes
Hit and Run	No
V1 = Vehicle 1	Mazda 3
V2 = Vehicle 2	Dodge Ram
Type of Crash	T-Bone
Injuries Reported	No

Narrative

V1 was failed to stop at 8th st SW stop sign and drove into the path of V2 while it was traveling through the intersection.

Report Number	87380725
Date	10/28/2017
Time	3:02 PM
Light Cond.	Daylight
Weather Cond.	Rain
Road Cond.	Wet
Pedestrian Involved	No
Bicyclist Involved	No
Witness	No
Crash in R/W	Yes
Crash at Inter.	Yes
Hit and Run	No
V1 = Vehicle 1	Nissan
V2 = Vehicle 2	Chevy
Type of Crash	T-Bone
Injuries Reported	No

Narrative

V1 was stopped at 8th st SW stop sign and started to turn northbound on Sunshine in the path of V2 while it was traveling through the intersection. V2 hit V1

Report Number	87380814
Date	10/31/2017
Time	9:10 AM
Light Cond.	Daylight
Weather Cond.	Clear
Road Cond.	Dry
Pedestrian Involved	No
Bicyclist Involved	No
Witness	No
Crash in R/W	Yes
Crash at Inter.	Yes
Hit and Run	No
V1 = Vehicle 1	Mitsu. Galant
V2 = Vehicle 2	Hyundai Sonata
Type of Crash	T-Bone
Injuries Reported	Yes

Narrative

V1 was failed to stop at 8th st SW stop sign and drove into V2 while it was traveling through the intersection.

Report Number	87668794
Date	12/27/2017
Time	1:28 PM
Light Cond.	Daylight
Weather Cond.	Clear
Road Cond.	Dry
Pedestrian Involved	No
Bicyclist Involved	No
Witness	No
Crash in R/W	Yes
Crash at Inter.	Yes
Hit and Run	Yes
V1 = Vehicle 1	Ford
V2 = Vehicle 2	Buick Rendezvous
Type of Crash	Rear End
Injuries Reported	No

Narrative

V1 and V2 were traveling northbouund on Sunshine. V1 attempted to pass V2 while they approched the intersection. V1 hit V2 while re-entering the lane. V1 flead the seen.

Report Number	87668875
Date	12/30/2017
Time	1:54 PM
Light Cond.	Daylight
Weather Cond.	Clear
Road Cond.	Dry
Pedestrian Involved	No
Bicyclist Involved	No
Witness	No
Crash in R/W	Yes
Crash at Inter.	Yes
Hit and Run	No
V1 = Vehicle 1	Honda Civic
V2 = Vehicle 2	Nissan Altima
Type of Crash	T-Bone
Injuries Reported	Yes

Narrative

V1 was Stopped at 8th ST SW stop sign and proceeded into the intersections while V2 while it was traveling through the intersection. V2 hit V1.

Report Number	87668899
Date	12/31/2017
Time	4:01 PM
Light Cond.	Daylight
Weather Cond.	Clear
Road Cond.	Dry
Pedestrian Involved	No
Bicyclist Involved	No
Witness	No
Crash in R/W	Yes
Crash at Inter.	Yes
Hit and Run	No
V1 = Vehicle 1	Ford Expidition
V2 = Vehicle 2	Toyota Venza
Type of Crash	Rear End
Injuries Reported	No

Narrative

V1 and V2 were traveling north on Sunshine. V2 had stopped to turn onto 8th St SW and V1 didn't notice. V1 hit the rear-end of V2.

Report Number	87669466
Date	1/17/2018
Time	3:18 PM
Light Cond.	Daylight
Weather Cond.	Clear
Road Cond.	Dry
Pedestrian Involved	No
Bicyclist Involved	No
Witness	No
Crash in R/W	Yes
Crash at Inter.	Yes
Hit and Run	No
V1 = Vehicle 1	Nissan Sentra
V2 = Vehicle 2	BMW 325
Type of Crash	T-Bone
Injuries Reported	No

Narrative

V1 was failed to stop at 8th st SW stop sign and drove in front of V2 while it was traveling through the intersection.

Report Number	87717593
Date	2/14/2018
Time	5:26 PM
Light Cond.	Daylight
Weather Cond.	Clear
Road Cond.	Dry
Pedestrian Involved	No
Bicyclist Involved	No
Witness	No
Crash in R/W	Yes
Crash at Inter.	Yes
Hit and Run	Yes
V1 = Vehicle 1	Toyota camry
V2 = Vehicle 2	Chevy siverado
Type of Crash	Rear End
Injuries Reported	No

Narrative

V2 was stopped at 8th st SW stop sign and V1 drove into V2 while it was at stop sign. V1 then fled the seen.

Report Number	87718112
Date	2/27/2018
Time	2:36 PM
Light Cond.	Daylight
Weather Cond.	Clear
Road Cond.	Dry
Pedestrian Involved	No
Bicyclist Involved	No
Witness	No
Crash in R/W	Yes
Crash at Inter.	Yes
Hit and Run	No
V1 = Vehicle 1	Chevy Malibu
V2 = Vehicle 2	Honda Odyssey
Type of Crash	T-Bone
Injuries Reported	No

Narrative

V1 was stoped at 8th st SW stop sign then drove into the path of V2 while it was traveling through the intersection.

Report Number	87718759
Date	3/14/2018
Time	3:39 PM
Light Cond.	Daylight
Weather Cond.	Clear
Road Cond.	Dry
Pedestrian Involved	No
Bicyclist Involved	No
Witness	No
Crash in R/W	Yes
Crash at Inter.	No
Hit and Run	No
V1 = Vehicle 1	Lexus LS400
V2 = Vehicle 2	Ford E-150 Van
Type of Crash	Head on
Injuries Reported	No

Narrative

V1 was traveling north on Shinshine and attempted to turn left when an unknown vehicle pulled out in front of V1 causing V1 veered left to avoid unknow vehicle. V1 lost control and endedup sliding into the front of V2.

Report Number	87720851
Date	5/10/2018
Time	12:00 AM
Light Cond.	Daylight
Weather Cond.	Cloudy
Road Cond.	Dry
Pedestrian Involved	No
Bicyclist Involved	No
Witness	No
Crash in R/W	Yes
Crash at Inter.	Yes
Hit and Run	No
V1 = Vehicle 1	Toyota
V2 = Vehicle 2	KIA
Type of Crash	T-Bone
Injuries Reported	Yes

Narrative

V1 was failed to stop at 8th st SW stop sign and drove into the path of V2 while it was traveling through the intersection.

Report Number	87721079
Date	5/17/2018
Time	4:54 PM
Light Cond.	Daylight
Weather Cond.	Rain
Road Cond.	Wet
Pedestrian Involved	No
Bicyclist Involved	No
Witness	No
Crash in R/W	Yes
Crash at Inter.	No
Hit and Run	No
V1 = Vehicle 1	Mercedes C300
V2 = Vehicle 2	Chevy TrailBlazer
Type of Crash	Rear End
Injuries Reported	No

Narrative

V1 and V2 were travling south on Sunshine. V2 started to slow down due to traffic, V1 didn't notice and hit V2.

Report Number	87721354
Date	5/25/2018
Time	12:00 AM
Light Cond.	Daylight
Weather Cond.	Rain
Road Cond.	Wet
Pedestrian Involved	No
Bicyclist Involved	No
Witness	No
Crash in R/W	Yes
Crash at Inter.	No
Hit and Run	Yes
V1 = Vehicle 1	Ford transit Van
V2 = Vehicle 2	Unknown
Type of Crash	T-Bone
Injuries Reported	No

Narrative

V2 was stopped at 8th st SW stop sign. V1 was traveling south on Sunshine and lost control while turning onto 8th st SW and hit V2. V1 then drove off leaving the sceen.

Sunshine Blvd. S. and 8th St. SW.

Report Number	87976000
Date	8/20/2018
Time	4:34 PM
Light Cond.	Daylight
Weather Cond.	Rain
Road Cond.	Wet
Pedestrian Involved	No
Bicyclist Involved	No
Witness	No
Crash in R/W	Yes
Crash at Inter.	No
Hit and Run	No
V1 = Vehicle 1	Toyota Camry
V2 = Vehicle 2	Ford F-150
Type of Crash	Rear End
Injuries Reported	No

Narrative

V1 and V2 were travling north on Sunshine. V2 stopped due to traffic, V1 didn’t notice and hit V2.

Sunshine Boulevard South and 8th Street Southwest Intersection Evaluation

Conventional Signalization Intersection

DAVID DOUGLAS ASSOCIATES, INC.
CIVIL ENGINEERS • LAND PLANNERS • CONTRACT ADMINISTRATORS

Table of Contents

INTRODUCTION

David Douglas Associates, Inc. (DDAI) has been tasked by Lee County Department of Transportation (LCDOT) to assist them in evaluating the Sunshine Boulevard South and 8th Street Southwest intersection improvements in Lehigh Acres. ***Specifically, this report has been prepared to evaluate whether this intersection warrants a traffic signal.*** The existing speed limit (45 mph for Sunshine Blvd. S. & 35 mph for 8th St. SW.), turning movements and the previous 4 year crash history data were considered in assessing the potential application of a traffic signal. These parameters were evaluated in accordance with Chapter 4C of the Manual on Uniform Control Devices (MUTCD) 2009 Edition. The results and recommendation of the evaluation are provided in the following sections.

1.0 WARRANT ANALYSIS

This warrant analysis utilized the FDOT form 750-020-1 'Signal Warrant Analysis' and Chapter 4C 'Traffic Control Signal Needs Studies' of the MUTCD. The data provided by Trebilcock Consulting Solutions, PA (TCS) collected Tuesday, October 16, 2018 for a 24-hour period was analyzed in both the northbound and southbound directions along Sunshine Blvd. S. (major street), and in the eastbound and westbound directions along 8th St. SW. (minor street). The collected approach volumes were processed and the highest eight hour volume at the proposed intersection was determined. The eight highest hourly volumes are from 6:00 AM to 9:00 AM and from 3:00 PM to 8:00 PM. These times are consistent with the information contained within the Lee County 2017 Traffic Count Report (most recent adopted). For the purposes of this report, traffic hourly volumes were adjusted for peak season conditions by utilizing the Florida Department of Transportation (FDOT) Peak Season Conversion Factor (PSCF) of 1.37 as illustrated in the Peak Season Factor Category Report for Lehigh Acres (year 2017 – most current available). Refer to **Appendix I.1 for FDOT 2017 Peak Season Factor Category Report (Excerpt) and the raw and adjusted vehicular volumes provided by TCS.**

For this report, each of the signal warrants per the MUTCD was evaluated. All the warrant's standards were taken for reference from the MUTCD and are found under each warrant heading below. All tables mentioned within the warrant standard can be found on the MUTCD Chapter 4C or on FDOT Form 750-020-1 in the appendices below.

Section 4C.02. Warrant 1, Eight-Hour Vehicular Volume

The need for a traffic control signal shall be considered if an engineering study finds that one of the following conditions exist for <u>each</u> of any 8 hours of an average day:

A. The vehicles per hour given in both of the 100 percent columns of Condition A in Table 4C-1 exist on the major-street and the higher-volume minor-street approaches, respectively, to the intersection; or

B. The vehicles per hour given in both of the 100 percent columns of Condition B in Table 4C-1 exist on the major-street and the higher-volume minor-street approaches, respectively, to the intersection.

In applying each condition the major-street and minor-street volumes shall be for the same 8 hours. On the minor street, the higher volume shall not be required to be on the same approach during each of these 8 hours.

The first warrant analyzed for this Traffic Signal Warrant Study was the ***Eight Highest Hour Vehicular Volume*** and the results can be found on Appendix I.3. The data for this warrant was obtained from TCS located within Appendix I.1 and placed into the Input Form of FDOT 750-020-01 located within Appendix I.2 for the Eight Hour Volumes (Condition A).

As it can be seen in form 750-020-01 on Appendix I.3, on the 'Volume Level Criteria' the MUTCD allows for 70% vehicular volume level threshold (Table 4C-1) if one of the following situations are met:

1. If the posted Speed Limit or the 85th-percentile is greater than 40 mph, and
2. If the intersection is in a buildup area of an isolated community with a population of less than 10,000.

Since, Sunshine Blvd. S. has a posted speed limit of 45 mph, we assumed the first criteria is met for this intersection and hence, the 70% vehicular volume per hour is used as the basis for this warrant.

<u>Condition A</u> is intended for application at locations where a large volume of intersecting traffic is the principal reason to consider installing a traffic control signal.

- The traffic level counts for each of the 8-hours analyzed must meet or exceed the minimum criteria for vehicles per hour on the major-street, Sunshine Blvd. S. (total for both approaches equaling 350 vehicles) and the minor street, 8th St. SW. (highest approach equaling 105 vehicles). **According to the table below from FDOT Form 750-020-01, Condition A is met.**

Record 8 highest hours and the corresponding major-street and minor-street volumes in the Instructions Sheet.

Street	Eight Highest Hours							
	6:00 AM	7:00 AM	8:00 AM	3:00 PM	4:00 PM	5:00 PM	6:00 PM	7:00 PM
Major	966	937	878	878	1,103	1,235	1,134	1,023
Minor	255	150	117	181	298	320	298	194

Existing Volumes

<u>Condition B</u> is intended for applications where Condition A is not satisfied and the traffic volume on the major street is so heavy that the traffic on the minor intersection street suffers excessive delay or conflict in entering or crossing the major street.

- Condition B is not applicable because Condition A is met.

The MUTCD states Warrant 1 is satisfied if Condition A or Condition B is "100%" Satisfied for eight hours. Since Condition A is met on all 3 levels for every hour. **Warrant 1 is satisfied**.

Section 4C.03. Warrant 2, Four-Hour Vehicular Volume

The need for a traffic control signal shall be considered if an engineering study finds that, for each of any 4 hours of an average day, the plotted points representing the vehicles per hour on the major street (total of both approaches) and the corresponding vehicles per hour on the higher-volume minor-street approach (one direction only) all fall above the applicable curve in Figure 4C-1 for the existing combination of approach lanes. On the minor street, the higher volume shall not be required to be on the same approach during each of these 4 hours.

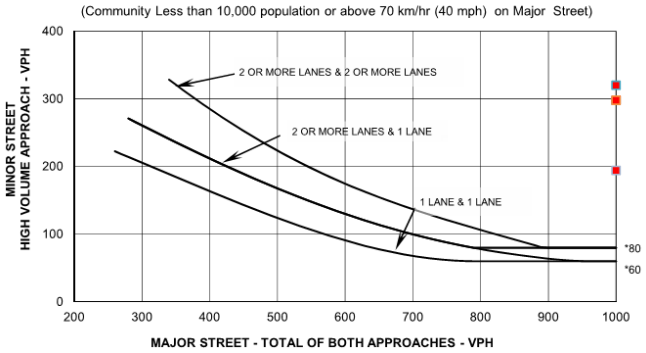
The second warrant analyzed for this Traffic Signal Warrant Study was the ***Four Hour Vehicular Volume*** and the results can be found on Appendix I.4. The data for this warrant was obtained from TCS located within Appendix I.1 and placed into the Input Form of FDOT 750-020-01 located within Appendix I.2 for the Highest Four Hour Vehicular Volumes.

The 70% vehicular volume per hour was used again as identified in Warrant 1. See Figure 4C-2 within Appendix I.4 and below.

70% Volume Level

Four Highest Hours	Volumes	
	Major Street	Minor Street
4:00 PM	1103	298
5:00 PM	1235	320
6:00 PM	1134	298
7:00 PM	1023	194

FIGURE 4C-2: Criteria for "70%" Volume Level



** Note: 80 vph applies as the lower threshold volume for a minor street approach with two or more lanes and 60 vph applies as the lower threshold volume threshold for a minor street approach with one lane.*

If all four points lie above the appropriate line (1 lane & 1 lane), then the warrant is met. According to the above Figure 4C-2 all four points lie above the appropriate line. The result for warrant 2 analysis can be found in Appendix I.4. **Warrant 2 is satisfied.**

Section 4C.04. Warrant 3, Peak Hour

This signal warrant shall be applied only in unusual cases, such as office complexes, manufacturing plants, industrial complexes, or high-occupancy vehicle facilities that attract or discharge large numbers of vehicles over a short time.

The need for a traffic control signal shall be considered if an engineering study finds that the criteria in either of the following two categories are met:

- ***A. If all three of the following conditions exist for the same 1 hour (any four consecutive 15-minute periods) of an average day:***
  - ***1. The total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equals or exceeds: 4 vehicle-hours for a one-lane approach or 5 vehicle-hours for a two-lane approach; and***
  - ***2. The volume on the same minor-street approach (one direction only) equals or exceeds 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes; and***
  - ***3. The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.***
- ***B. The plotted point representing the vehicles per hour on the major street (total of both approaches) and the corresponding vehicles per hour on the higher-volume minor-street approach (one direction only) for 1 hour (any four consecutive 15-minute periods) of an average day falls above the applicable curve in Figure 4C-3 for the existing combination of approach lanes.***

The third warrant analyzed for this Traffic Signal Warrant Study was the ***Peak Hour*** and the results can be found on Appendix I.5. This warrant only applies in unusual cases, such as to an office complex, manufacturing plants, industrial complexes or high-occupancy vehicle facilities that attract or discharge a large number of vehicles over a short time. Since, this intersection can't be classified as an "unusual case" this warrant is not applicable. **Warrant 3 is not satisfied.**

Section 4C.05. Warrant 4, Pedestrian Volume

The need for a traffic control signal at an intersection or midblock crossing shall be considered if an engineering study finds that one of the following criteria is met:

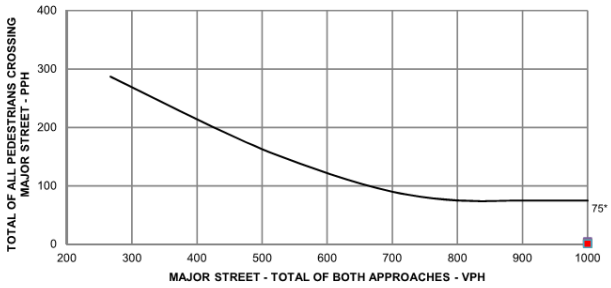
- ***A. For each of any 4 hours of an average day, the plotted points representing the vehicles per hour on the major street (total of both approaches) and the corresponding pedestrians per hour crossing the major street (total of all crossings) all fall above the curve in Figure 4C-5; or***
- ***B. For 1 hour (any four consecutive 15-minute periods) of an average day, the plotted point representing the vehicles per hour on the major street (total of both approaches) and the corresponding pedestrians per hour crossing the major street (total of all crossings) falls above the curve in Figure 4C-7.***

The 70% vehicular volume per hour was used again as identified in Warrant 1. See Figure 4C-6 within Appendix I.6 and below.

70% Volume Level

Four Highest Hours	Volumes	
	Major Street	Pedestrian Total
4:00 PM	1103	2
5:00 PM	1235	1
6:00 PM	1134	4
7:00 PM	1023	1

Figure 4C-6 Criteria for "70%" Volume Level



** Note: 75 pph applies as the lower threshold volume*

The fourth warrant analyzed for this Traffic Signal Warrant Study was Pedestrian Volumes and the results can be found within appendix I.6. As it can be seen on Figure 4C-6 located above and within Appendix I.6 the point shown on the graph is below the line therefore this warrant is applicable, however, not satisfied. **Warrant 4 is not satisfied.**

Section 4C.06. Warrant 5, School Crossing

The need for a traffic control signal shall be considered when an engineering study of the frequency and adequacy of gaps in the vehicular traffic stream as related to the number and size of groups of school children at an established school crossing across the major street shows that the number of adequate gaps in the traffic stream during the period when the school children are using the crossing is less than the number of minutes in the same period (see Section 7A.03) and there are a minimum of 20 school children during the highest crossing hour.

The fifth warrant analyzed for this Traffic Signal Warrant Study was ***School Crossings across a major street*** and the results can be found with appendix I.7. DDAI is aware of 6 schools within a 2 mile radius (Section 236.083, Florida Statue) of the intersection (or within walking distance) of the intersection, however, like Warrant 4, this intersection receives minimal pedestrian crossings across the major street (Sunshine Blvd. S.) at the peak hours (no more than 4 crossings). This warrant is applicable, however, not satisfied. **Warrant 5 is not satisfied.**

Section 4C.07. Warrant 6, Coordinated Signal System

The need for a traffic control signal shall be considered if an engineering study finds that one of the following criteria is met:

- ***A. On a one-way street or a street that has traffic predominantly in one direction, the adjacent traffic control signals are so far apart that they do not provide the necessary degree of vehicular platooning.***
- ***B. On a two-way street, adjacent traffic control signals do not provide the necessary degree of platooning and the proposed and adjacent traffic control signals will collectively provide a progressive operation.***

The sixth warrant analyzed for this Traffic Signal Warrant Study was ***Coordinated Signal System***, and it is intended to maintain proper platooning of vehicles where necessary. As of today, no platooning is evident for cars due to no signalization throughout Sunshine Blvd. S. and thus this **warrant was deemed not applicable and is not satisfied.** Results for this warrant can be found in Appendix I.8.

Section 4C.08. Warrant 7, Crash Experience

The need for a traffic control signal shall be considered if an engineering study finds that all of the following criteria are met:

1. ***For each of any 8 hours of an average day, the vehicles per hour (vph) given in both of the 80 percent columns of Condition A in Table 4C-1 (see Section 4C.02), or the vph in both of the 80 percent columns of Condition B in Table 4C-1 exists on the major-street and the higher-volume minor-street approach, respectively, to the intersection, or the volume of pedestrian traffic is not less than 80 percent of the requirements specified in the Pedestrian Volume warrant. These major-street and minor-street volumes shall be for the same 8 hours. On the minor street, the higher volume shall not be required to be on the same approach during each of the 8 hours.***
2. ***Adequate trial of alternatives with satisfactory observance and enforcement has failed to reduce the crash frequency; and***
3. ***Five or more reported crashes, of types susceptible to correction by a traffic control signal, have occurred within a 12-month period, each crash involving personal injury or property damage apparently exceeding the applicable requirements for a reportable crash; and***

Option:

If the posted or statutory speed limit or the 85th-percentile speed on the major street exceeds 40 mph, or if the intersection lies within the built-up area of an isolated community having a population of less than 10,000, the traffic volumes in the 56 percent columns in Table 4C-1 may be used in place of the 80 percent columns.

Table 4C-1. Warrant 1, Eight-Hour Vehicular Volume

Condition A—Minimum Vehicular Volume

Number of lanes for moving traffic on each approach		Vehicles per hour on major street (total of both approaches)				Vehicles per hour on higher-volume minor-street approach (one direction only)			
Major Street	Minor Street	100%[a]	80%[b]	70%[c]	56%[d]	100%[a]	80%[b]	70%[c]	56%[d]
1	1	500	400	350	280	150	120	105	84
2 or more	1	600	480	420	336	150	120	105	84
2 or more	2 or more	600	480	420	336	200	160	140	112
1	2 or more	500	400	350	280	200	160	140	112

Record 8 highest hours and the corresponding major-street and minor-street volumes in the Instructions Sheet.

Street	Eight Highest Hours							
	6:00 AM	7:00 AM	8:00 AM	3:00 PM	4:00 PM	5:00 PM	6:00 PM	7:00 PM
Major	966	937	878	878	1,103	1,235	1,134	1,023
Minor	255	150	117	181	298	320	298	194

Existing Volumes

Criteria 1 – The traffic level volume for each of the 8-hours analyzed (see above), meet and exceed the 80% minimum criteria (within Table 4C-1) for vehicles per hour (400) on the major-street, Sunshine Blvd. S. (total of both approaches), however, the 80% minimum criteria for vehicles per hour (120) on the minor street, 8th St. SW., is only met for 7 out of the same 8 hours. Condition A "Table 4C-1" located above and within Appendix 1.3.

The MUTCD allows for the use of the 56% columns in Table 4C-1 in place of the 80% columns if the posted speed limit on the major street exceeds 40 mph and we assumed this criteria was met in Warrant 1, thus the 56% columns are justified. The traffic level counts for each of the 8-hours analyzed meet and exceed the 56% minimum criteria for vehicles per hour on the major street (Sunshine Blvd. S.) and minor street (8th St. SW.). **Criteria 1 is met.**

Criteria 2 – DDAI is unaware of any failed trials meant to reduce the crash frequency at or around this intersection. **Criteria 2 is not met.**

Criteria 3 – The crash history data obtained was summarized and analyzed to determine the frequency and severity of the crashes when determining the applicability of Warrant 7. It was determined based on the crash history data (4 years supplied); there is an excessive frequency and severity of crashes at this intersection as more than 5 crashes have been reported at the intersection in 1 year as it can be seen in Table 1.0 (below). A total of 37 crashes have been reported to the Lee County Sheriff Department for this intersection, and out of the 37 crashes 17 occurred in a period of 12 months. **Criteria 3 is met.**

Table 1.0 4-Year Crash Summary

Date	Crash Type				Injury/Death
	Left Turn	Right Turn	Right-Angle	Total	
2015	2	0	6	8	4/0
2016	1	0	6	7	3/0
2017	1	2	14	17	9/0
2018	1	0	4	5	1/0
1/1/17 - 12/31/17 (Max 12 Month)	1	2	14	17	9/0

The seventh warrant analyzed for this Traffic Signal Warrant Study was ***Crash Experience***. This warrant **is applicable**, however per MUTCD **Warrant 7** is only satisfied if all of the conditions are met. Even though Conditions B & C are met, Condition A is not. Since all 3 conditions are not met **Warrant 7 is not satisfied.** Results for this warrant can be found in Appendix I.9.

Section 4C.09. Warrant 8, Roadway Network

The need for a traffic control signal shall be considered if an engineering study finds that the common intersection of two or more major routes meets one or both of the following criteria:

- ***A. The intersection has a total existing, or immediately projected, entering volume of at least 1,000 vehicles per hour during the peak hour of a typical weekday and has 5-year projected traffic volumes, based on an engineering study, that meet one or more of Warrants 1, 2, and 3 during an average weekday; or***
- ***B. The intersection has a total existing or immediately projected entering volume of at least 1,000 vehicles per hour for each of any 5 hours of a non-normal business day (Saturday or Sunday).***

A major route as used in this signal warrant shall have at least one of the following characteristics:

- ***A. It is part of the street or highway system that serves as the principal roadway network for through traffic flow.***
- ***B. It includes rural or suburban highways outside, entering, or traversing a city.***
- ***C. It appears as a major route on an official plan, such as a major street plan in an urban area traffic and transportation study.***

The eighth warrant analyzed for this Traffic Signal Warrant Study was ***Roadway Network***. As is evident in form 750-020-01 in Appendix I.10, criteria 1a and 1b are met. Neither Sunshine Blvd. S. or 8th St. SW. have one or more of the Major Route characteristics and this warrant reads *"The warrant is satisfied if at least one of the criteria is fulfilled and if all intersection routes have one or more of the Major Route characteristics listed".* Thus **Warrant 8 is applicable, however, not satisfied.** The results can be found in Appendix I.10.

Section 4C.10. Warrant 9, Intersection Near a Grade Crossing

The need for a traffic control signal shall be considered if an engineering study finds that both of the following criteria are met:

- *A. A grade crossing exists on an approach controlled by a STOP or YIELD sign and the center of the track nearest to the intersection is within 140 feet of the stop line or yield line on the approach; and*
- *B. During the highest traffic volume hour during which rail traffic uses the crossing, the plotted point representing the vehicles per hour on the major street (total of both approaches) and the corresponding vehicles per hour on the minor-street approach that crosses the track (one direction only, approaching the intersection) falls above the applicable curve in Figure 4C-9 or 4C-10 for the existing combination of approach lanes over the track and the distance D, which is the clear storage distance as defined in Section 1A.13.*

The ninth warrant analyzed for this Traffic Signal Warrant Study was ***Intersection Near a Grade Grossing***. This intersection is not near a grade crossing and therefore **this warrant is not applicable and thus Warrant 9 is not satisfied.** Results for this warrant can be found in Appendix I.11.

2.0 CONCLUSION

David Douglas Associates Inc. completed a traffic signal study for the intersection of Sunshine Blvd. S. and 8th St. SW. using MUTCD Chapter 4C and FDOT Form 750-020-01 (supplemental to the MUTCD Chapter C). A summary of the warrants, their applicability and satisfaction is summarized in Table 2.0 below.

Table 2.0 Warrant Summary

MUTCD Section	Warrants	Applicable	Satisfied
4C.02	Warrant 1 - Eight-Hour Vehicular Volume	Yes	Yes
4C.03	Warrant 2 - Four-Hour Vehicular Volume	Yes	Yes
4C.04	Warrant 3 - Peak Hour	No	No
4C.05	Warrant 4 - Pedestrian Volume	Yes	No
4C.06	Warrant 5 - School Crossing	Yes	No
4C.07	Warrant 6 - Coordinated Signal System	No	No
4C.08	Warrant 7 - Crash Experience	Yes	No
4C.09	Warrant 8 - Roadway Network	Yes	No
4C.10	Warrant 9 - Intersection Near a Grade Crossing	No	No

The MUTCD states th*e satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic signal.* As it can be seen in Table 2.0 and in the summary attached in Appendix I.12, six (6) of the nine (9) Warrants specified are applicable to this intersection. Out of those six (6) Warrants that were deemed applicable, two were satisfied. Even though Warrant 7 was not fully satisfied there is a high crash rate at this intersection and many of the crashes could have been prevented by a signal. David Douglas Associates Inc. concludes a traffic signal **is warranted** at this intersection.

Appendix I.1 – Additional Supplementary Information

Table 3 – Summary 8-hour Turning Movement Counts

RAW EIGHT-HOUR TURNING MOVEMENT COUNT - HOURLY SUMMARY -																		
TIME		SUNSHINE BLVD N								8TH ST SW								INTERSECTION TOTAL
		NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
FROM	TO	LEFT	THRU	RIGHT	TOTAL	LEFT	THRU	RIGHT	TOTAL	LEFT	THRU	RIGHT	TOTAL	LEFT	THRU	RIGHT	TOTAL	
6.00	7.00	88	319	9	416	15	146	128	289	28	13	28	69	21	92	73	186	960
7.00	8.00	77	306	9	392	13	181	97	291	44	9	34	87	19	44	46	109	879
8.00	9.00	30	337	15	382	24	181	53	258	50	8	21	79	11	21	53	85	804
15.00	16.00	21	266	16	303	50	224	63	337	72	32	28	132	15	15	30	60	832
16.00	17.00	36	287	24	347	55	307	95	457	116	57	44	217	7	21	31	59	1,080
17.00	18.00	48	312	26	386	51	359	105	515	101	70	62	233	18	11	32	61	1,195
18.00	19.00	42	276	25	343	58	316	110	484	122	58	37	217	15	21	27	63	1,107
19.00	20.00	39	283	26	348	39	266	93	398	75	36	30	141	8	14	24	46	933
COUNT TOTAL		**381**	**2,386**	**150**	**2,917**	**305**	**1,980**	**744**	**3,029**	**608**	**283**	**284**	**1,175**	**114**	**239**	**316**	**669**	**7,790**
Percentage		13%	82%	5%	100%	10%	65%	25%	100%	52%	24%	24%	100%	17%	36%	47%	100%	
Maximum		88	337	26		58	359	128		122	70	62		21	92	73		
Minimum		21	266	9		13	146	53		28	8	21		7	11	24		

PEAK SEASON EIGHT-HOUR TURNING MOVEMENT COUNT - HOURLY SUMMARY -																		
TIME		SUNSHINE BLVD N								8TH ST SW								INTERSECTION TOTAL
		NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
FROM	TO	LEFT	THRU	RIGHT	TOTAL	LEFT	THRU	RIGHT	TOTAL	LEFT	THRU	RIGHT	TOTAL	LEFT	THRU	RIGHT	TOTAL	
6.00	7.00	121	438	13	570	21	201	176	396	39	18	39	95	29	127	101	255	1316
7.00	8.00	106	420	13	538	18	248	133	399	61	13	47	120	27	61	64	150	1205
8.00	9.00	42	462	21	524	33	248	73	354	69	11	29	109	16	29	73	117	1102
15.00	16.00	29	365	22	416	69	307	87	462	99	44	39	181	21	21	42	83	1140
16.00	17.00	50	394	33	476	76	421	131	627	159	79	61	298	10	29	43	81	1480
17.00	18.00	66	428	36	529	70	492	144	706	139	96	85	320	25	16	44	84	1638
18.00	19.00	58	379	35	470	80	433	151	664	168	80	51	298	21	29	37	87	1517
19.00	20.00	54	388	36	477	54	365	128	546	103	50	42	194	11	20	33	64	1279

2017 PEAK SEASON FACTOR CATEGORY REPORT - REPORT TYPE: ALL
CATEGORY: 1247 LEHIGH ACRES

WEEK	DATES	SF	MOCF: 0.91 PSCF
1	01/01/2017 - 01/07/2017	1.17	1.29
2	01/08/2017 - 01/14/2017	1.07	1.18
3	01/15/2017 - 01/21/2017	0.96	1.05
* 4	01/22/2017 - 01/28/2017	0.94	1.03
* 5	01/29/2017 - 02/04/2017	0.93	1.02
* 6	02/05/2017 - 02/11/2017	0.91	1.00
* 7	02/12/2017 - 02/18/2017	0.89	0.98
* 8	02/19/2017 - 02/25/2017	0.89	0.98
* 9	02/26/2017 - 03/04/2017	0.89	0.98
*10	03/05/2017 - 03/11/2017	0.88	0.97
*11	03/12/2017 - 03/18/2017	0.88	0.97
*12	03/19/2017 - 03/25/2017	0.90	0.99
*13	03/26/2017 - 04/01/2017	0.91	1.00
*14	04/02/2017 - 04/08/2017	0.93	1.02
*15	04/09/2017 - 04/15/2017	0.94	1.03
*16	04/16/2017 - 04/22/2017	0.95	1.04
17	04/23/2017 - 04/29/2017	0.96	1.05
18	04/30/2017 - 05/06/2017	0.96	1.05
19	05/07/2017 - 05/13/2017	0.97	1.07
20	05/14/2017 - 05/20/2017	0.98	1.08
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	1.03	1.13
24	06/11/2017 - 06/17/2017	1.05	1.15
25	06/18/2017 - 06/24/2017	1.06	1.16
26	06/25/2017 - 07/01/2017	1.06	1.16
27	07/02/2017 - 07/08/2017	1.07	1.18
28	07/09/2017 - 07/15/2017	1.07	1.18
29	07/16/2017 - 07/22/2017	1.07	1.18
30	07/23/2017 - 07/29/2017	1.07	1.18
31	07/30/2017 - 08/05/2017	1.06	1.16
32	08/06/2017 - 08/12/2017	1.06	1.16
33	08/13/2017 - 08/19/2017	1.06	1.16
34	08/20/2017 - 08/26/2017	1.12	1.23
35	08/27/2017 - 09/02/2017	1.18	1.30
36	09/03/2017 - 09/09/2017	1.24	1.36
37	09/10/2017 - 09/16/2017	1.30	1.43
38	09/17/2017 - 09/23/2017	1.29	1.42
39	09/24/2017 - 09/30/2017	1.28	1.41
40	10/01/2017 - 10/07/2017	1.27	1.40
41	10/08/2017 - 10/14/2017	1.26	1.38
42	10/15/2017 - 10/21/2017	1.25	1.37
43	10/22/2017 - 10/28/2017	1.24	1.36
44	10/29/2017 - 11/04/2017	1.23	1.35
45	11/05/2017 - 11/11/2017	1.22	1.34
46	11/12/2017 - 11/18/2017	1.21	1.33
47	11/19/2017 - 11/25/2017	1.20	1.32
48	11/26/2017 - 12/02/2017	1.19	1.31
49	12/03/2017 - 12/09/2017	1.18	1.30
50	12/10/2017 - 12/16/2017	1.17	1.29
51	12/17/2017 - 12/23/2017	1.10	1.21
52	12/24/2017 - 12/30/2017	1.03	1.13
53	12/31/2017 - 12/31/2017	0.96	1.05

* PEAK SEASON

02-MAR-2018 15:35:05 830UPD 1_1247_PKSEASON.TXT

Appendix I.2 – Warrant Input

SIGNAL WARRANT ANALYSIS

Introduction

- The Signal Warrant Analysis Spreadsheets are a tool for assisting traffic engineers when evaluating the need for a traffic signal installation
- The filled spreadsheets can be used as part of the supporting documents for the signal warrant evaluation

Note: This templates are a useful resource, but it remains necessary to apply engineering judgment and to consider specific environmental, traffic, geometric, and operational conditions

Instructions

Fill in "Orange" areas only	
Automated cells based on in Input Data in "orange" cells	
General Information	Fill in below the general information including: District, County (drop-down menu) City, Engineer, Date Major and Minor Street with corresponding number of lanes and speed limits
Enter Eight Hour Volumes	Any 8 hours of an average day. Major-street and minor-street volumes shall be for the same 8 hours; however, the 8 hours satisfied in Condition A shall **not** be required to be the same 8 hours satisfied in Condition B **for 80% columns only.** On the minor street, the higher volume shall not be required to be on the same approach during each of the 8 hours.
Enter Four Hour Volumes	Any 4 hours of an average day. Vehicles per hour on the major street (total of both approaches) and the corresponding vehicles per hour on the higher-volume minor-street approach (one direction only, not required to be on the same approach during each of the 4 hours)
Enter Pedestrian Volumes (4-hr)	Pedestrians per hour crossing the major street (total of all crossings)
Enter Peak Hour Volumes	Vehicular: Any four consecutive 15-minute periods of an average day Pedestrian: Any four consecutive 15-minute periods of an average day representing the vehicles per hour on the major street (total of both approaches) and the corresponding pedestrians per hour crossing the major street (total of all crossings)

Input Data

Form 750-020-01
TRAFFIC ENGINEERING
10/15

City: **Lehigh Acres**
County: **12 – Lee**
District: **Five**

Engineer: **Rich Batewell, III, E.I.**
Date: **November 6, 2018**

Major Street: **Sunshine Blvd. S.** # Lanes: **2** Major Approach Speed: **45**
Minor Street: **8th St. SW.** # Lanes: **2** Minor Approach Speed: **35**

Warrant 1 Eight Hour Volumes (Condition A)

Hours	Major Street (total of both approaches)	Minor Street (one direction only)
6:00 AM	966	255
7:00 AM	937	150
8:00 AM	878	117
3:00 PM	878	181
4:00 PM	1103	298
5:00 PM	1235	320
6:00 PM	1134	298
7:00 PM	1023	194

Eight Hour Volumes (Condition B)

Hours	Major Street (total of both approaches)	Minor Street (one direction only)
6:00 AM	966	255
7:00 AM	937	150
8:00 AM	878	117
3:00 PM	878	181
4:00 PM	1103	298
5:00 PM	1235	320
6:00 PM	1134	298
7:00 PM	1023	194

Warrant 2 Highest Four Hour Vehicular Volumes

Hours	Major Street (total of both approaches)	Minor Street (one direction only)
4:00 PM	1103	298
5:00 PM	1235	320
6:00 PM	1134	298
7:00 PM	1023	194

Highest Four Hour Pedestrian Volumes

Hours	Major Street (total of both approaches)	Pedestrian Crossings on Major Street
4:00 PM	1103	2
5:00 PM	1235	1
6:00 PM	1134	4
7:00 PM	1023	1

Warrant 3 Vehicular Peak Hour Volumes

Peak Hour	Major Street (total of both approaches)	Minor Street (one direction only)	Total Entering Volume
5:00 PM	1235	320	1555

Warrant 4 Pedestrian Peak Hour Volumes

Peak Hour	Major Street (total of both approaches)	Pedestrian Crossing Volumes on Major Street
6:00 PM	1134	4

Appendix I.3 – Warrant 1 Results

Form 750-020-01
TRAFFIC ENGINEERING
10/15

State of Florida Department of Transportation

TRAFFIC SIGNAL WARRANT SUMMARY

City:	**Lehigh Acres**	Engineer:	**Rich Batewell, III, E.I.**
County:	**12 – Lee**	Date:	**November 6, 2018**
District:	**Five**		

Major Street:	**Sunshine Blvd. S.**	Lanes:	**2**	Major Approach Speed:	**45**
Minor Street:	**8th St. SW.**	Lanes:	**2**	Minor Approach Speed:	**35**

MUTCD Electronic Reference to Chapter 4: http://mutcd.fhwa.dot.gov/pdfs/2009r1r2/part4.pdf

Volume Level Criteria

1. Is the posted speed or 85th-percentile of major street > 40 mph (70 km/h)?	☑ Yes	☐ No
2. Is the intersection in a built-up area of an isolated community with a population < 10,000?	☐ Yes	☑ No
"70%" volume level **may** be used if Question 1 **or** 2 above is answered "Yes"	☑ 70%	☐ 100%

WARRANT 1 - EIGHT-HOUR VEHICULAR VOLUME

Warrant 1 is satisfied if Condition A or Condition B is "100%" satisfied for eight hours.	☑ Yes	☐ No
Warrant 1 is also satisfied if both Condition A and Condition B are "80%" satisfied (should only be applied after an adequate trial of other alternatives that could cause less delay and inconvenience to traffic has failed to solve the traffic problems).	☐ Yes	☑ No

Condition A - Minimum Vehicular Volume

Condition A is intended for application at locations where a large volume of intersecting traffic is the principal reason to consider installing a traffic control signal.

100% Satisfied:	☐ Yes	☑ No
80% Satisfied:	☐ Yes	☑ No
70% Satisfied:	☑ Yes	☐ No

Table 4C-1. Warrant 1, Eight-Hour Vehicular Volume

Condition A—Minimum Vehicular Volume

Number of lanes for moving traffic on each approach		Vehicles per hour on major street (total of both approaches)				Vehicles per hour on higher-volume minor-street approach (one direction only)			
Major Street	Minor Street	100%[a]	80%[b]	70%[c]	56%[d]	100%[a]	80%[b]	70%[c]	56%[d]
1	1	500	400	350	280	150	120	105	84
2 or more	1	600	480	420	336	150	120	105	84
2 or more	2 or more	600	480	420	336	200	160	140	112
1	2 or more	500	400	350	280	200	160	140	112

[a] Basic Minimum hourly volume
[b] Used for combination of Conditions A and B after adequate trial of other remedial measures
* [c] May be used when the major-street speed exceeds 40 mph or in an isolated community with a population of less than 10,000 *

Record 8 highest hours and the corresponding major-street and minor-street volumes in the Instructions Sheet.

Street	Eight Highest Hours							
	6:00 AM	7:00 AM	8:00 AM	3:00 PM	4:00 PM	5:00 PM	6:00 PM	7:00 PM
Major	966	937	878	878	1,103	1,235	1,134	1,023
Minor	255	150	117	181	298	320	298	194

Existing Volumes

State of Florida Department of Transportation

TRAFFIC SIGNAL WARRANT SUMMARY

Condition B - Interruption of Continuous Traffic

Condition B is intended for application where Condition A is not satisfied and the traffic volume on a major street is so heavy that traffic on the minor intersecting street suffers excessive delay or conflict in entering or crossing the major street.

Applicable:	☐ Yes	☑ No
100% Satisfied:	☐ Yes	☐ No
80% Satisfied:	☐ Yes	☐ No
70% Satisfied:	☐ Yes	☐ No

Number of Lanes for moving traffic on each approach		Vehicles per hour on major-street (total of both approaches)			Vehicles per hour on minor-street (one direction only)		
Major	**Minor**	**100%[a]**	**80%[b]**	**70%[c]**	**100%[a]**	**80%[b]**	**70%[c]**
1	1	750	600	525	75	60	53
2 or more	1	900	720	630	75	60	53
2 or more	2 or more	900	720	630	100	80	70
1	2 or more	750	600	525	100	80	70

[a] Basic Minimum hourly volume

[b] Used for combination of Conditions A and B after adequate trial of other remedial measures

[c] May be used when the major-street speed exceeds 40 mph or in an isolated community with a population of less than 10,000

Record 8 highest hours and the corresponding major-street and minor-street volumes in the Instructions Sheet.

Eight Highest Hours								
Street	**6:00 AM**	**7:00 AM**	**8:00 AM**	**3:00 PM**	**4:00 PM**	**5:00 PM**	**6:00 PM**	**7:00 PM**
Major	966	937	878	878	1,103	1,235	1,134	1,023
Minor	255	150	117	181	298	320	298	194

Existing Volumes

Appendix I.4 – Warrant 2 Results

Form 750-020-01
TRAFFIC ENGINEERING
10/15

State of Florida Department of Transportation

TRAFFIC SIGNAL WARRANT SUMMARY

City:	**Lehigh Acres**	Engineer:	**Rich Batewell, III, E.I.**
County:	**12 – Lee**	Date:	**November 6, 2018**
District:	**Five**		

Major Street:	**Sunshine Blvd. S.**	Lanes:	**2**	Major Approach Speed:	**45**
Minor Street:	**8th St. SW.**	Lanes:	**2**	Minor Approach Speed:	**35**

MUTCD Electronic Reference to Chapter 4: http://mutcd.fhwa.dot.gov/pdfs/2009r1r2/part4.pdf

Volume Level Criteria

1. Is the posted speed or 85th-percentile of major street > 40 mph (70 km/h)? ☑ Yes ☐ No
2. Is the intersection in a built-up area of an isolated community with a population < 10,000? ☐ Yes ☑ No

"70%" volume level **may** be used if Question 1 **or** 2 above is answered "Yes" ☑ Yes ☐ No

WARRANT 2 - FOUR-HOUR VEHICULAR VOLUME

If all four points lie above the appropriate line, then the warrant is satisfied.

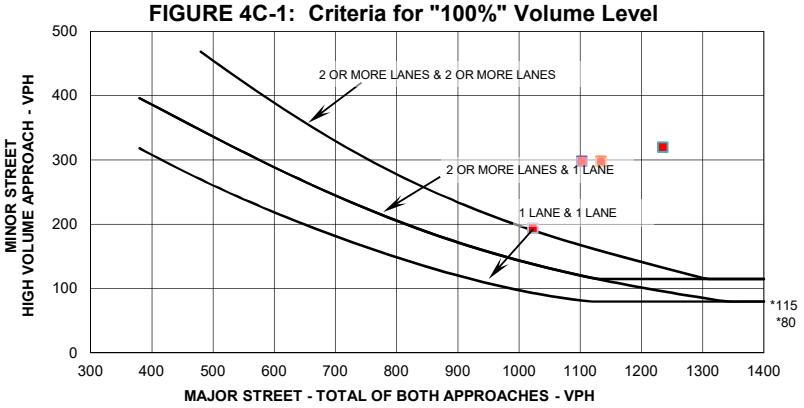
Applicable: ☑ Yes ☐ No
Satisfied: ☑ Yes ☐ No

Plot four volume combinations on the applicable figure below.

100% Volume Level

Four Highest Hours	Volumes	
	Major Street	Minor Street
4:00 PM	1103	298
5:00 PM	1235	320
6:00 PM	1134	298
7:00 PM	1023	194

FIGURE 4C-1: Criteria for "100%" Volume Level



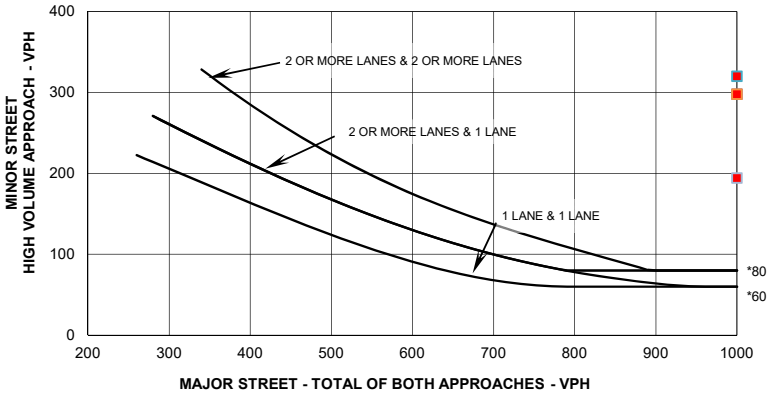
** Note: 115 vph applies as the lower threshold volume for a minor street approach with two or more lanes and 80 vph applies as the lower threshold volume threshold for a minor street approach with one lane.*

70% Volume Level

Four Highest Hours	Volumes	
	Major Street	Minor Street
4:00 PM	1103	298
5:00 PM	1235	320
6:00 PM	1134	298
7:00 PM	1023	194

FIGURE 4C-2: Criteria for "70%" Volume Level

(Community Less than 10,000 population or above 70 km/hr (40 mph) on Major Street)



** Note: 80 vph applies as the lower threshold volume for a minor street approach with two or more lanes and 60 vph applies as the lower threshold volume threshold for a minor street approach with one lane.*

Appendix I.5 – Warrant 3 Results

Form 750-020-01
TRAFFIC ENGINEERING
10/15

State of Florida Department of Transportation

TRAFFIC SIGNAL WARRANT SUMMARY

City:	**Lehigh Acres**	Engineer:	**Rich Batewell, III, E.I.**
County:	**12 – Lee**	Date:	**November 6, 2018**
District:	**Five**		

Major Street:	**Sunshine Blvd. S.**	Lanes:	**2**	Major Approach Speed:	**45**
Minor Street:	**8th St. SW.**	Lanes:	**2**	Minor Approach Speed:	**35**

MUTCD Electronic Reference to Chapter 4: http://mutcd.fhwa.dot.gov/pdfs/2009r1r2/part4.pdf

Volume Level Criteria

1. Is the posted speed or 85th-percentile of major street > 40 mph (70 km/h)? ☑ Yes ☐ No
2. Is the intersection in a built-up area of an isolated community with a population < 10,000? ☐ Yes ☐ No

"70%" volume level **may** be used if Question 1 **or** 2 above is answered "Yes" ☑ 70% ☐ 100%

WARRANT 3 - PEAK HOUR

*If all three criteria are fulfilled **or** the plotted point lies above the appropriate line, then the warrant is satisfied.*

Applicable: ☐ Yes ☑ No
Satisfied: ☐ Yes ☐ No

Unusual condition justifying use of warrant:

N/A

N/A

Record hour when criteria are fulfilled and the corresponding delay or volume in boxes provided.

Peak Hour 100% Volume		
Time	Major Vol.	Minor Vol.

Peak Hour 70% Volume		
Time	Major Vol.	Minor Vol.
5:00 PM	1235	320

Criteria

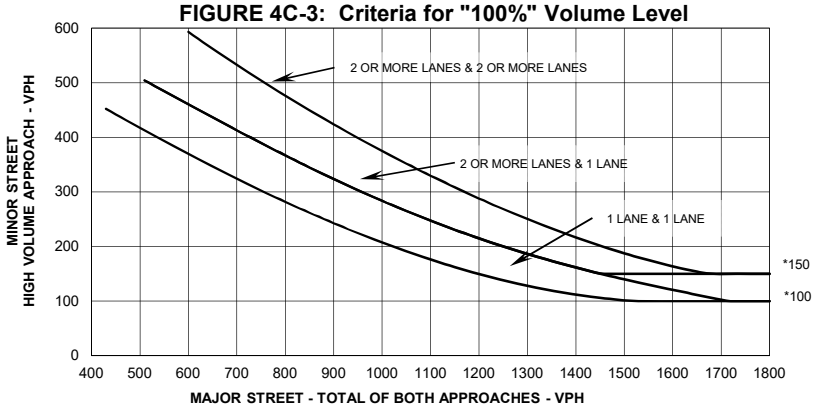
1. Delay on Minor Approach *(vehicle-hours)		
Approach Lanes	1	2
Delay Criteria*	4.0	5.0
Delay*		
Fulfilled?:	☐ Yes	☑ No

2. Volume on Minor Approach One-Direction *(vehicles per hour)		
Approach Lanes	1	2
Volume Criteria*	100	150
Volume*		
Fulfilled?:	☐ Yes	☑ No

3. Total Intersection Entering Volume *(vehicles per hour)		
No. of Approaches	3	4
Volume Criteria*	650	800
Volume*		
Fulfilled?:	☑ Yes	☐ No

Plot volume combination on the applicable figure below.

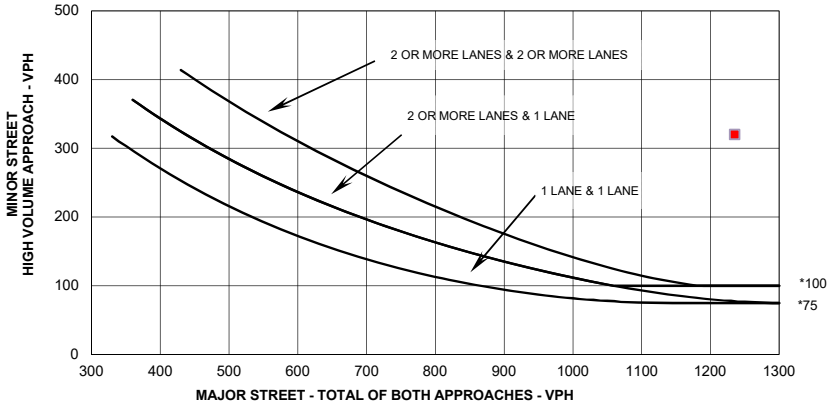
FIGURE 4C-3: Criteria for "100%" Volume Level



** Note: 150 vph applies as the lower threshold volume for a minor street approach with two or more lanes and 100 vph applies as the lower threshold volume threshold for a minor street approach with one lane.*

FIGURE 4C-4: Criteria for "70%" Volume Level

(Community Less than 10,000 population or above 70 km/hr (40 mph) on Major Street)



** Note: 100 vph applies as the lower threshold volume for a minor street approach with two or more lanes and 75 vph applies as the lower threshold volume threshold for a minor street approach with one lane.*

Appendix I.6 – Warrant 4 Results

State of Florida Department of Transportation

TRAFFIC SIGNAL WARRANT SUMMARY

City:	**Lehigh Acres**	Engineer:	**Rich Batewell, III, E.I.**
County:	**12 – Lee**	Date:	**November 6, 2018**
District:	**Five**		

Major Street:	**Sunshine Blvd. S.**	Lanes:	**2**	Major Approach Speed:	**45**
Minor Street:	**8th St. SW.**	Lanes:	**2**	Minor Approach Speed:	**35**

MUTCD Electronic Reference to Chapter 4:

Volume Level Criteria

1. Is the posted speed or 85th-percentile of major street > 40 mph (70 km/h)? ☑ Yes ☐ No
2. Is the intersection in a built-up area of an isolated community with a population < 10,000? ☐ Yes ☐ No

"70%" volume level **may** be used if Question 1 **or** 2 above is answered "Yes" ☑ 70% ☐ 100%

WARRANT 4 - PEDESTRIAN VOLUME

For each of any 4 hours of an average day, the plotted points lie above the appropriate line, then the warrant is satisfied.

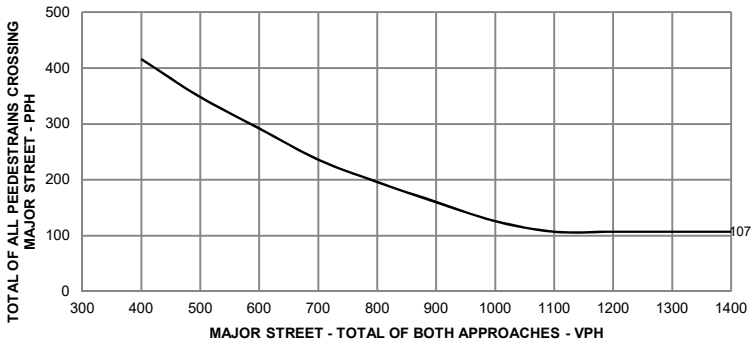
Applicable: ☑ Yes ☐ No
Satisfied: ☐ Yes ☐ No

Plot four volume combinations on the applicable figure below.

100% Volume Level

Four Highest Hours	Volumes	
	Major Street	Pedestrian Total

Figure 4C-5. Criteria for "100%" Volume Level

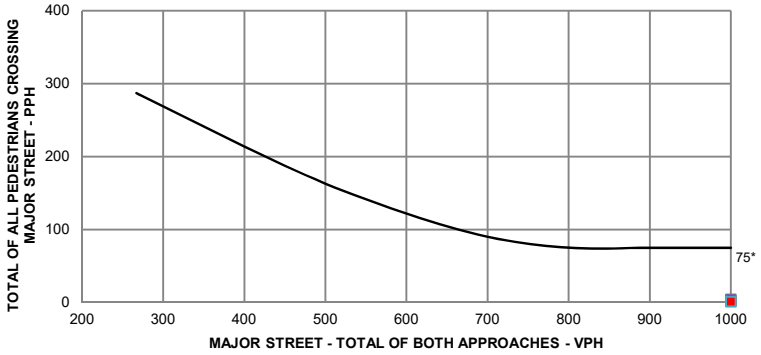


** Note: 107 pph applies as the lower threshold volume*

70% Volume Level

Four Highest Hours	Volumes	
	Major Street	Pedestrian Total
4:00 PM	1103	2
5:00 PM	1235	1
6:00 PM	1134	4
7:00 PM	1023	1

Figure 4C-6 Criteria for "70%" Volume Level



** Note: 75 pph applies as the lower threshold volume*

WARRANT 4 - PEDESTRIAN VOLUME

For 1 hour (any four consecutive 15-minute periods) of an average day, the plotted point falls above the appropriate line, then the warrant is satisfied.

Applicable: ☑ Yes ☐ No

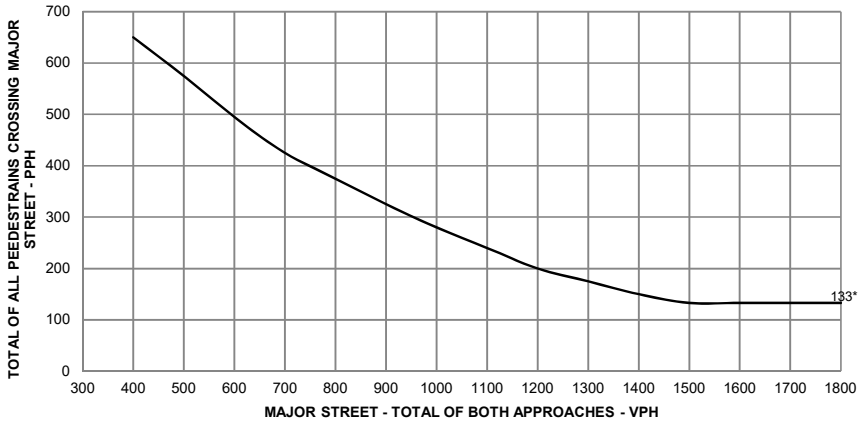
Satisfied: ☐ Yes ☑ No

Plot one volume combination on the applicable figure below.

100% Volume Level

Peak Hour	Volumes	
	Major Street	Pedestrian Total

Figure 4C-7. Criteria for "100%" Volume Level - Peak Hour

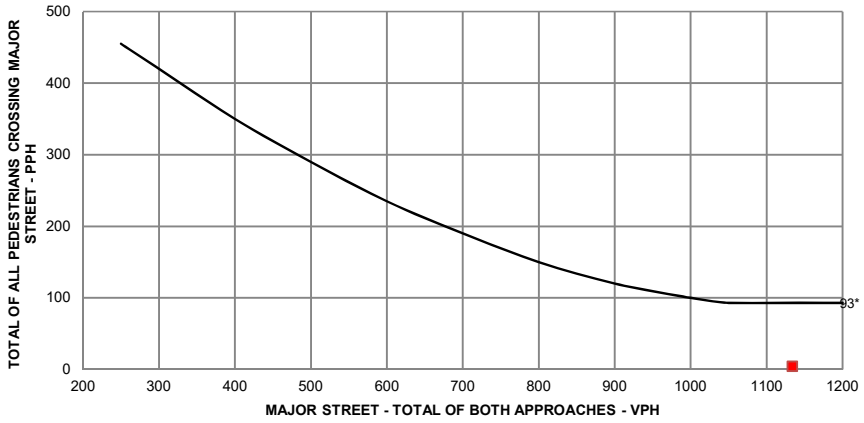


** Note: 133 pph applies as the lower threshold volume*

70% Volume Level

Peak Hour	Volumes	
	Major Street	Pedestrian Total
6:00 PM	1134	4

Figure 4C-8 Criteria for "70%" Volume Level - Peak Hour



** Note: 93 pph applies as the lower threshold volume*

Appendix I.7 – Warrant 5 Results

Form 750-020-01
TRAFFIC ENGINEERING
10/15

State of Florida Department of Transportation

TRAFFIC SIGNAL WARRANT SUMMARY

City:	**Lehigh Acres**	Engineer:	**Rich Batewell, III, E.I.**
County:	**12 – Lee**	Date:	**November 6, 2018**
District:	**Five**		

Major Street:	**Sunshine Blvd. S.**	Lanes:	**2**	Major Approach Speed:	**45**
Minor Street:	**8th St. SW.**	Lanes:	**2**	Minor Approach Speed:	**35**

MUTCD Electronic Reference to Chapter 4: http://mutcd.fhwa.dot.gov/pdfs/2009r1r2/part4.pdf

WARRANT 5 - SCHOOL CROSSING

Record hours where criteria are fulfilled and the corresponding volume or gap frequency in the boxes provided. The warrant is satisfied if all three of the criteria are fulfilled.

Applicable: ☑ Yes ☐ No

Satisfied: ☐ Yes ☑ No

Criteria				Fulfilled? Yes	Fulfilled? No
1. There are a minimum of 20 students crossing the major street during the highest crossing hour.	Students: **0**	Hour:			x
2. There are fewer adequate gaps in the major street traffic stream during the period when the children are using the established school crossing than the number of minutes in the same period.		Minutes:	Gaps:		x
3. The nearest traffic signal along the major street is located more than 300 ft. (90 m) away, or the nearest signal is within 300 ft. (90 m) but the proposed traffic signal will not restrict the progressive movement of traffic.				x	

Appendix I.8 – Warrant 6 Results

State of Florida Department of Transportation

TRAFFIC SIGNAL WARRANT SUMMARY

City:	**Lehigh Acres**	Engineer:	**Rich Batewell, III, E.I.**
County:	**12 – Lee**	Date:	**November 6, 2018**
District:	**Five**		

Major Street:	**Sunshine Blvd. S.**	Lanes:	**2**	Major Approach Speed:	**45**
Minor Street:	**8th St. SW.**	Lanes:	**2**	Minor Approach Speed:	**35**

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WARRANT 6 - COORDINATED SIGNAL SYSTEM

Indicate if the criteria are fulfilled in the boxes provided. The warrant is satisfied if either criterion is fulfilled. This warrant should not be applied when the resulting signal spacing would be less than 300 m (1,000 ft.).

Applicable: ☐ Yes ☑ No

Satisfied: ☐ Yes ☐ No

Criteria	Fulfilled? Yes	Fulfilled? No
1. On a one-way street or a street that has traffic predominately in one direction, the adjacent signals are so far apart that they do not provide the necessary degree of vehicle platooning.		
2. On a two-way street, adjacent signals do not provide the necessary degree of platooning, and the proposed and adjacent signals will collectively provide a progressive operation.		

Appendix I.9 – Warrant 7 Results

State of Florida Department of Transportation

TRAFFIC SIGNAL WARRANT SUMMARY

City:	**Lehigh Acres**	Engineer:	**Rich Batewell, III, E.I.**
County:	**12 – Lee**	Date:	**November 6, 2018**
District:	**Five**		

Major Street:	**Sunshine Blvd. S.**	Lanes:	**2**	Major Approach Speed:	**45**
Minor Street:	**8th St. SW.**	Lanes:	**2**	Minor Approach Speed:	**35**

MUTCD Electronic Reference to Chapter 4: http://mutcd.fhwa.dot.gov/pdfs/2009r1r2/part4.pdf

WARRANT 7 - CRASH EXPERIENCE

Record hours where criteria are fulfilled, the corresponding volume, and other information in the boxes provided. The warrant is satisfied if all three of the criteria are fulfilled.

Applicable: ☑ Yes ☐ No
Satisfied: ☐ Yes ☑ No

Criteria		Hour		Volume		Met?		Fulfilled?	
				Major	Minor	Yes	No	Yes	No
1. One of the warrants to the right is met.	Warrant 1, Condition A (56% satisfied)			878	117	x		x	
	Warrant 1, Condition B (56% satisfied)						x		
	Warrant 4, Pedestrian Volume at 56% of volume requirements: # ped/hr for four (4) hours or # ped/hr for one (1) hour.						x		
2. Adequate trial of other remedial measure has failed to reduce crash frequency.		Measure tried:	None						x
3. Five or more reported crashes, of types susceptible to correction by signal, have occurred within a 12-month period.		Observed Crash Types:	Varies	Number of crashes per 12 months:		17		x	

Table 4C-1. Warrant 1, Eight-Hour Vehicular Volume

Condition A—Minimum Vehicular Volume

Number of lanes for moving traffic on each approach		Vehicles per hour on major street (total of both approaches)				Vehicles per hour on higher-volume minor-street approach (one direction only)			
Major Street	Minor Street	100%[a]	80%[b]	70%[c]	56%[d]	100%[a]	80%[b]	70%[c]	56%[d]
1	1	500	400	350	280	150	120	105	84
2 or more	1	600	480	420	336	150	120	105	84
2 or more	2 or more	600	480	420	336	200	160	140	112
1	2 or more	500	400	350	280	200	160	140	112

Appendix I.10 – Warrant 8 Results

State of Florida Department of Transportation

TRAFFIC SIGNAL WARRANT SUMMARY

City:	**Lehigh Acres**	Engineer:	**Rich Batewell, III, E.I.**
County:	**12 – Lee**	Date:	**November 6, 2018**
District:	**Five**		

Major Street:	**Sunshine Blvd. S.**	Lanes:	**2**	Major Approach Speed:	**45**
Minor Street:	**8th St. SW.**	Lanes:	**2**	Minor Approach Speed:	**35**

MUTCD Electronic Reference to Chapter 4: http://mutcd.fhwa.dot.gov/pdfs/2009r1r2/part4.pdf

WARRANT 8 - ROADWAY NETWORK

Record hours where criteria are fulfilled, and the corresponding volume or other information in the boxes provided. The warrant is satisfied if at least one of the criteria is fulfilled and if all intersecting routes have one or more of the Major Route characteristics listed.

Applicable: ☑ Yes ☐ No

Satisfied: ☐ Yes ☑ No

Criteria								Met? Yes	Met? No	Fulfilled? Yes	Fulfilled? No
1. Both of the criteria to the right are met.	a. Total entering volume of at least 1,000 veh/hr during a typical weekday peak hour.			Entering Volume:				X		X	
				1,235							
	b. Five-year projected volumes that satisfy one or more of Warrants 1, 2, or 3.		Warrant:	1	2	3		X			
			Satisfied?:	YES	YES	NO					
2. Total entering volume at least 1,000 veh/hr for each of any 5 hrs of a non-normal business day (Sat. or Sun.)							← Hour				X
							←Volume				

Characteristics of Major Routes		Met? Yes	Met? No	Fulfilled? Yes	Fulfilled? No
1. Part of the street or highway system that serves as the principal roadway network for through traffic flow.	Major Street:	X			X
	Minor Street:		X		
2. Rural or suburban highway outside of, entering, or traversing a city.	Major Street:		X		
	Minor Street:		X		
3. Appears as a major route on an official plan.	Major Street:	X			
	Minor Street:		X		

Appendix I.11 – Warrant 9 Results

Form 750-020-01
TRAFFIC ENGINEERING
10/15

State of Florida Department of Transportation

TRAFFIC SIGNAL WARRANT SUMMARY

City:	**Lehigh Acres**	Engineer:	**Rich Batewell, III, E.I.**
County:	**12 – Lee**	Date:	**November 6, 2018**
District:	**Five**		

Major Street:	**Sunshine Blvd. S.**	Lanes:	**2**	Major Approach Speed:	**45**
Minor Street:	**8th St. SW.**	Lanes:	**2**	Minor Approach Speed:	**35**

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Approach Lane Criteria

1. How many approach lanes are there at the track crossing? ☐ 1 ☐ 2 or

If there is 1 lane, use Figure 4C-9 and if there are 2 or more, use Figure 4C-10. ☐ Fig 4C-9 ☐ Fig 4C-10

WARRANT 9 - INTERSECTION NEAR A GRADE CROSSING

This signal warrant should be applied only after adequate consideration has been given to other alternatives or after a trial of an alternative has failed to alleviate the safety concerns associated with the grade crossing.

Indicate if both criteria are fulfilled in the boxes provided. The warrant is satisfied if both criteria are met.

Applicable: ☐ Yes ☑ No

Satisfied: ☐ Yes ☐ No

Criteria	Fulfilled? Yes	Fulfilled? No
1. A grade crossing exists on an approach controlled by a STOP or YIELD sign and the center of the track nearest to the intersection is within 140 feet of the stop line or yield line on the approach; and	☐	☐
2. During the highest traffic volume hour during which the rail uses the crossing, the plotted point falls above the applicable curve for the existing combination of approach lanes over the track and the distance D (clear storage distance).	☐	☐

Use the following tables (4C-2, 4C-3, and 4C-4 to appropriately adjust the minor-street approach volume).

Inputs		Adjustment Factors from Tables
Occurrences of Rail traffic per day		
% of High Occupancy Buses on Minor-Street Approach		**1.00**
Enter D (feet)		
% of Tractor-Trailer Trucks on Minor-Street Approach		**0.50**

Table 4C-2. Adjustment Factor for Daily Frequency of Rail Traffic

Rail Traffic per Day	Adjustment Factor
1	0.67
2	0.91
3 to 5	1.00
6 to 8	1.18
9 to 11	1.25
12 or more	1.33

Table 4C-3. Adjustment Factor for Percentage of High-Occupancy Buses

% of High-Occupancy Buses* on Minor Street Approach	Adjustment Factor
0%	1.00
2%	1.09
4%	1.19
6% or more	1.32

* A high-occupancy bus is defined as a bus occupied by at least 20 people

Table 4C-4. Adjustment Factor for Percentage of Tractor-Trailer Trucks

% of Tractor-Trailer Trucks on Minor-Street Approach	Adjustment Factor	
	D less than 70 feet	D of 70 feet or more
0% to 2.5%	0.50	0.50
2.6% to 7.5%	0.75	0.75
7.6% to 12.5%	1.00	1.00
12.6% to 17.5%	2.30	1.15
17.6% to 22.5%	2.70	1.35
22.6% to 27.5%	3.28	1.64
More than 27.5%	4.18	2.09

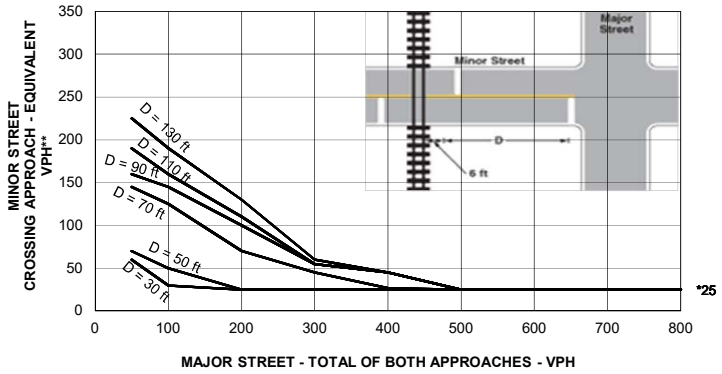
Input the major and minor street volumes before adjustment factors are applied

1 Approach Lane		
D (ft)	Major Vol.	Minor Vol.

After adjustment factors are applied

1 Approach Lane w/Factors		
D (ft)	Major Vol.	Minor Vol.

FIGURE 4C-9: Criteria for 1 Approach Lane at the Track Crossing



** Note: 25 vph applies as the lower threshold volume*

** *Note: VPH after applying the adjustment factors in Tables 4C-2, 4C, and or 4C-4, if appropriate*

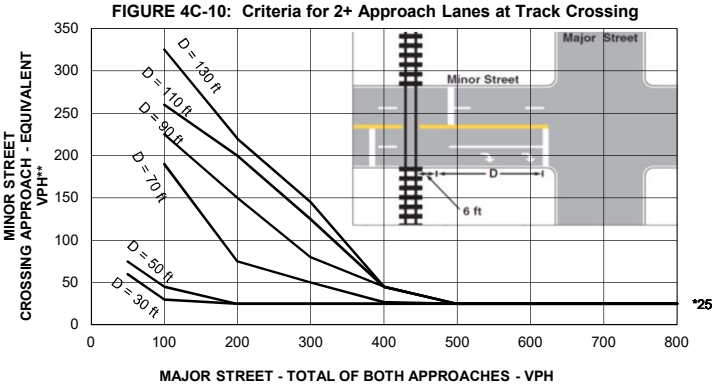
Input D and the major and minor street volumes before adjustment factors are applied

2 or more Approach Lanes		
D (ft)	Major Vol.	Minor Vol.

After adjustment factors are applied

2+ Approach Lane w/Factors		
D (ft)	Major Vol.	Minor Vol.

FIGURE 4C-10: Criteria for 2+ Approach Lanes at Track Crossing



** Note: 25 vph applies as the lower threshold volume*

** *Note: VPH after applying the adjustment factors in Tables 4C-2, 4C, and or 4C-4, if appropriate*

Appendix I.12 – Warrant Summary

Form 750-020-01
TRAFFIC ENGINEERING
10/15

State of Florida Department of Transportation

TRAFFIC SIGNAL WARRANT SUMMARY

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MUTCD Electronic Reference to Chapter 4: http://mutcd.fhwa.dot.gov/pdfs/2009r1r2/part4.pdf

CONCLUSIONS

Remarks: **Warrant 1 & 2 are satisfied**
Warrant 4, 5, 7 and 8 are applicable, however, not satisfied
Warrant 6 and 9 are not applcable .

WARRANTS SATISFIED:

☑	Warrant 1	☐	Not Applicable
☑	Warrant 2	☐	Not Applicable
☐	Warrant 3	☑	Not Applicable
☐	Warrant 4	☐	Not Applicable
☐	Warrant 5	☐	Not Applicable
☐	Warrant 6	☑	Not Applicable
☐	Warrant 7	☐	Not Applicable
☐	Warrant 8	☐	Not Applicable
☐	Warrant 9	☑	Not Applicable