

TRAFFIC IMPACT STATEMENT

FOR

MURPHY OAKS CITY OF VENICE, FLORIDA

PROJECT NO. F1801.01

PREPARED BY:
TR Transportation Consultants, Inc.
Certificate of Authorization Number: 27003
2726 Oak Ridge Court, Suite 503
Fort Myers, Florida 33901
(239) 278-3090

Revised:
August 31, 2018



Reid C. Fellows, P.E.
License No. 61673



CONTENTS

- I. INTRODUCTION
- II. EXISTING CONDITIONS
- III. PROPOSED DEVELOPMENT
- IV. TRIP GENERATION
- V. TRIP DISTRIBUTION
- VI. CONCURRENCY ANALYSIS
- VII. INTERSECTION ANALYSIS
- VIII. CONCLUSION

I. INTRODUCTION

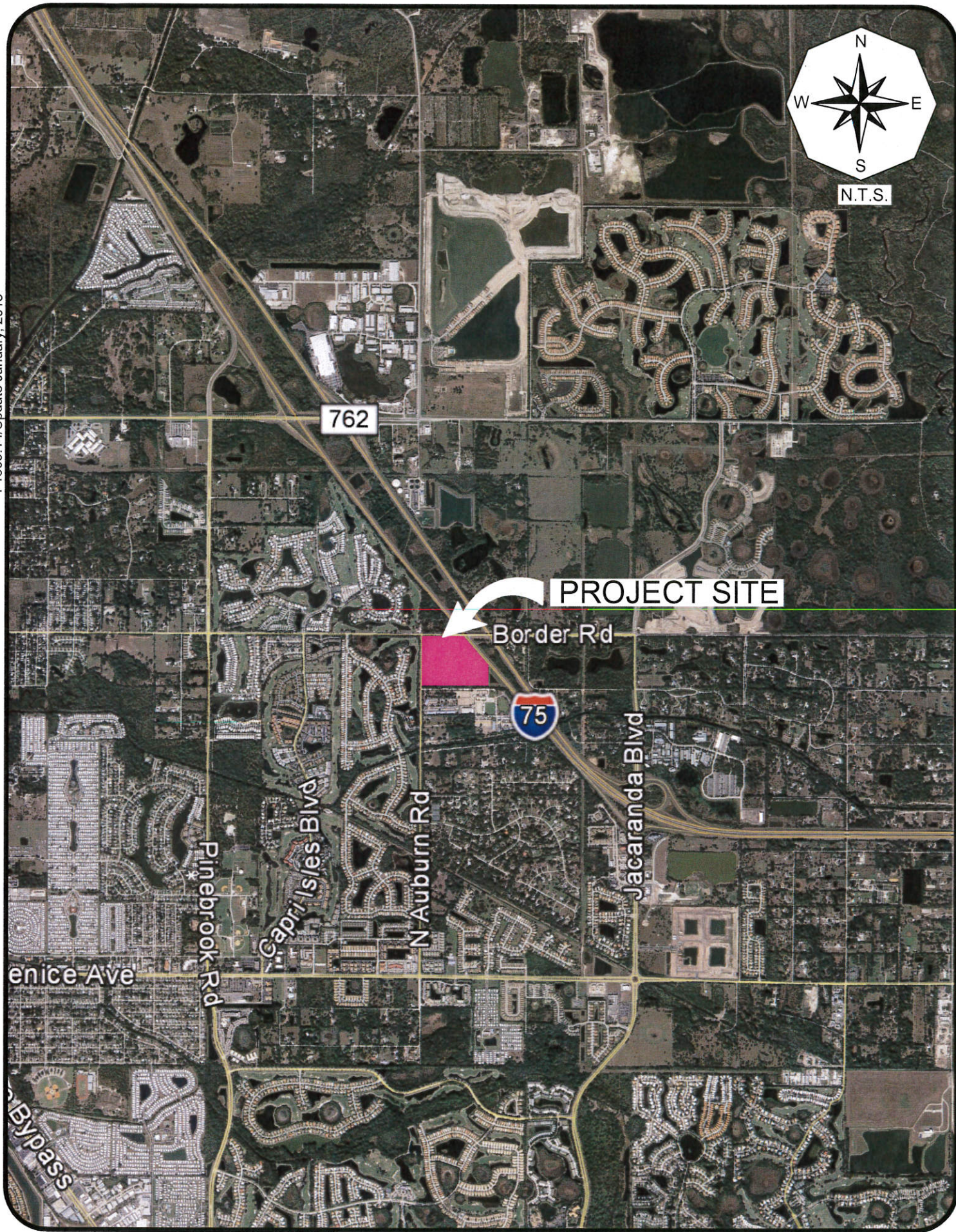
TR Transportation Consultants, Inc. has conducted a traffic impact statement to fulfill requirements set forth by the City of Venice for projects seeking re-zoning and preliminary site plan approval. The subject site is located along the south side of Border Road just west of I-75 in the City of Venice, Florida. The site location is illustrated on **Figure 1**.

Upon approval, the approximately 39.64-acre Murphy Oaks site will be zoned for the development of a single family residential community with up to 105 dwelling units. Access to the subject site will be provided via single connection to N. Auburn Road.

This report examines the impact of the development on the surrounding roadways. Trip generation and assignments to the site access drives will be completed and analysis conducted to determine the impacts of the development on the adjacent roadway. Methodology notes were exchanged with the City of Venice staff and their consultant to discuss the parameters of the traffic study. A copy of the most recent methodology memorandum submitted to the City is attached to this report in the Appendix (p. 51-60) for reference.

II. EXISTING CONDITIONS

The subject site is currently vacant and is zoned OUE-1 (Open-Use-Estate-1) in Sarasota County. The subject site is bordered by Fox Lea Drive and OUR zoned property to the south, I-75 right-of-way to the east, N. Auburn Road to the west and Border Road to the north.



Border Road is an east/west two lane undivided roadway that borders the site to the north. Border Road has a posted speed limit of 40 mph east of N. Auburn Road and is under the jurisdiction of Sarasota County. West of Auburn Road, the roadway becomes Edmondson Road and has a posted speed limit of 30 mph and is under the jurisdiction of the City of Venice. Border Road and Edmondson Road both have an adopted Level of Service of LOS “D”.

N. Auburn Road is a north/south two lane undivided roadway that borders the site to the west. Auburn Road has a posted speed limit of 35 mph and is under the jurisdiction of Sarasota County. Auburn Road has an adopted Level of Service of LOS “D”.

III. PROPOSED DEVELOPMENT

Upon approval, the approximately 39.64-acre Murphy Oaks site will be zoned to Planned Unit Development (PUD), to permit the site to be developed with up to 105 single family residential dwelling units. **Table 1** summarizes the land uses utilized for trip generation purposes for the subject development.

Table 1
Land Uses
Murphy Oaks

Land Use	Size
Single-Family Detached Housing (LUC 210)	105 Units

Access to the subject site will be provided to N. Auburn Road via single connection.

IV. TRIP GENERATION

The trip generation for the proposed development was determined by referencing the Institute of Transportation Engineer’s (ITE) report, titled ***Trip Generation***, 10th Edition.

Land Use Code 210 (Single-Family Detached Housing) was utilized for the trip generation purposes of the single family homes. The trip generation equations for this land use are contained in the Appendix (p. 62) of this report for reference. **Table 2** outlines the anticipated weekday A.M. and P.M. peak hour trip generation for the Murphy Oaks as currently proposed. The daily trip generation is also indicated in the table.

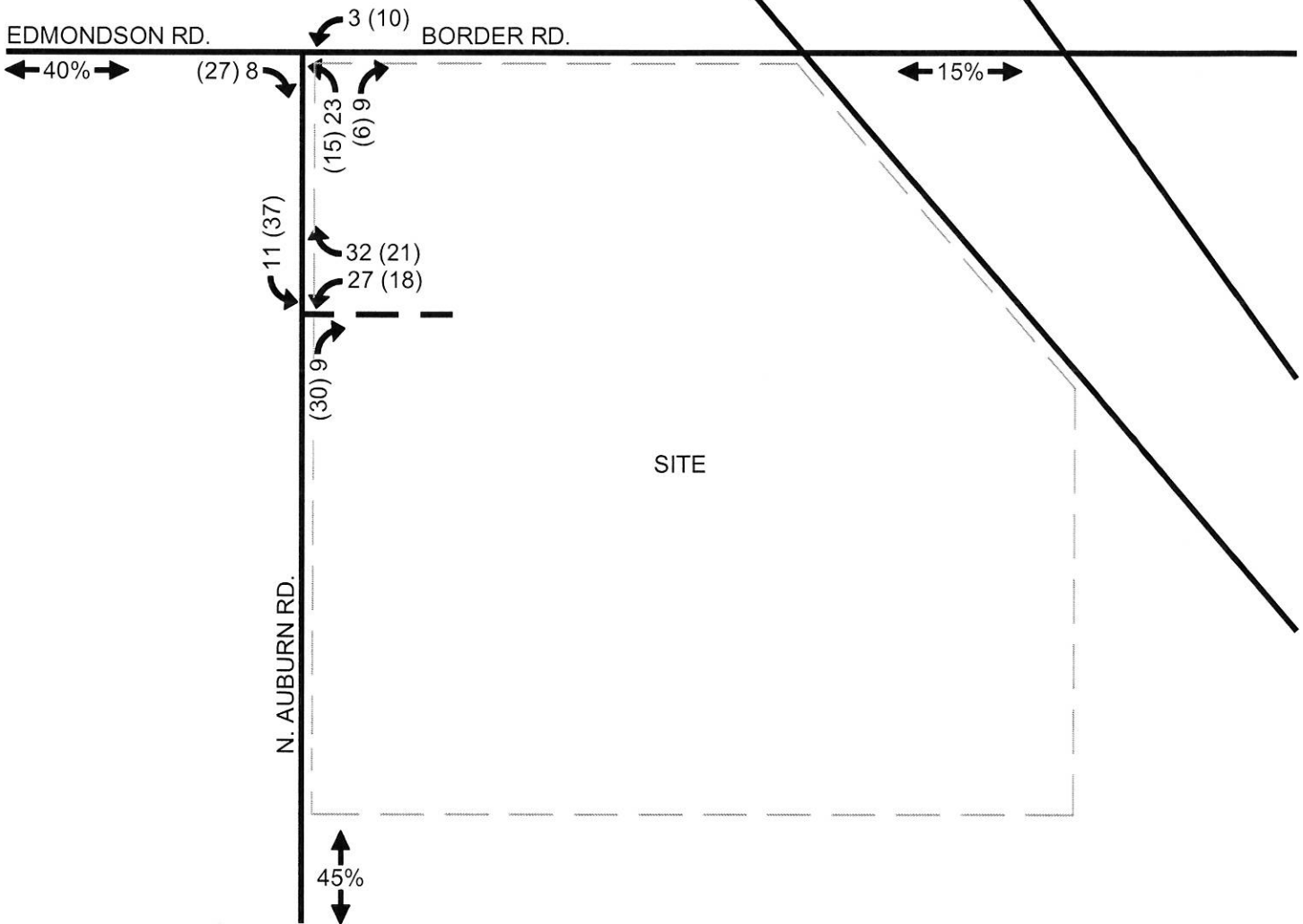
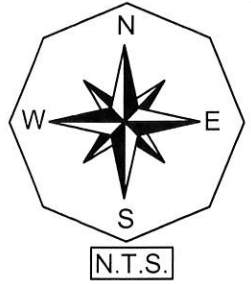
Table 2
Trip Generation
Murphy Oaks

Land Use	Weekday A.M. Peak Hour			Weekday P.M. Peak Hour			Daily (2-way)
	In	Out	Total	In	Out	Total	
Single-Family Detached Housing (105 Units)	20	59	79	67	39	106	1,088

V. TRIP DISTRIBUTION

The trips shown in Table 2 were then assigned to the surrounding roadway system based on the anticipated routes the drivers will utilize to approach the site. The volumes shown in Table 2 were assigned to the site access drive to N. Auburn Road and to the intersection of N. Auburn Road with Border Road. Based on current and projected population in the area and other existing or planned complementary uses in the area, a distribution of the site traffic was formulated. The anticipated trip distribution of the development traffic is illustrated on **Figure 2**. In addition, Figure 2 also indicates the site traffic assignment to the site access drives and adjacent intersections.

The study area includes the roadway links directly accessed and any other roadway links where the project traffic will impact the adopted LOS “D” service volume by greater than 5.0%. N. Auburn Road is directly accessed by the project and is therefore considered within the Study Area. **Table 1A** in the Appendix (p. 2) indicates the study area determination. **Table 3** on page 6 of this report summarizes the impacts to the roadways in the immediate area of the site.



LEGEND

- ← 000 WEEKDAY AM PEAK HOUR SITE TRAFFIC
- ← (000) WEEKDAY PM PEAK HOUR SITE TRAFFIC
- ← 20% → PERCENT TRIP DISTRIBUTION

Table 3
Impact Area
Murphy Oaks

Link No	Road	From	To	Lanes	Adopted LOS	PM Peak Service Volume	Peak Hour Project Traffic	Project Traffic as % of Svc Vol
54.1	Border Rd	Auburn	Jacaranda	2U	D	1,264	16	1.26%
680	Edmondson	Capri Isles	Auburn	2U	D	931	42	4.55%
679	Edmondson	Pinebrook	Capri Isles	2U	D	1,197	37	3.10%
16	Auburn	Border Rd	Site Dr.	2U	D	1,197	58	4.87%
16	Auburn	Site Dr.	Venice	2U	D	1,197	48	3.98%

Link No. is from the Sarasota County 2016 Generalized Level of Service Analysis Spreadsheet

As shown in Table 3, the development's traffic does not meet the 5% impact threshold on any roadway segments.

VI. CONCURRENCY ANALYSIS

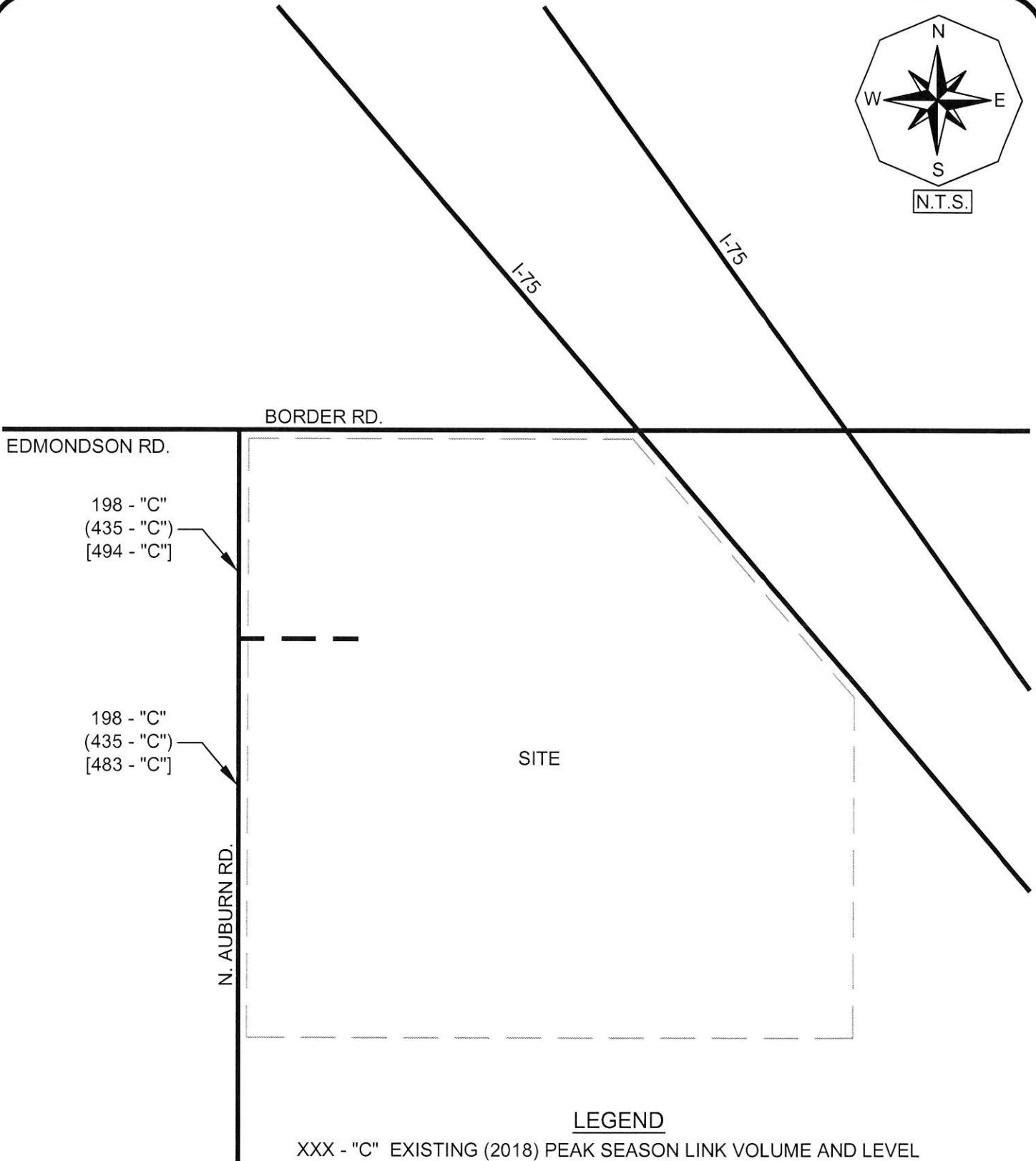
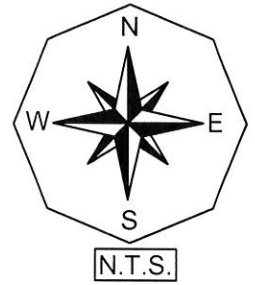
For the purposes of this analysis, it was assumed that the development would be completed by 2021. Therefore, the surrounding roadway network was analyzed under 2022 projected traffic conditions. Based on this projected build-out, a growth rate was applied to the existing traffic conditions for all roadway links in the study area. Each growth rate utilized was calculated based upon historical AADT traffic data obtained from the 2008 and 2016 *Sarasota County Generalized Level of Service Analysis* spreadsheets. For roadways showing a negative or less than 2% historical growth rate, a minimum growth rate of 2% per year, compounded annually, was utilized. The existing traffic data for the roadways was obtained from the turning movement count conducted by TR Transportation, factored by the peak season factor obtained from FDOT Florida Traffic Online webpage.

There are no programmed roadway improvements in the area of the subject site that would impact the Level of Service analysis. Developments that have been approved in the area were accounted for if their trips were deemed to be vested by the City of Venice.

Those projects include Plaza Venezia, Toscana Isles, Woods at Venice, The Bridges, SJMR PUD, Milano PUD (VICA+Laurel Lakes) and Portofino. The vested trips were provided by the City of Venice and are included in the Appendix (p. 23) for reference.

The existing 2018 roadway link traffic volumes for each roadway segment analyzed were determined by factoring the turning movement count conducted by TR Transportation at the intersection of Auburn Road and Border Road/Edmondson Road by the FDOT peak season adjustment factor. The 2018 traffic volumes were then factored by the appropriate annual growth rate over the four (4) year period in order to obtain the 2022 background traffic conditions on the area roadway network. Based on the project traffic distribution illustrated within Figure 2 and the project traffic indicated within Table 2A, the roadway link data were analyzed for the year 2022 with the vested trips and without the development, and year 2022 with the vested trips and the development.

The 2022 build-out traffic volumes were then compared to the Level of Service thresholds for these roadways as indicated within Table 2A as previously discussed. As a result, **Figure 3** was created to illustrate the existing and projected 2022 peak hour traffic volumes and Level of Service for the roadway links within the study area. Noted on Figure 3 is the peak hour volume and Level of Service of each link based on the existing volumes as well as the projected 2022 P.M. peak hour background volume and Level of Service should no development occur on the subject site with addition of vested traffic and the 2022 P.M. peak hour volume and Level of Service with the development traffic and vested traffic added to the roadways. These figures are derived from Tables 3A contained in the Appendix (p. 4). A summary of the Concurrency Analysis is also shown in **Table 4**.



LEGEND

XXX - "C" EXISTING (2018) PEAK SEASON LINK VOLUME AND LEVEL OF SERVICE DESIGNATION

(XXX - "C") PROJECTED 2022 BACKGROUND + VESTED TRIPS LINK VOLUME AND LEVEL OF SERVICE DESIGNATION

[XXX - "C"] PROJECTED 2022 BACKGROUND + VESTED TRIPS LINK VOLUME AND LEVEL OF SERVICE DESIGNATION WITH PM PROJECT TRAFFIC

Table 4
Concurrency Analysis
Murphy Oaks

Link No	Road	From	To	Lanes	Adopted LOS	PM Peak Service Volume	Projected 2022 Volume with Project & Vested Trips	PM Peak LOS
16	Auburn	Border	Site Dr.	2U	D	1,197	494	C
16	Auburn	Site Dr.	Venice	2U	D	1,197	483	C

Link No. is from the Sarasota County 2016 Generalized Level of Service Analysis Spreadsheet

VII. INTERSECTION ANALYSIS

Intersection analysis was conducted at the site access drive intersection as well as at the intersection of Auburn Road with Border Road/Edmundson Road. Weekday P.M. peak hour turning movements were collected at the intersection of Auburn Road with Border Road/Edmundson Road in January, 2018. The turning movement count data was factored by the peak season adjustment factor as determined by data contained in the FDOT Traffic Information Online webpage for Sarasota County. The FDOT peak season factor data is attached to this report for reference in the Appendix (p. 21). Figure 1-A, contained in the Appendix (p. 16) of the report, illustrates the projected 2022 P.M. peak hour turning movements volumes at the site access drive intersection as well as at the intersection of Auburn Road and Border Road. These volumes include the previously discussed vested trips as provided by the City.

The intersection of Auburn Road with Border Road/Edmundson Road was analyzed based on the existing 2018 peak season conditions without the development traffic, the projected 2022 traffic conditions without the development traffic but with addition of vested trips, projected 2022 traffic conditions with development traffic and the projected 2022 traffic conditions with the development traffic and the vested trips as provided by the City. The site access drive intersection was analyzed based on the 2022 build-out conditions.

A summary of the intersection analysis for the three time periods analyzed is shown in **Table 5**. The results are all for the weekday P.M. peak hour. The results for the site access drive intersection is also shown in Table 5. The Highway Capacity Software (HCS) summary sheets for the analysis are contained in the Appendix (p. 27-35) of this report for reference.

Table 5
P.M Peak Hour Intersection Level of Service Summary
Murphy Oaks

Intersection		2018 Existing Conditions		Projected 2022 Background + Project Trips		Projected 2022 Background + Vested Conditions		Projected 2022 Background + Project Trips + Vested Trips	
		App. Delay	LOS	App. Delay	LOS	App. Delay	LOS	App. Delay	LOS
Auburn Rd./ Border Rd.	WB	1.8	A	2.3	A	3.2	A	3.5	A
	NB	11.9	B	14.0	B	38.4	E	59.5	F
Auburn Rd./ Site Access	WB	Not Applicable						12.0	B
	SB							1.6	A

Approach Delay is measured in seconds per vehicle (sec/veh)

As shown in Table 5, all approaches at the intersection of Auburn Road and Border Road will operate at an acceptable Level of Service in the projected 2022 traffic conditions with development traffic added the intersection. As shown in Table 5, the inclusion of vested trips causes the northbound approach at the intersection of Auburn Road and Border Road to operate below the minimum acceptable Level of Service. It is not the responsibility of this development to mitigate impacts of other “vested” projects. The intersection analysis with the addition of vested trips was only completed at the request by City Staff. Therefore, no intersection improvements are warranted as a result of this proposed development. However, as requested by the City Staff, a mitigation was provided for the northbound movement under the projected 2022 background traffic plus

vested traffic condition and projected 2022 background plus project traffic plus vested traffic condition. This mitigation includes an addition of exclusive right and left turn lanes at the northbound approach. **Table 6** summarizes the results of the intersection analysis based on the addition of exclusive northbound turn lanes. As can be seen in Table 6, the northbound approach has been improved to operate at an overall Level of Service “C”. HCS summary sheets as a result of this mitigation are attached to the Appendix (p. 32-33) of this report for reference.

Table 6
P.M Peak Hour Intersection Level of Service Summary
Murphy Oaks – With Mitigation

Intersection		Projected 2022 Background +Vested Trips ¹		Projected 2022 Background + Project Trips + Vested Trips ¹	
		App. Delay	LOS	App. Delay	LOS
Auburn Rd./ Border Rd.	WB	3.2	A	3.5	A
	NB	19.8	C	23.3	C

¹ - Intersection analysis results based on the addition of exclusive northbound left and right turn lanes on northbound approach on Auburn Road.

As requested by the City Staff, a vehicle queueing analysis was provided and is summarized in **Table 7**. As can be seen in Table 7, minimal westbound queueing is shown for westbound approach in each scenario. For the northbound approach under the existing conditions, the vehicle queueing is shown to be 0.7 vehicles or approximately 18 feet. For the northbound approach under the projected 2022 background plus project trips condition, the vehicle queueing is shown to be 1.2 vehicles or approximately 30 feet. For the northbound approach under the projected 2022 background plus vested trips condition, the vehicle queueing is shown to be 6.2 vehicles or approximately 155 feet. For the northbound approach under the projected 2022 background plus project plus vested trips condition, the vehicle queueing is shown to be 8.9 vehicles or approximately 223 feet. For the mitigated northbound approach under the projected 2022 background

plus project plus vested trips condition, the vehicle queueing for the northbound left movement is shown to be 2.6 vehicles or approximately 65 feet and 1.8 vehicles or approximately 45 feet for the northbound right movement. The projected northbound queueing resulted under each scenario shown in Table 7 will not affect the operational characteristics of the intersection of Auburn Road with the proposed site access drive to the south.

Table 7
P.M Peak Hour Intersection Vehicle Queueing Summary
Murphy Oaks

Intersection		2018 Existing Conditions	Projected 2022 Background + Project Trips	Projected 2022 Background + Vested Conditions	Projected 2022 Background + Project Trips + Vested Trips	Projected 2022 Background + Project Trips + Vested Trips ¹
		Vehicle Queue Length (veh)	Vehicle Queue Length (veh)	Vehicle Queue Length (veh)	Vehicle Queue Length (veh)	Vehicle Queue Length (veh)
Auburn Rd./ Border Rd.	WB	0.1	0.1	0.4	0.5	0.5
	NB	0.7	1.2	6.2	8.9	NBL = 2.6
						NBR = 1.8

1 - Intersection analysis results based on the addition of exclusive northbound left and right turn lanes on northbound approach on Auburn Road.

Turn lane analysis was conducted at the off-site intersection of Auburn Road and Border Road under the conditions presented in **Table 8**. The analysis was completed based upon the turn lane warrants contained in the *ITE Committee 4A-22 Report* and *FDOT Driveway Information Guide (2008)*. Based upon the results of the turn lane analysis, no turn lanes will be warranted under the Existing Traffic Conditions. An eastbound right turn lane will be warranted under the Existing + Background Growth + Project Trips Condition. This turn lane should provide a taper/decel distance of 145 feet (includes 50 foot taper) as per FDOT Standard Index #301. As requested by the City of Venice, a cost estimate of such improvement was prepared by WRA Engineering, LLC and is attached

to the Appendix (p. 66) of this report. FDOT Standard Index #301 is also attached to the Appendix (p. 64) of this report for reference. Additionally, both left and right turn lanes will be warranted with inclusion of vested traffic under Future Traffic Conditions (Existing + Background Growth + Vested + Project Trips). The intersection of Auburn Road and Border Road is an off-site intersection. This project is responsible for the payment of mobility fees which are utilized to mitigate any future off-site roadway improvements. Therefore, a turn lane analysis for this off-site intersection was provided based on the request by the City of Venice and for informational purposes only. Turn lane warrants and raw calculations are attached to this Appendix (p. 36-47) of this report for reference. Table 6 below summarizes the results of the turn lane analysis.

Table 8
Turn Lane Warrant Summary
Murphy Oaks

Condition	Warranted? (Y/N)			
	NB Left	NB Right	EB Right	WB Left
2018 Existing Conditions	NO	NO	NO	NO
Projected 2022 Background + Project Trips	NO	NO	YES	NO
Projected 2022 Background + Vested Conditions	YES	YES	NO	YES
Projected 2022 Background + Project Trips + Vested Trips	YES	YES	YES	YES

A turn lane analysis was also conducted at the proposed site access to Auburn Road utilizing data from the *ITE Committee 4A-22 Report*, which is modeled after the Harmelink data and currently utilized by Sarasota County for evaluation of the need for left turn lanes at unsignalized intersections. Based on the projected turn demand at the site access drive and the opposing and advancing volumes, a separate left turn lane is not warranted at the site access drive intersection.

The FDOT *Driveway Information Guide* (2008) was utilized for the evaluation for the need for a separate right turn lane on Auburn Road at the site access drive intersection. There is insufficient right turn volume project to warrant the installation of separate right turn lane at the site access drive intersection.

Sarasota County was consulted with respect to the location of the site access drive on Auburn Road. The access drive is located approximately 350 feet south of the Border Road intersection. Sarasota County did not have any objections to the location of this site access drive in the traffic study approved as part of the Preserve of Venice development.

VIII. CONCLUSION

The proposed Murphy Oaks development located along the south side of Border Road just west of the I-75 right-of-way in City of Venice, Florida will meet the link Level of Service Standards set forth by City of Venice and Sarasota County on the surrounding roadway system.

The results of the intersection analysis indicate that the intersection of Auburn Road with Border Road will operate at an acceptable Level of Service in the projected 2022 traffic conditions with development traffic added the intersection. It is with the inclusion of the vested trips when the intersection is shown to operate with deficiencies. It is not the responsibility of this development to mitigate impacts of other “vested” projects. Therefore, no intersection improvements are warranted as a result of this proposed development. Based on the results of the requested queuing analysis at the intersection of Auburn Road with Border Road, the projected northbound queuing will not affect the operational characteristics of the intersection of Auburn Road with the proposed site access drive to the south.

Turn lane analysis was conducted at the off-site intersection of Auburn Road and Border Road at the request by the City of Venice. Based upon the results of the analysis an

eastbound right turn lane will be warranted under the Existing + Background Growth + Project Trips Condition. This turn lane should provide a taper/decel distance of 145 feet per FDOT Standard Index #301. As requested by the City of Venice, a cost estimate of such improvement was also prepared by WRA Engineering, LLC and is attached to the Appendix (p. 66) of this report. Additionally, both left and right turn lanes will be warranted with inclusion of vested traffic under the Future Traffic Conditions (Existing + Background Growth + Vested + Project Trips). The intersection of Auburn Road and Border Road is an off-site intersection. Therefore, the only mitigation this project is responsible for, is the payment of mobility fees which are utilized to mitigate any future off-site roadway improvements.

Separate turn lanes at the site access drive intersection are not warranted. There is insufficient through traffic volume and low turning volumes that do not meet the minimum criteria for turn lanes at this intersection.

APPENDIX

TABLE 1A, 2A, 3A & 4A

TABLE 1A
STUDY AREA DETERMINATION
MURPHY OAKS

TOTAL AM PEAK HOUR PROJECT TRAFFIC : 79 VPH
TOTAL PM PEAK HOUR PROJECT TRAFFIC : 106 VPH

ROADWAY	SEGMENT	ID #	ROADWAY		ADOPTED STANDARD		PERCENT		PROJECT TRAFFIC	PROJECT TRAFFIC	PROJ/ LOS STD	WITHIN STUDY AREA?
			CLASS	LOS	LOS	LOS VOL	PROJECT TRAFFIC	PROJECT TRAFFIC				
Border Rd	Auburn Rd to Jacaranda Blvd	54.1	2LN	D		1,264	15%	16		1.26%	NO	
Edmondson Rd.	Capri Isles Blvd to Auburn Rd	680	2LN	D		931	40%	42		4.55%	NO	
	Pinebrook Rd to Capri Isles Blvd	679	2LN	D		1,197	35%	37		3.10%	NO	
	Albee Farm Rd to Pinebrook Rd	1042	2LN	D		1,264	35%	37		2.94%	NO	
Auburn Rd.	Border Rd to Site Access	16	2LN	D		1,197	55%	58		4.87%	YES	
	Site Access to Venice Ave	16	2LN	D		1,197	45%	48		3.98%	YES	
Jacaranda Blvd.	Border Rd to Venice Ave	132	2LN	C		1,510	15%	16		1.05%	NO	
Venice Ave.	Auburn Rd to Jacaranda Blvd	307	4LD	D		3,222	5%	5		0.16%	NO	
	Capri Isles Blvd to Auburn Rd	306.5	4LD	D		3,222	35%	37		1.15%	NO	
	Pinebrook Rd to Capri Isles Blvd	306.3	4LD	D		2,774	35%	37		1.34%	NO	
	Cherry St to Pinebrook Rd	306	4LD	D		2,628	30%	32		1.21%	NO	

Direct Access
Direct Access

Level of Service Volumes for all roadways were obtained from Sarasota County 2016 Generalized Service Level of Service Analysis Tables, dated 10/2/2017.

TABLE 2A
SARASOTA COUNTY GENERALIZED SERVICE VOLUMES
MURPHY OAKS

TOTAL AM PEAK HOUR PROJECT TRAFFIC = 79 VPH
 TOTAL PM PEAK HOUR PROJECT TRAFFIC = 106 VPH

ROADWAY	SEGMENT	REF NO	ROADWAY CLASS	PROJECT															
				LOS A		LOS B		LOS C		LOS D		LOS E		TRAFFIC DISTRIBUTION		NEW PROJ TRAFFIC		PROJ/ LOS D	
				VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	AM PEAK	PM PEAK	AM PEAK	PM PEAK	AM PEAK	PM PEAK
N. Auburn Rd.	Border Rd to Site Access	122	2LN	0	0	0	594	1,197	1,197	1,269	1,269	55%	43	58	4.87%				
	Site Access to Venice Ave.	122	2LN	0	0	0	594	1,197	1,197	1,269	1,269	45%	36	48	3.98%				

* The Level of Service thresholds for all roadway segments were obtained from 2016 Sarasota County GLOS Reference Tables.

TABLE 3A
TRAFFIC VOLUMES AND LEVEL OF SERVICE ANALYSIS
MURPHY OAKS

TOTAL AM PEAK HOUR PROJECT TRAFFIC = 79 VPH
 TOTAL PM PEAK HOUR PROJECT TRAFFIC = 106 VPH

ROADWAY	SEGMENT	2018				2022				2022			
		ROADWAY ANNUAL		PK SEASON VOL ¹		PK HR PK SEASON		PROJECT		2022		2022	
		ID#	RATE	VOLUME	LOS	VOLUME	LOS	TRAFFIC DISTRIBUTION	TRAFFIC	VESTED	AM PROJ	PM PROJ	BCKGRND + VESTED
N. Auburn Rd.	Border Rd. Site Access	16.0	2.00%	198	C	214	C	55%	221	221	43	58	435
	Site Access to Venice Ave.	16.0	2.00%	198	C	214	C	45%	221	221	36	48	435
											TRAFFIC	TRAFFIC	VOLUME
											LOS	LOS	VOLUME
													+ PM PROJ
													LOS
													C
													C

¹The 2018 traffic volumes were taken from the traffic count conducted by TR Transportation that were adjusted for Peak Season Conditions.

* Vested trips were provided by the City of Venice.

**TABLE 4A
ANNUAL GROWTH RATE CALCULATIONS
BASED UPON HISTORICAL SARASOTA LOS DATA**

<u>ROADWAY</u>	<u>SEGMENT</u>	<u>CURRENT ID#</u>	<u>2008 VOLUME</u>	<u>2016 VOLUME</u>	<u>YRS OF GROWTH</u>	<u>ANNUAL GROWTH RATE</u>	<u>ACTUAL GROWTH RATE</u>
Auburn Rd	Border to Venice	16	2,789	2,148	8	2.00%	-3.21%
Border Rd.	Auburn to Jacaranda	54.1	2,090	2,741	8	3.45%	3.45%
Edmondson Rd.	Albee Farm to Pinebrook	1042	2,471	3,315	6	5.02%	5.02%

* All traffic volumes were obtained from the 2008 & 2016 Sarasota County Generalized Level of Service Analysis tables.

** In instances where the historical data indicates a reduction in traffic or insufficient data was available to calculate a growth rate due to construction, a minimum annual growth rate of 2.0% was assumed.

No data is available for Edmondson Road between Pinebrook and Capri Isle so data from 2010 and 2016 reports was used between Albee Farm and Pinebrook.

SAMPLE GROWTH RATE CALCULATION

$$\text{Annual Growth Rate (AGR)} = \frac{2016 \text{ AADT}}{2008 \text{ AADT}}^{(1/\text{Yrs of Growth})} - 1$$

$$\text{AGR (Auburn)} = \frac{2,148}{2,789}^{(1/8)} - 1$$

$$\text{AGR (Auburn)} = -3.21\%$$

**SARASOTA COUNTY 2016
GENERALIZED LEVEL OF SERVICE
ANALYSIS TABLES**

SARASOTA COUNTY

2016 GENERALIZED LEVEL OF SERVICE ANALYSIS

10/2/2017
10:39 AM

ID #	Roadway Name	Limits	Segment Attributes					Existing Traffic Conditions					Minimum Adopted Standards	
			Jurisdiction	# of Lanes	Segm Length	Analysis Length	Post Spd	Ref No.	Traffic Counts			LOS	LOS	LOS
									Source	Date	Volume AADT	Adjusted AADT		
1	17th Street	U.S. 301	City/Sar	4	0.12	0.12	35	144	SC	Feb-16	15,708	15,708	D	2,774
1	17th Street	N East Ave	Co./Sar	4	0.26	0.26	35	123	SC	Feb-16	15,708	15,708	D	2,628
1	17th Street	N Lime Ave	County	4	0.62	0.62	35	123	SC	Feb-16	15,708	15,708	D	2,628
2	17th Street	Tuttle	County	4	0.50	0.50	35	123	SC	Feb-16	19,518	19,518	D	2,628
3	17th Street	Lockwood Ridge	County	4	0.52	0.52	35	144	SC	Feb-16	24,279	24,279	D	2,774
4	17th Street	Beneva	County	4	0.20	0.20	45	23	SC	Feb-16	18,174	18,174	C	3,222
5	17th Street	Prudence	County	4	0.35	0.35	45	23	SC	Feb-16	19,985	19,985	C	3,222
6	17th Street	Longmeadow	County	4	0.40	0.40	45	23	SC	Feb-16	16,267	16,267	C	3,222
6.5	17th Street	Fire Station No. 17	County	4	0.80	0.80	45	44	SC	Feb-16	16,267	16,267	C	3,401
9	27th Street/Dr MLK Jr Way	U.S. 301	County	2	0.40	0.40	35	122	SC	Feb-16	7,400	7,400	D	1,197
9.5	27th Street/Dr MLK Jr Way	Newtown Blvd	County	2	0.60	0.60	35	122	SC	Feb-16	6,272	6,272	D	1,197
10	27th Street/Dr MLK Jr Way	Tuttle	County	2	0.50	0.50	35	122	SC	Feb-16	5,276	5,276	C	1,197
11	Albee Farm Road	Laurel	County	4	1.00	1.00	40	44	SC	Jul-16	6,479	6,479	C	3,401
12	Albee Farm Road	Edmondson	County	4	0.25	0.25	40	23	SC	Jul-16	8,127	8,127	C	3,222
13	Albee Farm Road	Colonia	Co./Ven	4	0.80	0.80	40	23	SC	Jul-16	8,739	8,739	C	3,222
14	Albee Farm Road	Lucaya	County	4	0.30	0.30	40	23	SC	Jul-16	8,223	8,223	C	3,222
15	Albee Farm Road	Casey Key	County	2	1.10	1.10	30	143	SC	Aug-16	4,615	4,615	C	1,264
15.6	Ashton Road	Sawyer	County	2	0.50	0.50	35	122	SC	Sep-16	2,969	2,969	C	1,197
15.7	Ashton Road	McIntosh	County	2	1.00	1.00	35	130	SC	Sep-16	3,688	3,688	C	931
15.8	Ashton Road	Honore	County	2	0.50	0.50	35	130	SC	Sep-16	3,033	3,033	C	931
16	Auburn Road	Border	County	2	1.55	1.55	35	122	SC	Aug-16	2,148	2,148	C	1,197
17	Avenida del Circo	U.S. 41	Co./Ven	2	0.30	0.30	25	143	SC	Sep-15	3,951	4,058	C	1,264
19	Baffin Road	Shamrock	County	2	1.10	1.10	30	130	SC	Oct-16	2,007	2,007	C	931
20	Bahia Vista Street	U.S. 41	City/Sar	2	0.50	0.50	35	147	SC	Mar-16	15,177	15,177	F	1,330
20.5	Bahia Vista Street	Shade	City/Sar	2	0.25	0.25	35	126	SC	Mar-16	17,875	17,875	F	1,264
20.7	Bahia Vista Street	Euclid	City/Sar	2	0.25	0.25	35	147	SC	Mar-16	18,971	18,971	F	1,330
21	Bahia Vista Street	Tuttle	County	4	0.75	0.75	30	144	SC	Mar-16	20,531	20,531	D	2,774
21.5	Bahia Vista Street	Kaufman	County	4	0.25	0.25	30	123	SC	Mar-16	20,614	20,614	D	2,628
22	Bahia Vista Street	Beneva	County	4	0.90	0.90	30	123	SC	Mar-16	20,498	20,498	D	2,628
23	Bahia Vista Street	McIntosh	County	4	1.15	1.15	45	23	SC	Mar-16	17,237	17,237	C	3,222
23.5	Bahia Vista Street	Honore	County	4	0.75	0.75	30	123	SC	Mar-16	11,321	11,321	D	2,628
39.5	Bay Street	Old Venice	County	2	0.50	0.50	30	126	SC	Aug-16	4,387	4,387	C	1,264
39.6	Bay Street	Pine Ranch East	County	2	1.00	1.00	30	130	SC	Sep-15	2,014	2,014	C	931
26	Beach Road	Ocean	County	2	1.20	1.20	35	122	SC	Jul-16	9,624	9,624	D	1,197
27	Bee Ridge Road	I-75	County	4	0.48	0.48	45	44	SC	Apr-13	24,738	26,796	C	3,401
28	Bee Ridge Road	Mauna Loa	County	4	0.30	0.30	45	23	SC	Apr-13	17,370	18,815	C	3,222
28.3	Bee Ridge Road	Sarasota Golf Club	County	4	1.10	1.10	45	23	SC	Apr-13	12,712	13,770	C	3,222
28.6	Bee Ridge Road	Bent Tree	County	2	1.05	1.05	45	22	SC	Apr-13	7,169	7,766	C	1,440
29	Bee Ridge Road (Ext.)	Bee Ridge	County	2	2.50	2.50	45	22	SC	Apr-16	4,434	4,434	C	1,440
30	Bee Ridge Road (SR 758)	U.S. 41	FDOT	6	0.50	0.50	40	66	FDOT	Jan-16	45,000	45,000	C	5,660
31	Bee Ridge Road (SR 758)	Shade	FDOT	6	0.50	0.50	40	3	FDOT	Jan-16	32,000	32,000	C	5,390
32	Bee Ridge Road (SR 758)	Tuttle/Swift	FDOT	6	0.35	0.35	40	3	FDOT	Jan-16	29,500	29,500	C	5,390
32.5	Bee Ridge Road (SR 758)	Murdoch	FDOT	6	0.15	0.15	40	3	FDOT	Jan-16	29,500	29,500	C	5,390
33	Bee Ridge Road (SR 758)	Lockwood Ridge	FDOT	6	0.50	0.50	40	3	FDOT	Jan-16	29,500	29,500	C	5,390

SARASOTA COUNTY

2016 GENERALIZED LEVEL OF SERVICE ANALYSIS

10/2/2017
10:39 AM

Road Segments			Segment Attributes					Existing Traffic Conditions					Minimum Adopted Standards			
ID #	Roadway Name	Limits	Jurisdiction	# of Lanes	Segm Length	Analysis Sgmn Length	Post Spd	Ref No.	Traffic Counts			Adjusted to 2016 AADT	DHV	LOS	LOS	Srv Vol
									Source	Date	Volume AADT					
34	Bee Ridge Road (SR 758)	Beneva	FDOT	6	0.50	0.50	40	3	FDOT	Jan-16	34,500	34,500	3,278	C	D	5,390
35	Bee Ridge Road (SR 758)	Sawyer	FDOT	6	0.50	0.50	40	3	FDOT	Jan-16	34,500	34,500	3,278	C	D	5,390
36	Bee Ridge Road (SR 758)	McIntosh	FDOT	4	1.00	1.00	40	2	FDOT	Jan-16	34,500	34,500	3,278	C	D	3,580
36.7	Bee Ridge Road (SR 758)	Honore	FDOT	4	0.40	0.40	40	2	FDOT	Jan-16	34,500	34,500	3,278	C	D	3,580
37	Bee Ridge Road (SR 758)	Center Gate	FDOT	4	0.21	0.21	40	2	FDOT	Jan-16	36,000	36,000	3,276	C	D	3,580
37.3	Bee Ridge Road (SR 758)	Maxfield	FDOT	4	0.21	0.21	40	65	FDOT	Jan-16	36,000	36,000	3,276	C	D	3,759
38	Bee Ridge Road (SR 758)	Cattlemen	FDOT	4	0.22	0.22	40	65	FDOT	Jan-16	36,000	36,000	3,276	C	D	3,759
39	Bay Rd/Osprey Ave (SR 758)	Siesta Dr	FDOT/Sar	2	0.45	0.45	30	168	FDOT	Jan-16	13,500	13,500	1,404	D	D	1,463
41	Beneva Road	17th	Co./Sar	4	0.25	0.25	40	44	SC	Mar-16	17,323	17,323	1,802	C	D	3,401
42	Beneva Road	12th	Sarasota Commons	4	0.35	0.35	40	23	SC	Mar-16	20,436	20,436	2,105	C	D	3,222
43	Beneva Road	Sarasota Commons	Co./Sar	4	0.10	0.10	40	23	SC	Mar-16	20,436	20,436	2,105	C	D	3,222
43.5	Beneva Road	Circus	Co./Sar	4	0.30	0.30	40	23	SC	Mar-15	24,099	24,750	2,425	C	D	3,222
44	Beneva Road	Fruitville	County	4	1.00	1.00	45	44	SC	May-16	26,133	26,133	2,561	C	D	3,401
45	Beneva Road	Bahia Vista	County	4	0.50	0.50	40	23	SC	May-16	25,177	25,177	2,467	C	D	3,222
45	Beneva Road	Riviera Dr	County	4	0.50	0.50	40	23	SC	May-16	25,177	25,177	2,467	C	D	3,222
46	Beneva Road	Webber	County	4	0.65	0.65	40	23	SC	May-16	27,396	27,396	2,685	C	D	3,222
47	Beneva Road	Bee Ridge	County	4	0.50	0.50	40	23	SC	May-16	27,845	27,845	2,729	C	D	3,222
48	Beneva Road	Wilkinson	County	4	0.50	0.50	40	23	SC	May-16	23,949	23,949	2,467	C	D	3,222
49	Beneva Road	Proctor	County	4	1.00	1.00	40	23	SC	May-16	24,681	24,681	2,419	C	D	3,222
50	Beneva Road	Clark	County	4	0.85	0.85	45	23	SC	Jun-16	26,496	26,496	2,597	C	D	3,222
50	Beneva Road	Kingston	County	4	0.15	0.15	45	23	SC	Jun-16	26,496	26,496	2,597	C	D	3,222
51	Beneva Road	Gulf Gate	County	4	0.20	0.20	40	23	SC	Jun-16	20,829	20,829	2,145	C	D	3,222
51.3	Beneva Road	Palmer Ranch Pkwy	County	4	0.40	0.40	40	23	SC	Jun-16	20,829	20,829	2,145	C	D	3,222
51.4	Beneva Road	Torrey Pines	County	4	0.50	0.50	40	23	SC	Jun-16	21,153	21,153	2,179	C	D	3,222
51.6	Beneva Road	Lake Point Woods	County	4	0.15	0.15	40	23	SC	Jun-16	21,153	21,153	2,179	C	D	3,222
52	Beneva Road	Sarasota Square	County	4	0.10	0.10	45	23	SC	Jun-16	21,153	21,153	2,179	C	D	3,222
53	Beneva Road	K-Mart	County	4	0.10	0.10	40	44	SC	Jun-16	12,798	12,798	1,331	C	D	3,401
54	Blackburn Pt. Road	Casey Key	County	2	1.00	1.00	30	147	SC	Aug-16	2,474	2,474	275	C	D	1,330
54.1	Border Road	Auburn	County	2	1.00	1.00	30	126	SC	Aug-16	2,741	2,741	304	C	D	1,264
54.2	Border Road	Jacaranda	County	2	1.52	1.52	45	30	SC	Aug-16	1,722	1,722	191	C	C	1,057
54.2	Border Road	Jackson	County	2	1.15	1.15	45	30	SC	Aug-16	1,722	1,722	191	C	C	1,057
684	N Cattlemen Road	University Pkwy	County	4	0.17	0.17	30	144	SC	Jan-16	8,698	8,698	948	C	D	2,774
684	N Cattlemen Road	Target Signal	County	4	0.12	0.12	30	123	SC	Jan-16	8,698	8,698	948	C	D	2,628
684	N Cattlemen Road	Roundabout 1	County	4	0.12	0.12	30	123	SC	Jan-16	8,698	8,698	948	C	D	2,628
684	N Cattlemen Road	Roundabout 2	County	4	0.12	0.12	30	123	SC	Jan-16	8,698	8,698	948	C	D	2,628
904	N Cattlemen Road	Desoto	County	4	2.85	2.85	40	123	SC	Jan-16	9,532	9,532	1,039	C	D	2,628
59.5	N Cattlemen Road (Brown Road)	Richardson	County	4	0.50	0.50	35	144	SC	Apr-16	15,378	15,378	1,599	D	D	2,774
57	Capri Isles Boulevard	Venice	Co./Ven	2	1.70	1.70	30	151	SC	Nov-14	5,844	6,164	672	D	D	998
58	Casey Key Road	Blackburn Pt. Rd	County	2	4.25	4.25	25	130	SC	Aug-15	703	722	80	C	D	931
59	Casey Key Road	Albee	County	2	0.80	0.80	25	130	SC	Jul-14	2,020	2,131	236	C	D	931
60	Cattlemen Road	Fruitville	County	2	0.25	0.25	35	147	SC	May-15	19,318	19,840	2,043	F	D	1,330
60.5	Cattlemen Road	Packinghouse	County	2	0.70	0.70	35	126	SC	May-15	19,924	20,462	2,108	F	D	1,360
61	Cattlemen Road	Palmer	County	2	0.26	0.26	40	47	SC	May-16	14,415	14,415	1,499	C	D	1,600
62	Cattlemen Road	Bahia Vista	County	4	0.63	0.63	40	44	SC	May-16	23,065	23,065	2,376	C	D	3,401

SARASOTA COUNTY

2016 GENERALIZED LEVEL OF SERVICE ANALYSIS

10/2/2017
10:39 AM

Road Segments			Segment Attributes					Existing Traffic Conditions					Minimum Adopted Standards			
ID #	Roadway Name	Limits	Jurisdiction	# of Lanes	Segm Length	Analysis Sgmnt Length	Post Spd	Ref No.	Source	Date	Volume AADT	Adjusted to 2016 AADT	DHV	LOS	LOS	Srv Vol
62.5	Cattlemen Road	Colonial Oaks	County	4	0.25	0.25	40	44	SC	May-16	22,760	22,760	2,344	C	D	3,401
62.6	Cattlemen Road	Webber	County	4	0.16	0.16	40	23	SC	May-16	23,810	23,810	2,452	C	D	3,222
63	Cattlemen Road	Countrywood	County	4	0.33	0.33	40	44	SC	May-16	23,521	23,521	2,423	C	D	3,401
63	Cattlemen Road	Cattleridge Blvd	County	4	0.15	0.15	40	44	SC	May-16	23,521	23,521	2,423	C	D	3,401
64	Cattlemen Road	Bee Ridge	County	4	0.20	0.20	35	144	SC	May-16	21,226	21,226	2,186	D	D	2,774
64.5	Cattlemen Road	Center Pointe	County	4	0.45	0.45	45	44	SC	May-16	16,258	16,258	1,691	C	D	3,401
64.7	Cattlemen Road	Wilkinson	County	4	0.35	0.35	45	44	SC	May-16	16,258	16,258	1,691	C	D	3,401
65	Center Road	U.S. 41	County	2	0.30	0.30	35	147	SC	Sep-15	9,055	9,299	1,014	D	D	1,330
66.3	Center Road	U.S. 41 By Pass	County	4	0.48	0.48	35	144	SC	Sep-15	15,299	15,712	1,634	D	D	2,774
66.3	Center Road	Pinebrook	County	4	0.90	0.90	35	123	SC	Sep-15	15,299	15,712	1,634	D	D	2,628
67	Center Road	Horse & Chaise Blvd	County	4	0.35	0.35	35	123	SC	Sep-15	19,159	19,676	2,027	D	D	2,628
67	Center Road	Shamrock	County	4	0.55	0.55	35	144	SC	Sep-15	19,159	19,676	2,027	D	D	2,774
68	Center Road	Jacaranda	County	4	0.55	0.55	45	44	SC	Sep-15	19,599	20,128	2,073	C	D	3,401
68.5	Center Road	Venice E Blvd	County	4	1.50	1.50	45	44	SC	Sep-15	12,049	12,374	1,287	C	D	3,401
68.6	Center Road	Rockley Blvd	County	4	1.60	1.60	45	44	SC	Sep-15	7,352	7,551	823	C	D	3,401
68.7	Central Sarasota Parkway	Potter Park Dr	County	2	0.26	0.26	45	47	SC	Aug-15	8,190	8,411	917	C	D	1,600
68.8	Central Sarasota Parkway	McIntosh	County	2	0.49	0.49	45	26	SC	Aug-15	8,190	8,411	917	C	D	1,520
69	Clark Road (SR 72)	Swift	FDOT	6	0.50	0.50	40	66	FDOT	Jan-16	39,500	39,500	3,595	C	D	5,660
70	Clark Road (SR 72)	Lockwood Ridge	FDOT	6	0.50	0.50	40	66	FDOT	Jan-16	39,500	39,500	3,595	C	D	5,660
71	Clark Road (SR 72)	Beneva	FDOT	6	0.50	0.50	40	3	FDOT	Jan-16	46,000	46,000	4,140	C	D	5,390
72	Clark Road (SR 72)	Sawyer	FDOT	6	0.50	0.50	45	3	FDOT	Jan-16	46,000	46,000	4,140	C	D	5,390
73	Clark Road (SR 72)	McIntosh	FDOT	6	1.00	1.00	45	66	FDOT	Jan-16	46,000	46,000	4,140	C	D	5,390
73.5	Clark Road (SR 72)	Honore	FDOT	6	0.50	0.50	45	3	FDOT	Jan-16	46,000	46,000	4,140	C	D	5,390
74	Clark Road (SR 72)	Gantt	FDOT	6	0.15	0.15	45	66	FDOT	Jan-16	46,000	46,000	4,140	C	D	5,660
74.5	Clark Road (SR 72)	Catamaran	FDOT	6	0.30	0.30	45	66	FDOT	Jan-16	46,000	46,000	4,140	C	D	5,660
75	Clark Road (SR 72)	I-75	FDOT	2	1.70	1.70	55	64	FDOT	Jan-16	12,400	12,400	1,290	C	D	1,680
76	Clark Road (SR 72)	Proctor	FDOT	2	1.45	23.85	45	64	FDOT	Jan-16	12,400	12,400	1,290	C	D	1,680
77	Clark Road (SR 72)	Bee Ridge Ext.	FDOT	2	22.40	23.85	55	207	FDOT	Jan-16	2,400	2,400	266	C	D	1,080
1043	Coburn Road	Fruitville Rd	County	2	0.43	0.43	30	130	SC	Sep-16	3,269	3,269	363	C	D	931
1044	Coburn Road	Palmer Blvd	County	2	1.10	1.10	30	122	SC	Sep-16	6,140	6,140	669	D	D	1,197
78	Colonia Lane	U.S. 41	County	2	1.10	1.10	30	143	SC	Aug-16	4,886	4,886	537	C	D	1,264
81	De Leon Drive	Ortiz	Co./Npt	2	1.30	1.30	30	130	SC	Oct-16	610	610	68	C	D	931
82	Dearborn Street	Old Englewood Rd	County	2	0.80	0.80	30	122	SC	Oct-16	4,395	4,395	483	C	D	1,197
83	Dearborn Street	S.R. 776	County	4	1.00	1.00	40	44	SC	Oct-16	10,485	10,485	1,143	C	D	3,401
86	Desoto Road	University Pkway	County	2	0.80	0.80	35	143	SC	Jan-16	6,879	6,879	750	D	D	1,264
87	Desoto Road	U.S. 301	County	2	0.50	1.00	35	143	SC	Jan-16	5,442	5,442	599	C	D	1,264
87	Desoto Road	Shade	County	2	0.50	1.00	35	122	SC	Jan-16	5,442	5,442	599	D	D	1,197
89	Desoto Road	Tuttle	County	2	0.50	0.50	35	122	SC	Jan-16	5,237	5,237	576	C	D	1,197
90	Desoto Road/Longwood Run	Lockwood Ridge	County	2	2.05	2.05	35	122	SC	Jan-16	4,113	4,113	452	C	D	1,197
818	Desoto Road	Honore	County	2	0.49	0.49	30	147	SC	Jan-16	6,998	6,998	763	D	D	1,330
91	Old Englewood Road	S.R. 776	County	2	0.60	2.20	45	30	SC	Feb-16	2,155	2,155	239	C	D	1,120
92	Old Englewood Road	Bay Vista	County	2	1.60	2.20	45	30	SC	Feb-16	1,984	1,984	220	C	D	1,120
1042	Edmondson Road	Albee Farm Rd	County	2	1.01	1.01	35	143	SC	Aug-16	3,315	3,315	368	C	D	1,264

9

SARASOTA COUNTY

2016 GENERALIZED LEVEL OF SERVICE ANALYSIS

10/2/2017
10:39 AM

Road Segments			Segment Attributes				Existing Traffic Conditions						Minimum Adopted Standards			
ID #	Roadway Name	Limits	Jurisdiction	# of Lanes	Segm Length	Analysis Length	Post Spd	Ref No	Source	Date	Volume AADT	Adjusted to 2016 AADT	DHV	LOS	LOS	Srv Vol
679	Edmondson Road	Pinebrook Rd	Co./Ven	2	0.45	0.45	30	122	SC	-	-	-	-	N/A	D	1,197
680	Edmondson Road	Capri Isles Blvd	Co./Ven	2	0.56	0.56	30	130	SC	-	-	-	-	N/A	D	931
93	Englewood Road (SR 776)	U.S. 41	FDOT	6	0.75	0.75	40	66	FDOT	Jan-16	20,000	20,000	2,060	C	D	5,660
93.3	Englewood Road (SR 776)	Jacaranda Blvd	FDOT	6	0.38	0.38	45	165	FDOT	Jan-16	20,000	20,000	2,060	D	D	3,066
93.6	Englewood Road (SR 776)	Rutgers Rd	FDOT	6	1.30	1.30	45	66	FDOT	Jan-16	20,000	20,000	2,060	C	D	5,660
94	Englewood Road (SR 776)	Manasota Bch.	FDOT	6	1.30	1.30	45	66	FDOT	Jan-16	23,000	23,000	2,369	C	D	5,660
94.5	Englewood Road (SR 776)	Overbrook Rd	FDOT	6	0.35	0.35	45	66	FDOT	Jan-16	23,000	23,000	2,369	C	D	5,660
95	Englewood Road (SR 776)	Englewood I. Pkwy	FDOT	6	0.35	0.35	45	66	FDOT	Jan-16	23,000	23,000	2,369	C	D	5,660
95	Englewood Road (SR 776)	Dearborn	FDOT	4	3.10	3.10	45	65	FDOT	Jan-16	23,000	23,000	2,369	C	D	3,759
96	Fruitville (SR 780)	East Ave	FDOT/Sar	4	0.15	0.15	35	2	FDOT	Jan-16	37,000	37,000	3,367	C	D	3,580
97	Fruitville (SR 780)	School	FDOT/Sar	6	0.15	0.15	40	3	FDOT	Jan-16	37,000	37,000	3,367	C	D	5,390
98	Fruitville (SR 780)	Lime	FDOT/Sar	6	0.15	0.15	40	3	FDOT	Jan-16	37,000	37,000	3,367	C	D	5,390
99	Fruitville (SR 780)	Shade	FDOT/Sar	6	0.15	0.15	40	3	FDOT	Jan-16	37,000	37,000	3,367	C	D	5,390
100	Fruitville (SR 780)	Tuttle	FDOT/Sar	6	0.50	0.50	40	3	FDOT	Jan-16	45,500	45,500	4,095	C	D	5,390
101	Fruitville (SR 780)	Lockwood Ridge	FDOT/Sar	6	0.50	0.50	45	3	FDOT	Jan-16	49,000	49,000	4,165	C	D	5,390
102	Fruitville (SR 780)	Beneva	FDOT/Sar	6	0.50	0.50	45	3	FDOT	Jan-16	49,000	49,000	4,165	C	D	5,390
103	Fruitville (SR 780)	Beneva	FDOT/Sar	6	1.00	1.00	45	3	FDOT	Jan-16	55,000	55,000	4,620	C	D	5,390
104	Fruitville (SR 780)	McIntosh	FDOT	6	1.00	1.00	45	66	FDOT	Jan-16	55,000	55,000	4,620	C	D	5,660
105	Fruitville (SR 780)	Honore	FDOT	6	0.40	0.40	45	66	FDOT	Jan-16	58,000	58,000	4,814	C	D	5,660
105.5	Fruitville (SR 780)	Paramount Dr	FDOT	6	0.30	0.30	45	66	FDOT	Jan-16	58,000	58,000	4,814	C	D	5,660
106	Fruitville (SR 780)	Cattlemen	FDOT	6	0.35	0.35	45	66	FDOT	Jan-16	58,000	58,000	4,814	C	D	5,660
107	Fruitville	I-75	County	4	0.59	0.59	45	44	SC	Mar-16	23,339	23,339	2,404	C	D	3,401
107	Fruitville	Coburn S	County	4	0.62	0.62	45	23	SC	Mar-16	23,339	23,339	2,404	C	C	3,078
107.3	Fruitville	East Road	County	4	0.64	0.64	45	23	SC	Mar-16	22,136	22,136	2,280	C	C	3,078
107.5	Fruitville	Tatum	County	4	0.61	0.61	45	44	SC	Mar-16	17,658	17,658	1,836	C	C	3,249
107.6	Fruitville	Sarasota Center Blvd	County	2	1.40	8.50	55	30	SC	Mar-16	8,066	8,066	879	C	C	1,057
107.7	Fruitville	Dog Kennel Rd	County	2	7.10	8.50	55	30	SC	Mar-16	6,460	6,460	704	C	C	1,057
108	Gantt Road	Proctor	County	2	0.50	0.50	35	151	SC	Sep-16	8,851	8,851	965	D	D	998
108.5	Gantt Road	Ashton	County	2	0.50	0.50	35	122	SC	Sep-16	9,312	9,312	1,015	D	D	1,197
112	Gulf Gate Drive	U.S. 41	County	4	0.29	0.29	30	152	SC	Jul-16	7,894	7,894	860	C	D	2,044
113	Gulf Gate Drive	Gateway Ave	County	2	0.58	0.58	25	126	SC	Jul-16	5,740	5,740	631	D	D	1,264
113	Gulf Gate Drive	Markridge	County	2	0.17	0.17	25	126	SC	Jul-16	5,740	5,740	631	D	D	1,264
114	Gulf Gate Drive	Bispham	County	2	0.44	0.44	25	126	SC	Jul-16	5,996	5,996	660	D	D	1,264
114	Gulf Gate Drive	Curtiss	County	2	0.11	0.11	25	126	SC	Jul-16	5,996	5,996	660	D	D	1,264
115	Gulf Mexico Dr.(SR 789)	Co Line	FDOT/LBK	2	5.35	5.35	35	102	FDOT	Jan-16	17,300	17,300	1,799	D	D	2,920
116	Harbor Drive	Venice Ave	Co./Ven	2	1.40	1.40	30	126	SC	Sep-15	3,072	3,155	350	C	D	1,264
117	Harbor Drive	Beach Rd	Co./Ven	2	1.70	1.70	30	130	SC	Sep-15	3,656	3,755	417	C	D	931
1046	Hatchet Creek Boulevard	Pinebrook Rd	Co./Ven	2	1.76	1.48	25	143	SC	Aug-16	2,715	2,715	301	C	D	1,264
118	Higel Avenue (SR 758)	Siesta	FDOT	2	0.85	1.85	40	9	FDOT	Jan-16	17,000	17,000	1,768	F	D	1,280
119	Higel Ave/Treasure Boat	Midnight Pass Rd	County	2	0.12	0.62	35	130	SC	Jul-16	1,718	1,718	191	C	D	931
119.5	Honore Avenue	University	County	2	0.50	0.50	40	47	SC	Mar-16	18,928	18,928	1,950	F	D	1,600
119.5	Honore Avenue	Desoto	County	2	0.54	0.50	40	47	SC	Mar-16	16,240	16,240	1,689	F	D	1,600
119.7	Honore Avenue	Longmeadow	County	2	1.20	1.20	30	143	SC	Mar-16	13,243	13,243	1,377	F	D	1,264
120	Honore Avenue	Taywood	County	2	0.60	0.60	30	143	SC	Mar-16	14,782	14,782	1,537	F	D	1,264
121	Honore Avenue	17th	County	2	0.55	0.55	35	143	SC	Mar-16	20,037	20,037	2,064	F	D	1,264

SARASOTA COUNTY

2016 GENERALIZED LEVEL OF SERVICE ANALYSIS

10/2/2017
10:39 AM

Road Segments			Segment Attributes				Existing Traffic Conditions					Minimum Adopted Standards				
ID #	Roadway Name	Limits	Jurisdiction	# of Lanes	Segm Length	Analysis Sgmnt Length	Post Spd	Ref No.	Source	Date	Volume AADT	Adjusted to 2016 AADT	DHV	LOS	LOS	Srv Vol
121.5	Honore Avenue	Richardson	County	2	0.45	0.45	35	143	SC	Mar-16	17,848	17,848	1,856	F	D	1,264
122	Honore Avenue	Fruitville	County	2	0.29	0.29	35	147	SC	Apr-16	14,723	14,723	1,531	F	D	1,330
122	Honore Avenue	Antoinette	County	2	0.09	0.48	35	147	SC	Apr-16	14,723	14,723	1,531	F	D	1,330
122	Honore Avenue	Sawgrass	County	2	0.39	0.48	35	126	SC	Apr-16	14,723	14,723	1,531	F	D	1,264
122.6	Honore Avenue	Palmer	County	2	0.34	0.34	35	147	SC	Apr-16	12,680	12,680	1,319	D	D	1,330
122.7	Honore Avenue	Bahia Vista	County	2	0.80	0.80	30	147	SC	Apr-16	10,534	10,534	1,148	D	D	1,330
122.7	Honore Avenue	Colonial Oaks	County	2	0.25	0.25	30	126	SC	Apr-16	10,356	10,356	1,129	D	D	1,264
122.72	Honore Avenue	Webber	County	2	0.28	0.28	30	126	SC	Apr-16	10,721	10,721	1,169	D	D	1,264
122.72	Honore Avenue	Brookmeade	County	2	0.37	0.37	30	147	SC	Apr-16	9,276	9,276	1,011	D	D	1,330
122.75	Honore Avenue	Bee Ridge	County	2	0.50	0.50	45	26	SC	Jun-15	10,126	10,399	1,134	C	D	1,520
122.76	Honore Avenue	Wilkinson	County	2	0.50	0.50	40	26	SC	Jun-15	8,976	9,218	1,005	C	D	1,520
122.8	Honore Avenue	Proctor	County	2	0.50	0.50	30	122	SC	Jun-15	8,534	8,764	955	D	D	1,197
122.8	Honore Avenue	Ashton	County	2	0.50	0.50	30	143	SC	Jun-15	8,953	9,195	1,002	D	D	1,264
122.85	Honore Avenue	Clark	County	4	0.25	1.55	45	44	SC	Jun-15	17,084	17,545	1,825	C	D	3,401
122.86	Honore Avenue	Northridge	County	4	1.30	1.55	45	44	SC	Jun-15	17,084	17,545	1,825	C	D	3,401
122.87	Honore Avenue	Palmer Ranch Pkwy	County	4	1.79	1.79	45	44	SC	Sep-16	8,615	8,615	939	C	D	3,401
122.87	Honore Avenue	Central Sarasota Pkwy	County	4	0.60	0.60	45	23	SC	Sep-16	6,425	6,425	700	C	D	3,222
122.87	Honore Avenue	Aviano Ln	County	2	2.80	2.80	45	47	SC	Sep-16	6,425	6,425	700	C	D	1,600
122.9	Honore Avenue	SR 681	County	2	1.92	1.92	45	47	SC	Aug-16	2,766	2,766	307	C	D	1,600
122.9	Honore Avenue	Ranch Rd	County	2	1.82	1.82	45	43	SC	Aug-16	2,766	2,766	307	C	D	1,520
123	Indiana Avenue (SR 776)	Dearborn	FDOT	4	0.45	0.45	35	165	FDOT	Jan-16	23,000	23,000	2,369	D	D	3,066
123.5	Indiana Avenue (SR 776)	Virginia Ct	FDOT	4	0.65	0.65	35	165	FDOT	Jan-16	23,000	23,000	2,369	D	D	3,066
29	Iona Road	Palmer Blvd	County	2	1.10	1.10	45	102	SC	Apr-16	4,434	4,434	488	C	D	1,200
124	I-75 (SR 93)	University	FDOT	6	3.45	3.45	70	307	FDOT	Jan-16	133,000	133,000	11,039	D	C	10,170
125	I-75 (SR 93)	Fruitville	FDOT	6	2.65	2.65	70	302	FDOT	Jan-16	121,500	121,500	10,085	E	C	8,370
126	I-75 (SR 93)	Bee Ridge	FDOT	6	2.00	2.00	70	302	FDOT	Jan-16	106,049	106,049	8,802	D	C	8,370
127	I-75 (SR 93)	Clark (SR 72)	FDOT	6	5.50	5.50	70	302	FDOT	Jan-16	96,000	96,000	7,968	C	B	6,130
128	I-75 (SR 93)	SR 681	FDOT	6	4.30	4.30	70	302	FDOT	Jan-16	85,000	85,000	7,055	C	B	6,130
128.5	I-75 (SR 93)	Laurel	FDOT	6	2.20	2.20	70	302	FDOT	Jan-16	86,000	86,000	7,138	C	B	6,130
129	I-75 (SR 93)	Jacaranda	FDOT	6	2.25	2.25	70	302	FDOT	Jan-16	78,000	78,000	6,474	C	B	6,130
130	I-75 (SR 93)	River Rd	FDOT	6	9.00	9.00	70	302	FDOT	Jan-16	78,000	78,000	6,474	C	B	6,130
131	I-75 (SR 93)	Sumter Blvd	FDOT/NPI	6	3.00	3.00	70	302	FDOT	Jan-16	63,000	63,000	5,229	B	B	6,130
132	I-75 (SR 93)	Toledo Blade	FDOT/NPI	6	7.75	7.75	70	302	FDOT	Jan-16	63,000	63,000	5,229	B	B	6,130
131.1	Jacaranda Boulevard	Laurel	Co./Ven	2	1.16	1.16	45	147	SC	Sep-16	3,371	3,371	374	C	D	1,330
132	Jacaranda Boulevard	Border	County	2	0.80	0.80	45	47	SC	Sep-16	4,845	4,845	533	C	C	1,510
134	Jacaranda Boulevard	I-75	County	4	0.28	0.28	45	44	SC	Sep-16	24,158	24,158	2,367	C	D	3,401
134.5	Jacaranda Boulevard	Executive/Commercial	County	4	0.45	0.45	45	44	SC	Sep-16	26,210	26,210	2,569	C	D	3,401
135	Jacaranda Boulevard	Venice	County	4	1.50	1.50	45	44	SC	Sep-16	29,581	29,581	2,899	C	D	3,401
136	Jacaranda Boulevard	Center	County	4	0.45	0.45	30	144	SC	Sep-16	20,481	20,481	2,110	D	D	2,774
136	Jacaranda Boulevard	Indian Hills Blvd	County	4	0.55	0.55	30	123	SC	Sep-16	20,481	20,481	2,110	D	D	2,628
136	Jacaranda Boulevard	Sklar Dr	County	4	0.80	0.80	30	123	SC	Sep-16	20,481	20,481	2,110	D	D	2,628
136.5	Jacaranda Boulevard	Woodmere Park	County	4	0.40	0.40	35	144	SC	Sep-16	17,287	17,287	1,798	D	D	2,774
136.5	Jacaranda Boulevard	U.S. 41	County	4	0.75	0.75	45	44	SC	Sep-16	17,287	17,287	1,798	C	D	3,401
137	Jackson Road	Border	County	2	1.60	1.60	40	30	SC	Aug-16	1,411	1,411	157	C	D	1,120

SARASOTA COUNTY
2016 GENERALIZED LEVEL OF SERVICE ANALYSIS

ID #	Roadway Name		Limits		Segment Attributes					Existing Traffic Conditions					Minimum Adopted Standards	
					Jurisdiction	# of Lanes	Segm Length	Analysis Length	Post Spd	Ref No.	Traffic Counts			Adjusted to 2016 AADT	DHV	LOS
											Source	Date	Volume AADT			
303	U.S.41 (SR 45)	River Road	N. Port City Line		FDOT/NP	4	2.50	0.63	55	44	FDOT	Jan-16	34,500	34,500	3,278	D
304	Venice Avenue	Bus U.S. 41	Grove		Co./Ven	4	0.75	0.75	30	148	SC	Jul-16	16,884	16,884	1,756	D
304	Venice Avenue		U.S. 41 By Pass		Co./Ven	4	0.75	0.75	30	144	SC	Jul-16	16,884	16,884	1,756	D
305	Venice Avenue	U.S. 41 By Pass	Cherry St		Co./Ven	4	0.80	0.80	35	144	SC	Jul-16	18,826	18,826	1,939	D
306	Venice Avenue	Cherry St	Pinebrook		County	4	0.25	0.25	35	123	SC	Jul-16	17,694	17,694	1,840	D
306.3	Venice Avenue	Pinebrook	Capri Isles Blvd		County	4	0.25	0.25	35	144	SC	Jul-16	14,792	14,792	1,538	D
306.5	Venice Avenue	Capri Isles Blvd	Auburn		County	4	0.75	0.75	45	23	SC	Jul-16	15,872	15,872	1,651	C
307	Venice Avenue	Auburn	Jacaranda		County	4	1.10	1.10	45	23	SC	Jun-16	15,645	15,645	1,627	C
308	Venice Avenue	Jacaranda	Jackson		County	2	1.60	1.60	45	30	SC	Jun-16	7,763	7,763	846	C
309	Venice Avenue	Jackson	River Rd		County	2	1.00	1.00	45	30	SC	Jun-16	4,850	4,850	534	C
310	Venice East Boulevard	Center Rd	Gulf Breeze Blvd		County	4	1.40	2.20	35	144	SC	Jan-16	6,944	6,944	757	C
310	Venice East Boulevard	Gulf Breeze Blvd	U.S. 41		County	4	0.80	2.20	35	144	SC	Jan-16	6,944	6,944	757	C
312	Verna Road	Co Line	Fruitville		County	2	3.50	3.50	55	30	SC	Mar-16	2,728	2,728	303	C
313	Webber Street	U.S. 41	Shade		County	4	0.50	0.50	35	148	SC	May-16	10,208	10,208	1,113	C
313.5	Webber Street	Shade	Tuttle		County	4	0.50	0.50	35	123	SC	May-16	13,107	13,107	1,363	D
314	Webber Street	Tuttle	Lockwood Ridge		County	4	0.50	0.50	35	123	SC	May-16	18,693	18,693	1,925	D
315	Webber Street	Lockwood Ridge	Beneva		County	4	0.50	0.50	35	123	SC	May-16	18,067	18,067	1,861	D
315	Webber Street	Beneva	RR		County	4	0.50	0.50	35	148	SC	May-16	18,067	18,067	1,861	D
316	Webber Street	RR	McIntosh		County	4	0.40	0.40	35	148	SC	May-16	18,067	18,067	1,861	D
317	Webber Street	McIntosh	Honore		County	2	1.13	1.89	40	47	SC	May-16	15,821	15,821	1,645	F
318.5	Webber Street	Honore	Cattlemen		County	2	0.76	1.89	40	47	SC	May-16	11,654	11,654	1,270	C
319	Wilkinson Road	Swift	Beneva		County	2	1.00	1.00	35	122	SC	Jun-16	4,568	4,568	502	C
320	Wilkinson Road	MacEachen	MacEachen		County	2	0.15	0.15	35	122	SC	Jun-16	5,347	5,347	588	C
320	Wilkinson Road	MacEachen	Sawyer		County	2	0.35	0.50	35	130	SC	Jun-16	5,347	5,347	588	D
321	Wilkinson Road	Sawyer	McIntosh		County	2	0.50	0.50	35	122	SC	Apr-15	4,061	4,171	459	C
322	Wilkinson Road	McIntosh	Honore		County	2	1.10	1.10	35	122	SC	Jun-16	2,553	2,553	283	C
323	Wilkinson Road	Honore	Center Gate		County	2	0.15	0.15	35	122	SC	Jun-16	3,695	3,695	410	C
324	Wilkinson Road	Center Gate	Cattlemen		County	2	0.55	1.80	35	143	SC	Jun-16	2,665	2,665	296	C
1041	Winchester Boulevard	River Rd	Charlotte Co Line		County	2	3.17	3.17	35	143	SC	Oct-16	8,705	8,705	949	D

**SARASOTA COUNTY GENERALIZED
LOS VOLUMES**

NON-STATE ROADWAY WITHOUT RIGHT TURN LANE

2 Lane Undivided/Multi-Lane Divided with Left

URBAN

Class 1

Ref No.	Facility Type	Lanes	Median	B	C	D	E
22	UN1002UL	2	UD	-	1,359	1,440	-
23	UN1004DL	4	D	-	3,078	3,222	-
24	UN1006DL	6	D	-	4,725	4,851	-
25	UN1008DL	8	D	-	6,381	6,489	-

Class 2

Ref No.	Facility Type	Lanes	Median	B	C	D	E
122	UN2002UL	2	UD	-	594	1,197	1,269
123	UN2004DL	4	D	-	1,179	2,628	2,736
124	UN2006DL	6	D	-	1,881	4,050	4,131
125	UN2008DL	8	D	-	2,592	5,454	5,517

TRANSITIONING

Class 1

Ref No.	Facility Type	Lanes	Median	B	C	D	E
34	TN1002UL	2	UD	-	1,170	1,314	-
35	TN1004DL	4	D	-	2,754	2,880	-
36	TN1006DL	6	D	-	4,221	4,338	-

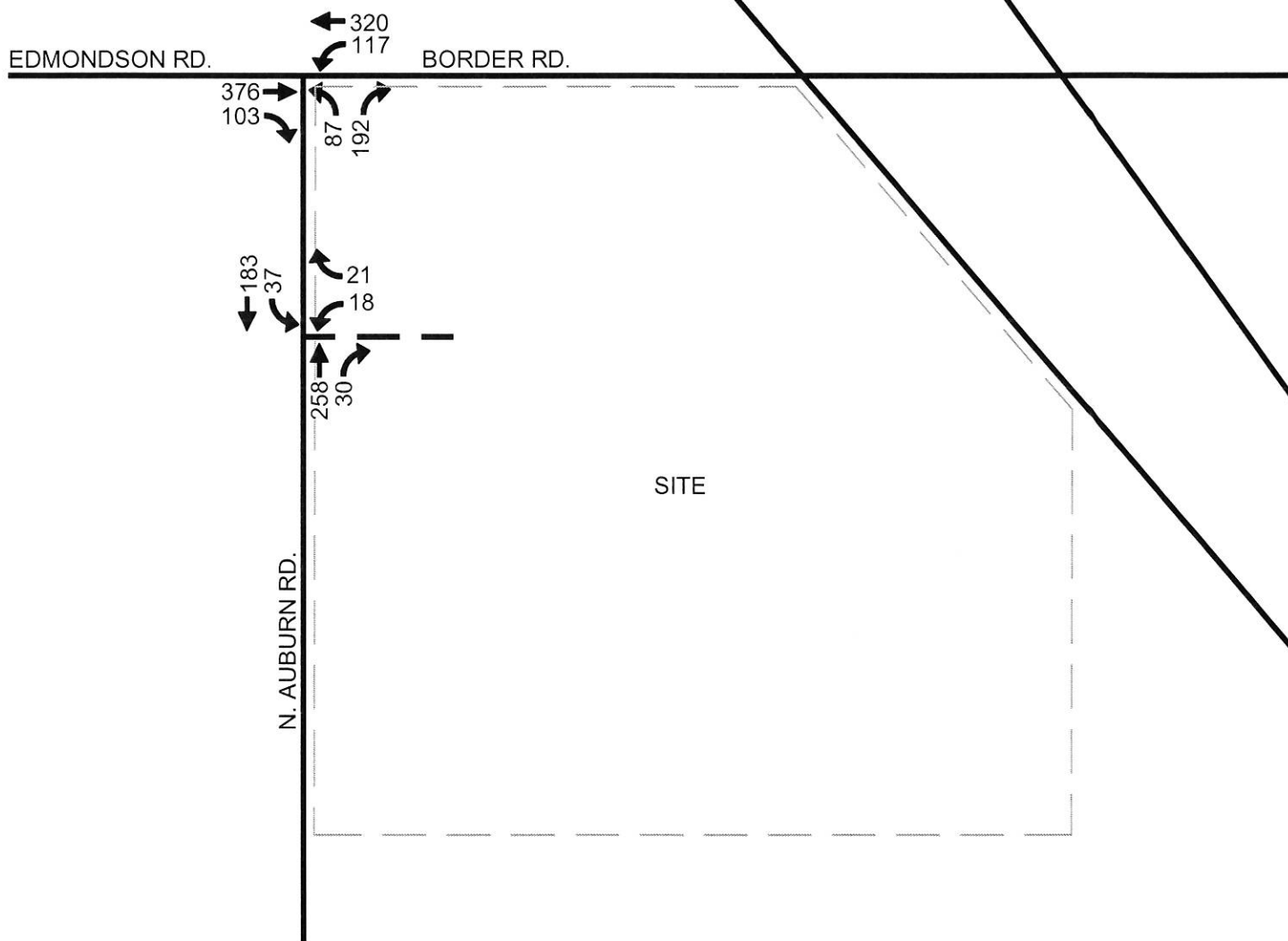
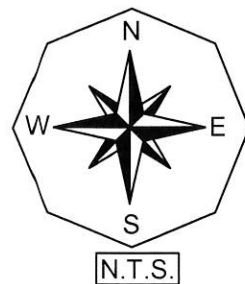
Class 2

Ref No.	Facility Type	Lanes	Median	B	C	D	E
134	TN2002UL	2	UD	-	522	1,080	1,152
135	TN2004DL	4	D	-	801	2,331	2,565
136	TN2006DL	6	D	-	1,296	3,636	3,852

RURAL

Ref No.	Facility Type	Lanes	Median	B	C	D	E
210	RN002UL	2	UD	-	1,098	1,215	-
211	RN004DL	4	D	-	2,511	2,601	-
212	RN006DL	6	D	-	3,870	3,915	-

FIGURE 1-A



LEGEND

← 000 WEEKDAY PM PEAK HOUR SITE TRAFFIC

**RAW TURNING MOVEMENT COUNT
DATA
BORDER ROAD @ AUBURN ROAD**

Auburn Rd & Border Rd PM Peak Hour

File Name: Auburn Road & Border Rd 1-23-2018 (PM)

Location: Sarasota County

All Vehicles

Site Code:

Study Date: 01/23/2018

Time	Auburn Road Southbound				Border Road Westbound				Auburn Road Northbound				Edmondson Road Eastbound			
	Right	Thru	Left	U-Turn	Appr Total	Right	Thru	Left	U-Turn	Appr Total	Right	Thru	Left	U-Turn	Appr Total	Int Total
16:00	0	0	0	0	0	0	21	5	0	26	14	0	8	0	22	91
16:15	0	0	0	0	0	0	25	7	0	32	13	0	10	0	23	115
16:30	0	0	0	0	0	0	25	13	0	38	13	0	10	0	23	125
16:45	0	0	0	0	0	0	32	6	0	38	13	0	13	0	26	100
Total	0	0	0	0	0	0	103	31	0	134	53	0	41	0	94	431
17:00	0	0	0	0	0	0	44	6	0	50	16	0	15	0	31	137
17:15	0	0	0	0	0	0	23	12	0	35	11	0	10	0	21	108
17:30	0	0	0	0	0	0	17	8	0	25	15	0	10	0	25	96
17:45	0	0	0	0	0	0	21	8	0	29	5	0	7	0	12	82
Total	0	0	0	0	0	0	105	34	0	139	47	0	42	0	89	423
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Appr %	0	0	0	0	0	0	208	65	0	273	100	0	83	0	183	854
Total %	NaN	NaN	NaN	NaN	NaN	00.0	76.2	23.8	00.0	00.0	54.6	00.0	45.4	00.0	00.0	
% Trucks	00.0	00.0	00.0	00.0		00.0	24.4	07.6	00.0		11.7	00.0	09.7	00.0		
	-	-	-	-	-	-	00.0	00.0	-	00.0	00.0	-	00.0	-	00.0	00.0
PM Pk Hr	16:15	16:15	16:15	16:15	16:15	16:15	16:15	16:15	16:15	16:15	16:15	16:15	16:15	16:15	16:15	16:15
PM Pk Vol	0	0	0	0	0	0	126	32	0	158	55	0	48	0	103	477
PM PHF	NaN	NaN	NaN	NaN	NaN	NaN	0.716	0.615	NaN	0.790	0.859	NaN	0.800	NaN	0.831	0.870

Auburn Rd & Border Rd PM Peak Hour

File Name: Auburn Road & Border Rd 1-23-2018 (PM)
Location: Sarasota County

Site Code:
Study Date: 01/23/2018

All Vehicles

Auburn Road			
0	0	0	0
Right	Thru	Left	U-Turn
			

Edmondson Road			
48	167	1	0
Right	Thru	Left	U-Turn
			

PM Peak Hour Statistics
PM Peak Hour Begins: 16:15
PM Peak Hour Volume: 477
PM Peak Hour Factor: 0.870

Border Road			
0	126	32	0
Right	Thru	Left	U-Turn
			

Auburn Road			
0	48	0	55
U-Turn	Left	Thru	Right
			

FDOT PEAK SEASON FACTOR ADJUSTMENT

2016 PEAK SEASON FACTOR CATEGORY REPORT - REPORT TYPE: ALL
 CATEGORY: 1700 SARASOTA COUNTYWIDE

WEEK	DATES	SF	MOCF: 0.90 PSCF
1	01/01/2016 - 01/02/2016	0.99	1.10
2	01/03/2016 - 01/09/2016	0.99	1.10
3	01/10/2016 - 01/16/2016	0.99	1.10
4	01/17/2016 - 01/23/2016	0.97	1.08
* 5	01/24/2016 - 01/30/2016	0.95	1.06
* 6	01/31/2016 - 02/06/2016	0.93	1.03
* 7	02/07/2016 - 02/13/2016	0.91	1.01
* 8	02/14/2016 - 02/20/2016	0.89	0.99
* 9	02/21/2016 - 02/27/2016	0.88	0.98
* 10	02/28/2016 - 03/05/2016	0.88	0.98
* 11	03/06/2016 - 03/12/2016	0.87	0.97
* 12	03/13/2016 - 03/19/2016	0.86	0.96
* 13	03/20/2016 - 03/26/2016	0.87	0.97
* 14	03/27/2016 - 04/02/2016	0.89	0.99
* 15	04/03/2016 - 04/09/2016	0.91	1.01
* 16	04/10/2016 - 04/16/2016	0.92	1.02
* 17	04/17/2016 - 04/23/2016	0.94	1.04
18	04/24/2016 - 04/30/2016	0.96	1.07
19	05/01/2016 - 05/07/2016	0.98	1.09
20	05/08/2016 - 05/14/2016	1.00	1.11
21	05/15/2016 - 05/21/2016	1.02	1.13
22	05/22/2016 - 05/28/2016	1.03	1.14
23	05/29/2016 - 06/04/2016	1.05	1.17
24	06/05/2016 - 06/11/2016	1.07	1.19
25	06/12/2016 - 06/18/2016	1.09	1.21
26	06/19/2016 - 06/25/2016	1.08	1.20
27	06/26/2016 - 07/02/2016	1.08	1.20
28	07/03/2016 - 07/09/2016	1.07	1.19
29	07/10/2016 - 07/16/2016	1.07	1.19
30	07/17/2016 - 07/23/2016	1.08	1.20
31	07/24/2016 - 07/30/2016	1.09	1.21
32	07/31/2016 - 08/06/2016	1.10	1.22
33	08/07/2016 - 08/13/2016	1.11	1.23
34	08/14/2016 - 08/20/2016	1.13	1.26
35	08/21/2016 - 08/27/2016	1.13	1.26
36	08/28/2016 - 09/03/2016	1.13	1.26
37	09/04/2016 - 09/10/2016	1.14	1.27
38	09/11/2016 - 09/17/2016	1.14	1.27
39	09/18/2016 - 09/24/2016	1.12	1.24
40	09/25/2016 - 10/01/2016	1.09	1.21
41	10/02/2016 - 10/08/2016	1.07	1.19
42	10/09/2016 - 10/15/2016	1.04	1.16
43	10/16/2016 - 10/22/2016	1.04	1.16
44	10/23/2016 - 10/29/2016	1.03	1.14
45	10/30/2016 - 11/05/2016	1.03	1.14
46	11/06/2016 - 11/12/2016	1.02	1.13
47	11/13/2016 - 11/19/2016	1.02	1.13
48	11/20/2016 - 11/26/2016	1.01	1.12
49	11/27/2016 - 12/03/2016	1.00	1.11
50	12/04/2016 - 12/10/2016	0.99	1.10
51	12/11/2016 - 12/17/2016	0.99	1.10
52	12/18/2016 - 12/24/2016	0.99	1.10
53	12/25/2016 - 12/31/2016	0.99	1.10

* PEAK SEASON

21-FEB-2017 10:54:33

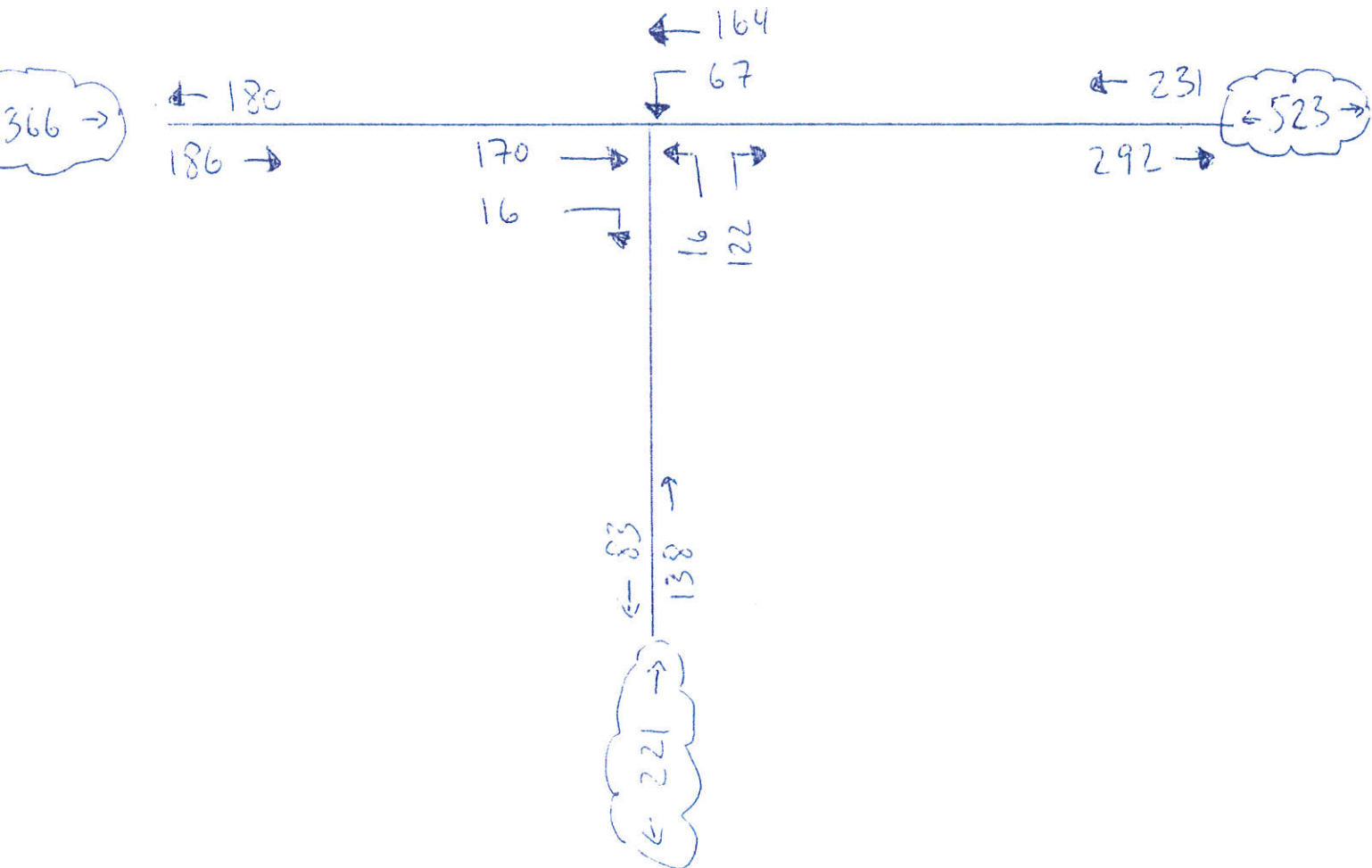
830UPD

1_1700_PKSEASON.TXT

**VESTED TRIPS AS PROVIDED BY THE
CITY OF VENICE**

Intersection: Border Rd /Edmondson Rd & Auburn Rd

Project	EBT	EBR	WBL	WBT	NBL	NBR
Plaza Venezia		16			16	
Toscana Isles	17			10		
Woods at Venice	28		8	17		14
The Bridges	46		15	44		16
SJMR PUD	19		4	11		7
Milano PUD (VICA+Laurel Lakes)	44		21	25		38
Portofino	16		19	57		47
Total	170	16	67	164	16	122



**DEVELOPMENT OF FUTURE YEAR
BACKGROUND TRAFFIC VOLUMES**

Development of Future Year Background Turning Volumes

Intersection
 Count Date
 Build-Out Year

Auburn Rd. @ Border Road/Edmundson Road
 January 23, 2018
 2022

	PM Peak Hour											
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
RAW Turning Movement Counts	48		55					167	48	32	126	
Peak Season Correction Factor	1.08		1.08					1.08	1.08	1.08	1.08	
Current Peak Season Volumes	52		59					180	52	35	136	
Growth Rate	2.00%		2.00%					3.45%	3.45%	3.45%	3.45%	
Years to Build-out	4		4					4	4	4	4	
2022 Background Turning Volumes	56		64					206	60	40	156	
Vested Trips	16		122					170	16	67	164	
Project Trips	15		6					0	27	10	0	
2022 Background + Project	71		70					206	87	50	156	
2022 Bakground + Vested	72		186					376	76	107	320	
2022 Background + Vested + Project	87		192					376	103	117	320	

HCS SUMMARY SHEETS

BORDER ROAD @ AUBURN ROAD

HCS7 Two-Way Stop-Control Report

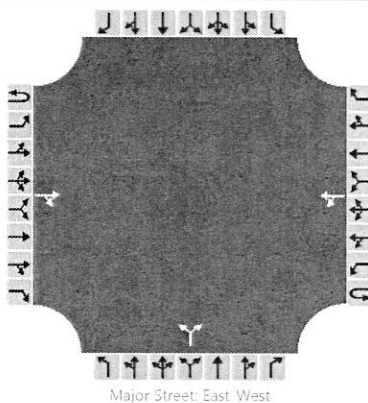
General Information

Analyst	YB
Agency/Co.	TR Transportation Cons.
Date Performed	1/25/2018
Analysis Year	2018
Time Analyzed	PM Peak Existing Cond.
Intersection Orientation	East-West
Project Description	Murphy Oaks

Site Information

Intersection	Auburn Rd. @ Border Rd.
Jurisdiction	Venice/Sarasota County
East/West Street	Border Rd/Edmondson Rd.
North/South Street	Auburn Rd.
Peak Hour Factor	0.87
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	0	0
Configuration				TR		LT					LR					
Volume, V (veh/h)			180	52		35	136			52		59				
Percent Heavy Vehicles (%)						3				3		3				
Proportion Time Blocked																
Percent Grade (%)										0						
Right Turn Channelized		No				No				No				No		
Median Type/Storage				Undivided												

Critical and Follow-up Headways

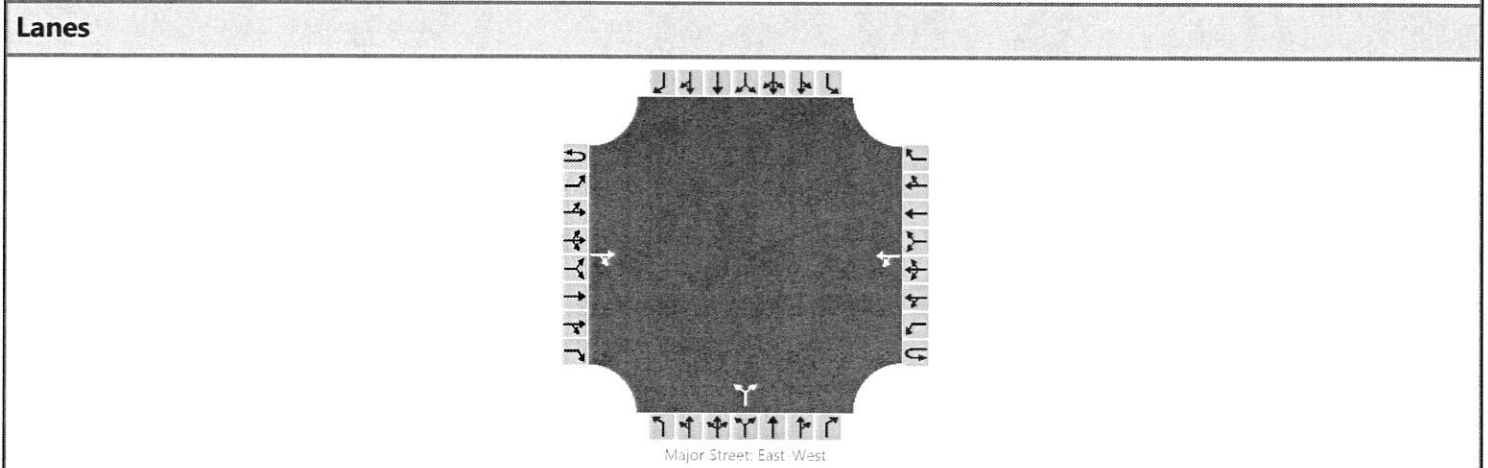
Base Critical Headway (sec)						4.1				7.1		6.2				
Critical Headway (sec)						4.13				6.43		6.23				
Base Follow-Up Headway (sec)						2.2				3.5		3.3				
Follow-Up Headway (sec)						2.23				3.53		3.33				

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						40					128					
Capacity, c (veh/h)						1290					646					
v/c Ratio						0.03					0.20					
95% Queue Length, Q ₉₅ (veh)						0.1					0.7					
Control Delay (s/veh)						7.9					11.9					
Level of Service, LOS						A					B					
Approach Delay (s/veh)						1.8					11.9					
Approach LOS											B					

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	YB	Intersection	Auburn Rd. @ Border Rd.
Agency/Co.	TR Transportation Cons.	Jurisdiction	Venice/Sarasota County
Date Performed	1/25/2018	East/West Street	Border Rd/Edmondson Rd.
Analysis Year	2022	North/South Street	Auburn Rd.
Time Analyzed	PM Peak W/Project	Peak Hour Factor	0.87
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Murphy Oaks		



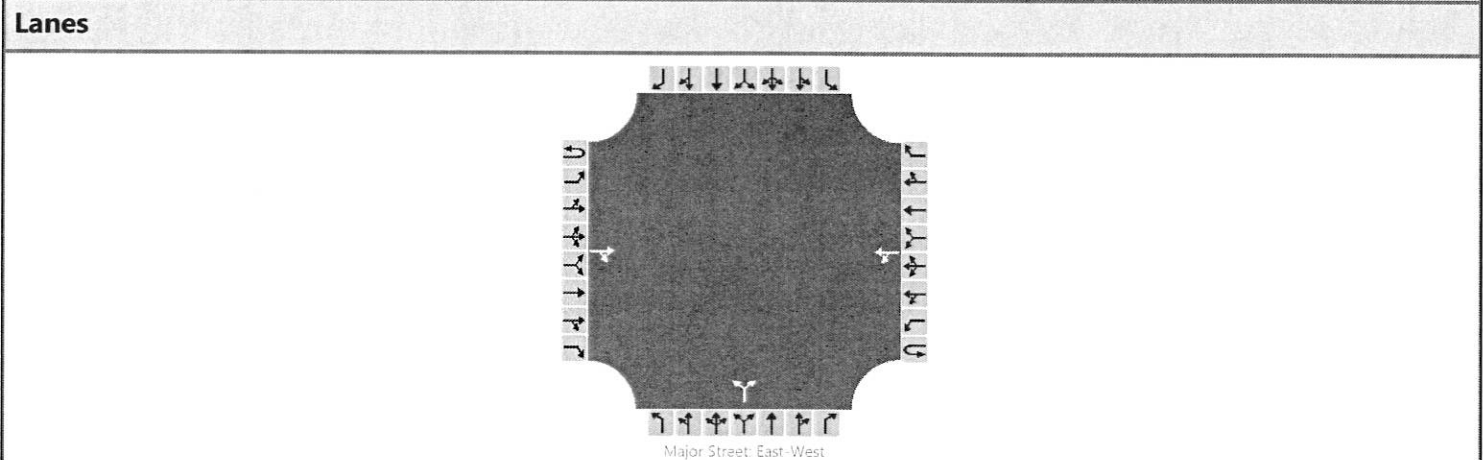
Vehicle Volumes and Adjustments																
Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	0	0
Configuration				TR		LT					LR					
Volume, V (veh/h)			206	87		50	156			71		70				
Percent Heavy Vehicles (%)						3				3		3				
Proportion Time Blocked																
Percent Grade (%)									0							
Right Turn Channelized	No				No				No				No			
Median Type/Storage	Undivided															

Critical and Follow-up Headways																
Base Critical Headway (sec)						4.1				7.1		6.2				
Critical Headway (sec)						4.13				6.43		6.23				
Base Follow-Up Headway (sec)						2.2				3.5		3.3				
Follow-Up Headway (sec)						2.23				3.53		3.33				

Delay, Queue Length, and Level of Service																
Flow Rate, v (veh/h)						57					162					
Capacity, c (veh/h)						1215					562					
v/c Ratio						0.05					0.29					
95% Queue Length, Q ₉₅ (veh)						0.1					1.2					
Control Delay (s/veh)						8.1					14.0					
Level of Service, LOS						A					B					
Approach Delay (s/veh)					2.3				14.0							
Approach LOS									B							

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	YB	Intersection	Auburn Rd. @ Border Rd.
Agency/Co.	TR Transportation Cons.	Jurisdiction	Venice/Sarasota County
Date Performed	1/25/2018	East/West Street	Border Rd/Edmondson Rd.
Analysis Year	2022	North/South Street	Auburn Rd.
Time Analyzed	PM Peak Background + Vest	Peak Hour Factor	0.87
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Murphy Oaks		



Vehicle Volumes and Adjustments																
Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	0	0
Configuration				TR		LT					LR					
Volume, V (veh/h)			376	76		107	320			72		186				
Percent Heavy Vehicles (%)						3				3		3				
Proportion Time Blocked																
Percent Grade (%)									0							
Right Turn Channelized	No				No				No				No			
Median Type/Storage	Undivided															

Critical and Follow-up Headways																
Base Critical Headway (sec)						4.1				7.1		6.2				
Critical Headway (sec)						4.13				6.43		6.23				
Base Follow-Up Headway (sec)						2.2				3.5		3.3				
Follow-Up Headway (sec)						2.23				3.53		3.33				

Delay, Queue Length, and Level of Service																
Flow Rate, v (veh/h)						123					297					
Capacity, c (veh/h)						1041					390					
v/c Ratio						0.12					0.76					
95% Queue Length, Q ₉₅ (veh)						0.4					6.2					
Control Delay (s/veh)						8.9					38.4					
Level of Service, LOS						A					E					
Approach Delay (s/veh)					3.2				38.4							
Approach LOS									E							

HCS7 Two-Way Stop-Control Report

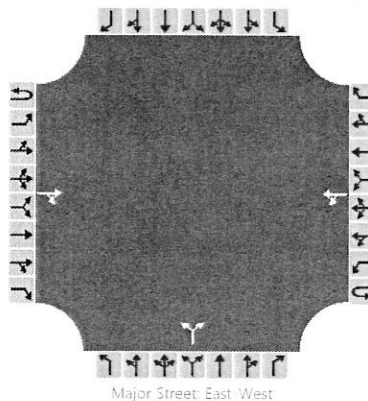
General Information

Analyst	YB
Agency/Co.	TR Transportation Cons.
Date Performed	1/25/2018
Analysis Year	2022
Time Analyzed	PM Peak W/Project + Vest
Intersection Orientation	East-West
Project Description	Murphy Oaks

Site Information

Intersection	Auburn Rd. @ Border Rd.
Jurisdiction	Venice/Sarasota County
East/West Street	Border Rd/Edmondson Rd.
North/South Street	Auburn Rd.
Peak Hour Factor	0.87
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	0	0
Configuration				TR		LT					LR					
Volume, V (veh/h)			376	103		117	320			87		192				
Percent Heavy Vehicles (%)						3				3		3				
Proportion Time Blocked																
Percent Grade (%)									0							
Right Turn Channelized	No				No				No				No			
Median Type/Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1				7.1		6.2				
Critical Headway (sec)						4.13				6.43		6.23				
Base Follow-Up Headway (sec)						2.2				3.5		3.3				
Follow-Up Headway (sec)						2.23				3.53		3.33				

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						134					321					
Capacity, c (veh/h)						1014					358					
v/c Ratio						0.13					0.90					
95% Queue Length, Q ₉₅ (veh)						0.5					8.9					
Control Delay (s/veh)						9.1					59.5					
Level of Service, LOS						A					F					
Approach Delay (s/veh)					3.5				59.5							
Approach LOS									F							

HCS7 Two-Way Stop-Control Report

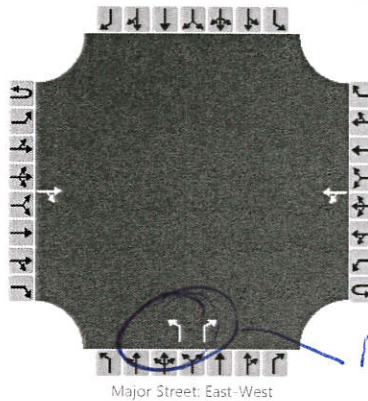
General Information

Analyst	YB
Agency/Co.	TR Transportation Cons.
Date Performed	7/23/2018
Analysis Year	2022
Time Analyzed	PM Peak Background + Vest (Mitigated)
Intersection Orientation	East-West
Project Description	Murphy Oaks

Site Information

Intersection	Auburn Rd. @ Border Rd.
Jurisdiction	Venice/Sarasota County
East/West Street	Border Rd/Edmondson Rd.
North/South Street	Auburn Rd.
Peak Hour Factor	0.87
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		1	0	1		0	0	0
Configuration				TR		LT				L		R				
Volume, V (veh/h)			376	76		107	320			72		186				
Percent Heavy Vehicles (%)						3				3		3				
Proportion Time Blocked																
Percent Grade (%)									0							
Right Turn Channelized	No				No				No				No			
Median Type/Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)					4.1				7.1		6.2					
Critical Headway (sec)					4.13				6.43		6.23					
Base Follow-Up Headway (sec)					2.2				3.5		3.3					
Follow-Up Headway (sec)					2.23				3.53		3.33					

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)					123				83		214					
Capacity, c (veh/h)					1041				209		587					
v/c Ratio					0.12				0.40		0.36					
95% Queue Length, Q ₉₅ (veh)					0.4				1.8		1.7					
Control Delay (s/veh)					8.9				33.1		14.6					
Level of Service, LOS					A				D		B					
Approach Delay (s/veh)					3.2				19.8							
Approach LOS									C							

HCS7 Two-Way Stop-Control Report

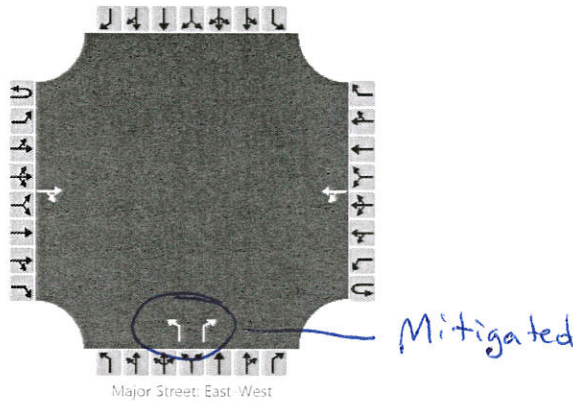
General Information

Analyst	YB
Agency/Co.	TR Transportation Cons.
Date Performed	7/23/2018
Analysis Year	2022
Time Analyzed	PM Peak W/Project + Vest (Mitigated)
Intersection Orientation	East-West
Project Description	Murphy Oaks

Site Information

Intersection	Auburn Rd. @ Border Rd.
Jurisdiction	Venice/Sarasota County
East/West Street	Border Rd/Edmondson Rd.
North/South Street	Auburn Rd.
Peak Hour Factor	0.87
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		1	0	1		0	0	0
Configuration				TR		LT				L		R				
Volume, V (veh/h)			376	103		117	320			87		192				
Percent Heavy Vehicles (%)						3				3		3				
Proportion Time Blocked																
Percent Grade (%)									0							
Right Turn Channelized	No				No				No				No			
Median Type/Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)					4.1				7.1		6.2					
Critical Headway (sec)					4.13				6.43		6.23					
Base Follow-Up Headway (sec)					2.2				3.5		3.3					
Follow-Up Headway (sec)					2.23				3.53		3.33					

Delay, Queue Length, and Level of Service

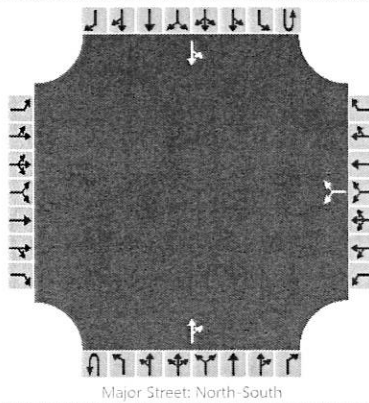
Flow Rate, v (veh/h)					134				100		221					
Capacity, c (veh/h)					1014				195		575					
v/c Ratio					0.13				0.51		0.38					
95% Queue Length, Q ₉₅ (veh)					0.5				2.6		1.8					
Control Delay (s/veh)					9.1				41.3		15.1					
Level of Service, LOS					A				E		C					
Approach Delay (s/veh)					3.5				23.3							
Approach LOS									C							

AUBURN ROAD @ SITE ACCESS

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	YB	Intersection	Auburn Rd @ Site Access
Agency/Co.	TR Transportation Cons.	Jurisdiction	Venice/Sarasota County
Date Performed	1/25/2018	East/West Street	Site Access
Analysis Year	2022	North/South Street	Auburn Rd
Time Analyzed	PM Peak W/Project + Vest	Peak Hour Factor	0.87
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	Murphy Oaks		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	0	0	0	1	0	0	0	1	0
Configuration							LR					TR		LT		
Volume, V (veh/h)						18		21			258	30		37	183	
Percent Heavy Vehicles (%)						3		3						3		
Proportion Time Blocked																
Percent Grade (%)					0											
Right Turn Channelized	No				No				No				No			
Median Type/Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1		6.2						4.1		
Critical Headway (sec)						6.43		6.23						4.13		
Base Follow-Up Headway (sec)						3.5		3.3						2.2		
Follow-Up Headway (sec)						3.53		3.33						2.23		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						45								43		
Capacity, c (veh/h)						556								1222		
v/c Ratio						0.08								0.04		
95% Queue Length, Q ₉₅ (veh)						0.3								0.1		
Control Delay (s/veh)						12.0								8.1		
Level of Service, LOS						B								A		
Approach Delay (s/veh)					12.0								1.6			
Approach LOS					B											

ITE COMMITTEE 4A-22
GUIDELINES FOR LEFT TURN LANES

BORDER ROAD @ N. AUBURN ROAD

Existing Conditions

Table 7

GUIDELINES FOR LEFT-TURN LANE AT UNSIGNALIZED INTERSECTION

Two-Lane Roadway

Opposing Volume (vph)

Advancing Volume - vph

Operating Speed = 35 mph

Speed Limit = 40 mph - Border Rd

Design Speed = 45 mph

(vph)	Left-turn - percent																Advancing Volume - vph																Operating Speed = 35 mph																Speed Limit = 40 mph - Border Rd																Design Speed = 45 mph																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
	0.50	0.75	1.00	1.25	1.50	1.75	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.0	8.0	9.0	10	15	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200	210	220	230	240	250	260	270	280	290	300	310	320	330	340	350	360	370	380	390	400	410	420	430	440	450	460	470	480	490	500	510	520	530	540	550	560	570	580	590	600	610	620	630	640	650	660	670	680	690	700	710	720	730	740	750	760	770	780	790	800	810	820	830	840	850	860	870	880	890	900	910	920	930	940	950	960	970	980	990	1000																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
50	2110	1725	1496	1339	1224	1135	1063	953	872	810	759	718	683	653	627	604	583	549	520	496	417	372	325	304	298	100	1858	1519	1317	1180	1078	999	936	839	768	713	669	632	601	575	552	532	514	483	458	437	367	328	286	268	262	150	1660	1357	1177	1054	963	893	836	750	686	637	597	565	537	513	493	475	459	431	409	390	328	293	255	239	234	200	1516	1239	1075	962	880	816	764	685	627	582	546	516	491	469	450	434	419	394	374	356	299	267	233	218	214	250	1362	1114	966	865	790	733	686	615	563	523	490	463	441	421	405	390	377	354	336	320	269	240	210	196	192	300	1263	1033	895	802	733	679	636	571	522	485	455	430	409	391	375	361	349	328	311	297	249	223	194	182	178	350	1152	942	816	731	668	620	580	520	476	442	415	392	373	356	342	330	318	299	284	271	228	203	177	166	162	400	1061	867	752	674	616	571	535	479	439	407	382	361	343	328	315	304	293	276	262	249	210	187	163	153	150	450	974	796	690	618	565	524	491	440	403	374	351	331	315	301	289	279	269	253	240	229	192	172	150	140	137	500	889	727	630	564	516	478	448	402	368	341	320	303	288	275	264	254	246	231	219	209	176	157	137	128	125	550	825	674	585	524	479	444	415	373	341	317	297	281	267	255	245	236	228	214	203	194	163	145	127	119	116	600	780	638	553	495	453	420	393	353	323	299	281	266	253	241	232	223	216	203	192	183	154	138	120	112	110	650	720	589	511	457	418	387	363	325	298	276	259	245	233	223	214	206	199	187	178	169	142	127	111	104	102	700	680	556	482	432	395	366	343	307	281	261	245	231	220	210	202	195	188	177	168	160	134	120	105	98	96	750	623	509	442	396	362	335	314	282	258	239	224	212	202	193	185	178	172	162	154	147	123	110	96	90	88	800	567	464	402	360	329	305	286	256	235	218	204	193	184	176	169	162	157	148	140	133	112	100	87	82	80	850	531	434	377	337	308	286	268	240	220	204	191	181	172	164	158	152	147	138	131	125	105	94	82	77	75	700	497	406	352	315	288	267	250	224	205	191	179	169	161	154	148	142	137	129	122	117	98	88	76	72	70	950	463	379	328	294	269	249	233	209	191	178	167	158	150	143	138	132	128	120	114	109	91	82	71	67	65	1000	430	352	305	273	250	231	214	201	180	165	155	146	139	133	128	123	119	112	106	101	85	76	66	62	61	1050	398	326	282	253	231	214	201	186	174	158	142	136	129	123	118	114	110	104	98	94	79	70	61	57	56	1100	346	283	245	220	201	186	169	156	143	133	125	118	112	107	103	99	96	90	85	81	68	61	53	50	49	1150	314	257	223	200	182	169	158	142	130	121	113	107	102	97	93	90	87	82	77	74	62	55	48	45	44	1200	258	211	183	164	150	139	130	117	107	99	93	88	83	80	77	74	71	67	64	61	51	45	40	37	36	1250	224	183	159	142	130	121	113	101	93	86	81	76	73	69	67	64	62	58	55	53	44	40	35	32	32	1300	199	167	145	129	119	110	101	89	81	74	68	64	61	58	56	54	52	49	47	44	37	33	29	27	27

Advancing Vol = 196 171

Opposing Vol = 232

% Left turn = 25%

Existing Conditions

Table 5

GUIDELINES FOR LEFT-TURN LANE AT UNSIGNALIZED INTERSECTION

Two-Lane Roadway

Opposing

Volume

(vph)

Operating Speed = 30 mph

Speed Limit = 35 mph

Design Speed = 40 mph

Advancing Volume - vph

Left-turn - percent

	0.50	0.75	1.00	1.25	1.50	1.75	2.00	2.50	3.00	3.50	4.00	4.50	5.00	5.50	6.00	6.50	7.00	8.00	9.00	10	15	20	30	40	50
50	2224	1818	1576	1412	1290	1196	1120	1005	920	854	800	757	720	688	660	636	615	578	548	523	439	392	342	320	314
100	1958	1601	1388	1243	1136	1053	987	885	810	752	705	666	634	606	582	560	541	509	483	460	387	345	301	282	276
150	1749	1430	1240	1111	1015	941	881	790	723	671	630	595	566	541	520	501	484	455	431	411	346	308	269	252	247
200	1598	1306	1133	1015	927	860	805	722	661	613	575	544	517	494	475	457	442	415	394	376	316	282	246	230	225
250	1436	1174	1018	912	833	772	723	649	594	551	517	489	465	444	426	411	397	373	354	338	284	253	221	207	203
300	1331	1088	944	845	773	716	671	601	550	511	479	453	431	412	395	381	368	346	328	313	263	235	205	192	188
350	1214	992	861	771	704	653	612	548	502	466	437	413	393	376	361	347	336	316	299	285	240	214	187	175	171
400	1118	914	793	710	649	602	564	505	462	429	403	381	362	346	332	320	309	291	276	263	221	197	172	161	158
450	1026	839	728	652	596	552	517	464	424	394	369	349	332	318	305	294	284	267	253	241	203	181	158	148	145
500	937	766	664	595	544	504	472	423	388	360	337	319	303	290	278	268	259	244	231	220	185	165	144	135	132
550	869	711	616	552	504	468	438	393	359	334	313	296	281	269	258	249	240	226	214	204	172	153	134	125	123
600	823	672	583	522	477	442	414	372	340	316	296	280	266	254	244	235	227	214	203	193	162	145	127	118	116
650	759	621	538	482	441	408	382	343	314	291	273	258	246	235	225	217	210	197	187	178	150	134	117	109	107
700	717	586	508	455	416	385	361	324	296	275	258	244	232	222	213	205	198	186	177	168	142	126	110	103	101
750	657	537	466	417	381	353	331	297	272	252	236	223	213	203	195	188	182	171	162	154	130	116	101	95	93
800	598	489	424	380	347	322	301	270	247	230	215	203	194	185	178	171	165	155	147	141	118	105	92	86	84
850	560	458	397	356	325	301	282	253	232	215	202	191	181	173	166	160	155	146	138	132	111	99	86	81	79
900	524	428	371	332	304	282	264	237	217	201	188	178	169	162	156	150	145	136	129	123	103	92	81	75	74
950	488	399	346	310	283	263	246	221	202	187	176	166	158	151	145	140	135	127	120	115	96	86	75	70	69
1000	454	371	322	288	263	244	229	205	188	174	163	154	147	140	135	130	125	118	112	107	90	80	70	65	64
1050	420	343	298	267	244	226	212	190	174	161	151	143	136	130	125	120	116	109	103	99	83	74	65	60	59
1100	365	298	258	231	212	196	184	165	151	140	131	124	118	113	108	104	101	95	90	86	72	64	56	52	51
1150	331	271	235	210	192	178	167	150	137	127	119	113	107	102	98	95	92	86	82	78	65	58	51	48	47
1200	272	222	193	173	158	146	137	123	112	104	98	93	88	84	81	78	75	71	67	64	54	48	42	39	38
1250	236	193	168	150	137	127	119	107	98	91	85	80	76	73	70	68	65	61	58	56	47	42	36	34	33
1300	199	163	141	126	115	107	100	90	82	76	72	68	64	62	59	57	55	52	49	47	39	35	31	29	28

393 > 111

Not Warranted

Advancing Vol = 111

Opposing Vol = 351

% Left turn = 5%

Projected 2022 Background + Project

Table 7

GUIDELINES FOR LEFT-TURN LANE AT UNSIGNALIZED INTERSECTION

Two-lane Roadway

Opposing Volume (vph)

Advancing Volume - vph

Operating Speed = 35 mph
Speed Limit = 40 mph
Design Speed = 45 mph

Left-turn - percent

	0.50	0.75	1.00	1.25	1.50	1.75	2.00	2.50	3.00	3.50	4.00	4.50	5.00	5.50	6.00	6.50	7.00	8.00	9.00	10	15	20	30	40	50
50	2110	1725	1496	1339	1224	1135	1063	953	872	810	759	718	683	653	627	604	583	549	520	496	417	372	325	304	298
100	1858	1519	1317	1180	1078	999	936	839	768	713	669	632	601	575	552	532	514	483	458	437	367	328	286	268	262
150	1660	1357	1177	1054	963	893	836	750	686	637	597	565	537	513	493	475	459	431	409	390	328	293	255	239	234
200	1516	1239	1075	962	880	816	764	685	627	582	546	516	491	469	450	434	419	394	374	356	299	267	233	218	214
250	1362	1114	966	865	790	733	686	615	563	523	490	463	441	421	405	390	377	354	336	320	269	240	210	196	192
300	1263	1033	895	802	733	679	636	571	522	485	455	430	409	391	375	361	349	328	311	297	249	223	194	182	178
350	1152	942	816	731	668	620	580	520	476	442	415	392	373	356	342	330	318	299	284	271	228	203	177	166	162
400	1061	867	752	674	616	571	535	479	439	407	382	361	343	328	315	304	293	276	262	249	210	187	163	153	150
450	974	796	690	618	565	524	491	440	403	374	351	331	315	301	289	279	269	253	240	229	192	172	150	140	137
500	889	727	630	564	516	478	448	402	368	341	320	303	288	275	264	254	246	231	219	209	176	157	137	128	125
550	825	674	585	524	479	444	415	373	341	317	297	281	267	255	245	236	228	214	203	194	163	145	127	119	116
600	780	638	553	495	453	420	393	353	323	299	281	266	253	241	232	223	216	203	192	183	154	138	120	112	110
650	720	589	511	457	418	387	363	325	298	276	259	245	233	223	214	206	199	187	178	169	142	127	111	104	102
700	680	556	482	432	395	366	343	307	281	261	245	231	220	210	202	195	188	177	168	160	134	120	105	98	96
750	623	509	442	396	362	335	314	282	258	239	224	212	202	193	185	178	172	162	154	147	123	110	96	90	88
800	567	464	402	360	329	305	286	256	235	218	204	193	184	176	169	162	157	148	140	133	112	100	87	82	80
850	531	434	377	337	308	286	268	240	220	204	191	181	172	164	158	152	147	138	131	125	105	94	82	77	75
900	497	406	352	315	288	267	250	224	205	191	179	169	161	154	148	142	137	129	122	117	98	88	76	72	70
950	463	379	328	294	269	249	233	209	191	178	167	158	150	143	138	132	128	120	114	109	91	82	71	67	65
1000	430	352	305	273	250	231	217	194	178	165	155	146	139	133	128	123	119	112	106	101	85	76	66	62	61
1050	398	326	282	253	231	214	201	180	165	153	143	136	129	123	118	114	110	104	98	94	79	70	61	57	56
1100	346	283	245	220	201	186	174	156	143	133	125	118	112	107	103	99	96	90	85	81	68	61	53	50	49
1150	314	257	223	200	182	169	158	142	130	121	113	107	102	97	93	90	87	82	77	74	62	55	48	45	44
1200	258	211	183	164	150	139	130	117	107	99	93	88	83	80	77	74	71	67	64	61	51	45	40	37	36
1250	224	183	159	142	130	121	113	101	93	86	81	76	73	69	67	64	62	58	55	53	44	40	35	32	32
1300	189	154	134	120	109	101	95	85	78	72	68	64	61	58	56	54	52	49	47	44	37	33	29	27	27

Interpolating
@ 25% = 209
209 > 206

Not Warranted

Advancing Vol = 206
Opposing Vol = 293
% left turn ≈ 25%

Projected 2022 Background + Project

Table 5
GUIDELINES FOR LEFT-TURN LANE AT UNSIGNALIZED INTERSECTION

Operating Speed = 30 mph
Speed Limit = 35 mph
Design Speed = 40 mph

Advancing Volume - vph

Left-turn - percent

Two-lane Roadway
Opposing
Volume
(vph)

0.50 0.75 1.00 1.25 1.50 1.75 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 6.00 6.50 7.00 8.00 9.00 10 15 20 30 40 50

50 2224 1818 1576 1412 1290 1196 1120 1005 920 854 800 757 720 688 660 636 615 578 548 523 439 392 342 320 314

100 1958 1601 1388 1243 1136 1053 987 885 810 752 705 666 634 606 582 560 541 509 483 460 387 345 301 282 276

150 1749 1430 1240 1111 1015 941 881 790 723 671 630 595 566 541 520 501 484 455 431 411 346 308 269 252 247

200 1598 1306 1133 1015 927 860 805 722 661 613 575 544 517 494 475 457 442 415 394 376 316 282 246 230 225

250 1436 1174 1018 912 833 772 723 649 594 551 517 489 465 444 426 411 397 373 354 338 284 253 221 207 203

300 1331 1088 944 845 773 716 671 601 550 511 479 453 431 412 395 381 368 346 328 313 263 235 205 192 188

350 1214 992 861 771 704 653 612 548 502 466 437 413 393 376 361 347 336 316 299 285 240 214 187 175 171

400 1118 914 793 710 649 602 564 505 462 429 403 381 362 346 332 320 309 291 276 263 221 197 172 161 158

450 1026 839 728 652 596 552 517 464 424 394 369 349 332 318 305 294 284 267 253 241 203 181 158 148 145

500 937 766 664 595 544 504 468 438 393 359 334 313 296 281 269 258 249 244 231 220 185 165 144 135 132

550 869 711 616 552 504 468 438 393 359 334 313 296 281 269 258 249 240 226 214 204 172 153 134 125 123

600 823 672 583 522 477 442 414 372 340 316 296 280 266 254 244 235 227 214 203 193 162 145 127 118 116

650 759 621 538 482 441 408 382 343 314 291 273 258 246 235 225 217 210 197 187 178 150 134 117 109 107

700 717 586 508 455 416 385 361 324 296 275 258 244 232 222 213 205 198 186 177 168 142 126 110 103 101

750 657 537 466 417 381 353 331 297 272 252 236 223 213 203 195 188 182 171 162 154 130 116 101 95 93

800 598 489 424 380 347 322 301 270 247 230 215 203 194 185 178 171 165 155 147 141 118 105 92 86 84

850 560 458 397 356 325 301 282 253 232 215 202 191 181 173 166 160 155 146 138 132 111 99 86 81 79

900 524 428 371 332 304 282 264 237 217 201 188 178 169 162 156 150 145 136 129 123 103 92 81 75 74

950 488 399 346 310 283 263 244 221 202 187 176 166 158 151 145 140 135 127 120 115 96 86 75 70 69

1000 454 371 322 288 263 244 229 205 188 174 163 154 147 140 135 130 125 118 112 107 90 80 70 65 64

1050 420 343 298 267 244 226 212 190 174 161 151 143 136 130 125 120 116 109 103 99 83 74 65 60 59

1100 365 298 258 231 212 196 184 165 151 140 131 124 118 113 108 104 101 95 90 86 72 64 56 52 51

1150 331 271 235 210 192 178 167 150 137 127 119 113 107 102 98 95 92 86 82 78 65 58 51 48 47

1200 272 222 193 173 158 146 137 123 112 104 98 93 88 84 81 78 75 71 67 64 54 48 42 39 38 38

1250 236 193 168 150 137 127 119 107 98 91 85 80 76 73 70 68 65 61 58 56 47 42 36 34 33 33

1300 199 163 141 126 115 107 100 90 82 76 72 68 64 62 59 57 55 52 49 47 39 35 31 29 28

All > 141
Not Varied

Advancing Vol = 141
Opposing Vol = 412
% left turn = 50%

Projected 2022 Background + Vested

Table 7

GUIDELINES FOR LEFT-TURN LANE AT UNSIGNALIZED INTERSECTION

Two-lane Roadway Opposing Volume (vph)	Advancing Volume - vph																				Operating Speed = 35 mph				
																					Speed Limit = 40 mph				
																					Design Speed = 45 mph				
	0.50	0.75	1.00	1.25	1.50	1.75	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.0	8.0	9.0	10	15	20	30	40	50
50	2110	1725	1496	1339	1224	1135	1063	953	872	810	759	718	683	653	627	604	583	549	520	496	417	372	325	304	298
100	1858	1519	1317	1180	1078	999	936	839	768	713	669	632	601	575	552	532	514	483	458	437	367	328	286	268	262
150	1660	1357	1177	1054	963	893	836	750	686	637	597	565	537	513	493	475	459	431	409	390	328	293	255	239	234
200	1516	1239	1075	962	880	816	764	685	627	582	546	516	491	469	450	434	419	394	374	356	299	267	233	218	214
250	1362	1114	966	865	790	733	686	615	563	523	490	463	441	421	405	390	377	354	336	320	269	240	210	196	192
300	1263	1033	895	802	733	679	636	571	522	485	455	430	409	391	375	361	349	328	311	297	249	223	194	182	178
350	1152	942	816	731	668	620	580	520	476	442	415	392	373	356	342	330	318	299	284	271	228	203	177	166	162
400	1061	867	752	674	616	571	535	479	439	407	382	361	343	328	315	304	293	276	262	249	210	187	163	153	150
450	974	796	690	618	565	524	491	440	403	374	351	331	315	301	289	279	269	253	240	229	192	172	150	140	137
500	889	727	630	564	516	478	448	402	368	341	320	303	288	275	264	254	246	231	219	209	176	157	137	128	125
550	825	674	585	524	479	444	415	373	341	317	297	281	267	255	245	236	228	214	203	194	163	145	127	119	116
600	780	638	553	495	453	420	393	353	323	299	281	266	253	241	232	223	216	203	192	183	154	138	120	112	110
650	720	589	511	457	418	387	363	325	298	276	259	245	233	223	214	206	199	187	178	169	142	127	111	104	102
700	680	556	482	432	395	366	343	307	281	261	245	231	220	210	202	195	188	177	168	160	134	120	105	98	96
750	623	509	442	396	362	335	314	282	258	239	224	212	202	193	185	178	172	162	154	147	123	110	96	90	88
800	567	464	402	360	329	305	286	256	235	218	204	193	184	176	169	162	157	148	140	133	112	100	87	82	80
850	531	434	377	337	308	286	268	240	220	204	191	181	172	164	158	152	147	138	131	125	105	94	82	77	75
900	497	406	352	315	288	267	250	224	205	191	179	169	161	154	148	142	137	129	122	117	98	88	76	72	70
950	463	379	328	294	269	249	233	209	191	178	167	158	150	143	138	132	128	120	114	109	91	82	71	67	65
1000	430	352	305	273	250	231	217	194	178	165	155	146	139	133	128	123	119	112	106	101	85	76	66	62	61
1050	398	326	282	253	231	214	201	180	165	153	143	136	129	123	118	114	110	104	98	94	79	70	61	57	56
1100	346	283	245	220	201	186	174	156	143	133	125	118	112	107	103	99	96	90	85	81	68	61	53	50	49
1150	314	257	223	200	182	169	158	142	130	121	113	107	102	97	93	90	87	82	77	74	62	55	48	45	44
1200	258	211	183	164	150	139	130	117	107	99	93	88	83	80	77	74	71	67	64	61	51	45	40	37	36
1250	224	183	159	142	130	121	113	101	93	86	81	76	73	69	67	64	62	58	55	53	44	40	35	32	32
1300	189	154	134	120	109	101	95	85	78	72	68	64	61	58	56	54	52	49	47	44	37	33	29	27	27

Operating Speed = 35 mph
Speed Limit = 40 mph - Border Red
Design Speed = 45 mph

All < 427
Warranted

Advancing Volume = 427
Opposing Volume = 452
% left turn = 25%

Projected 2022 Background + Vested

Table 5

GUIDELINES FOR LEFT-TURN LANE AT UNSIGNALIZED INTERSECTION

Two-lane Roadway
Opposing
Volume
(vph)

Operating Speed = 30 mph
Speed Limit = 35 mph
Design Speed = 40 mph

Advancing Volume - vph

Left-turn - percent

	0.50	0.75	1.00	1.25	1.50	1.75	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.0	8.0	9.0	10	15	20	30	40	50
50	2224	1818	1576	1412	1290	1196	1120	1005	920	854	800	757	720	688	660	636	615	578	548	523	439	392	342	320	314
100	1958	1601	1388	1243	1136	1053	987	885	810	752	705	666	634	606	582	560	541	509	483	460	387	345	301	282	276
150	1749	1430	1240	1111	1015	941	881	790	723	671	630	595	566	541	520	501	484	455	431	411	346	308	269	252	247
200	1598	1306	1133	1015	927	860	805	722	661	613	575	544	517	494	475	457	442	415	394	376	316	282	246	230	225
250	1436	1174	1018	912	833	772	723	649	594	551	517	489	465	444	426	411	397	373	354	338	284	253	221	207	203
300	1331	1088	944	845	773	716	671	601	550	511	479	453	431	412	395	381	368	346	328	313	263	235	205	192	188
350	1214	992	861	771	704	653	612	548	502	466	437	413	393	376	361	347	336	316	299	285	240	214	187	175	171
400	1118	914	793	710	649	602	564	505	462	429	403	381	362	346	332	320	309	291	276	263	221	197	172	161	158
450	1026	839	728	652	596	552	517	464	424	394	369	349	332	318	305	294	284	267	253	241	203	181	158	148	145
500	937	766	664	595	544	504	472	423	388	360	337	319	303	290	278	268	259	244	231	220	185	165	144	135	132
550	869	711	616	552	504	468	438	393	359	334	313	296	281	269	258	249	240	226	214	204	172	153	134	125	123
600	823	672	583	522	477	442	414	372	340	316	296	280	266	254	244	235	227	214	203	193	162	145	127	118	116
650	759	621	538	482	441	408	382	343	314	291	273	258	246	235	225	217	210	197	187	178	150	134	117	109	107
700	717	586	508	455	416	385	361	324	296	275	258	244	232	222	213	205	198	186	177	168	142	126	110	103	101
750	657	537	466	417	381	353	331	297	272	252	236	223	213	203	195	188	182	171	162	154	130	116	101	95	93
800	598	489	424	380	347	322	301	270	247	230	215	203	194	185	178	171	165	155	147	141	118	105	92	86	84
850	560	458	397	356	325	301	282	253	232	215	202	191	181	173	166	160	155	146	138	132	111	99	86	81	79
900	524	428	371	332	304	282	264	237	217	201	188	178	169	162	156	150	145	136	129	123	103	92	81	75	74
950	488	399	346	310	283	263	246	221	202	187	176	166	158	151	145	140	135	127	120	115	96	86	75	70	69
1000	454	371	322	288	263	244	229	205	188	174	163	154	147	140	135	130	125	118	112	107	90	80	70	65	64
1050	420	343	298	267	244	226	212	190	174	161	151	143	136	130	125	120	116	109	103	99	83	74	65	60	59
1100	365	298	258	231	212	196	184	165	151	140	131	124	118	113	108	104	101	95	90	86	72	64	56	52	51
1150	331	271	235	210	192	178	167	150	137	127	119	113	107	102	98	95	92	86	82	78	65	58	51	48	47
1200	272	222	193	173	158	146	137	123	112	104	98	93	88	84	81	78	75	71	67	64	54	48	42	39	38
1250	236	193	168	150	137	127	119	107	98	91	85	80	76	73	70	68	65	61	58	56	47	42	36	34	33
1300	199	163	141	126	115	107	100	90	82	76	72	68	64	62	59	57	55	52	49	47	39	35	31	29	28

All < 258
Warranted

Advancing Volume = 258
Opposing Volume = 803
% left turn = 28%

Projected 2022 Background + Project + Vested

Table 7
GUIDELINES FOR LEFT-TURN LANE AT UNSIGNALIZED INTERSECTION

Two-lane Roadway Opposing Volume (vph)	Advancing Volume - vph															Left-turn - percent										Operating Speed = 35 mph Speed Limit = 40 mph Design Speed = 45 mph				
	0.50	0.75	1.00	1.25	1.50	1.75	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.0	8.0	9.0	10	15	20	30	40	50					
50	2110	1725	1496	1339	1224	1135	1063	953	872	810	759	718	683	653	627	604	583	549	520	496	417	372	325	304	298					
100	1858	1519	1317	1180	1078	999	936	839	768	713	669	632	601	575	552	532	514	483	458	437	367	328	286	268	262					
150	1660	1357	1177	1054	963	893	836	750	686	637	597	565	537	513	493	475	459	431	409	390	328	293	255	239	234					
200	1516	1239	1075	962	880	816	764	685	627	582	546	516	491	469	450	434	419	394	374	356	299	267	233	218	214					
250	1362	1114	966	865	790	733	686	615	563	523	490	463	441	421	405	390	377	354	336	320	269	240	210	196	192					
300	1263	1033	895	802	733	679	636	571	522	485	455	430	409	391	375	361	349	328	311	297	249	223	194	182	178					
350	1152	942	816	731	668	620	580	520	476	442	415	392	373	356	342	330	318	299	284	271	228	203	177	166	162					
400	1061	867	752	674	616	571	535	479	439	407	382	361	343	328	315	304	293	276	262	249	210	187	163	153	150					
450	974	796	690	618	565	524	491	440	403	374	351	331	315	301	289	279	269	253	240	229	192	172	150	140	137					
500	889	727	630	564	516	478	448	402	368	341	320	303	288	275	264	254	246	231	219	209	176	157	137	128	125					
550	825	674	585	524	479	444	415	373	341	317	297	281	267	255	245	236	228	214	203	194	163	145	127	119	116					
600	780	638	553	495	453	420	393	353	323	299	281	266	253	241	232	223	216	203	192	183	154	138	120	112	110					
650	720	589	511	457	418	387	363	325	298	276	259	245	233	223	214	206	199	187	178	169	142	127	111	104	102					
700	680	556	482	432	395	366	343	307	281	261	245	231	220	210	202	195	188	177	168	160	134	120	105	98	96					
750	623	509	442	396	362	335	314	282	258	239	224	212	202	193	185	178	172	162	154	147	123	110	96	90	88					
800	567	464	402	360	329	305	286	256	235	218	204	193	184	176	169	162	157	148	140	133	112	100	87	82	80					
850	531	434	377	337	308	286	268	240	220	204	191	181	172	164	158	152	147	138	131	125	105	94	82	77	75					
900	497	406	352	315	288	267	250	224	205	191	179	169	161	154	148	142	137	129	122	117	98	88	76	72	70					
950	463	379	328	294	269	249	233	209	191	178	167	158	150	143	138	132	128	120	114	109	91	82	71	67	65					
1000	430	352	305	273	250	231	217	194	178	165	155	146	139	133	128	123	119	112	106	101	85	76	66	62	61					
1050	398	326	282	253	231	214	201	180	165	153	143	136	129	123	118	114	110	104	98	94	79	70	61	57	56					
1100	346	283	245	220	201	186	174	156	143	133	125	118	112	107	103	99	96	90	85	81	68	61	53	50	49					
1150	314	257	223	200	182	169	158	142	130	121	113	107	102	97	93	90	87	82	77	74	62	55	48	45	44					
1200	258	211	183	164	150	139	130	117	107	99	93	88	83	80	77	74	71	67	64	61	51	45	40	37	36					
1250	224	183	159	142	130	121	113	101	93	86	81	76	73	69	67	64	62	58	55	53	44	40	35	32	32					
1300	189	154	134	120	109	101	95	85	78	72	68	64	61	58	56	54	52	49	47	44	37	33	29	27	27					

All < 437
Warranted

Decel Distance per
FDOT Standard Index #301

FDOT Plans & Prep Manual
Storage Calculation

155 ft

$$Q = \frac{2 \times 117 \times 25}{30} = 195 \text{ ft}$$

Advancing Volume = 437

Opposing Volume = 479

% Left Turn = 27%

$$\text{Total WB Left Turn Lane Length} = 195 \text{ ft} + 155 \text{ ft} = \boxed{350 \text{ ft}}$$

Projected 2022 Background + Project + Vested

Table 5
GUIDELINES FOR LEFT-TURN LANE AT UNSIGNALIZED INTERSECTION

Two-Lane Roadway Opposing Volume (vph)	Advancing Volume - vph																								
	Left-turn - percent																								
	0.50	0.75	1.00	1.25	1.50	1.75	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.0	8.0	9.0	10	15	20	30	40	50
50	2224	1818	1576	1412	1290	1196	1120	1005	920	854	800	757	720	688	660	636	615	578	548	523	439	392	342	320	314
100	1958	1601	1388	1243	1136	1053	987	885	810	752	705	666	634	606	582	560	541	509	483	460	387	345	301	282	276
150	1749	1430	1240	1111	1015	941	881	790	723	671	630	595	566	541	520	501	484	455	431	411	346	308	269	252	247
200	1598	1306	1133	1015	927	860	805	722	661	613	575	544	517	494	475	457	442	415	394	376	316	282	246	230	225
250	1436	1174	1018	912	833	772	723	649	594	551	517	489	465	444	426	411	397	373	354	338	284	253	221	207	203
300	1331	1088	944	845	775	716	671	601	550	511	479	453	431	412	395	381	368	346	328	313	263	235	205	192	188
350	1214	992	861	771	704	653	612	548	502	466	437	413	393	376	361	347	336	316	299	285	240	214	187	175	171
400	1118	914	793	710	649	602	564	505	462	429	403	381	362	346	332	320	309	291	276	263	221	197	172	161	158
450	1026	839	728	652	596	552	517	464	424	394	369	349	332	318	305	294	284	267	253	241	203	181	158	148	145
500	937	766	664	595	544	504	472	423	388	360	337	319	303	290	278	268	259	244	231	220	185	165	144	135	132
550	869	711	616	552	504	468	438	393	359	334	313	296	281	269	258	249	240	226	214	204	172	153	134	125	123
600	823	672	583	522	477	442	414	372	340	316	296	280	266	254	244	235	227	214	203	193	162	145	127	118	116
650	759	621	538	482	441	408	382	343	314	291	273	258	246	235	225	217	210	197	187	178	150	134	117	109	107
700	717	586	508	455	416	385	361	324	296	275	258	244	232	222	213	205	198	186	177	168	142	126	110	103	101
750	657	537	466	417	381	353	331	297	272	252	236	223	213	203	195	188	182	171	162	154	130	116	101	95	93
800	598	489	424	380	347	322	301	270	247	230	215	203	194	185	178	171	165	155	147	141	118	105	92	86	84
850	560	458	397	356	325	301	282	253	232	215	202	191	181	173	166	160	155	146	138	132	111	99	86	81	79
900	524	428	371	332	304	282	264	237	217	201	188	178	169	162	156	150	145	136	129	123	103	92	81	75	74
950	488	399	346	310	283	263	246	221	202	187	176	166	158	151	145	140	135	127	120	115	96	86	75	70	69
1000	454	371	322	288	263	244	229	205	188	174	163	154	147	140	135	130	125	118	112	107	90	80	70	65	64
1050	420	343	298	267	244	226	212	190	174	161	151	143	136	130	125	120	116	109	103	99	83	74	65	60	59
1100	365	298	258	231	212	196	184	165	151	140	131	124	118	113	108	104	101	95	90	86	72	64	56	52	51
1150	331	271	235	210	192	178	167	150	137	127	119	113	107	102	98	95	92	86	82	78	65	58	51	48	47
1200	272	222	193	175	158	146	137	123	112	104	98	93	88	84	81	78	75	71	67	64	54	48	42	39	38
1250	236	193	168	150	137	127	119	107	98	91	85	80	76	73	70	68	65	61	58	56	47	42	36	34	33
1300	199	163	141	126	115	107	100	90	82	76	72	68	64	62	59	57	55	52	49	47	39	35	31	29	28

All < 279
Warranted

FDOT Plans & Prep Manual

Storage Calculation

$$d = \frac{2 \times 87 \times 25}{30} = 145 \text{ ft}$$

Decel Distance per
FDOT Standard Index #301

145 ft

Advancing Volume = 279

Opposing Volume = 813

Percent Left turn = 31%

$$\text{Total NB Left Turn Lane Length} = 145 \text{ ft} + 145 \text{ ft} = 290 \text{ ft}$$

N. AUBURN ROAD @ SITE ACCESS

Table 5
GUIDELINES FOR LEFT-TURN LANE AT UNSIGNALIZED INTERSECTION

Two-lane Roadway Opposing Volume (vph)	Advancing Volume - vph																Operating Speed = 30 mph Speed Limit = 35 mph Design Speed = 40 mph								
	Left-turn - percent																15	20	30	40	50				
	0.50	0.75	1.00	1.25	1.50	1.75	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5						7.0	8.0	9.0	10
50	2224	1818	1576	1412	1290	1196	1120	1005	920	854	800	757	720	688	660	636	615	578	548	523	439	392	342	320	314
100	1958	1601	1388	1243	1136	1053	987	885	810	752	705	666	634	606	582	560	541	509	483	460	387	345	301	282	276
150	1749	1430	1240	1111	1015	941	881	790	723	671	630	595	566	541	520	501	484	455	431	411	346	308	269	252	247
200	1598	1306	1133	1015	927	860	805	722	661	613	575	544	517	494	475	457	442	415	394	376	316	282	246	230	225
250	1436	1174	1018	912	833	772	723	649	594	551	517	489	465	444	426	411	397	373	354	338	284	253	221	207	203
300	1331	1088	944	845	773	716	671	601	550	511	479	453	431	412	395	381	368	346	328	313	263	235	205	192	188
350	1214	992	861	771	704	653	612	548	502	466	437	413	393	376	361	347	336	316	299	285	240	214	187	175	171
400	1118	914	793	710	649	602	564	505	462	429	403	381	362	346	332	320	309	291	276	263	221	197	172	161	158
450	1026	839	728	652	596	552	517	464	424	394	369	349	332	318	305	294	284	267	253	241	203	181	158	148	145
500	937	766	664	595	544	504	472	423	388	360	337	319	303	290	278	268	259	244	231	220	185	165	144	135	132
550	869	711	616	552	504	468	438	393	359	334	313	296	281	269	258	249	240	226	214	204	172	153	134	125	123
600	823	672	583	522	477	442	414	372	340	316	296	280	266	254	244	235	227	214	203	193	162	145	127	118	116
650	759	621	538	482	441	408	382	343	314	291	273	258	246	235	225	217	210	197	187	178	150	134	117	109	107
700	717	586	508	455	416	385	361	324	296	275	258	244	232	222	213	205	198	186	177	168	142	126	110	103	101
750	657	537	466	417	381	353	331	297	272	252	236	223	213	203	195	188	182	171	162	154	130	116	101	95	93
800	598	489	424	380	347	322	301	270	247	230	215	203	194	185	178	171	165	155	147	141	118	105	92	86	84
850	560	458	397	356	325	301	282	253	232	215	202	191	181	173	166	160	155	146	138	132	111	99	86	81	79
900	524	428	371	332	304	282	264	237	217	201	188	178	169	162	156	150	145	136	129	123	103	92	81	75	74
950	488	399	346	310	283	263	246	221	202	187	176	166	158	151	145	140	135	127	120	115	96	86	75	70	69
1000	454	371	322	288	263	244	229	205	188	174	163	154	147	140	135	130	125	118	112	107	90	80	70	65	64
1050	420	343	298	267	244	226	212	190	174	161	151	143	136	130	125	120	116	109	103	99	83	74	65	60	59
1100	365	298	258	231	212	196	184	165	151	140	131	124	118	113	108	104	101	95	90	86	72	64	56	52	51
1150	331	271	235	210	192	178	167	150	137	127	119	113	107	102	98	95	92	86	82	78	65	58	51	48	47
1200	272	222	193	173	158	146	137	123	112	104	98	93	88	84	81	78	75	71	67	64	54	48	42	39	38
1250	236	193	168	150	137	127	119	107	98	91	85	80	76	73	70	68	65	61	58	56	47	42	36	34	33
1300	199	163	141	126	115	107	100	90	82	76	72	68	64	62	59	57	55	52	49	47	39	35	31	29	28

→ All > 220
Not Warranted

Advancing Volume = 220
Opposing Volume = 288
Percent left turn = 17%

**FDOT DRIVEWAY INFORMATION
GUIDE
RIGHT TURN LANES**

**RIGHT TURN LANES****7.1****EXCLUSIVE RIGHT
TURN LANES AT
UNSIGNALIZED
DRIVEWAYS**

Exclusive right turn lanes are useful where a combination of high roadway speeds, and high right turn volumes into a driveway are expected. Congestion on the roadway may also be a good reason to use an exclusive right turn lane. If properly built, they remove the turning vehicle from the through lanes, thereby decreasing the operational impact of right turn vehicles on the through traffic.

The *Standard Index* has no specific guidance on warrants for right turn lanes into unsignalized driveways. The guidelines in this chapter were developed to assist in the decision-making process. However, *Standard Index 301* contains the standards necessary for the design of right turn lanes. The picture in Index 301 shows a left turn lane, but the design features are the same, except for the fact that queues would not usually be present on unsignalized driveways.

7.2

WHEN SHOULD WE BUILD RIGHT TURN LANES?

Exhibit 44
Recommended Guidelines
for Exclusive Right Turn
Lanes to Unsignalized*
Driveway

Roadway Posted Speed Limit	Number of Right Turns Per Hour
45 mph or less	80-125 (see note 1)
Over 45 mph	35-55 (see note 2)

*May not be appropriate for signalized locations where signal phasing plays an important role in determining the need for right turn lanes.

1. The lower threshold of 80 right turn vehicles per hour would be most used for higher volume (greater than 600 vehicles per hour, per lane in one direction on the major roadway) or two-lane roads where lateral movement is restricted. The 125 right turn vehicles per hour upper threshold would be most appropriate on lower volume roadways, multilane highways, or driveways with a large entry radius (50 feet or greater).
2. The lower threshold of 35 right turn vehicles per hour would be most appropriately used on higher volume two-lane roadways where lateral movement is restricted. The 55 right turn vehicles per hour upper threshold would be most appropriate on lower volume roadways, multilane highways, or driveways with large entry radius (50 feet or greater).

Note: A posted speed limit of 45 mph may be used with these thresholds if the operating speeds are known to be over 45 mph during the time of peak right turn demand.

Note on Traffic projections: Projecting turning volumes is, at best, a knowledgeable estimate. Keep this in mind especially if the projections of right turns are close to meeting the guidelines. In that case, consider requiring the turn lane.

**METHODOLOGY MEETING
MEMORANDUM**

MEMORANDUM

TO: Mr. Scott Pickett, AICP
City of Venice

FROM: Yury Bykau, E.I.
Transportation Consultant

DATE: REVISED February 28, 2018

RE: Murphy Oaks
Rezoning Application for +/- 39 Acres
Southeast Corner of Auburn Road and Edmondson Road

This memorandum summarizes the methodology that will be utilized for the traffic impact study to be prepared by TR Transportation Consultants, Inc. for the re-zoning of approximately 39 acres located at the southeast corner of Auburn Road and Edmondson Road (Border Road) from Sarasota County OUE-1 to City of Venice PUD. The applicant is requesting the site be approved for the development of up to 105 single family residential dwelling units. Access to the subject site, based on the preliminary site plan, will be provided to Auburn Road.

TRIP GENERATION

The trip generation will be completed utilizing the Institute of Transportation Engineer's (ITE) report, *Trip Generation 10th Edition*, based on Land Use Code 210 (Single-Family Detached Housing). The weekday PM peak hour trip generation is summarized in Table 1.

Table 1
Trip Generation
Murphy Oaks

Land Use	Weekday P.M. Peak Hour		
	In	Out	Total
Single Family Homes (105 Units)	67	39	106

TRIP DISTRIBUTION

The trip distribution for the project trips was estimated manually due to the limited size of the project and the roadway network in the study area. As a residential project, the majority of the trips will be destined to/from commercial and employment centers during the peak hour, which are located primarily west of the subject site. A percentage of the project related trips was assigned to the east on Border Road, which is primarily traffic destined to the I-75 corridor, which is accessed via the existing interchange at Jacaranda Boulevard.

STUDY AREA

The study area will consist of arterial and collector roads where the project related trips equals or exceeds five percent (5%) of the adopted two-way peak hour service volumes, as specified by Sarasota County's most recent Generalized Level of Service Analysis Tables and any roadway which has direct access from the project site, which in this case is Auburn Road south of Border Road/Edmondson Road.

A preliminary study area determination is shown on the attached Table 1A for reference. This table indicates that no segments are proposed to be impacted by more than 5% of the adopted service volume. Therefore, the only roadway link level of service segments that will be evaluated are those with direct access from the project site.

The roadway links that are proposed to be evaluated as part of this analysis include the following:

Auburn Road – Border Road to Site Access
Auburn Road – Site Access to Venice Ave.

The intersections that are to be analyzed include the following:

Edmondson Road/Border Road @ Auburn Road
Auburn Road @ Site Access

SCHEDULED/PLANNED IMPROVEMENTS

Improvements scheduled for construction in the current Sarasota County and City of Venice Capital Improvement Programs (CIP) will be included in the analysis. Improvements scheduled in the first three years will be assumed to be in place for the future traffic conditions.

EXISTING/FUTURE TRAFFIC

Existing traffic will be based on the turning movement conducted by TR Transportation, factored by the appropriate peak season factor obtained from FDOT Florida Traffic Online resource.

Future traffic conditions will be estimated based on the application of a historical growth rate as determined by comparing the 2008 AADT to the 2016 AADT as reported in the Sarasota County Generalized Level of Service Analysis.

A minimum annual growth rate (compounded annually) of 2% per year will be utilized on each roadway segment. Should the historical growth rate (based on data from the Sarasota County) be higher, the higher growth rate will be utilized.

Any vested traffic will be provided by the City of Venice for the roadway links identified in this methodology.

Analysis scenarios will be as follows:

- Existing traffic within the study area
- Existing traffic increased by a growth factor to the year 2022 (Future Background Traffic Conditions) with the vested traffic
- Existing traffic increased by a growth factor to the year 2022 (Future Background Traffic Conditions) with the vested traffic and PM peak hour project trips added to the links and intersection.

A turn lane analysis at the site access drive will be provided based on criteria outlined in the *FDOT Driveway Information Guide* (2008) for right turn lane and the M.D. Harmelink Study and *NCHRP Report 279* for left turn lane. If turn lanes are required, design parameters in the *FDOT Design Standards Index #301* will be used.

All analysis will be conducted in a manner consistent with the procedures and assumptions utilized by the City of Venice. Intersection capacity analysis for the study area intersections will be conducted using the latest version of the Highway Capacity Software (HCS). Roadway segment capacity will be based on data provided by Sarasota County in the 2016 Generalized Level of Service Analysis spreadsheets.

Any offsite improvements deemed to be required by the impacts of the project will be evaluated for a proportionate share analysis pursuant to Chapter 2011-139, Laws of Florida and Chapter 163.3180 of the Florida Statutes as amended by HB 319. If improvements are needed to maintain the adopted Level of Service standards in the Future Background traffic conditions, the necessary improvements will be identified and will be considered in place for the future background traffic plus project traffic conditions analysis. The projects proportionate fair share will be calculated for any improvements needed that are greater than those improvements required to remedy any deficiencies identified in the future background traffic scenario. If a deficiency is created by the addition of the project traffic, the proportionate fair share will be calculated based on upon the PM peak hour trip generation and the following formula:

$$\text{Proportionate Share} = (\text{Development Trips/Service Volume Increase})/\text{Cost}$$

Mr. Scott Picket, AICP
Murphy Oaks
Transportation Methodology
REVISED February 28, 2018
Page 4

If you have any additional questions regarding this matter, please do not hesitate to contact me.

Attachments

TABLE 1A
STUDY AREA DETERMINATION
MURPHY OAKS

TOTAL AM PEAK HOUR PROJECT TRAFFIC : 79 VPH
TOTAL PM PEAK HOUR PROJECT TRAFFIC : 106 VPH

<u>ROADWAY</u>	<u>SEGMENT</u>	<u>ID #</u>	<u>ROADWAY</u>		<u>ADOPTED STANDARD</u>		<u>PERCENT</u>		<u>PROJECT</u>	<u>TRAFFIC</u>	<u>PROJECT</u>	<u>TRAFFIC</u>	<u>PROJ/</u>	<u>LOS STD</u>	<u>WITHIN</u>	<u>STUDY AREA?</u>
			<u>CLASS</u>	<u>LOS</u>	<u>LOS</u>	<u>VOL</u>	<u>PROJECT</u>	<u>TRAFFIC</u>								
Border Rd	Auburn Rd to Jacaranda Blvd	54.1	2LN	D	1,264	15%	16	1.26%	NO	NO	NO	NO	NO	NO	NO	NO
Edmondson Rd.	Capri Isles Blvd to Auburn Rd	680	2LN	D	931	40%	42	4.55%	NO	NO	NO	NO	NO	NO	NO	NO
	Pinebrook Rd to Capri Isles Blvd	679	2LN	D	1,197	35%	37	3.10%	NO	NO	NO	NO	NO	NO	NO	NO
	Albes Farm Rd to Pinebrook Rd	1042	2LN	D	1,264	35%	37	2.94%	NO	NO	NO	NO	NO	NO	NO	NO
Auburn Rd.	Border Rd to Site Access	16	2LN	D	1,197	55%	58	4.87%	YES	Direct Access	YES	Direct Access	YES	Direct Access	YES	Direct Access
	Site Access to Venice Ave	16	2LN	D	1,197	45%	48	3.98%	YES	Direct Access	YES	Direct Access	YES	Direct Access	YES	Direct Access
Jacaranda Blvd.	Border Rd to Venice Ave	132	2LN	C	1,510	15%	16	1.05%	NO	NO	NO	NO	NO	NO	NO	NO
Venice Ave.	Auburn Rd to Jacaranda Blvd	307	4LD	D	3,222	5%	5	0.16%	NO	NO	NO	NO	NO	NO	NO	NO
	Capri Isles Blvd to Auburn Rd	306.5	4LD	D	3,222	35%	37	1.15%	NO	NO	NO	NO	NO	NO	NO	NO
	Pinebrook Rd to Capri Isles Blvd	306.3	4LD	D	2,774	35%	37	1.34%	NO	NO	NO	NO	NO	NO	NO	NO
	Cherry St to Pinebrook Rd	306	4LD	D	2,628	30%	32	1.21%	NO	NO	NO	NO	NO	NO	NO	NO

Level of Service Volumes for all roadways were obtained from Sarasota County 2016 Generalized Service Level of Service Analysis Tables, dated 10/2/2017.

TABLE 2A
SARASOTA COUNTY GENERALIZED SERVICE VOLUMES
MURPHY OAKS

TOTAL AM PEAK HOUR PROJECT TRAFFIC = 79 VPH
 TOTAL PM PEAK HOUR PROJECT TRAFFIC = 106 VPH

ROADWAY	SEGMENT	REF NO	ROADWAY CLASS	LOS A		LOS B		LOS C		LOS D		LOS E		PROJECT TRAFFIC DISTRIBUTION		NEW PROJ TRAFFIC		PROJ/ LOS D
				VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	AM PEAK	PM PEAK	AM PEAK	PM PEAK			
N. Auburn Rd.	Border Rd to Site Access	122	2LN	0	0	0	0	594	1,197	1,269	55%	43	58	4.87%				
	Site Access to Venice Ave.	122	2LN	0	0	0	0	594	1,197	1,269	45%	36	48	3.98%				

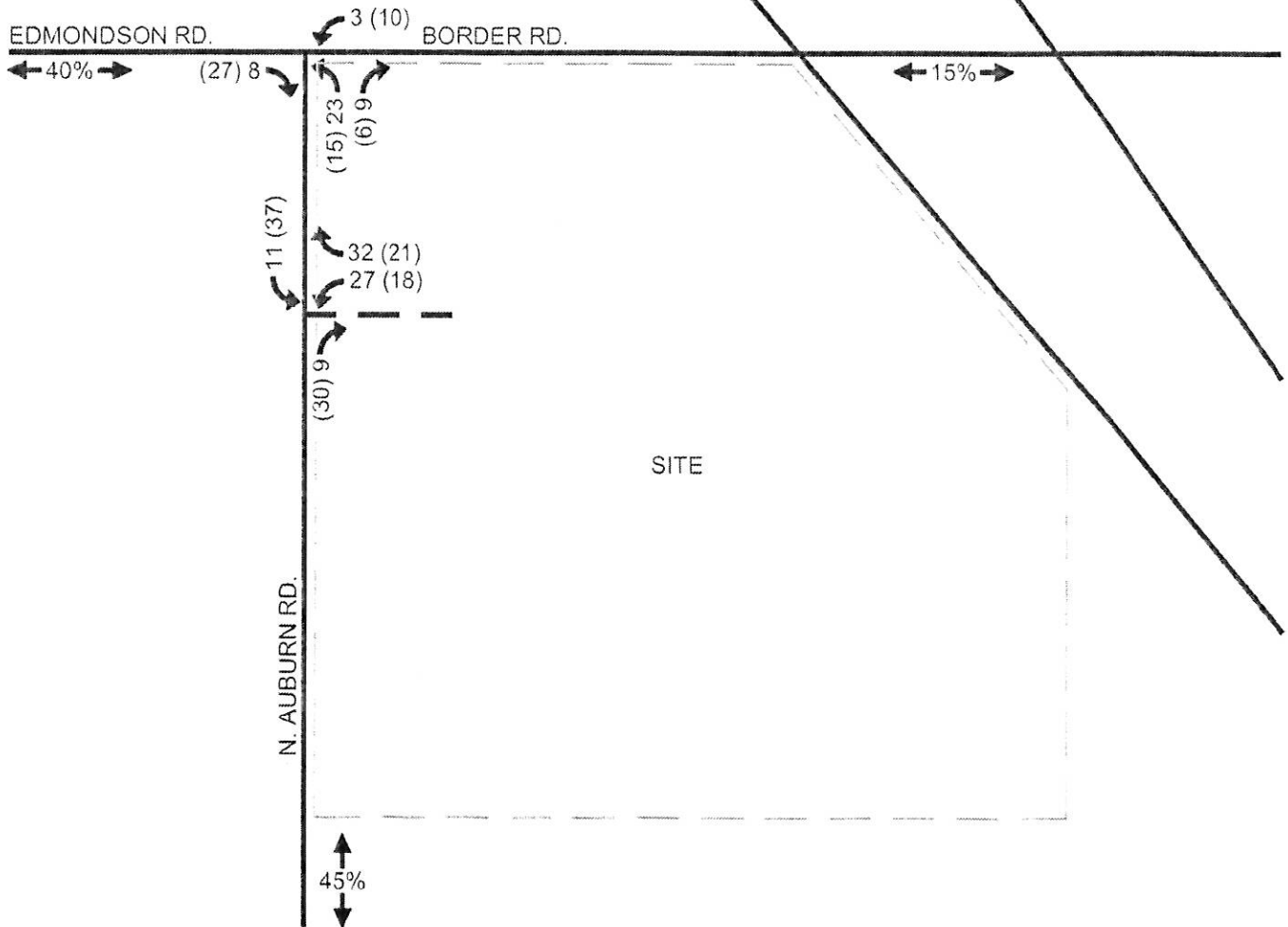
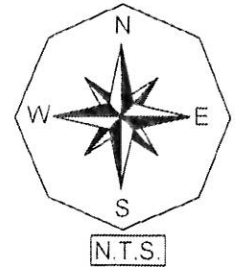
* The Level of Service thresholds for all roadway segments were obtained from 2016 Sarasota County GLoS Reference Tables.

TABLE 3A
TRAFFIC VOLUMES AND LEVEL OF SERVICE ANALYSIS
MURPHY OAKS

TOTAL AM PEAK HOUR PROJECT TRAFFIC =		79 VPH												
TOTAL PM PEAK HOUR PROJECT TRAFFIC =		106 VPH												
ROADWAY	SEGMENT	ROADWAY ID#	2018		2022		2022		2022		2022		2022	
			PK HR		PK HR PK SEASON		PROJECT		2022		2022		2022	
			ANNUAL	PK SEASON VOL ¹	PEAK VOL	LOS	TRAFFIC	DISTRIBUTION	VESTED	AM PROJ	PM PROJ	BCKGRND	+ VESTED	BCKGRND + VESTED
			RATE	VOLUME	VOLUME	LOS			TRAFFIC	TRAFFIC	TRAFFIC	VOLUME	VOLUME	LOS
N. Auburn Rd.	Border Rd. Site Access	16.0	2.00%	198	214	C	55%		221	43	58	435	435	C
	Site Access to Venice Ave.	16.0	2.00%	198	214	C	45%		221	36	48	435	435	C

¹The 2018 traffic volumes were taken from the traffic count conducted by TR Transportation that were adjusted for Peak Season Conditions.

* Vested trips were provided by the City of Venice.

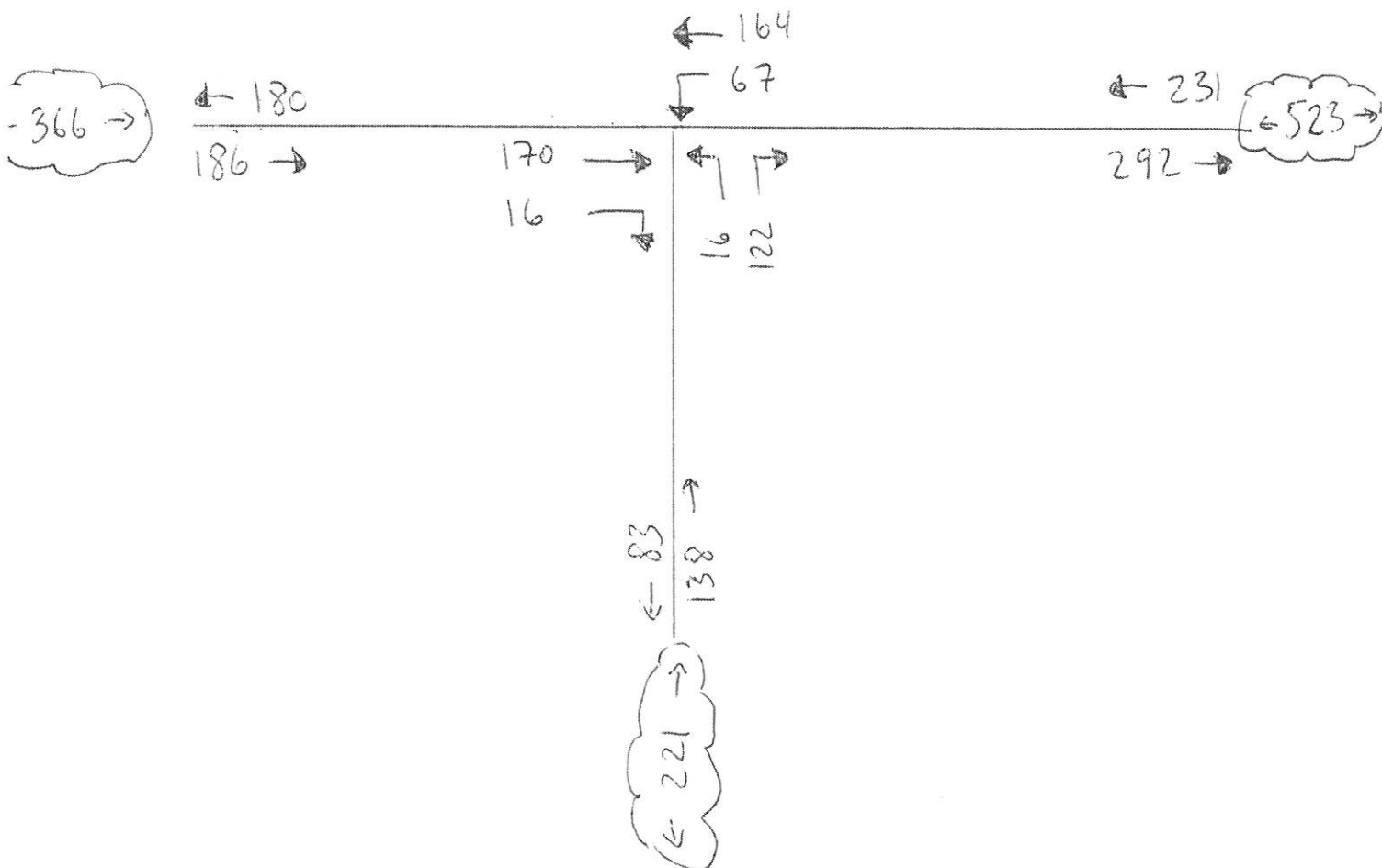


LEGEND

- ← 000 WEEKDAY AM PEAK HOUR SITE TRAFFIC
- ← (000) WEEKDAY PM PEAK HOUR SITE TRAFFIC
- ← 20% → PERCENT TRIP DISTRIBUTION

Intersection: Border Rd /Edmondson Rd & Auburn Rd

Project	EBT	EBR	WBL	WBT	NBL	NBR
Plaza Venezia		16			16	
Toscana Isles	17			10		
Woods at Venice	28		8	17		14
The Bridges	46		15	44		16
SJMR PUD	19		4	11		7
Milano PUD (VICA+Laurel Lakes)	44		21	25		38
Portofino	16		19	57		47
Total	170	16	67	164	16	122



TRIP GENERATION EQUATIONS

TRIP GENERATION EQUATIONS
MURPHY OAKS
ITE TRIP GENERATION REPORT, 10th EDITION

Land Use	Weekday AM Peak Hour	Weekday PM Peak Hour	Weekday
Single Family Detached Housing (LUC 210)	$T = 0.71 (X) + 4.80$ (25% In/75% Out)	$\ln (T) = 0.96 \ln (X) + 0.20$ (63% In/37% Out)	$\ln (T) = 0.92 \ln (X) + 2.71$
T = Trips, X = Dwelling Units			

FDOT STANDARD INDEX #301

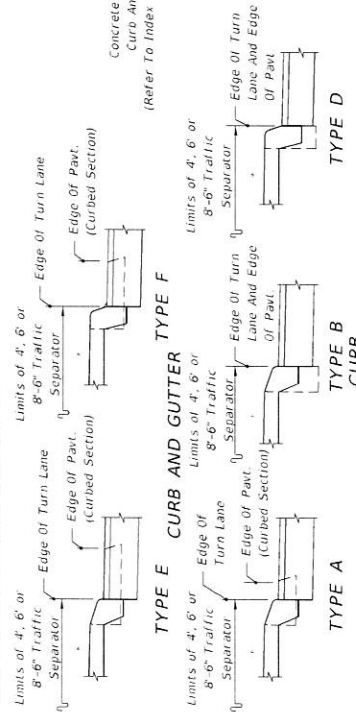
TURN LANES • CURBED AND UNCURBED MEDIANS									
URBAN CONDITIONS					RURAL CONDITIONS				
Design Speed (mph)	Entry Speed (mph)	Clearance Distance L _i	Brake To Stop Distance L _s	Total Distance L _t	Clearance Distance L _i	Brake To Stop Distance L _s	Total Distance L _t	Clearance Distance L _i	Brake To Stop Distance L _s
35	25	70'	75'	145'	110'	—	—	—	—
40	30	80'	75'	155'	120'	—	—	—	—
45	35	85'	100'	185'	135'	—	—	—	—
50	40/44	105'	135'	240'	160'	185'	290'	160'	195'
55	48	125'	—	—	—	225'	350'	—	—
60	52	145'	—	—	—	260'	405'	230'	—
65	55	170'	—	—	—	290'	460'	270'	—

DESIGN NOTES

- Basis for turn lane configurations:
 - Informed Driver.
 - Stop condition (with or without stop control).
 - Wet pavement.
 - Reaction preceding entry point.
 - Minimum braking distance for urban conditions.
 - 75 min. for L_s.
 - Controllable deceleration rates for rural conditions (AASHTO 2001 threshold rate of 11.2 ft/s²).

GENERAL NOTES

- The plan views shown are for turn lane taper shapes and dimensional purposes only. They do not prescribe the use of curb, curb and gutter, shoulders nor separator's specifically to either rural or urban conditions.
- Total deceleration distances must not be reduced except where lesser values are imposed by unreluctable control points.
- Right turn lane tapers and distances identical to left turn lanes under stop control conditions. Right turn lane tapers and/or distances are site specific under free flow or yield conditions.
- These left turn configurations apply to continuous left turn lanes only where specifically called for in the plans.
- For pavement markings see Index No. 17346.



For Curb and Gutter Types, See Index No. 300
 * Option 1 Separator Shown (Refer To Index No. 302)

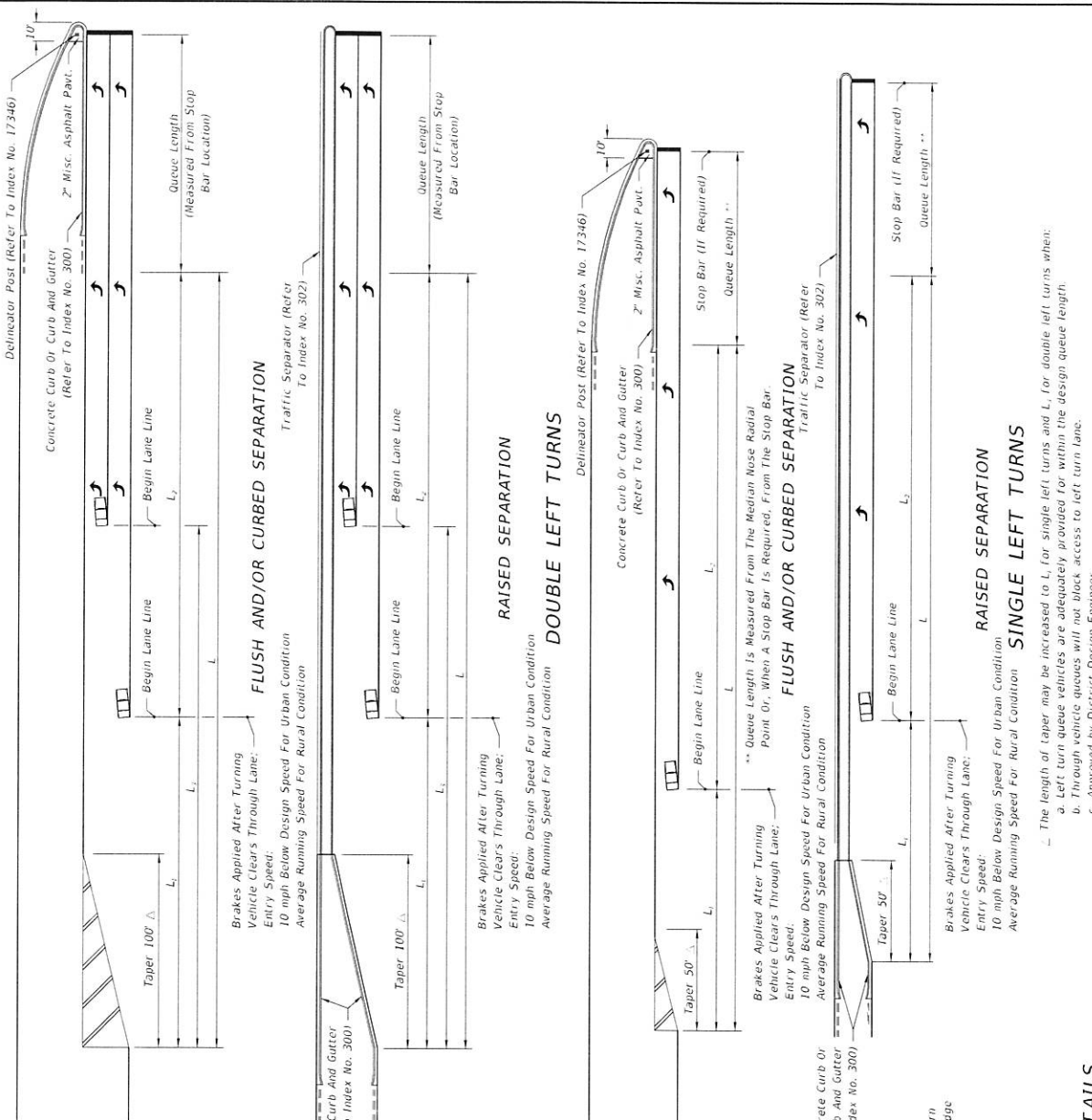
MEDIAN CURB AND TRAFFIC SEPARATOR JUNCTURE DETAILS

LAST REVISION	DESCRIPTION
07/01/05	

FDOT
 FY 2016-17
 DESIGN STANDARDS

TURN LANES

INDEX NO. 301
 SHEET NO. 1 of 1



- The length of taper may be increased to L_i for single left turns and L_i for double left turns when:
 - Left turn queue vehicles are adequately provided for within the design queue length.
 - Through vehicle queues will not block access to left turn lane.
 - Approved by District Design Engineer.

**COST ESTIMATE FOR
EASTBOUND RIGHT TURN LANE @
EDMONDSON ROAD AND N. AUBURN
ROAD INTERSECTION**

SUMMARY FOR PERFORMANCE BOND COST ESTIMATE RIGHT TURN LANE IMPROVEMENTS - AUBURN ROAD AND EDMONDSON ROAD				
UNIT	QUANTITY	DESCRIPTION	UNIT PRICE	TOTAL AMOUNT
SCH IA - EARTHWORK				
LS	1	BMPs - Silt Barrier Installation, Maintenance, Removal, NPDES Compliance	\$1,500.00	\$1,500
SY	233	Grading & Excavation for road area construction disposal of spoils	\$27.45	\$6,400
SY	175	Fine Grading ROW and all Disturbed areas (+/- 1" of Finished Grade)	\$3.25	\$569
SY	175	Restoration / Bahia Sod all disturbed areas	\$6.85	\$1,199
			TOTAL	\$9,668
SCH IB - ROAD CONSTRUCTION				
SY	233	3" Type S Asphalt (Turn Lane)	\$26.60	\$6,207
SY	194	1.5" Type S Asphalt (Multi Use Path)	\$15.50	\$3,014
SY	240	6" Compacted Crushed Concrete - Base (LBR 100)	\$17.65	\$4,242
SY	247	12" Compacted Sub-base (Minimum LBR 40 to 98% modified proctor)	\$14.40	\$3,562
SY	200	6" Compacted Crushed Concrete - Base (LBR 100) (Multi Use Path)	\$17.65	\$3,535
SY	206	12" Compacted Sub-base (Minimum LBR 40 to 98% modified proctor) (Path)	\$14.40	\$2,968
SF	200	Form and place 4" concrete sidewalk per plans and details including subgrade preparation as shown on plans and details.	\$4.15	\$830
LF	175	Furnish and Install Type "F" concrete curb and gutter as shown on plans and details including subgrade preparation.	\$14.50	\$2,538
LS	1	Striping & Signage (Relocate Signs)	\$3,250.00	\$3,250
			TOTAL	\$30,144
SCH ID - MISCELLANEOUS				
LS	1	Mobilization	\$5,000.00	\$5,000
LS	1	Demolition, Per Plan - Includes saw cut asphalt, removal of asphalt & curb, concrete walks, pipe, conduit, structures as shown on Plans.	\$3,210.00	\$3,210
LS	1	Maintenance of Traffic	\$3,000.00	\$3,000
LS	1	Survey- Stakeout & As-Builts	\$3,500.00	\$3,500
			TOTAL	\$14,710
			TOTAL	\$54,522
			CONTINGENCY (15%)	\$8,178
			GRAND TOTAL	\$62,701



08/29/2018

Clint R. Cuffle, P.E.
Florida P.E. No. 69139

