TRAFFIC IMPACT ANALYSIS

RIVER RUN PRESERVE
SEMINOLE COUNTY, FLORIDA

Prepared for:

Corporate Properties of Florida, LLC
2519 McMullan Booth Road North, Suite 510-269
Clearwater, Florida 33761

Prepared by:

Traffic Planning and Design, Inc.
535 Versailles Drive
Maitland, Florida 32751
407-628-9955

July 2019

TPD № 5236

PROFESSIONAL ENGINEERING CERTIFICATION

I hereby certify that I am a Professional Engineer properly registered in the State of Florida practicing with Traffic Planning and Design, Inc., a corporation authorized to operate as an engineering business, EB-3702, by the State of Florida Department of Professional Regulation, Board of Professional Engineers, and that I have prepared or approved the evaluations, findings, opinions, conclusions, or technical advice attached hereto for:

PROJECT: River Run Preserve

LOCATION: Seminole County, Florida

CLIENT: Corporate Properties of Florida, LLC

I hereby acknowledge that the procedures and references used to develop the results contained in these computations are standard to the professional practice of Transportation Engineering as applied through professional judgment and experience.

NAME: Turgut Dervish

P.E. No.: 20400

DATE: July 23, 2019

SIGNATURE: _____

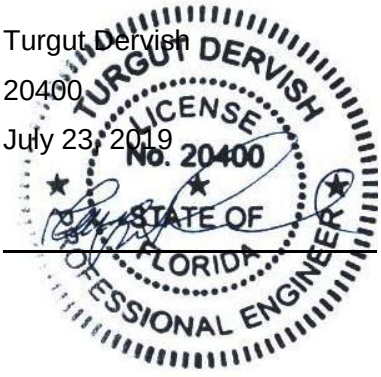


TABLE OF CONTENTS

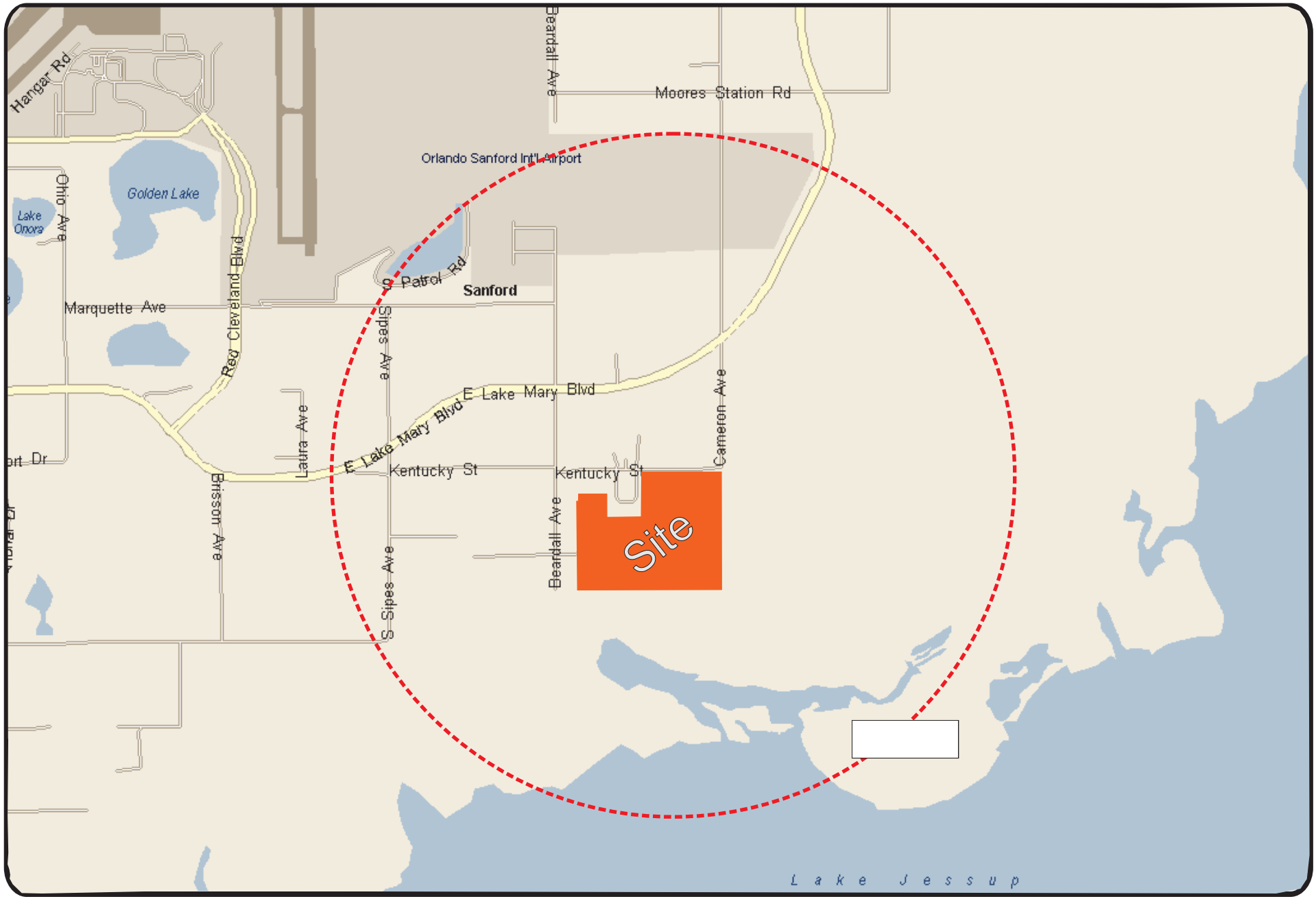
LIST OF TABLES

LIST OF FIGURES

INTRODUCTION

This analysis was conducted in order to assess the traffic impact of a proposed residential development in Seminole County, Florida. Located on the south side of Kentucky Street approximately 1,000 feet west of Cameron Avenue, this development will consist of 94 single-family dwelling units. **Figure 1** depicts the site location. Access to the site is proposed via a full access driveway on Kentucky Street. Kentucky Street connects to Skyway Drive on the west and Cameron Avenue on the east. **Figure 2** depicts the conceptual site plan.

As per Seminole County requirements, the classified roadways within the one-mile sphere of influence (or impact area) and major intersections within a quarter mile from the site were included in the traffic analysis. The analysis was conducted in accordance with a study methodology submitted and reviewed by Seminole County. The study methodology is included in **Appendix A.** Data used in the analysis consisted of site plan and development information provided by the Project Engineers, daily traffic volume data obtained from Seminole County, and A.M./P.M. peak hour intersection counts made by Traffic Planning and Design, Inc. (TPD) personnel.



River Run Preserve
Project № 5236
Figure 1

Site Location

River Run Preserve
Project № 5236

Figure 2

Conceptual Site Plan

NTS

EXISTING TRAFIC CONDITIONS

Existing traffic conditions were analyzed using daily traffic volumes for the study roadways and A.M./P.M. peak hour traffic volumes for the study intersections. The roadway analysis consisted of a generalized capacity analysis with the existing traffic volumes and the available capacity. The intersection analysis was conducted as per the procedures of the Highway Capacity Manual. Pertinent roadway segment data sheets showing the existing and committed trips along with the corresponding segment capacities are included in **Appendix B**.

Analysis of Daily Traffic Conditions

A roadway segment analysis was performed for the study roadway segments by comparing the total daily traffic volume of each segment with the corresponding capacity of the segment. **Table 1** shows each of the roadway segments along with their number of lanes, adopted daily LOS/capacities, existing traffic volumes, available capacities and existing Levels of Service (LOS). The results of the analysis indicate that the roadway segments currently operate satisfactorily with excess traffic capacity available.

Table 1
Existing Roadway Conditions Analysis

Seg #	Roadway Segment	Lanes	Daily Capacity	Existing Daily Traffic	Available Capacity	LOS
East Lake Mary Boulevard						
LKM80	Red Cleveland Blvd to Cameron Ave	4L	42,560	18,698	23,862	B
LKM90	Cameron Ave to SR 46	4L	42,560	14,168	28,392	B
Beardall Avenue (Skyway Drive)						
BDL20	SR 46 to Kentucky St	2L	19,360	559	18,801	A

Analysis of Peak Hour Traffic Conditions

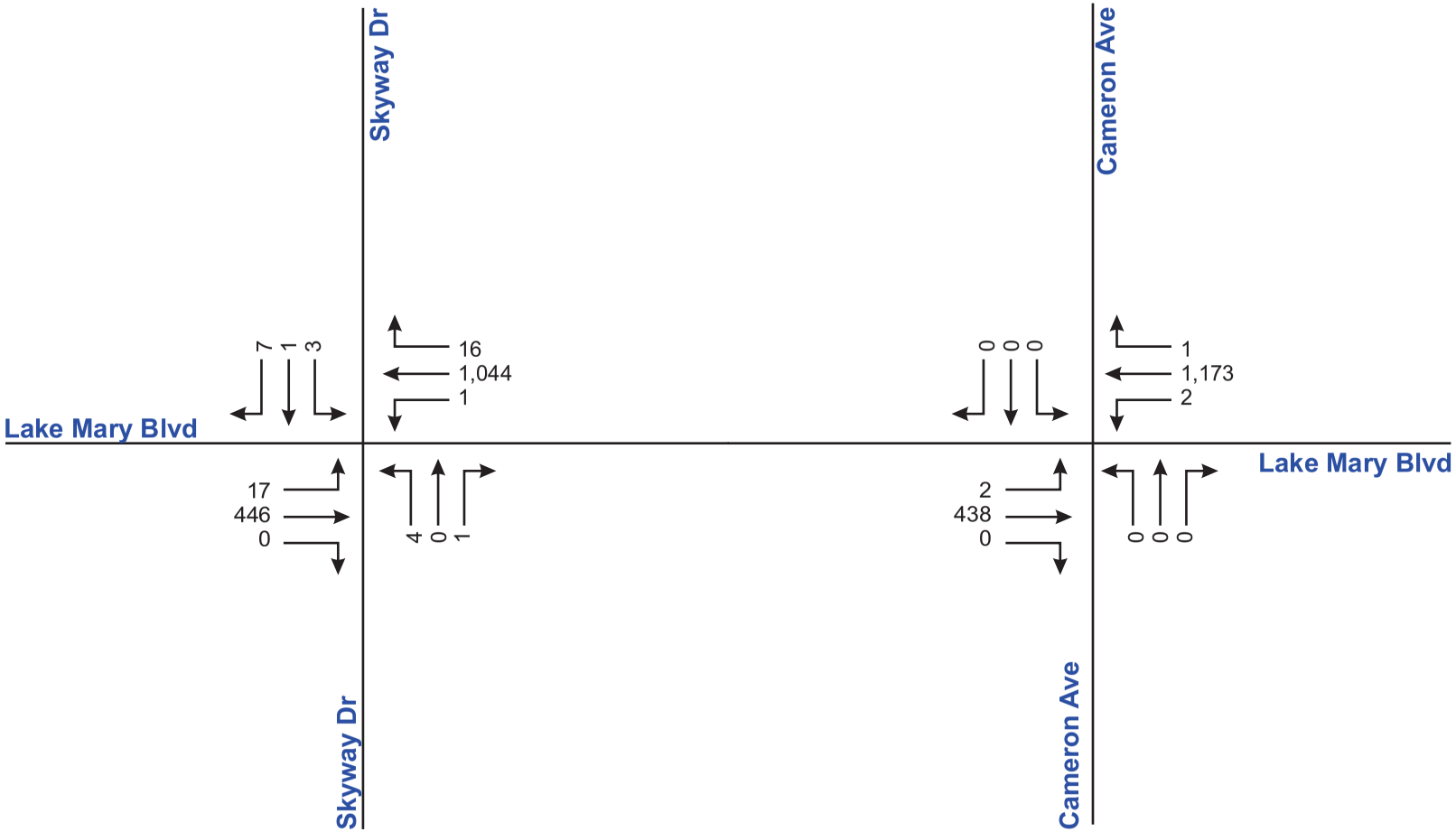
A capacity analysis was conducted for the A.M./P.M. peak hour traffic conditions for the following intersections within one-quarter mile from the site:

- East Lake Mary Boulevard and Cameron Avenue
- East Lake Mary Boulevard and Skyway Drive

The analysis was conducted utilizing Highway Capacity Software (HCS7) in accordance with the procedures of the Highway Capacity Manual (HCM). Existing traffic consisting of turning movement counts are included in **Appendix C** along with the FDOT Peak Season Factor report. The traffic counts were made during two different weeks in April and May 2019. The FDOT seasonal factors for Seminole County during two weeks are 0.98 and 096, respectively, and, therefore, they were not adjusted. The existing peak hour traffic volumes are shown in **Figures 3 and 4**. The intersection capacity analysis results are summarized in **Table 2** and indicate that the study intersections are currently operating at satisfactory Levels of Service. Detailed capacity analysis worksheets are included in **Appendix D.**

Table 2
Existing Intersection LOS Analysis

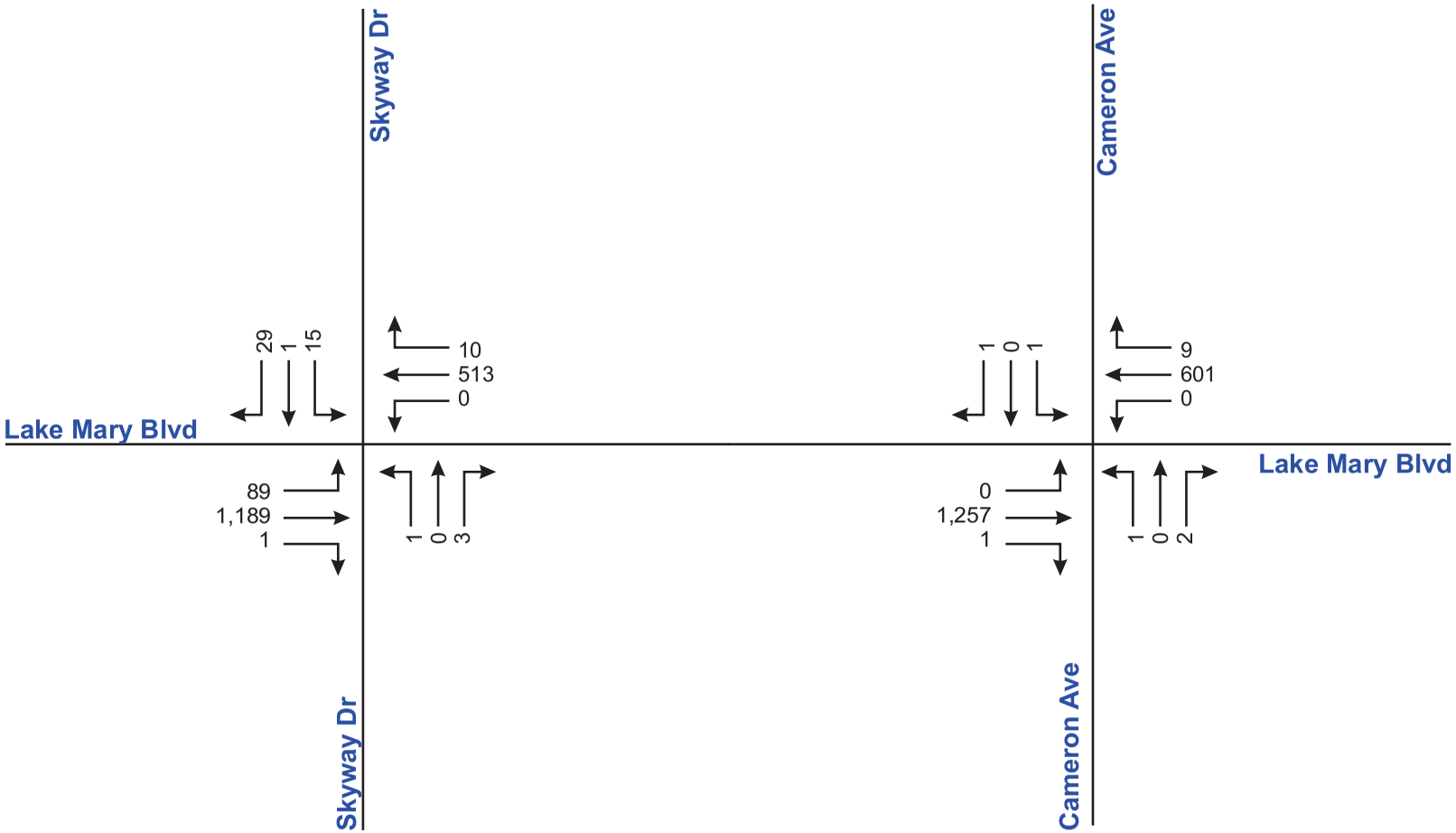
Intersection	Time Period	Control	EB		WB		NB		SB	
			Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
East Lake Mary Blvd and Cameron Ave	A.M.	STOP	11.5	B	8.3	A	17.2	C	28.0	D
	P.M	STOP	8.9	A	12.3	B	20.6	C	15.4	C
East Lake Mary Blvd and Skyway Dr	A.M	STOP	11.2	B	8.4	A	16.3	C	17.8	C
	P.M	STOP	9.0	A	11.8	B	20.9	C	16.3	C



River Run Preserve
Project № 5236

Figure 3

Existing A.M. Peak Hour Traffic Volumes



River Run Preserve
Project № 5236

Figure 4

Existing P.M. Peak Hour Traffic Volumes

PROPOSED DEVELOPMENT AND TRIP GENERATION

The proposed development is a 94-unit single-family residential project. To determine the impact of this development in the area, an analysis of its trip generation characteristics was made. This included the determination of the trips to be generated and the distribution/ assignment of these trips to the area roadways.

Trip Generation

The trip generation of the proposed development was calculated using rates provided by the 10th *Edition* of the *Institute of Transportation Engineers (ITE) Trip Generation Manual*. The results of the trip generation calculation are summarized in **Table 3** and ITE trip generation sheets are included in the Study Methodology. As shown in the table, the proposed development will generate 887 daily trips, 70 A.M. peak hour trips and 93 P.M. in peak hour trips.

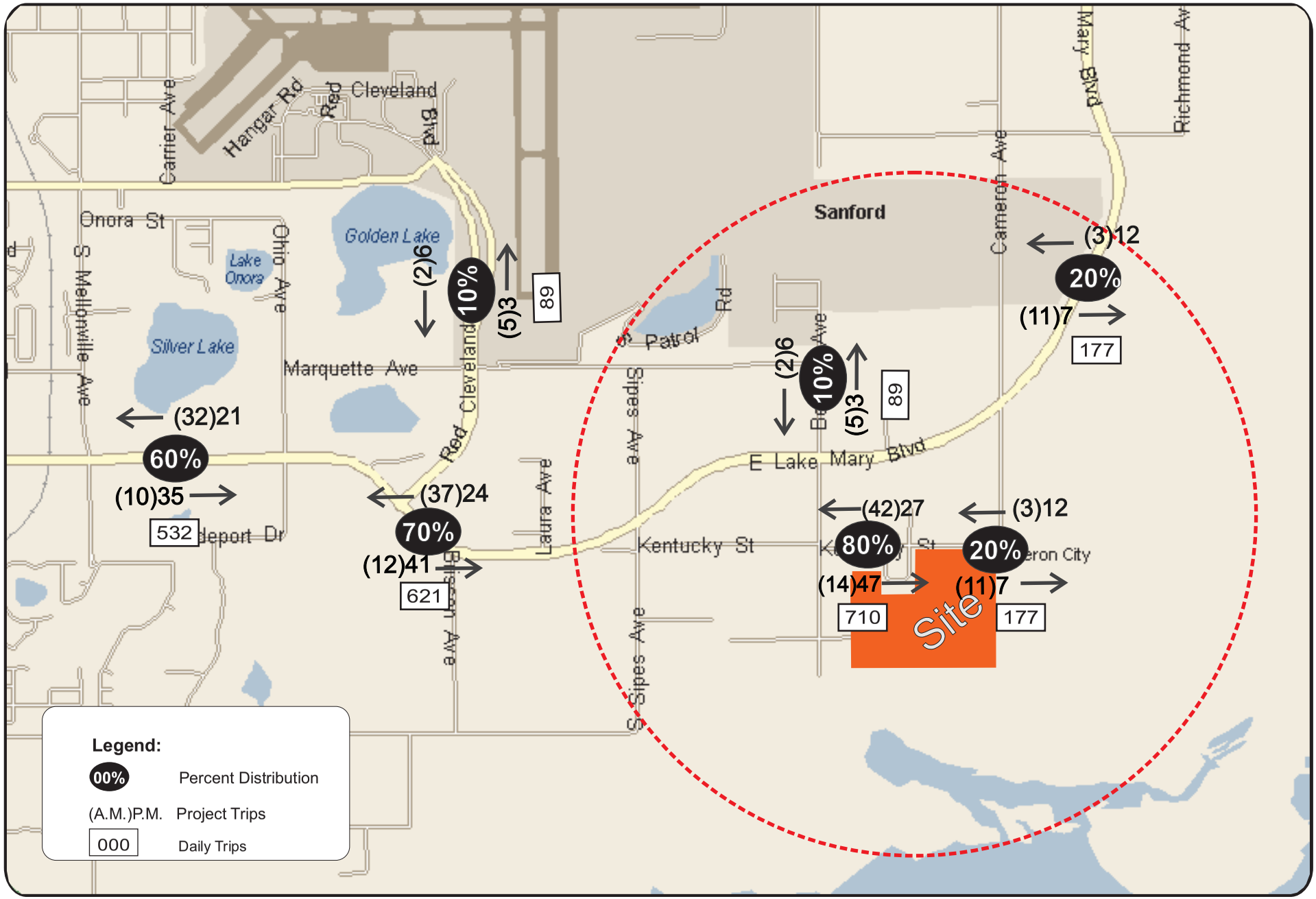
Table 3
Trip Generation Summary

ITE Code	Land Use	Size*	Daily Trips		A.M. Peak Hour Generation				P.M. Peak Hour Generation			
			Rate	Trips	Rate	Enter	Exit	Total	Rate	Enter	Exit	Total
210	SF Housing	94 DU	9.44	887	0.74	17	53	70	0.99	59	34	93
Total Trips				**887**	**---**	**17**	**53**	**70**	**---**	**59**	**34**	**93**

* DU = Dwelling Unit

Trip Distribution and Assignment

A distribution pattern for the proposed development trips was determined with the use of the 2040 CFRM Model with 2020 interpolation. The model distribution included in the study methodology was reviewed for reasonableness and an adjustment was made. **Figure 5** depicts the adjusted trip distribution pattern along with the project trips assigned to the area roadways based on this distribution.



River Run Preserve
Project № 5236
Figure 5

Trip Distribution/Assignment

PROJECTED TRAFFIC CONDITIONS

Projected traffic conditions were analyzed using daily traffic volumes for the study roadways and A.M./P.M. peak hour traffic volumes for the study intersections. The roadway analysis consisted of a generalized capacity analysis with the projected traffic consisting of background traffic and project trips. The intersection analysis was conducted as per the procedures of the Highway Capacity Manual. Background traffic consisting of existing traffic and committed trips (including the Galileo Charter School trips) was provided by Seminole County.

Analysis of Daily Traffic Conditions

A roadway segment analysis was performed for the study roadway segments by comparing the total daily traffic volume of each segment with the corresponding capacity of the segment. The roadway segment analysis is summarized in **Table 4**. The table shows each of the road segments along with their number of lanes, adopted daily LOS/capacities, projected traffic volumes and resultant Levels of Service. The results of the analysis indicate that the impacted road segments are projected to operate satisfactorily with excess traffic capacity available.

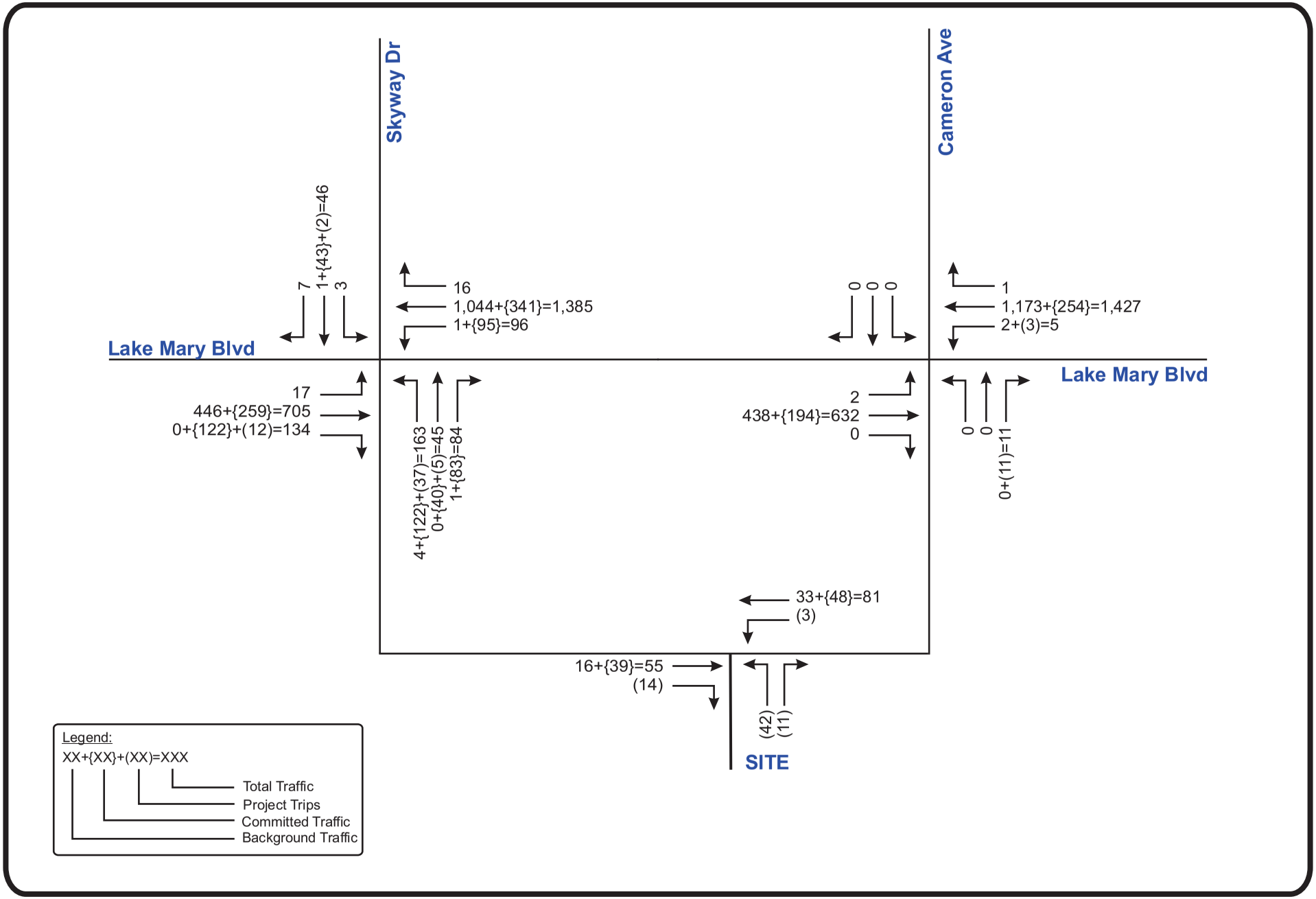
Table 4
Future Roadway Conditions Analysis

Seg #	Roadway Segment	Lns	Daily Capacity	Background Daily Traffic		Project Daily Trips		Total Daily Volume	Available Capacity	LOS
				Existing	Committed**	%*	Volume			
East Lake Mary Boulevard										
LKM80	Red Cleveland Blvd to Cameron Ave	4L	42,560	18,698	6,589	80	710	25,997	16,563	D
LKM90	Cameron Ave to SR 46	4L	42,560	14,168	4,923	20	177	19,268	23,292	C
Beardall Avenue (Skyway Drive)										
BDL20	SR 46 to Kentucky St	2L	19,360	559	2,082	80	710	3,351	16,009	D

*Highest Percentage on the Segment ** Committed trips include Galileo Charter School

Analysis of Peak Hour Traffic Conditions

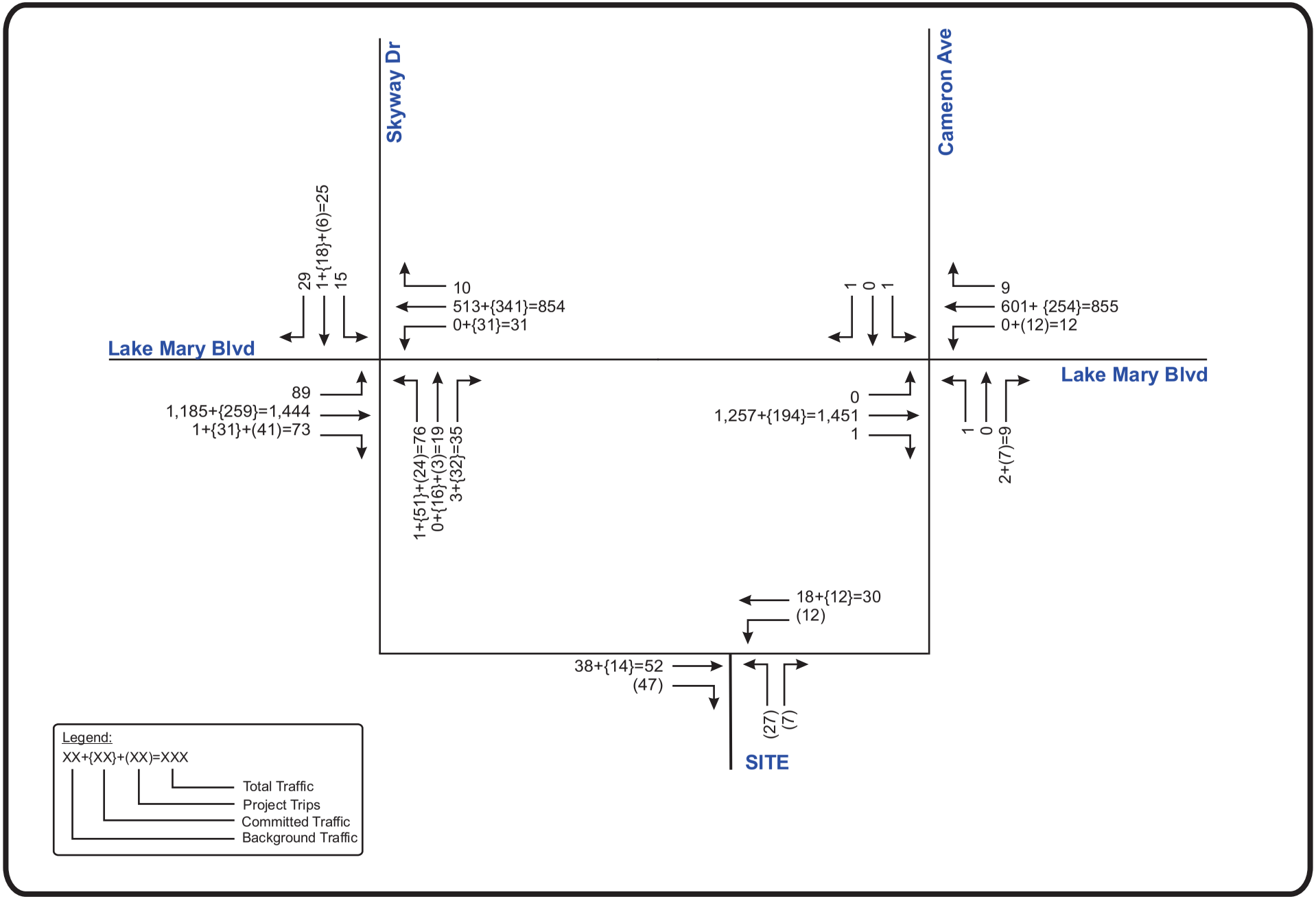
The peak hour traffic conditions at the study intersections were estimated by adding the project trips to existing traffic and committed trips, which included the Galileo Charter School project. Daily committed trips were converted to peak hour directional trips using an A.M. and P.M. K=0.091 factors, and an A.M. and P.M. D=.568 factor. These trips were assigned to the intersections based upon the existing traffic patterns at the intersections. The projected A.M./P.M. peak hour traffic volumes are shown in **Figures 6 and 7**.



River Run Preserve
Project № 5236

Figure 6

Projected A.M. Peak Hour Traffic Volumes



River Run Preserve
Project № 5236

Figure 7

Projected P.M. Peak Hour Traffic Volumes

An analysis of projected peak hour traffic conditions was performed using the HCS7 software and procedures of the *Highway Capacity Manual* for intersections. The analysis was accomplished utilizing existing intersection geometry and traffic controls. The results of the capacity analysis as summarized in **Table 5** indicate satisfactory traffic operating conditions (LOS "E" or better) for the intersection approaches except for the NB/SB minor street approaches at East Lake Mary Boulevard and Skyway Drive. This is due to delays caused by the stop control at these approaches. Based upon review of the projected A.M./P.M. peak hour volumes at this location, a signal may be warranted at full buildout of the committed trips plus project trips.

Table 5
Projected Intersection LOS Analysis

Intersection	Time Period	Control	EB		WB		NB		SB	
			Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
East Lake Mary Blvd and Cameron Ave	A.M.	STOP	13.1	B	8.9	A	21.4	C	38.9	E
	P.M.	STOP	9.9	A	13.9	B	18.8	C	19.7	C
East Lake Mary Blvd and Skyway Dr	A.M.	STOP	13.6	B	10.6	B	264.2	F	72.6	F
	P.M.	STOP	10.7	B	15.0	C	189.3	F	69.5	F
Site Entrance	A.M.	STOP	---	---	7.4	A	9.5	A	---	---
	A.M.	STOP	---	---	7.5	A	9.3	A	---	---

The HCS capacity worksheets are included in **Appendix E.**

Turn Lane Analysis

The impacted turn lanes at the study intersections were reviewed to determine their adequacy with the projected traffic volumes. The impacted turn lanes have the followings lengths:

- Westbound Left Turn Lane at Cameron Avenue - 320 Feet
- Westbound Left Turn Lane at Skyway Drive - 310 Feet

The above lengths are adequate for the projected traffic volumes. A right turn lane will not be required on East Lake Mary Boulevard at Skyway Drive or Cameron Avenue since the project generates less than 4,000 ADT.

CONCLUSIONS

This analysis was undertaken in order to assess the traffic impact of a proposed 94-unit residential project in Seminole County, Florida. The site is located on the south side of Kentucky Street approximately 1,000 feet west of Cameron Avenue. The development is proposed to be served via a driveway on Kentucky Street. The following is a summary of the results:

- The proposed development will generate 887 daily trips of which 70 A.M. peak hour and 93 P.M. peak hour trips to be added to the area roadways. These vehicles were distributed and assigned to the area roadways within the development's one-mile impact area.

- The impacted roadways/intersections were analyzed utilizing projected traffic volumes consisting of existing traffic volumes and project trips plus committed trips provided by Seminole County.

- The roadway capacity analysis revealed that the impacted roadway segments currently operate satisfactorily within their adopted LOS standards. The same conditions will continue to operate under projected conditions with the completion of the project.

- The intersection capacity analysis conducted in accordance with the procedures of the HCM revealed that the study intersections also currently operate at satisfactory Levels of Service. The intersection of Lake Mary Boulevard and Cameron Avenue will continue to do so with project trips added, however, the intersection of Lake Mary Boulevard and Skyway Drive will experience delays due to the existing stop control condition. The A.M./P.M. Peak hour volumes indicate that a traffic signal may be warranted at this location at total buildout of committed trips plus project trips. At this time, the intersection should be monitored as development proceeds.

- The impacted turn lanes at the study intersections have adequate lengths to accommodate projected traffic volumes. As per the County's Transportation Standards, a separate right turn lane is not required East Lake Mary Boulevard at Skyway Drive or East Lake Mary Boulevard and Cameron Avenue.

APPENDICES

APPENDIX A

Study Methodology

Rita Merhi

From: Labud, Tricia <tlabud@seminolecountyfl.gov>
Sent: Monday, May 06, 2019 9:11 AM
To: Turgut Dervish
Cc: Rita Merhi
Subject: RE: River Run Preserve
Attachments: 18008 Galileo Sanford--Building Hope v2a.pdf

Turgut,

Please also include the AM Peak Hour, as part of the analysis. One item that we will require for this development is a signal warrant analysis for the intersection of Lake Mary Boulevard and Skyway Drive. In this area, there is a proposed charter school being developed at the southeast corner of Kentucky Street and Skyway Drive. They will be required to construct a northbound right turn lane at the intersection of Lake Mary Boulevard and Skyway Drive. I have attached the traffic study that was done for the Galileo Charter School. Please use their site trips as background trips in your study.

If you have any questions, please let me know.

Thanks,

Tricia M. Labud, P.E.
Professional Engineer
Seminole County Public Works Department
Engineering Division
407-665-5707

From: Turgut Dervish [mailto:turgut@tpdtraffic.com]
Sent: Wednesday, May 01, 2019 3:18 PM
To: Labud, Tricia <tlabud@seminolecountyfl.gov>
Cc: Rita Merhi <rita@tpdtraffic.com>
Subject: River Run Preserve

Tricia,
Attached is our traffic study methodology for the River run project in Seminole County. Please review and provide any comments you may have.
Thanks,
Turgut

Turgut Dervish, P.E., President
TRAFFIC PLANNING AND DESIGN, INC.
535 Versailles Drive
Maitland, Florida 32751
407-628-9955
407-628-8850 FAX
turgut@tpdtraffic.com

M E M O R A N D U M

TO: Tricia Labud, P.E.

FROM: Turgut Dervish, P.E.

DATE: April 30, 2019

RE: **River Run Preserve/Traffic Impact Study Methodology**
Seminole County, Florida
TPD No. 5236

The following is an outline of the proposed methodology for the Traffic Impact Study for a proposed residential development in Seminole County, Florida. The project site is located on the south side of Kentucky Street approximately 1,000 feet west of Cameron Avenue. **Figure 1** depicts the site location and the area roadways.

1. Proposed Development

The proposed development will consist of 86 single family residential units. Access to the site is proposed via a full access driveway on Kentucky Avenue which connects to Cameron Avenue on the east and Skyway Drive on the west. **Figure 2** depicts the conceptual site plan.

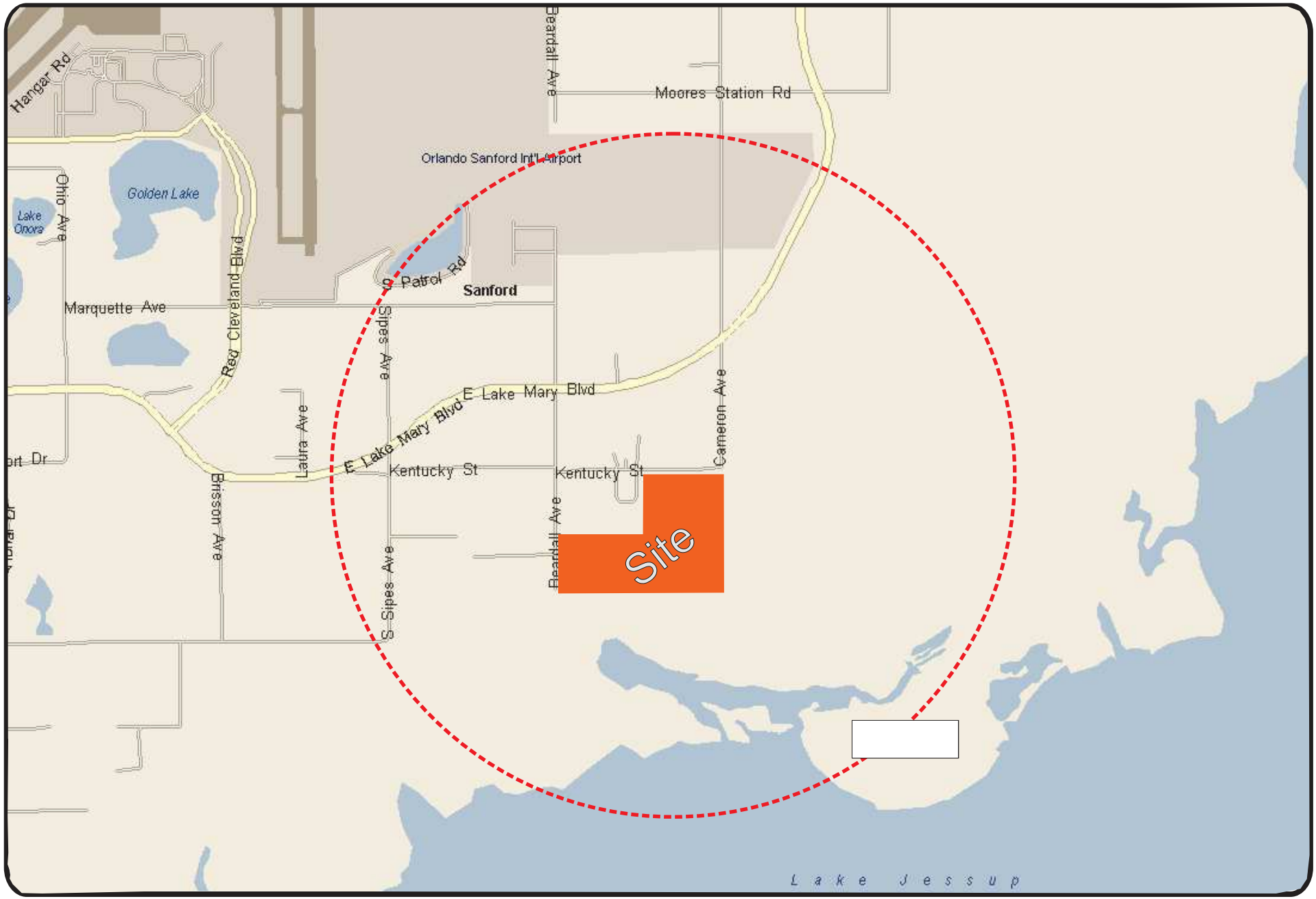
2. Trip Generation

Trip generation data from the 10th Edition of the Institute of Transportation Engineers (ITE) *Trip Generation Manual* will be used for the trip generation estimation of the development. **Table 1** provides a summary of the trip generation calculation. ITE Trip Generation sheets are attached.

Table 1
Trip Generation Calculation Summary

ITE Code	Land Use	Size*	Daily Trips		P.M. Peak Hour Generation			
			Rate	Trips	Rate	Enter	Exit	Total
210	SF Housing	86 DU	9.44	812	0.99	54	31	85
Total Trips				**812**	**---**	**54**	**31**	**85**

* *DU-Dwelling Unit*



River Run Preserve
Project № 5236
Figure 1

Site Location

River Run Preserve
Project № 5236
Figure 2

Conceptual Site Plan

N
NTS

3. Trip Distribution

A distribution pattern has been determined with the use of the 2040 CFRPM Manual with 2020 interpolation. The model distribution plot attached herewith was reviewed for reasonableness and an adjustment was made. The model assigned a rather high 16% of the project trips toward Sanford Airport. This distribution was reduced to 10% and the trips to/from the east on Lake Mary Boulevard increased accordingly. **Figure 3** illustrates the adjusted model-generated trip distribution on the area roadways. This distribution will be used to assign the project trips to the study roadways and intersections.

4. Impact Area

As per Seminole County TIA guidelines, major roadways within a one-mile radius and intersections with a quarter mile will be included in the analysis.

The intersections to be included in the area analysis are:

- East Lake Mary Boulevard and Cameron Avenue
- East Lake Mary Boulevard and Skyway Drive
- Site Entrance

5. Traffic Impact Assessment

a) Roadways

- Obtain background traffic volumes on the study roadway segments from Seminole County for use in the traffic analysis.
- Combine project traffic with background traffic to obtain total traffic volumes.
- Perform daily roadway capacity analysis utilizing Seminole County standards.

b) Intersections

- Conduct intersection counts during the P.M. peak period at the study intersections.
- Determine background traffic by combining existing traffic counts with committed trips to be provided by the County.
- Combine project traffic with background traffic to obtain total traffic.
- Perform intersection capacity analysis utilizing the HCM/HCS operational analysis procedures for the P.M. peak hour.

River Run Preserve
Project № 5236
Figure 3

Site Location

6. Traffic Report

Prepare traffic report summarizing study procedures, analyses and recommendations. If you have any questions or concerns, please contact us at (407) 628-9955.

Attachments

ITE Trip Generation Sheets
Model Distribution Plot

Single-Family Detached Housing
(210)

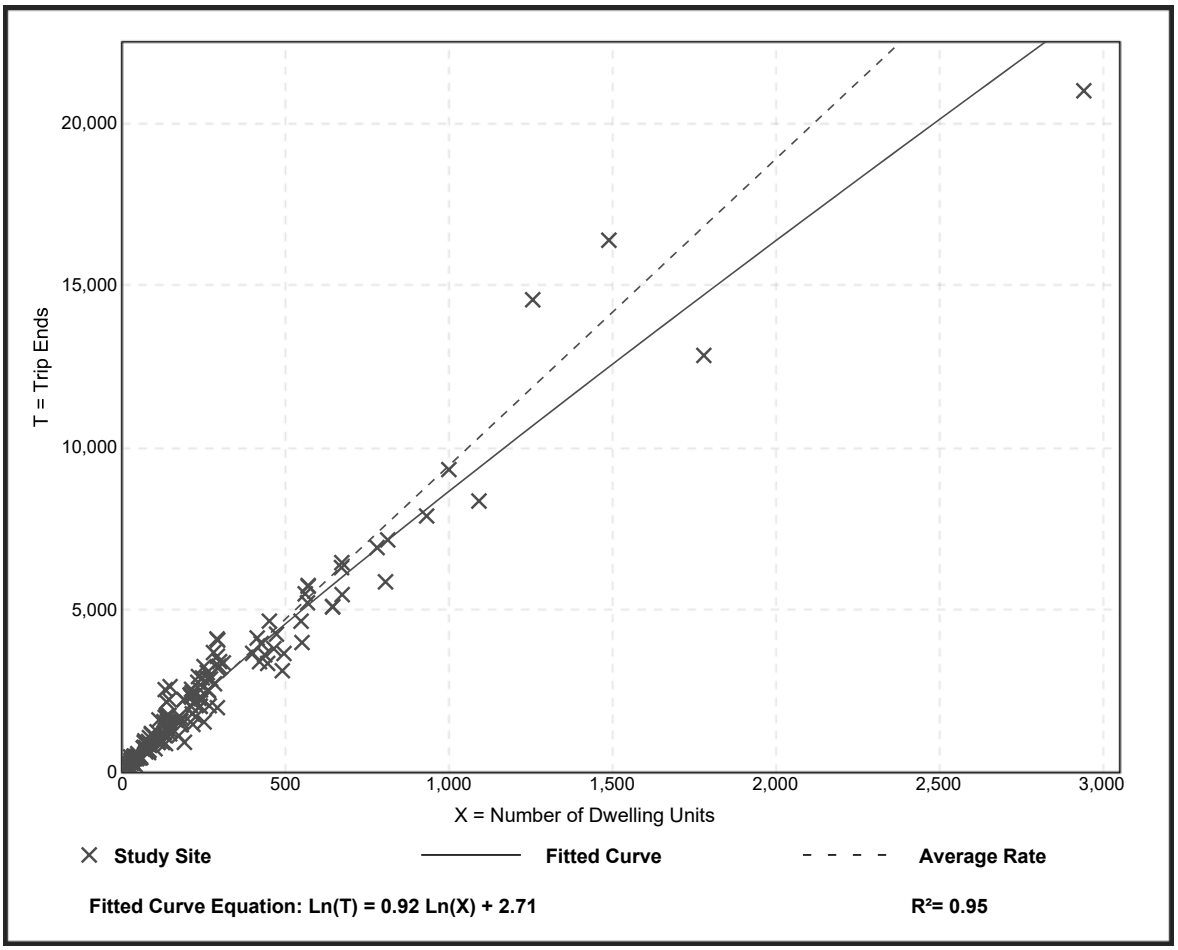
Vehicle Trip Ends vs: **Dwelling Units**
On a: **Weekday**

Setting/Location: **General Urban/Suburban**
Number of Studies: 159
Avg. Num. of Dwelling Units: 264
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
9.44	4.81 - 19.39	2.10

Data Plot and Equation



Fitted Curve Equation: Ln(T) = 0.92 Ln(X) + 2.71 **R^2= 0.95**

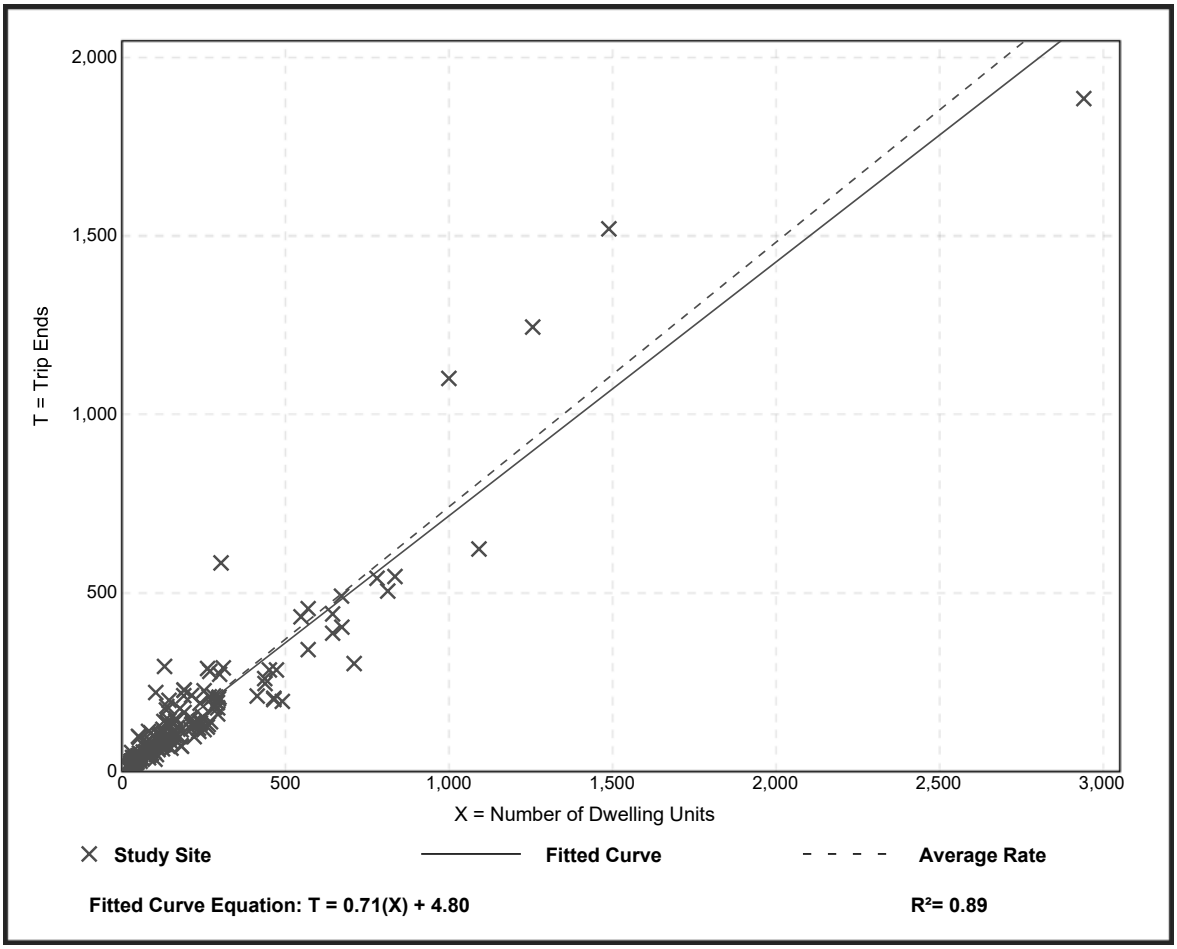
Single-Family Detached Housing
(210)

Vehicle Trip Ends vs: **Dwelling Units**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 173
Avg. Num. of Dwelling Units: 219
Directional Distribution: 25% entering, 75% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.74	0.33 - 2.27	0.27

Data Plot and Equation



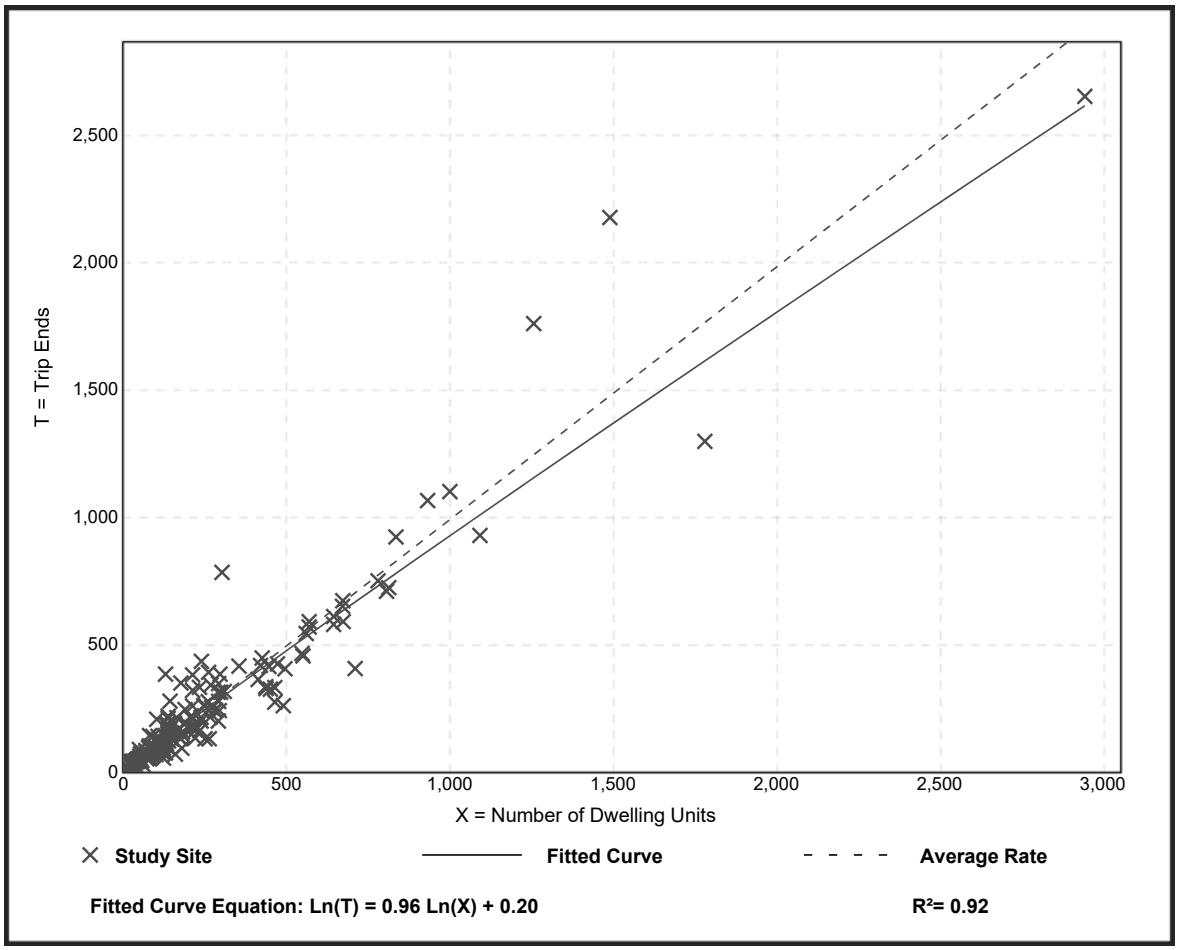
Single-Family Detached Housing
(210)

Vehicle Trip Ends vs: **Dwelling Units**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 190
Avg. Num. of Dwelling Units: 242
Directional Distribution: 63% entering, 37% exiting

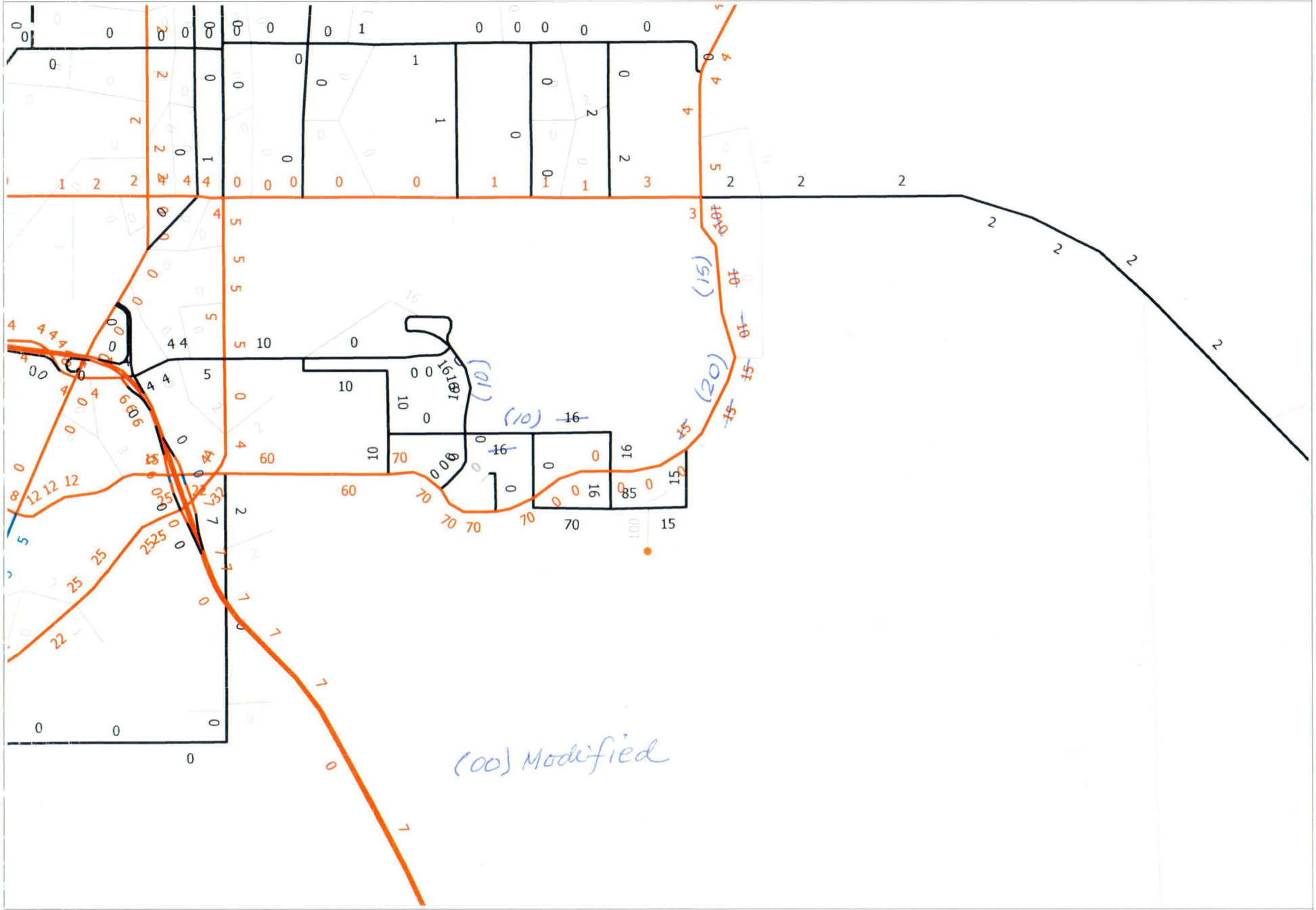
Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.99	0.44 - 2.98	0.31

Data Plot and Equation



Trip Distribution



OUATS YEAR 2030 LRTP
C:\FSUTMS\D5\OUATS2040\Base\CF2025\P46752\Output\HRLDXY_C25.NET 4/23/2019

cube

APPENDIX B

Traffic Data and Roadway Concurrency Information

RKEY	Roadway Name	From	To		
BDL10	Beardall Ave	C.R. 415	SR 46		
				Current Traffic Count	559
				Roadway Link Capacity	19,360
				Committed Trips	4
				Net Available Capacity	18,797
BDL20	Beardall Ave	S.R. 46	Kentucky St		
				Current Traffic Count	17
				Roadway Link Capacity	19,360
				Committed Trips	0
				Net Available Capacity	19,343
BGR10	Bear Gully Rd	S.R. 426	Howell Branch		
				Current Traffic Count	2,039
				Roadway Link Capacity	19,360
				Committed Trips	0
				Net Available Capacity	17,321
BLK00	Bear Lake Rd	Orange County Line	Bunnell Rd		
				Current Traffic Count	10,807
				Roadway Link Capacity	19,360
				Committed Trips	0
				Net Available Capacity	8,553
BLK10	Bear Lake Rd	Bunnell Rd	McNeil Rd		
				Current Traffic Count	11,154
				Roadway Link Capacity	19,360
				Committed Trips	0
				Net Available Capacity	8,206
BLK20	Bear Lake Rd	McNeil Rd	S.R. 436		
				Current Traffic Count	10,834
				Roadway Link Capacity	19,360
				Committed Trips	0
				Net Available Capacity	8,526
BMY00	Balmy Beach Dr	Orleans Way	S.R. 436		
				Current Traffic Count	5,236
				Roadway Link Capacity	19,360
				Committed Trips	0
				Net Available Capacity	14,124
BMY10	Balmy Beach Dr	Holiday Ave	Orleans Way		
				Current Traffic Count	3,608
				Roadway Link Capacity	19,360
				Committed Trips	0
				Net Available Capacity	15,752
BMY20	Balmy Beach Dr	Neil Rd	Holiday Ave		
				Current Traffic Count	2,382
				Roadway Link Capacity	19,360
				Committed Trips	0
				Net Available Capacity	16,978

This information has been provided by Tony Nelson, P.E. at Seminole County Engineering and is current information as of the above referenced date.

RKEY	Roadway Name	From	To		
LKM92	E. Lake Mary Blvd	Cameron Ave	S.R. 46		
				Current Traffic Count	14,168
				Roadway Link Capacity	42,560
				Committed Trips	4,923
				Net Available Capacity	23,469
LKW00	Lockwood Blvd	C.R. 426	C.R. 419		
				Current Traffic Count	7,046
				Roadway Link Capacity	19,360
				Committed Trips	0
				Net Available Capacity	12,314
LKW25	Lockwood Blvd	C.R. 419	Mitchell Hammock		
				Current Traffic Count	34,186
				Roadway Link Capacity	42,560
				Committed Trips	0
				Net Available Capacity	8,374
LKW30	Lockwood Blvd	Mitchell Hammock	Oviedo City Limits		
				Current Traffic Count	22,087
				Roadway Link Capacity	42,560
				Committed Trips	486
				Net Available Capacity	19,987
LKW40	Lockwood Blvd	Oviedo City Limits	McCulloch/Carillon Blvd		
				Current Traffic Count	15,749
				Roadway Link Capacity	42,560
				Committed Trips	389
				Net Available Capacity	26,422
LLK10	Longwood-Lake Mary Rd	Greenway Blvd	Lake Mary Blvd		
				Current Traffic Count	15,794
				Roadway Link Capacity	19,360
				Committed Trips	1,477
				Net Available Capacity	2,089
LLK50	Longwood-Lake Mary Rd	C.R. 427	Greenway Blvd		
				Current Traffic Count	17,253
				Roadway Link Capacity	19,360
				Committed Trips	561
				Net Available Capacity	1,546
LLK60	Longwood-Lake Mary Rd	Lake Way Rd	Lake Mary Blvd		
				Current Traffic Count	12,220
				Roadway Link Capacity	19,360
				Committed Trips	0
				Net Available Capacity	7,140
LMA20	Longwood-Markham Rd	Via Hermosa	S.R. 46		
				Current Traffic Count	4,326
				Roadway Link Capacity	19,360
				Committed Trips	0
				Net Available Capacity	15,034

This information has been provided by Tony Nelson, P.E. at Seminole County Engineering and is current information as of the above referenced date.

APPENDIX C

Existing Intersection Counts and FDOT Seasonal Factors

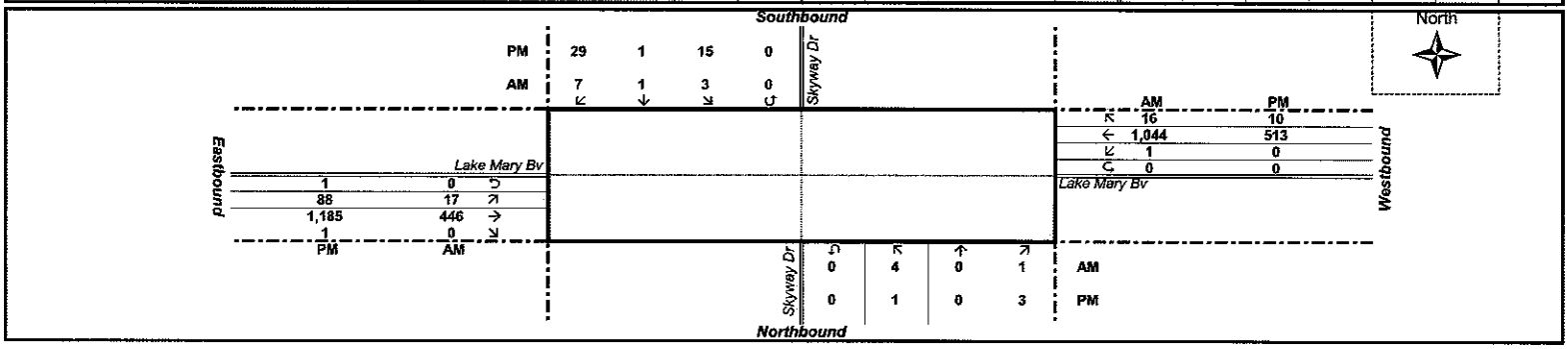
15 MINUTE TURNING MOVEMENT COUNTS

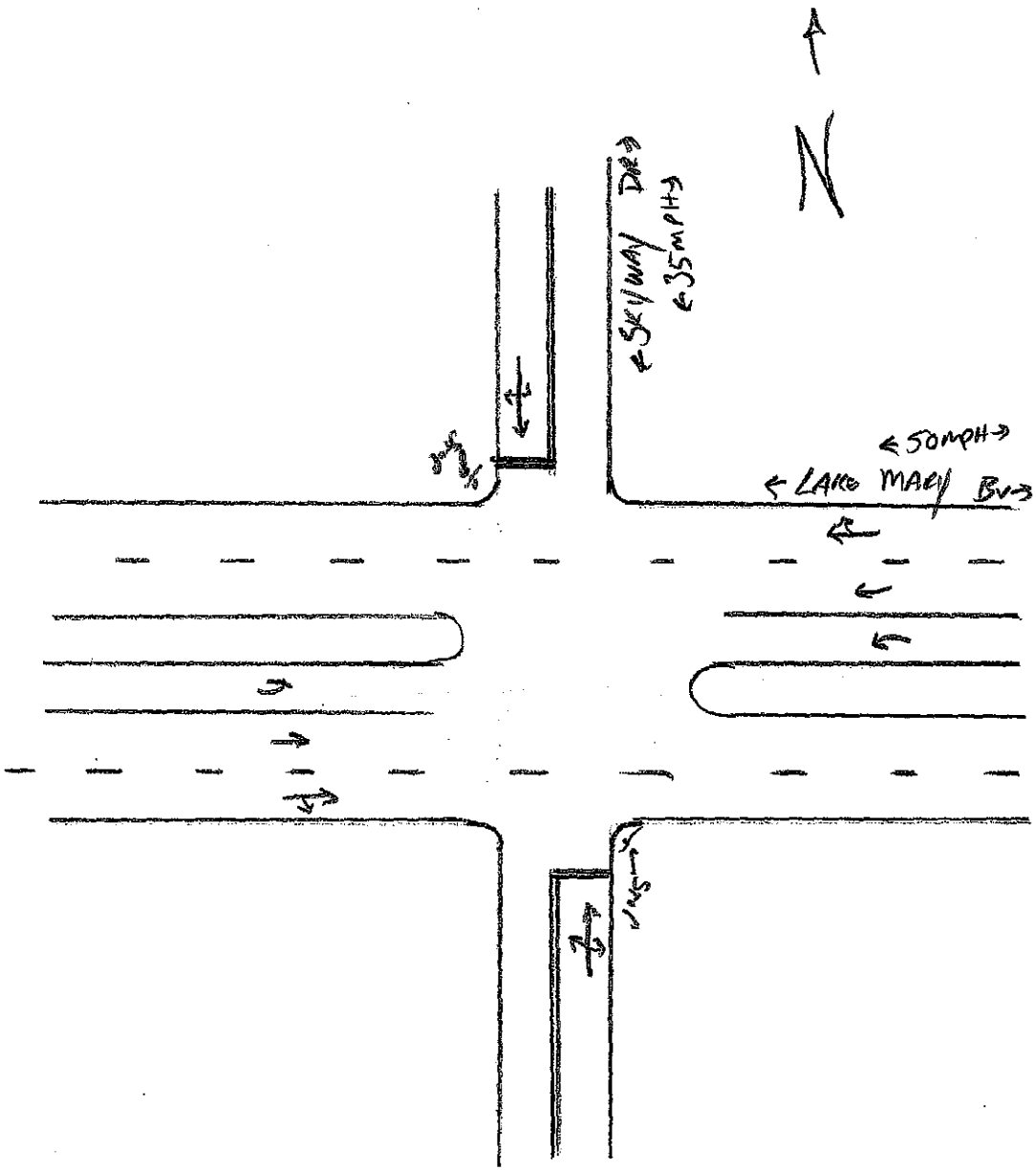
(Cars and Trucks)

DATE: April 26, 2018 (Thursday) **CITY:** Sanford **LATITUDE:** 0

LOCATION: Skyway Dr & Lake Mary Bv **COUNTY:** Seminole County **LONGITUDE:** 0

	Skyway Dr					Skyway Dr						Lake Mary Bv					Lake Mary Bv						
TIME	NORTHBOUND					SOUTHBOUND					N/S	EASTBOUND					WESTBOUND					E/W	GRAND
BEGIN	L	T	R	*U-turn*	TOTAL	L	T	R	*U-turn*	TOTAL	TOTAL	L	T	R	*U-turn*	TOTAL	L	T	R	*U-turn*	TOTAL	TOTAL	TOTAL
07:00 AM	1	0	0	0	1	1	1	1	0	3	4	7	78	0	0	85	0	233	9	0	242	327	331
07:15 AM	2	0	0	0	2	1	1	3	0	5	7	3	91	0	0	94	0	270	5	0	275	369	376
07:30 AM	0	0	0	0	0	2	0	3	0	5	5	5	90	0	0	95	0	288	5	0	293	388	393
07:45 AM	2	0	1	0	3	0	0	0	0	0	3	7	109	0	0	116	1	265	4	0	270	386	389
TOTAL	5	0	1	0	6	4	2	7	0	13	19	22	368	0	0	390	1	1,056	23	0	1,080	1,470	1,489
08:00 AM	0	0	0	0	0	0	0	1	0	1	1	2	156	0	0	158	0	221	2	0	223	381	382
08:15 AM	1	0	0	0	1	1	0	0	0	1	2	2	109	3	0	114	0	236	3	0	239	353	355
08:30 AM	0	1	0	0	1	0	0	1	0	1	2	0	78	1	0	79	1	203	2	0	206	285	287
08:45 AM	0	0	1	0	1	2	0	3	0	5	6	7	97	0	0	104	1	177	3	0	181	285	291
TOTAL	1	1	1	0	3	3	0	5	0	8	11	11	440	4	0	455	2	837	10	0	849	1,304	1,315
04:00 PM	0	0	1	0	1	2	0	4	0	6	7	5	192	1	0	198	2	100	1	0	103	301	308
04:15 PM	2	1	1	0	4	2	0	3	0	5	9	8	232	1	0	241	0	106	2	0	108	349	358
04:30 PM	0	0	2	0	2	4	0	6	0	10	12	6	246	2	0	254	2	125	0	0	127	381	393
04:45 PM	0	0	0	0	0	10	0	7	0	17	17	19	288	4	0	311	2	113	1	0	116	427	444
TOTAL	2	1	4	0	7	18	0	20	0	38	45	38	958	8	0	1,004	6	444	4	0	454	1,458	1,503
05:00 PM	0	0	0	0	0	7	0	5	0	12	12	8	303	0	0	311	0	109	2	0	111	422	434
05:15 PM	0	0	0	0	0	2	0	5	0	7	7	19	312	0	0	331	0	124	3	0	127	458	465
05:30 PM	1	0	1	0	2	4	1	11	0	16	18	23	308	0	1	332	0	152	1	0	153	485	503
05:45 PM	0	0	2	0	2	2	0	8	0	10	12	38	262	1	0	301	0	128	4	0	132	433	445
TOTAL	1	0	3	0	4	15	1	29	0	45	49	88	1,185	1	1	1,275	0	513	10	0	523	1,798	1,847
AM Peak																						**Peak Hour Factor:**	**0.980**
07:15 AM to 08:15 AM	4	0	1	0	5	3	1	7	0	11	16	17	446	0	0	463	1	1,044	16	0	1,061	1,524	1,540
PM Peak																						**Peak Hour Factor:**	**0.918**
05:00 PM to 06:00 PM	1	0	3	0	4	15	1	29	0	45	49	88	1,185	1	1	1,275	0	513	10	0	523	1,798	1,847




N
← SKYWAY DR →
← 35MPH →
← 50MPH →
← LAKE MARY BV →

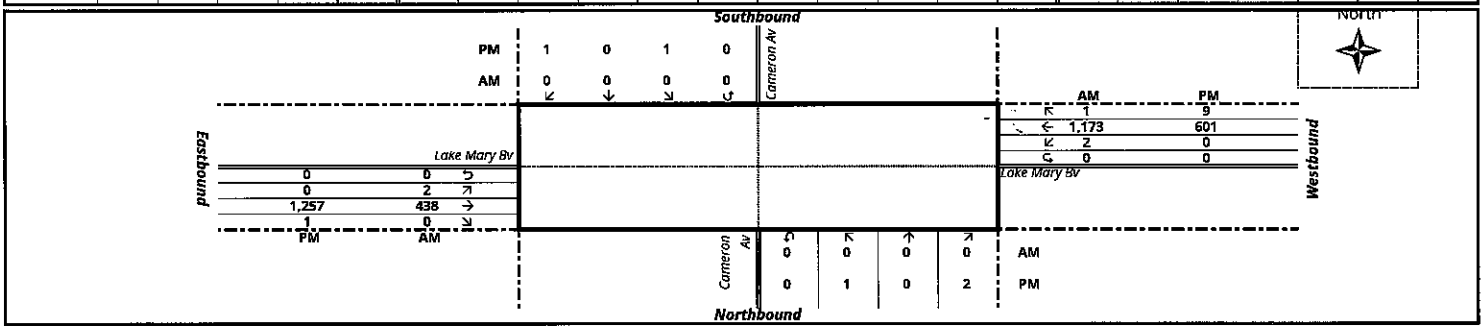
15 MINUTE TURNING MOVEMENT COUNTS

(Cars and Trucks)

DATE: May 10, 2019 (Friday) **CITY:** Lake Mary Bv **LATITUDE:** 0

LOCATION: Cameron Av & Lake Mary Bv **COUNTY:** Seminole County **LONGITUDE:** 0

	Cameron Av					Cameron Av						Lake Mary Bv					Lake Mary Bv						
TIME	NORTHBOUND					SOUTHBOUND					N/S	EASTBOUND					WESTBOUND					E/W	GRAND
BEGIN	L	T	R	*U-turn*	TOTAL	L	T	R	*U-turn*	TOTAL	TOTAL	L	T	R	*U-turn*	TOTAL	L	T	R	*U-turn*	TOTAL	TOTAL	TOTAL
07:00 AM	0	0	0	0	**0**	0	0	0	0	**0**	**0**	1	75	0	0	**76**	0	249	0	0	**249**	**325**	**325**
07:15 AM	0	0	0	0	**0**	0	0	0	0	**0**	**0**	1	89	0	0	**90**	0	309	0	0	**309**	**399**	**399**
07:30 AM	0	0	0	0	**0**	0	0	0	0	**0**	**0**	0	90	0	0	**90**	0	309	0	0	**309**	**399**	**399**
07:45 AM	0	0	0	0	**0**	0	0	0	0	**0**	**0**	1	119	0	0	**120**	0	275	0	0	**275**	**395**	**395**
TOTAL	0	0	0	0	**0**	0	0	0	0	**0**	**0**	3	373	0	0	**376**	0	1,142	0	0	**1,142**	**1,518**	**1,518**
08:00 AM	0	0	0	0	**0**	0	0	0	0	**0**	**0**	0	140	0	0	**140**	2	280	1	0	**283**	**423**	**423**
08:15 AM	0	0	0	0	**0**	1	0	1	0	**2**	**2**	0	135	0	0	**135**	0	251	0	0	**251**	**386**	**388**
08:30 AM	0	0	0	0	**0**	0	0	1	0	**1**	**1**	0	82	1	0	**83**	2	235	1	0	**238**	**321**	**322**
08:45 AM	0	0	4	0	**4**	0	0	0	0	**0**	**4**	0	91	0	0	**91**	1	159	0	0	**160**	**251**	**255**
TOTAL	0	0	4	0	**4**	1	0	2	0	**3**	**7**	0	448	1	0	**449**	5	925	2	0	**932**	**1,381**	**1,388**
04:00 PM	0	0	2	0	**2**	1	0	0	0	**1**	**3**	0	230	0	2	**232**	0	148	0	0	**148**	**380**	**383**
04:15 PM	0	0	0	0	**0**	0	0	0	0	**0**	**0**	0	271	2	1	**274**	0	143	0	0	**143**	**417**	**417**
04:30 PM	0	0	0	0	**0**	1	0	0	0	**1**	**1**	0	294	0	0	**294**	0	145	0	0	**145**	**439**	**440**
04:45 PM	0	0	1	0	**1**	0	0	0	0	**0**	**1**	0	292	0	0	**292**	1	143	1	0	**145**	**437**	**438**
TOTAL	0	0	3	0	**3**	2	0	0	0	**2**	**5**	0	1,087	2	3	**1,092**	1	579	1	0	**581**	**1,673**	**1,678**
05:00 PM	1	0	2	0	**3**	0	0	0	0	**0**	**3**	0	293	0	0	**293**	0	153	1	0	**154**	**447**	**450**
05:15 PM	0	0	0	0	**0**	0	0	0	0	**0**	**0**	0	362	0	0	**362**	0	148	2	0	**150**	**512**	**512**
05:30 PM	0	0	0	0	**0**	0	0	0	0	**0**	**0**	0	285	0	0	**285**	0	152	2	0	**154**	**439**	**439**
05:45 PM	0	0	0	0	**0**	1	0	1	0	**2**	**2**	0	317	1	0	**318**	0	148	4	0	**152**	**470**	**472**
TOTAL	1	0	2	0	**3**	1	0	1	0	**2**	**5**	0	1,257	1	0	**1,258**	0	601	9	0	**610**	**1,868**	**1,873**
AM Peak																						**Peak Hour Factor:**	**0.955**
07:15 AM to 08:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**438**	**0**	**0**	**440**	**2**	**1,173**	**1**	**0**	**1,176**	**1,616**	**1,616**
PM Peak																						**Peak Hour Factor:**	**0.915**
05:00 PM to 06:00 PM	**1**	**0**	**2**	**0**	**3**	**1**	**0**	**1**	**0**	**2**	**5**	**0**	**1,257**	**1**	**0**	**1,258**	**0**	**601**	**9**	**0**	**610**	**1,868**	**1,873**



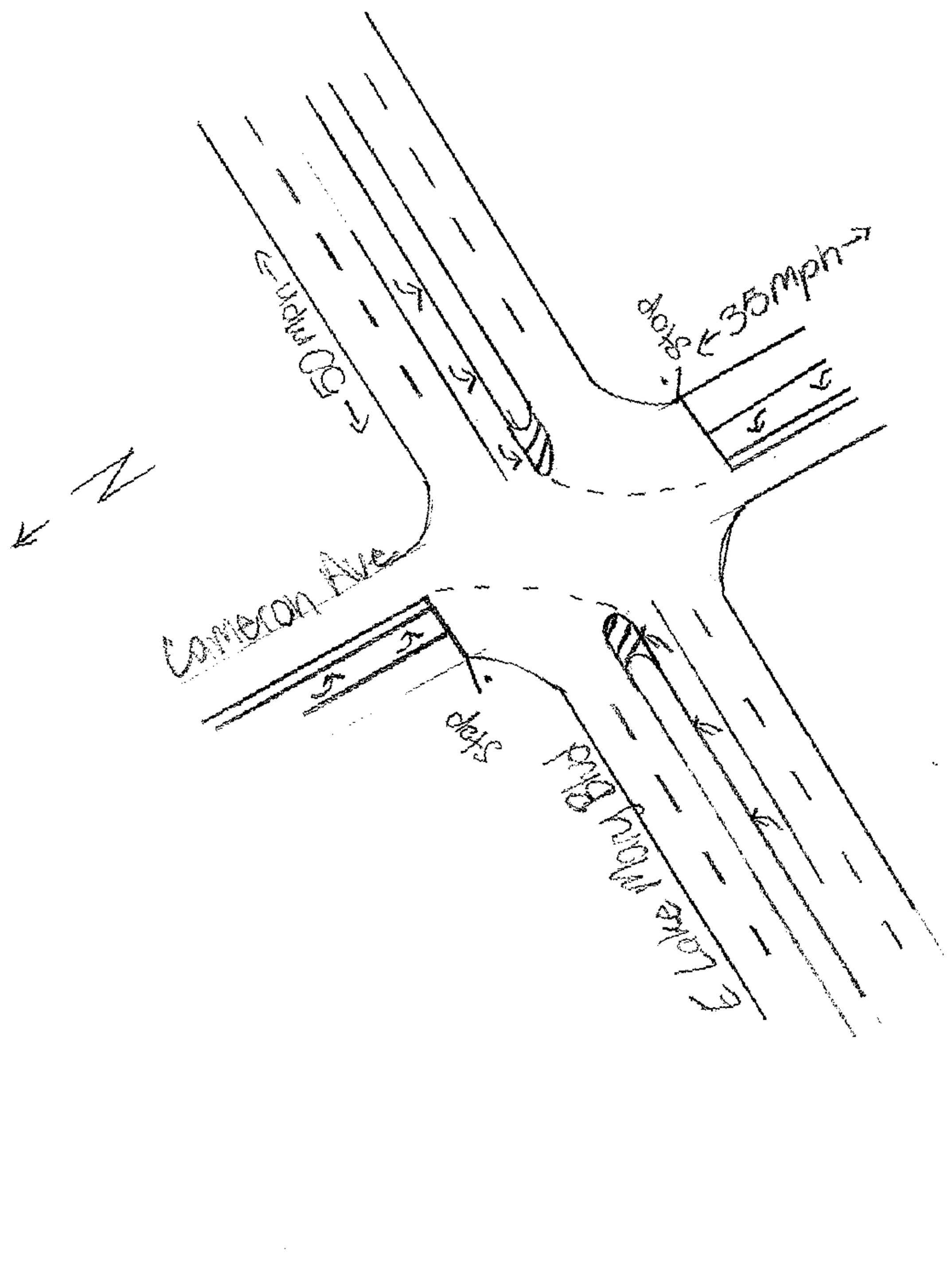
15 MINUTE TURNING MOVEMENT COUNTS

(Trucks Only)

DATE: May 10, 2019 (Friday) **CITY:** Lake Mary Bv **LATITUDE:** 0

LOCATION: Cameron Av & Lake Mary Bv **COUNTY:** Seminole County **LONGITUDE:** 0

	Cameron Av					Cameron Av						Lake Mary Bv					Lake Mary Bv						
TIME	NORTHBOUND					SOUTHBOUND					N/S	EASTBOUND					WESTBOUND					E/W	GRAND
BEGIN	L	T	R	*U-turn*	TOTAL	L	T	R	*U-turn*	TOTAL	TOTAL	L	T	R	*U-turn*	TOTAL	L	T	R	*U-turn*	TOTAL	TOTAL	TOTAL
07:00 AM	0	0	0	0	**0**	0	0	0	0	**0**	**0**	0	4	0	0	**4**	0	5	0	0	**5**	**9**	**9**
07:15 AM	0	0	0	0	**0**	0	0	0	0	**0**	**0**	0	1	0	0	**1**	0	3	0	0	**3**	**4**	**4**
07:30 AM	0	0	0	0	**0**	0	0	0	0	**0**	**0**	0	4	0	0	**4**	0	8	0	0	**8**	**12**	**12**
07:45 AM	0	0	0	0	**0**	0	0	0	0	**0**	**0**	0	6	0	0	**6**	0	1	0	0	**1**	**7**	**7**
TOTAL	0	0	0	0	**0**	0	0	0	0	**0**	**0**	0	15	0	0	**15**	0	17	0	0	**17**	**32**	**32**
08:00 AM	0	0	0	0	**0**	0	0	0	0	**0**	**0**	0	10	0	0	**10**	0	4	0	0	**4**	**14**	**14**
08:15 AM	0	0	0	0	**0**	0	0	0	0	**0**	**0**	0	10	0	0	**10**	0	4	0	0	**4**	**14**	**14**
08:30 AM	0	0	0	0	**0**	0	0	0	0	**0**	**0**	0	2	0	0	**2**	0	9	0	0	**9**	**11**	**11**
08:45 AM	0	0	0	0	**0**	0	0	0	0	**0**	**0**	0	7	0	0	**7**	0	5	0	0	**5**	**12**	**12**
TOTAL	0	0	0	0	**0**	0	0	0	0	**0**	**0**	0	29	0	0	**29**	0	22	0	0	**22**	**51**	**51**
04:00 PM	0	0	0	0	**0**	0	0	0	0	**0**	**0**	0	1	0	0	**1**	0	8	0	0	**8**	**9**	**9**
04:15 PM	0	0	0	0	**0**	0	0	0	0	**0**	**0**	0	2	0	0	**2**	0	1	0	0	**1**	**3**	**3**
04:30 PM	0	0	0	0	**0**	0	0	0	0	**0**	**0**	0	4	0	0	**4**	0	5	0	0	**5**	**9**	**9**
04:45 PM	0	0	0	0	**0**	0	0	0	0	**0**	**0**	0	3	0	0	**3**	0	1	0	0	**1**	**4**	**4**
TOTAL	0	0	0	0	**0**	0	0	0	0	**0**	**0**	0	10	0	0	**10**	0	15	0	0	**15**	**25**	**25**
05:00 PM	0	0	0	0	**0**	0	0	0	0	**0**	**0**	0	4	0	0	**4**	0	0	0	0	**0**	**4**	**4**
05:15 PM	0	0	0	0	**0**	0	0	0	0	**0**	**0**	0	5	0	0	**5**	0	2	0	0	**2**	**7**	**7**
05:30 PM	0	0	0	0	**0**	0	0	0	0	**0**	**0**	0	2	0	0	**2**	0	4	0	0	**4**	**6**	**6**
05:45 PM	0	0	0	0	**0**	0	0	0	0	**0**	**0**	0	3	0	0	**3**	0	5	0	0	**5**	**8**	**8**
TOTAL	0	0	0	0	**0**	0	0	0	0	**0**	**0**	0	14	0	0	**14**	0	11	0	0	**11**	**25**	**25**
AM Peak 07:15 AM to 08:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**21**	**0**	**0**	**21**	**0**	**16**	**0**	**0**	**16**	**37**	**37**
PM Peak 05:00 PM to 06:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**14**	**0**	**0**	**14**	**0**	**11**	**0**	**0**	**11**	**25**	**25**


N
Cameron Ave.
E Lake Mead Blvd
Stop
Stop
←35mph→
←50mph→

2017 PEAK SEASON FACTOR CATEGORY REPORT - REPORT TYPE: ALL
CATEGORY: 7700 SEMINOLE COUNTYWIDE

MOCF: 0.96

WEEK	DATES	SF	PSCF
1	01/01/2017 - 01/07/2017	1.02	1.06
2	01/08/2017 - 01/14/2017	1.03	1.07
3	01/15/2017 - 01/21/2017	1.04	1.08
4	01/22/2017 - 01/28/2017	1.02	1.06
5	01/29/2017 - 02/04/2017	1.00	1.04
6	02/05/2017 - 02/11/2017	0.98	1.02
* 7	02/12/2017 - 02/18/2017	0.97	1.01
* 8	02/19/2017 - 02/25/2017	0.96	1.00
* 9	02/26/2017 - 03/04/2017	0.96	1.00
*10	03/05/2017 - 03/11/2017	0.96	1.00
*11	03/12/2017 - 03/18/2017	0.96	1.00
*12	03/19/2017 - 03/25/2017	0.95	0.99
*13	03/26/2017 - 04/01/2017	0.95	0.99
*14	04/02/2017 - 04/08/2017	0.95	0.99
*15	04/09/2017 - 04/15/2017	0.95	0.99
*16	04/16/2017 - 04/22/2017	0.96	1.00
*17	04/23/2017 - 04/29/2017	0.96	1.00
*18	04/30/2017 - 05/06/2017	0.97	1.01
*19	05/07/2017 - 05/13/2017	0.98	1.02
20	05/14/2017 - 05/20/2017	0.99	1.03
21	05/21/2017 - 05/27/2017	0.99	1.03
22	05/28/2017 - 06/03/2017	1.00	1.04
23	06/04/2017 - 06/10/2017	1.01	1.05
24	06/11/2017 - 06/17/2017	1.02	1.06
25	06/18/2017 - 06/24/2017	1.02	1.06
26	06/25/2017 - 07/01/2017	1.02	1.06
27	07/02/2017 - 07/08/2017	1.02	1.06
28	07/09/2017 - 07/15/2017	1.03	1.07
29	07/16/2017 - 07/22/2017	1.02	1.06
30	07/23/2017 - 07/29/2017	1.02	1.06
31	07/30/2017 - 08/05/2017	1.01	1.05
32	08/06/2017 - 08/12/2017	1.01	1.05
33	08/13/2017 - 08/19/2017	1.01	1.05
34	08/20/2017 - 08/26/2017	1.03	1.07
35	08/27/2017 - 09/02/2017	1.05	1.09
36	09/03/2017 - 09/09/2017	1.07	1.11
37	09/10/2017 - 09/16/2017	1.10	1.15
38	09/17/2017 - 09/23/2017	1.07	1.11
39	09/24/2017 - 09/30/2017	1.05	1.09
40	10/01/2017 - 10/07/2017	1.03	1.07
41	10/08/2017 - 10/14/2017	1.01	1.05
42	10/15/2017 - 10/21/2017	0.99	1.03
43	10/22/2017 - 10/28/2017	0.99	1.03
44	10/29/2017 - 11/04/2017	1.00	1.04
45	11/05/2017 - 11/11/2017	1.00	1.04
46	11/12/2017 - 11/18/2017	1.01	1.05
47	11/19/2017 - 11/25/2017	1.01	1.05
48	11/26/2017 - 12/02/2017	1.02	1.06
49	12/03/2017 - 12/09/2017	1.02	1.06
50	12/10/2017 - 12/16/2017	1.02	1.06
51	12/17/2017 - 12/23/2017	1.03	1.07
52	12/24/2017 - 12/30/2017	1.03	1.07
53	12/31/2017 - 12/31/2017	1.04	1.08

* PEAK SEASON

APPENDIX D

Existing HCS Capacity Worksheets

HCS7 Two-Way Stop-Control Report

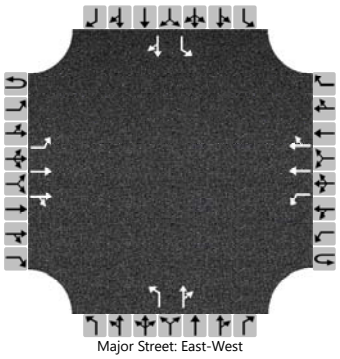
General Information

Analyst	BH
Agency/Co.	TPD, Inc.
Date Performed	6/17/2019
Analysis Year	2019
Time Analyzed	A.M. Peak Hour (Existing)
Intersection Orientation	East-West
Project Description	River Run Preserve

Site Information

Intersection	Lake Mary Blvd & Carmen A
Jurisdiction	Seminole County
East/West Street	Lake Mary Blvd
North/South Street	Carmen Avenue
Peak Hour Factor	0.95
Analysis Time Period (hrs)	0.25

Lanes



Major Street: East-West

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	1	2	0	0	1	2	0		1	1	0		1	1	0
Configuration		L	T	TR		L	T	TR		L		TR		L		TR
Volume (veh/h)	0	2	438	0	0	2	1173	1		0	0	0		0	0	0
Percent Heavy Vehicles (%)	3	3			3	3				3	3	3		3	3	3
Proportion Time Blocked																
Percent Grade (%)										0				0		
Right Turn Channelized																
Median Type | Storage		Left + Thru								1						

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.16				4.16				7.56	6.56	6.96		7.56	6.56	6.96
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.23				2.23				3.53	4.03	3.33		3.53	4.03	3.33

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		2				2				0		0		0		0
Capacity, c (veh/h)		554				1089				296				156		
v/c Ratio		0.00				0.00				0.00				0.00		
95% Queue Length, Q_{95} (veh)		0.0				0.0				0.0				0.0		
Control Delay (s/veh)		11.5				8.3				17.2				28.0		
Level of Service (LOS)		B				A				C				D		
Approach Delay (s/veh)		0.1				0.0										
Approach LOS																

HCS7 Two-Way Stop-Control Report

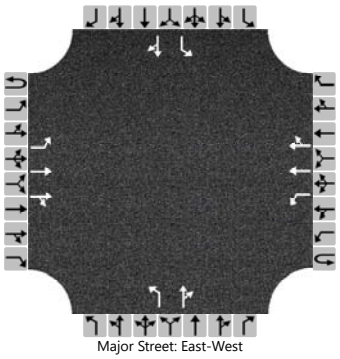
General Information

Analyst	BH
Agency/Co.	TPD, Inc.
Date Performed	6/17/2019
Analysis Year	2019
Time Analyzed	P.M. Peak Hour (Existing)
Intersection Orientation	East-West
Project Description	River Run Preserve

Site Information

Intersection	Lake Mary Blvd & Carmen A
Jurisdiction	Seminole County
East/West Street	Lake Mary Blvd
North/South Street	Carmen Avenue
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes



Major Street: East-West

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	1	2	0	0	1	2	0		1	1	0		1	1	0
Configuration		L	T	TR		L	T	TR		L		TR		L		TR
Volume (veh/h)	0	0	1257	1	0	0	601	9		1	0	2		1	0	1
Percent Heavy Vehicles (%)	3	3			3	3				3	3	3		3	3	3
Proportion Time Blocked																
Percent Grade (%)										0				0		
Right Turn Channelized																
Median Type | Storage			Left + Thru							1						

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.16				4.16				7.56	6.56	6.96		7.56	6.56	6.96
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.23				2.23				3.53	4.03	3.33		3.53	4.03	3.33

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		0				0				1		2		1		1
Capacity, c (veh/h)		915				493				128		389		236		661
v/c Ratio		0.00				0.00				0.01		0.01		0.00		0.00
95% Queue Length, Q_{95} (veh)		0.0				0.0				0.0		0.0		0.0		0.0
Control Delay (s/veh)		8.9				12.3				33.3		14.3		20.3		10.5
Level of Service (LOS)		A				B				D		B		C		B
Approach Delay (s/veh)		0.0				0.0				20.6				15.4		
Approach LOS										C				C		

HCS7 Two-Way Stop-Control Report

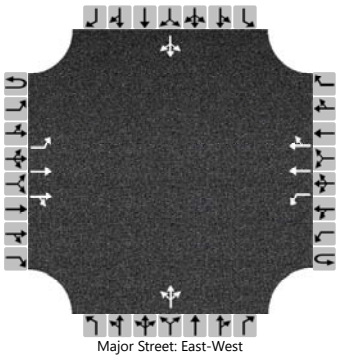
General Information

Analyst	BH
Agency/Co.	TPD, Inc.
Date Performed	6/17/2019
Analysis Year	2019
Time Analyzed	A.M. Peak Hour (Existing)
Intersection Orientation	East-West
Project Description	River Run Preserve

Site Information

Intersection	Lake Mary Blvd & Skyway D
Jurisdiction	Seminole County
East/West Street	Lake Mary Blvd
North/South Street	Skyway Drive
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes



Major Street: East-West

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	1	2	0	0	1	2	0		0	1	0		0	1	0
Configuration		L	T	TR		L	T	TR			LTR				LTR	
Volume (veh/h)	0	17	446	0	0	1	1044	16		4	0	1		3	1	7
Percent Heavy Vehicles (%)	3	3			3	3				3	3	3		3	3	3
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized																
Median Type | Storage	Left + Thru								1							

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.16				4.16				7.56	6.56	6.96		7.56	6.56	6.96
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.23				2.23				3.53	4.03	3.33		3.53	4.03	3.33

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		18				1					5				12	
Capacity, c (veh/h)		596				1067					325				293	
v/c Ratio		0.03				0.00					0.02				0.04	
95% Queue Length, Q_{95} (veh)		0.1				0.0					0.1				0.1	
Control Delay (s/veh)		11.2				8.4					16.3				17.8	
Level of Service (LOS)		B				A					C				C	
Approach Delay (s/veh)	0.4				0.0				16.3				17.8			
Approach LOS									C				C			

HCS7 Two-Way Stop-Control Report

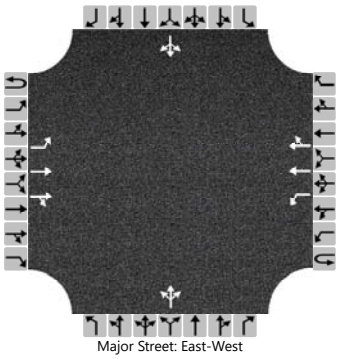
General Information

Analyst	BH
Agency/Co.	TPD, Inc.
Date Performed	6/17/2019
Analysis Year	2019
Time Analyzed	P.M. Peak Hour (Existing)
Intersection Orientation	East-West
Project Description	River Run Preserve

Site Information

Intersection	Lake Mary Blvd & Skyway D
Jurisdiction	Seminole County
East/West Street	Lake Mary Blvd
North/South Street	Skyway Drive
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes


Major Street: East-West

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	1	2	0	0	1	2	0		0	1	0		0	1	0
Configuration		L	T	TR		L	T	TR			LTR				LTR	
Volume (veh/h)	0	89	1185	1	0	0	513	10		1	0	3		15	1	29
Percent Heavy Vehicles (%)	3	3			3	3				3	3	3		3	3	3
Proportion Time Blocked																
Percent Grade (%)										0				0		
Right Turn Channelized																
Median Type | Storage		Left + Thru								1						

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.16				4.16				7.56	6.56	6.96		7.56	6.56	6.96
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.23				2.23				3.53	4.03	3.33		3.53	4.03	3.33

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		97				0					4				49	
Capacity, c (veh/h)		993				528					231				368	
v/c Ratio		0.10				0.00					0.02				0.13	
95% Queue Length, Q_{95} (veh)		0.3				0.0					0.1				0.5	
Control Delay (s/veh)		9.0				11.8					20.9				16.3	
Level of Service (LOS)		A				B					C				C	
Approach Delay (s/veh)	0.6				0.0				20.9				16.3			
Approach LOS									C				C			

APPENDIX E

Projected HCS Capacity Worksheets

HCS7 Two-Way Stop-Control Report

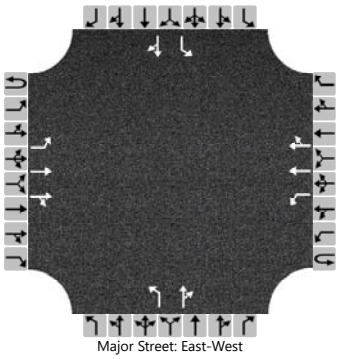
General Information

Analyst	BH
Agency/Co.	TPD, Inc.
Date Performed	07/11/2019
Analysis Year	2021
Time Analyzed	A.M. Peak Hour Projected
Intersection Orientation	East-West
Project Description	River Run Preserve

Site Information

Intersection	Lake Mary Blvd & Cameron
Jurisdiction	Seminole County
East/West Street	Lake Mary Blvd
North/South Street	Cameron Avenue
Peak Hour Factor	0.95
Analysis Time Period (hrs)	0.25

Lanes



Major Street: East-West

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	1	2	0	0	1	2	0		1	1	0		1	1	0
Configuration		L	T	TR		L	T	TR		L		TR		L		TR
Volume (veh/h)	0	2	632	0	0	5	1427	1		0	0	11		0	0	0
Percent Heavy Vehicles (%)	1	1			1	1				1	1	1		1	1	1
Proportion Time Blocked																
Percent Grade (%)										0				0		
Right Turn Channelized																
Median Type | Storage			Left + Thru							1						

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.12				4.12				7.52	6.52	6.92		7.52	6.52	6.92
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.21				2.21				3.51	4.01	3.31		3.51	4.01	3.31

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		2				5				0		12		0		0
Capacity, c (veh/h)		447				927				219		666		106		
v/c Ratio		0.00				0.01				0.00		0.02		0.00		
95% Queue Length, Q_{95} (veh)		0.0				0.0				0.0		0.1		0.0		
Control Delay (s/veh)		13.1				8.9				21.4		10.5		38.9		
Level of Service (LOS)		B				A				C		B		E		
Approach Delay (s/veh)		0.0				0.0				10.5						
Approach LOS										B						

HCS7 Two-Way Stop-Control Report

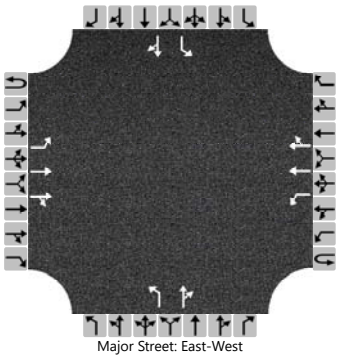
General Information

Analyst	BH
Agency/Co.	TPD, Inc.
Date Performed	07/11/2019
Analysis Year	2021
Time Analyzed	P.M. Peak Hour Projected
Intersection Orientation	East-West
Project Description	River Run Preserve

Site Information

Intersection	Lake Mary Blvd & Cameron
Jurisdiction	Seminole County
East/West Street	Lake Mary Blvd
North/South Street	Cameron Avenue
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes


Major Street: East-West

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	1	2	0	0	1	2	0		1	1	0		1	1	0
Configuration		L	T	TR		L	T	TR		L		TR		L		TR
Volume (veh/h)	0	0	1451	1	0	12	855	9		1	0	9		1	0	1
Percent Heavy Vehicles (%)	1	1			1	1				1	1	1		1	1	1
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized																
Median Type | Storage	Left + Thru								1							

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.12				4.12				7.52	6.52	6.92		7.52	6.52	6.92
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.21				2.21				3.51	4.01	3.31		3.51	4.01	3.31

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		0				13				1		10		1		1
Capacity, c (veh/h)		732				418				94		336		159		543
v/c Ratio		0.00				0.03				0.01		0.03		0.01		0.00
95% Queue Length, Q_{95} (veh)		0.0				0.1				0.0		0.1		0.0		0.0
Control Delay (s/veh)		9.9				13.9				43.8		16.1		27.8		11.6
Level of Service (LOS)		A				B				E		C		D		B
Approach Delay (s/veh)	0.0				0.2				18.8				19.7			
Approach LOS									C				C			

HCS7 Two-Way Stop-Control Report

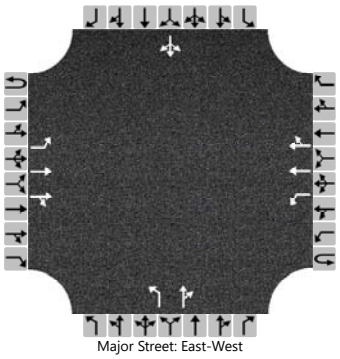
General Information

Analyst	BH
Agency/Co.	TPD, Inc.
Date Performed	6/17/2019
Analysis Year	2021
Time Analyzed	A.M. Peak Hour Projected
Intersection Orientation	East-West
Project Description	River Run Preserve

Site Information

Intersection	Lake Mary Blvd & Skyway D
Jurisdiction	Seminole County
East/West Street	Lake Mary Blvd
North/South Street	Skyway Drive
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes


Major Street: East-West

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	1	2	0	0	1	2	0		1	1	0		0	1	0
Configuration		L	T	TR		L	T	TR		L		TR			LTR	
Volume (veh/h)	0	17	705	134	0	96	1385	16		163	45	84		3	46	7
Percent Heavy Vehicles (%)	1	1			1	1				1	1	1		1	1	1
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized																
Median Type | Storage	Left + Thru								2							

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.12				4.12				7.52	6.52	6.92		7.52	6.52	6.92
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.21				2.21				3.51	4.01	3.31		3.51	4.01	3.31

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		18				104				177		140			61	
Capacity, c (veh/h)		439				749				103		206			110	
v/c Ratio		0.04				0.14				1.72		0.68			0.55	
95% Queue Length, Q_{95} (veh)		0.1				0.5				14.0		4.2			2.6	
Control Delay (s/veh)		13.6				10.6				431.3		53.1			72.6	
Level of Service (LOS)		B				B				F		F			F	
Approach Delay (s/veh)	0.3				0.7				264.2				72.6			
Approach LOS									F				F			

HCS7 Two-Way Stop-Control Report

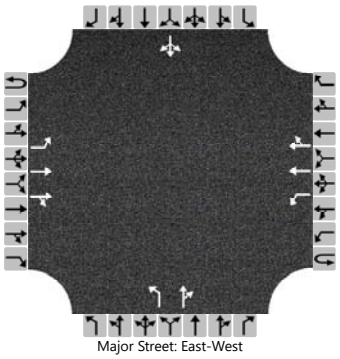
General Information

Analyst	BH
Agency/Co.	TPD, Inc.
Date Performed	07/11/2019
Analysis Year	2021
Time Analyzed	P.M. Peak Hour Projected
Intersection Orientation	East-West
Project Description	River Run Preserve

Site Information

Intersection	Lake Mary Blvd & Skyway D
Jurisdiction	Seminole County
East/West Street	Lake Mary Blvd
North/South Street	Skyway Drive
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes


Major Street: East-West

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	1	2	0	0	1	2	0		1	1	0		0	1	0
Configuration		L	T	TR		L	T	TR		L		TR			LTR	
Volume (veh/h)	0	89	1444	73	0	31	854	10		76	19	35		15	25	29
Percent Heavy Vehicles (%)	1	1			1	1				1	1	1		1	1	1
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized																
Median Type | Storage	Left + Thru								2							

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.12				4.12				7.52	6.52	6.92		7.52	6.52	6.92
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.21				2.21				3.51	4.01	3.31		3.51	4.01	3.31

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		97				34				83		59			75	
Capacity, c (veh/h)		732				392				66		171			125	
v/c Ratio		0.13				0.09				1.25		0.34			0.60	
95% Queue Length, Q_{95} (veh)		0.5				0.3				6.7		1.4			3.0	
Control Delay (s/veh)		10.7				15.0				297.8		36.6			69.5	
Level of Service (LOS)		B				C				F		E			F	
Approach Delay (s/veh)	0.6				0.5				189.3				69.5			
Approach LOS									F				F			

HCS7 Two-Way Stop-Control Report

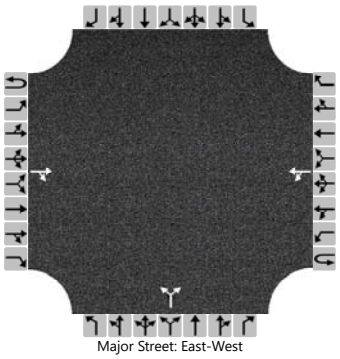
General Information

Analyst	BH
Agency/Co.	TPD, Inc.
Date Performed	6/25/2019
Analysis Year	2021
Time Analyzed	A.M. Peak Hour Projected
Intersection Orientation	East-West
Project Description	River Run Preserve

Site Information

Intersection	Kentucky St & Site Access
Jurisdiction	Seminole County
East/West Street	Kentucky St
North/South Street	Site Access
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes


Major Street: East-West

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 (veh/h)			55	14		3	81			42		11				
Percent Heavy Vehicles (%)						3				3		3				
Proportion Time Blocked																
Percent Grade (%)										0						
Right Turn Channelized																
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)						3					58					
Capacity, c (veh/h)						1518					855					
v/c Ratio						0.00					0.07					
95% Queue Length, Q_{95} (veh)						0.0					0.2					
Control Delay (s/veh)						7.4					9.5					
Level of Service (LOS)						A					A					
Approach Delay (s/veh)					0.3				9.5							
Approach LOS					A											

HCS7 Two-Way Stop-Control Report

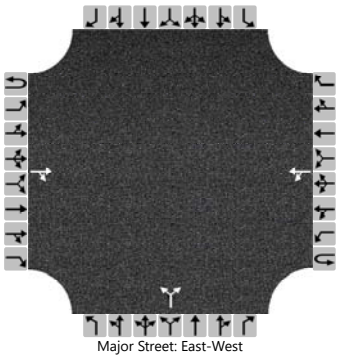
General Information

Analyst	BH
Agency/Co.	TPD, Inc.
Date Performed	07/11/2019
Analysis Year	2021
Time Analyzed	P.M. Peak Hour Projected
Intersection Orientation	East-West
Project Description	River Run Preserve

Site Information

Intersection	Kentucky St & Site Access
Jurisdiction	Seminole County
East/West Street	Kentucky St
North/South Street	Site Access
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes



Major Street: East-West

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 (veh/h)			52	47		12	30			27		7				
Percent Heavy Vehicles (%)						3				3		3				
Proportion Time Blocked																
Percent Grade (%)										0						
Right Turn Channelized																
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)						13					37					
Capacity, c (veh/h)						1477					866					
v/c Ratio						0.01					0.04					
95% Queue Length, Q_{95} (veh)						0.0					0.1					
Control Delay (s/veh)						7.5					9.3					
Level of Service (LOS)						A					A					
Approach Delay (s/veh)						2.2				9.3						
Approach LOS										A						