

EXHIBIT 1

TRAFFIC IMPACT ANALYSIS

ENTERPRISE OSTEEN-PUD CITY OF DELTONA, FLORIDA



Prepared for:
Mohamedtaki Jaffer
153 Parliament Loop, Suite 1001
Lake Mary, FL 32746

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

November 2018

TPD № 5132

PROFESSIONAL ENGINEERING CERTIFICATION

I hereby certify that I am a Professional Engineer properly registered in the State of Florida practicing with Traffic Planning & 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: Enterprise Osteen-PUD

LOCATION: City of Deltona, Florida

CLIENT: Mohamedtaki Jaffer

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:

P.E. No.:

DATE:

SIGNATURE:

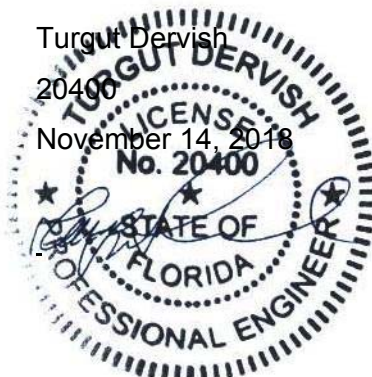


TABLE OF CONTENTS

	Page
INTRODUCTION	1
EXISTING CONDITIONS ANALYSIS	4
Roadway Segment Analysis	
Intersection Analysis	
PROPOSED DEVELOPMENT AND TRIP GENERATION	9
Trip Generation	
Trip Distribution/Trip Assignment	
Significance Analysis	
Critical/Near-Critical Segment Analysis	
PROJECTED TRAFFIC CONDITIONS	14
Roadway Segment Analysis	
Intersection Analysis	
Turn Lane Analysis	
STUDY CONCLUSIONS	22
APPENDICES.....	23
A Study Methodology & Correspondence	
B Turning Movement Counts, Signal Timing Data & FDOT Seasonal Adjustment Factors	
C Existing Conditions Capacity Analysis Worksheets	
D Traffic Trends Analysis Worksheets	
E Projected Conditions Capacity Analysis Worksheets	
F Turn Lanes Warrant	

TABLE OF CONTENTS continued

LIST OF TABLES

Table 1 Existing Roadway Capacity Analysis	5
Table 2 Existing Intersection Capacity Analysis	5
Table 3 Trip Generation Summary	9
Table 4 Significance Analysis	12
Table 5 Projected Roadway Capacity Analysis	16
Table 6 Projected Intersection Capacity Analysis	16
Table 7 Turn Lane Warranted	21

LIST OF FIGURES

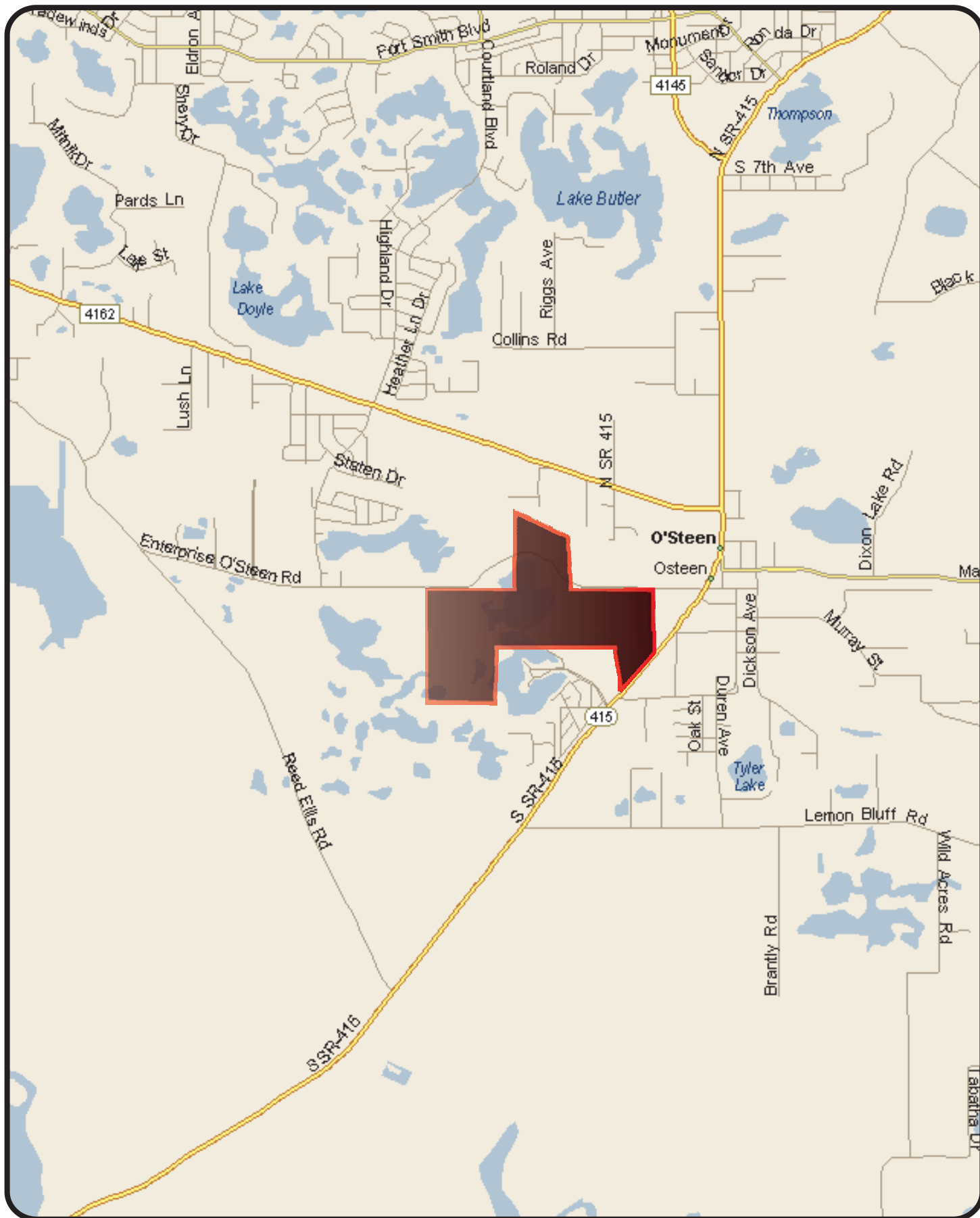
Figure 1 Site Location	2
Figure 2 Site Plan	3
Figure 3a A.M. Peak Existing Intersection Traffic Volumes	7
Figure 3b P.M. Peak Existing Intersection Traffic Volumes	8
Figure 4 Project Trip Distribution	11
Figure 5a Projected A.M. Peak Hour Traffic Volumes	17
Figure 5b Projected P.M. Peak Hour Traffic Volumes	18
Figure 5c Projected A.M. Peak Hour Traffic Volumes Site Accesses	19
Figure 5d Projected P.M. Peak Hour Traffic Volumes Site Accesses	20

INTRODUCTION

This traffic analysis was performed to assess the impact of the proposed Enterprise Osteen-PUD project in the City of Deltona, Florida. The proposed development consists of a 568-unit single-family subdivision in two areas of the site separated by wetlands. The East Area will consist of 331 units served by one access driveway on SR 415 and two access driveways on Enterprise Osteen Road. The West Area will consist of 237 units to be served by two access driveways on Enterprise Osteen Road. The development is located on Enterprise Osteen Road immediately to the west of SR 415. **Figure 1** depicts the site location. **Figure 2** depicts the site plan and its access configuration. The project buildout year is anticipated to be 2023.

The traffic analysis was conducted in accordance with a methodology reviewed and approved by City of Deltona and Volusia County. This methodology and correspondence with the City/County are included in **Appendix A**. Reference data used in the analysis were obtained from Volusia County, the Florida Department of Transportation (FDOT), and the Institute of Transportation Engineers (ITE). Additionally, A.M./P.M. peak hour intersection traffic data was obtained by TPD personnel.



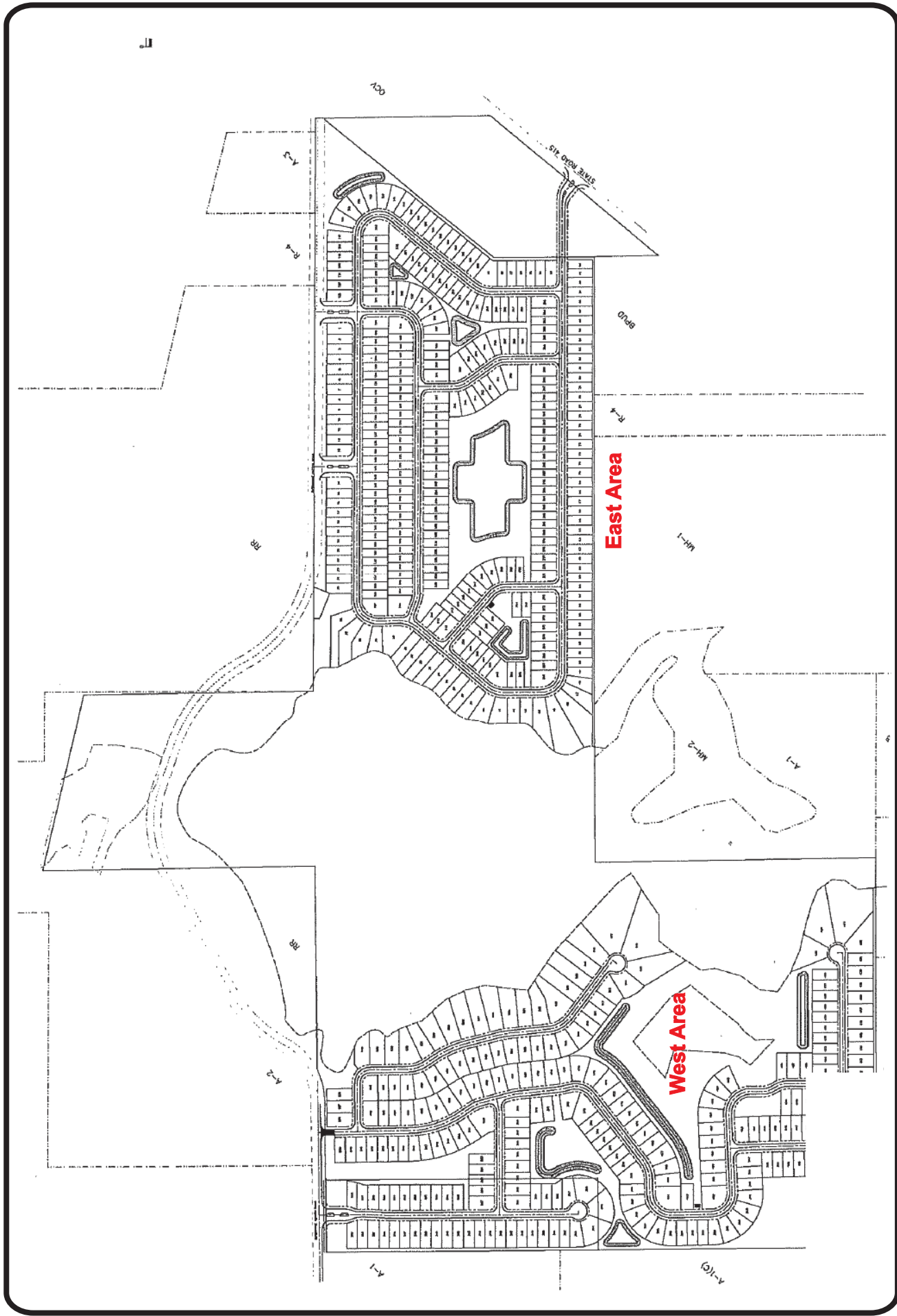


Enterprise Osteen-PUD
Project No 5132

Figure 1

Project Location Map





Enterprise Osteen-PUD
Project No 5132
Figure 2



EXISTING CONDITIONS ANALYSIS

The existing conditions analysis was conducted for roadway segments and intersections within a study area delineated as per the 3% significance threshold required by the County's TIA procedures. Based upon the significance test conducted under the subsequent section of this report, the following classified roadway segments and intersections will be included in the analysis:

Roadway Segments

SR 415:

- Howland Boulevard to Enterprise Osteen Road
- Enterprise Osteen Road to Seminole County

Dirksen/DeBary/Doyle

- Saxon Boulevard to Courtland Boulevard
- Courtland Boulevard to SR 415

Enterprise-Osteen Road

- Garfield Road to Reed Ellis Road
- Reed Ellis Road to SR 415

Reed Ellis Road

- Enterprise Osteen Road to SR 415

Intersections

- Howland Boulevard and SR 415
- Doyle Road and SR 415
- Enterprise Osteen Road and SR 415
- Reed Ellis Road and SR 415
- Courtland Boulevard and Doyle Road
- Enterprise Osteen Road and Courtland Boulevard
- All Project Driveways

The roadway analysis was conducted for the highway P.M. peak hour with data obtained from the Volusia 2017 Average Annual Daily Traffic and Historical Counts spreadsheets. The intersections were analyzed for the A.M. and P.M. peak hours with 7-9 A.M. and 4-6 P.M. turning movement counts made at the study intersections.



Roadway Segment Analysis

The roadway segments were analyzed by comparing the existing two-way P.M. peak hour volumes for the roadway segments with the corresponding peak hour capacities at the adopted Level of Service (LOS) standard. Existing P.M. peak hour volumes and peak hour capacities were obtained from the Volusia County 2017 AADT Spreadsheet. A summary of the existing roadway capacity analysis is presented in **Table 1**, which shows that the study roadway segments are currently operating at satisfactory Levels of Service.

Intersection Analysis

A capacity analysis was conducted for each intersection using the HCS software in accordance with the procedures of the 2010 *Highway Capacity Manual (HCM)*. The capacity analysis was performed using the existing intersection geometry, traffic volumes during the A.M. and P.M. peak hour and signal timing/phasing data obtained from Volusia County. Existing turning movement counts were obtained by TPD and were adjusted as per FDOT's seasonal factors for Volusia County. **Figures 3a and 3b** depict the adjusted intersection volumes. The intersection counts made by 15-minute intervals are included in **Appendix B** along with signal timing data and FDOT's seasonal factors.

The intersection capacity analysis results are summarized in **Table 2**. The results indicate that the study intersections currently operate at satisfactory overall Levels of Service, except for the eastbound approach at SR 415 and Reed Ellis Road. This is due to delays caused by the stop sign on the approach. Detailed HCS analysis worksheets are included in **Appendix C**.



Table 1
Existing Roadway Capacity Analysis

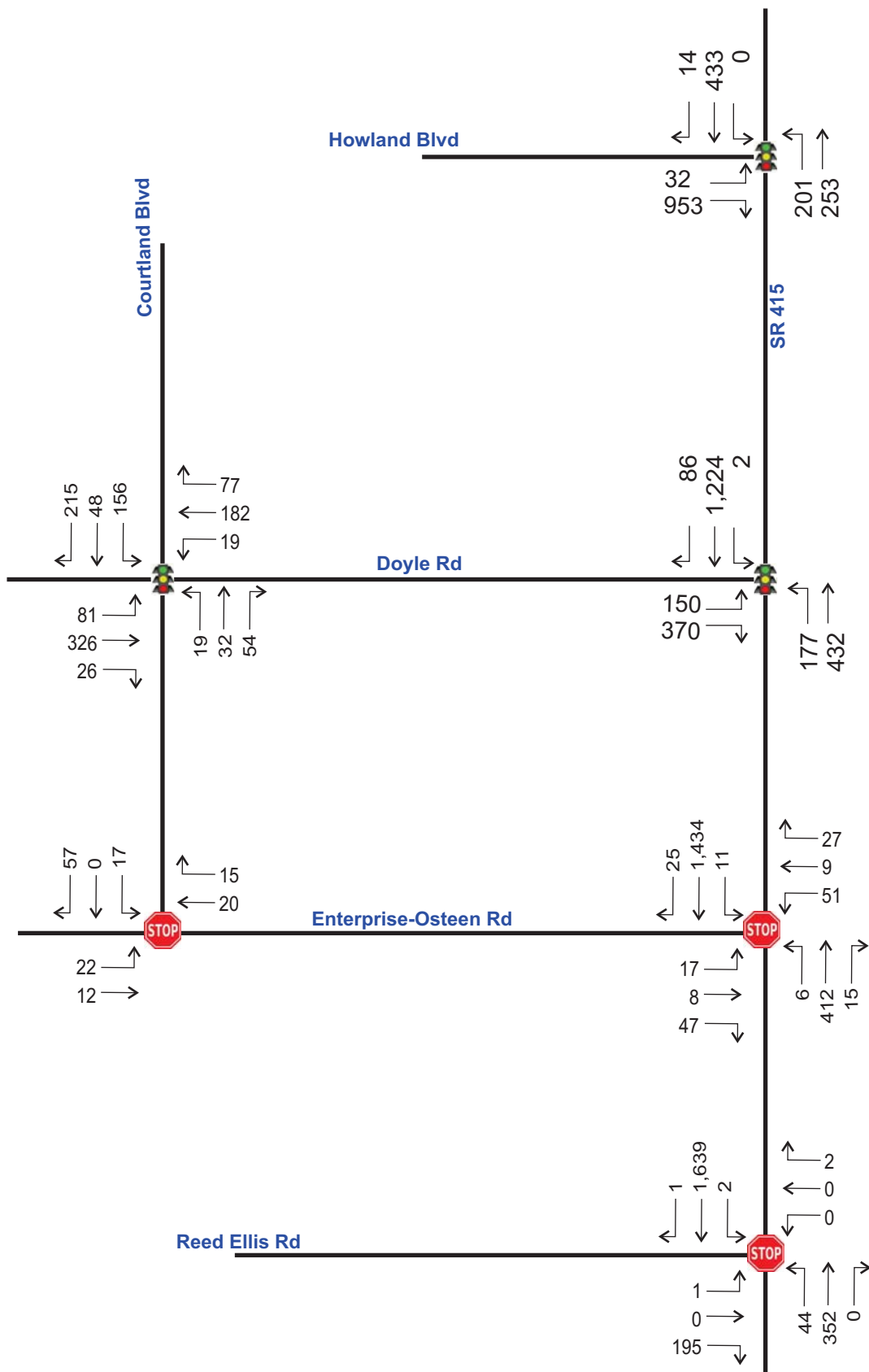
Roadway Segment	# of Lanes	Area Type	LOS Std*	Peak Hour Two-Way Capacity ⁽¹⁾	Existing P.M. Two-Way Peak Hour Volumes *	V/C Ratio	Existing LOS
SR 415							
Howland Blvd to Enterprise Osteen Rd	4LD	U	D	3,580	1,636	0.46	C
Enterprise Osteen Rd to Seminole County	4LD	U	D	5,900	2,376	0.40	D
Dirksen Drive/DeBary Avenue/Doyle Road							
Saxon Blvd to Courtland Blvd	2LU	U	E	1,230	908	0.74	C
Courtland Blvd to SR 415	2LU	U	E	1,230	638	0.52	C
Enterprise Osteen Road							
Garfield Rd to Reed Ellis Rd	2LU	U	E	1,020	352	0.34	C
Reed Ellis Rd to SR 415	2LU	U	E	1,020	124	0.12	C
Reed Ellis Road							
Enterprise Osteen Rd to SR 415	2LU	U	E	1,230	309	0.25	C

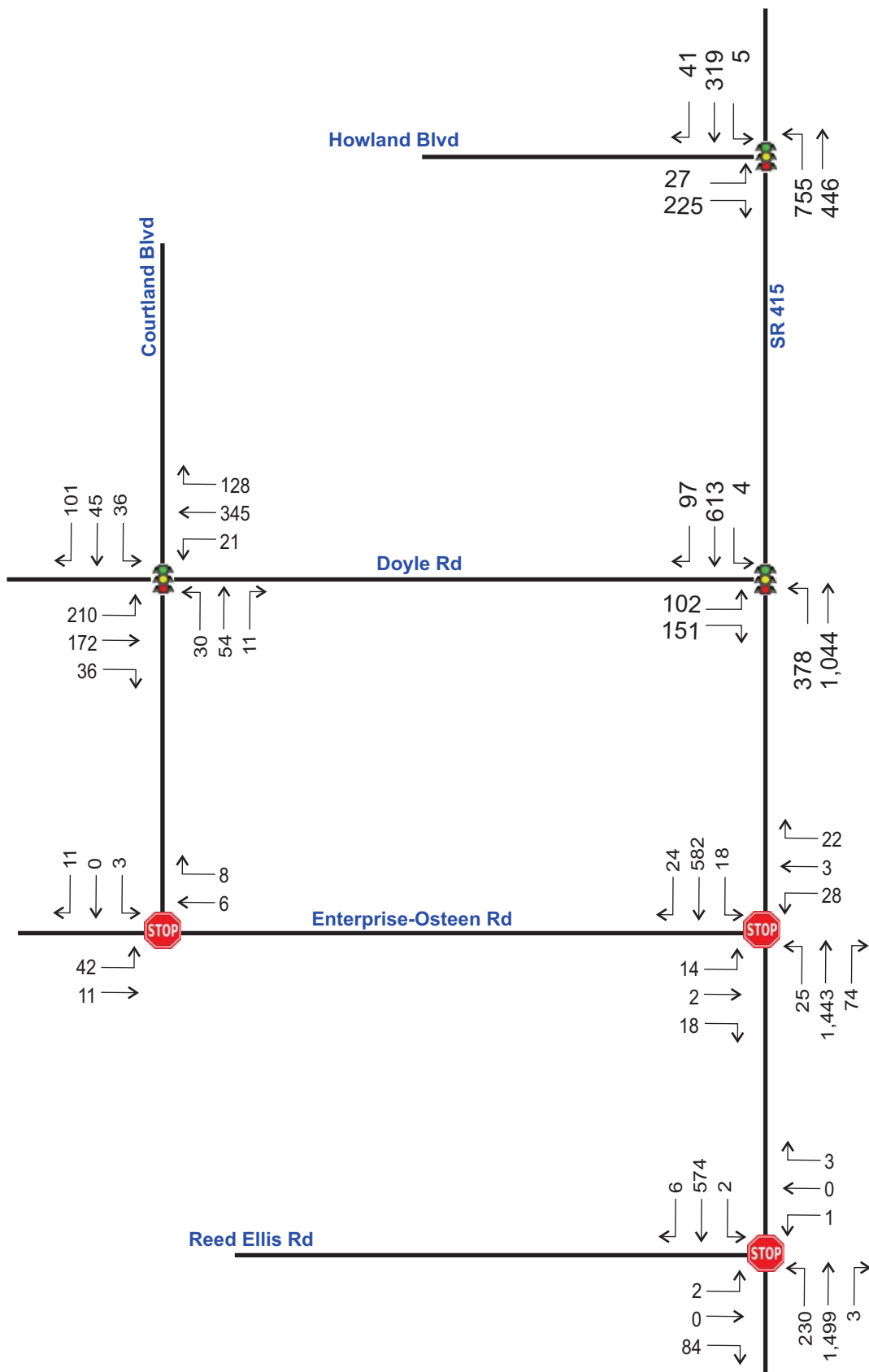
* Obtained from Volusia County 2017 AADT & Historical Counts

Table 2
Existing Intersection Capacity Analysis

Intersection	Control	Time Period	EB		WB		NB		SB		Overall	
			Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
SR 415 & Howland Blvd	Signal	A.M.	32.5	C	--	--	16.8	B	27.1	C	27.4	C
		P.M.	26.4	C	--	--	10.5	B	19.8	B	14.6	B
SR 415 & Doyle Rd	Signal	A.M.	28.5	C	--	--	9.3	A	15.5	B	16.7	B
		P.M.	22.4	C	--	--	8	A	11.2	B	10.5	B
SR 415 & Enterprise Osteen Rd	Stop	A.M.	29.7	D	25.4	D	14.1	B	8.3	A	--	--
		P.M.	19.4	C	43.7	E	9	A	14.7	B	--	--
SR 415 & Reed Ellis Rd	Stop	A.M.	75.2	F	9.5	A	18.5	C	8.1	A	--	--
		P.M.	12.2	B	43.9	E	10.2	B	14.2	B	--	--
Courtland Blvd & Doyle Rd	Signal	A.M.	11.4	B	20.9	C	17.4	B	20.5	C	17.1	B
		P.M.	10.1	B	23.5	C	23.4	C	24.7	C	19	B
Courtland Blvd & Enterprise Osteen Rd	Stop	A.M.	7.4	A	--	--	--	--	9.1	A	--	--
		P.M.	7.3	A	--	--	--	--	8.6	A	--	--







PROPOSED DEVELOPMENT AND TRIP GENERATION

The proposed development consists of a 568-unit single family subdivision in two areas of the site separated by wetland. The East Area will consist of 331 units and the West Area consists of 237 units. To determine the impact of this development, an analysis of its trip generation characteristics was conducted. This included the determination of the trips to be generated as well as their distribution and assignment to the surrounding roadways.

Trip Generation

Trip generation rates were obtained from the Institute of Transportation Engineers (ITE) *Trip Generation Manual, 10th Edition*. A summary of the trip generation of the proposed development is shown in **Table 3**. The Enterprise Osteen development is expected to generate 5,425 daily trips, of which 413 will occur in the A.M. peak hour and 554 will occur in the P.M. peak hour. ITE Trip Generation worksheets are included in the Study Methodology.

Table 3
Trip Generation Summary

ITE Code	Land Use	Size	Daily		A.M. Peak Hour				P.M. Peak Hour			
			Rate	Trips	Rate	Enter	Exit	Total	Rate	Enter	Exit	Total
210	Single Family/East Side	331 DU	9.43	3124	0.73	60	180	240	0.97	202	119	321
210	Single Family/West Side	237 DU	9.71	2301	0.73	43	130	173	0.98	147	86	233
Total		568 DU	--	5,425	--	103	310	413	--	349	205	554

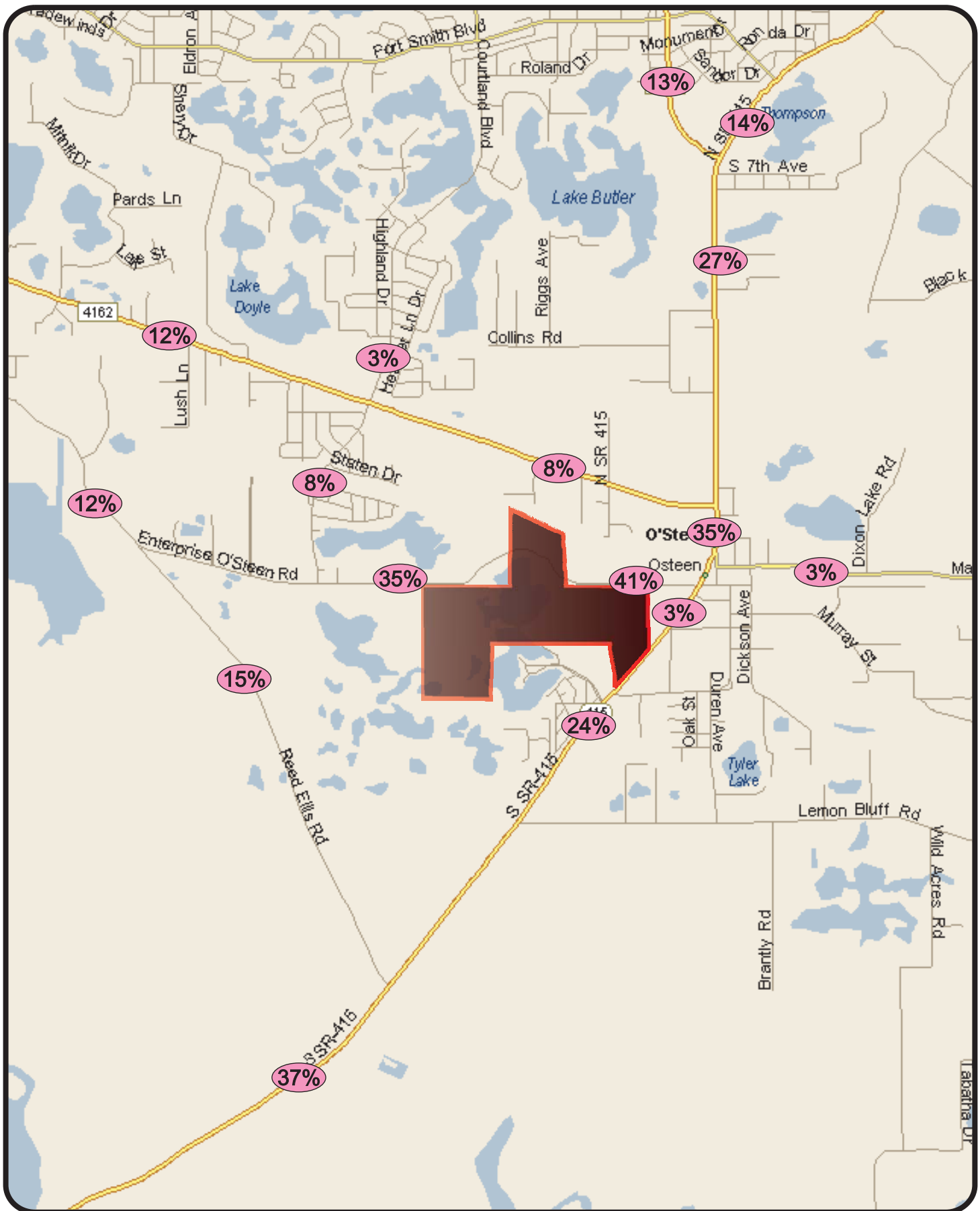
*The ITE equations were used as the R-squared correlation coefficient was greater than 0.75



Trip Distribution/Trip Assignment

An initial distribution pattern was determined for each area (East Area & West Area) with the use of the adopted Central Florida Regional Planning Model (CFRPM 2040). These distributions were reviewed for reasonableness and a modification was made. The model assigned zero trip to Enterprise Osteen Road west of Reed Ellis Road. The model assigned project trips to go east and north and then west on DeBary Avenue/Doyle Road. Enterprise Osteen Road provides direct access to the project site and runs parallel to DeBary Avenue/Doyle Road westerly towards Deltona. Therefore, a modification was made to divert some trips from DeBary/Doyle Road to Enterprise Osteen Road. The modified distribution was used to assign trips from the East and West areas to the area roadways. Subsequently, the trips for each area were combined to determine total project trips on the roadway segments. The total project trips on each segment were divided by the project's total trips to determine a distribution pattern as shown in **Figure 4**. This distribution will be used to assign the project trips to the study roadways and intersections. The preliminary trip distribution model plot is included in the Study Methodology.





Enterprise Osteen-PUD
Project No 5132
Figure 4

Trip Distribution Map



Significance Analysis

As per Volusia County TIA procedures and requirements, the influence area of the proposed project will include those roadway segments where project trips consume 3% or more of the adopted Level of Service. Based upon the significance test performed, as shown in **Table 4**, the project will consume 3% or more of the adopted LOS on seven roadway segments. These segments and study intersections are as follows:

Roadway Segments

SR 415

- Howland Boulevard to Enterprise Osteen Road
- Enterprise Osteen Road to Seminole County

Dirksen Drive/DeBary Avenue/Doyle Road

- Saxon Boulevard to Courtland Boulevard
- Courtland Boulevard to SR 415

Enterprise Osteen Road

- Garfield Road to Reed Ellis Road
- Reed Ellis Road to SR 415

Reed Ellis Road

- Enterprise Osteen Road to SR 415

Intersections

- Howland Boulevard and SR 415
- Doyle Road and SR 415
- Enterprise Osteen Road and SR 415
- Reed Ellis Road and SR 415
- Courtland Boulevard and Doyle Road
- Enterprise Osteen Road and Courtland Boulevard
- All Project driveways



Table 4
Significance Analysis

Roadway Segment	Num	Area	Functional Class	# of Lanes	Peak Hour Two-Way Capacity*	LOS Std	Project Distribution**	Project Trips	Significance
Howland Boulevard									
Ft Smith Blvd to SR 415	915	U	Minor Arterial-Urban	4LD	3,410	E	13%	72	2.11%
SR 415									
Acorn Lake Road to Howland Blvd	321	U	Minor Arterial-Urban	4LD	3,580	D	14%	78	2.17%
Howland Blvd to Enterprise Osteen Rd	437	U	Minor Arterial-Urban	4LD	3,580	D	35%	194	5.41%
Enterprise Osteen Rd to Seminole County	25	U	Minor Arterial-Urban/Rural	4LD	5,900	D	37%	205	3.47%
Dirksen Drive/DeBary Avenue/Doyle Road									
Garfield Rd to Saxon Blvd	530	U	Minor Arterial-Urban	2LU	1,230	E	5%	28	2.27%
Saxon Blvd to Courtland Blvd	531	U	Minor Arterial-Urban	2LU	1,230	E	12%	66	5.36%
Courtland Blvd to SR 415	533	U	Minor Arterial-Urban	2LU	1,230	E	8%	44	3.57%
Enterprise Osteen Road									
Providence to Garfield Rd	600	U	Minor Collector-Urban	2LU	1,020	E	0%	0	0.0%
Garfield Rd to Reed Ellis Rd	601	U	Minor Collector-Urban	2LU	1,020	E	12%	66	6.47%
Reed Ellis Rd to SR 415	602	U	Minor Collector-Urban	2LU	1,020	E	41%	227	22.26%
Reed Ellis Road									
Enterprise Osteen Rd to SR 415	1571	U	Minor Collector-Urban	2LU	1,230	E	15%	83	6.75%

* Obtained from 2017 Volusia County AADT & Historical Counts

** Highest % distribution on the segment

Critical/Near-Critical Segment Analysis

Based upon the information provided by Volusia County, there are no critical or near-critical roadway segments within a 3-mile radius of the site. A map provided by Volusia County is included in Study Methodology.



PROJECTED TRAFFIC CONDITIONS

Projected traffic conditions for the project buildout in 2023 were analyzed using P.M. peak hour traffic volumes for the study roadway segments and A.M./P.M. peak hour counts for the study intersections. The analysis was conducted for the projected traffic volumes consisting of background traffic volumes plus project trips. Background traffic was determined by applying a growth factor to existing traffic. Historical AADT data was obtained from Volusia County to establish the historical trend on the study roadway segments. The trend analysis indicated the following annual growth rates:

	Annual Trend Growth *	Annual Growth Used %
SR 15		
Howland Blvd to Enterprise-Osteen Rd	1.67%	2.00%
Enterprise Osteen Rd to Seminole County	1.47%	2.00%
Dirksen Drive/DeBary Avenue/Doyle Road		
Saxon Blvd to Courtland Blvd	1.10%	2.00%
Courtland Blvd to SR 415	0.96%	2.00%
Enterprise-Osteen Road		
Reed Ellis Rd to SR 415	3.03%	3.00%
Reed Ellis Road		
Enterprise Osteen Rd to SR 415	6.84%	6.84%
Howland Boulevard		
Ft Smith Blvd to SR 415	1.91%	2.00%
Courtland Boulevard		
Doyle Rd to Enterprise Osteen Rd	-1.97%	2.00%

**As a minimum, an annual growth of 2.00% was used*

The growth rates were used as indicated for each corresponding study segment to obtain background traffic. The total projected volumes were then determined by adding background traffic with project trips. Trends analysis sheets are included in **Appendix D**.



Roadway Segment Analysis

The projected roadway segment analysis was performed by comparing the projected traffic volume of each segment with the respective capacity at the adopted LOS standard. The analysis as summarized in **Table 5** revealed that the study roadway segments are projected to operate satisfactorily within their adopted LOS.

Table 5
Projected Roadway Capacity Analysis

Roadway Segment	No. of Lns	P.M. Two-Way Peak Hour Volumes	Adopted		P.M. Peak Hour			V/C Ratio	LOS Std Met?
			LOS	Capacity	Background*	Project	Total		
SR 415									
Howland Blvd to Enterprise Osteen Rd	4LD	1,636	D	3,580	1,832	194	2,026	0.56	Yes
Enterprise Osteen Rd to Seminole County Co.	4LD	2,376	D	5,900	2,661	205	2,866	0.49	Yes
Dirksen Drive/DeBary Avenue/Doyle Road									
Saxon Blvd to Courtland Blvd	2LU	908	E	1,230	1,017	66	1,083	0.88	Yes
Courtland Blvd to SR 415	2LU	638	E	1,230	715	44	759	0.62	Yes
Enterprise Osteen Road									
Garfield Rd to Reed Ellis Rd	2LU	352	E	1,020	415	66	481	0.47	Yes
Reed Ellis Rd to SR 415	2LU	124	E	1,020	146	227	373	0.37	Yes
Reed Ellis Road									
Enterprise Osteen Rd to SR 415	2LU	309	E	1,230	436	83	519	0.42	Yes

* 2017 Volusia County AADT * Growth Factor



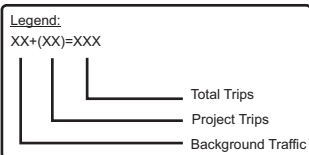
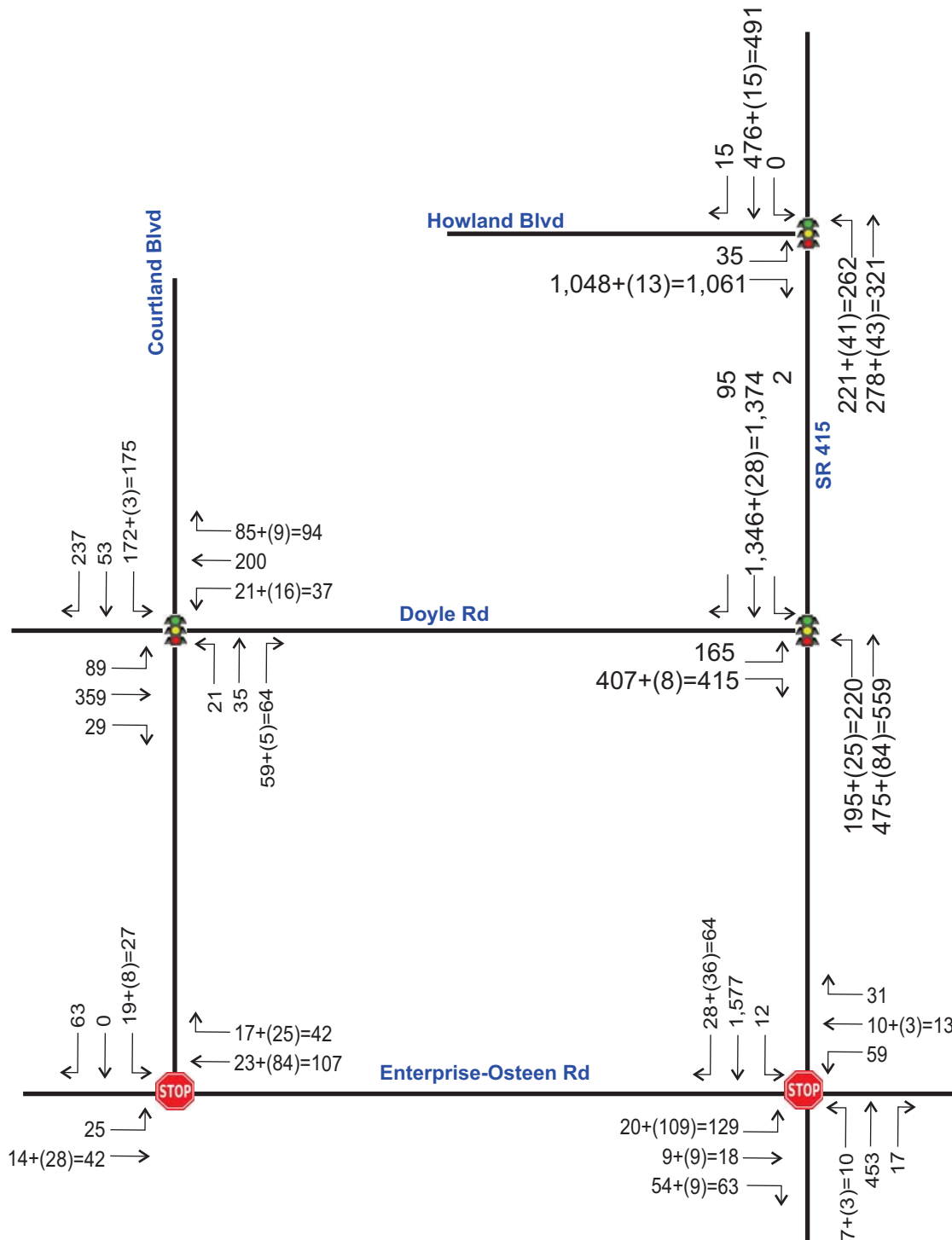
Intersection Analysis

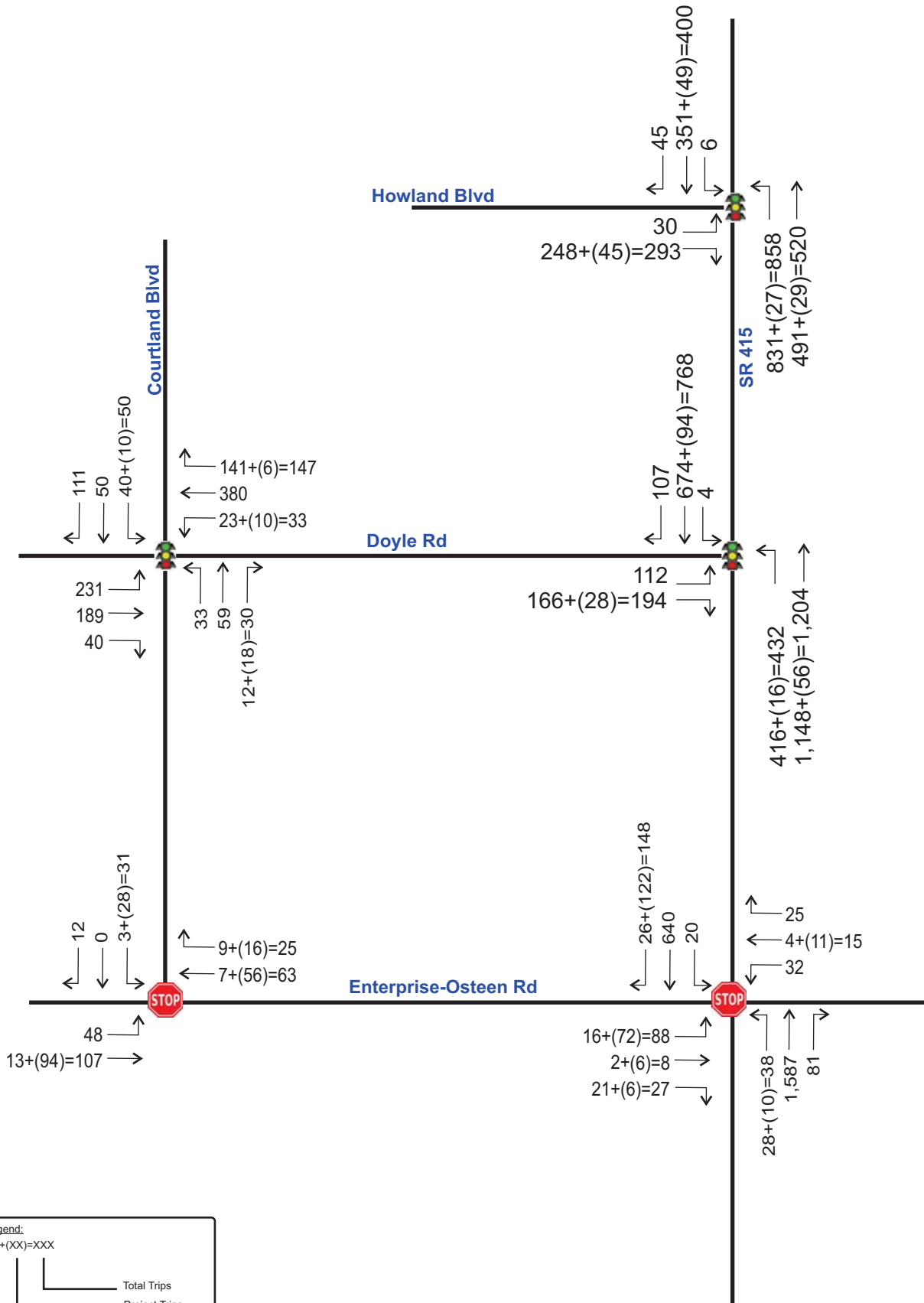
A capacity analysis was conducted at the study intersections utilizing projected traffic volumes and existing/proposed intersection geometry as shown in **Figures 5a, 5b, 5c and 5d**. This was accomplished utilizing *HCS7* software. The results of this analysis, as included in **Appendix E** and summarized in **Table 6**, indicate satisfactory overall traffic operating conditions at the study intersections, with the exception of the stop-controlled approaches of SR 415 and Enterprise Osteen Road, and SR 415 and Reed Ellis Road. These intersections are failing with or without project trips due to delays caused by the stop signs and will continue to do so until a signal becomes warranted and installed.

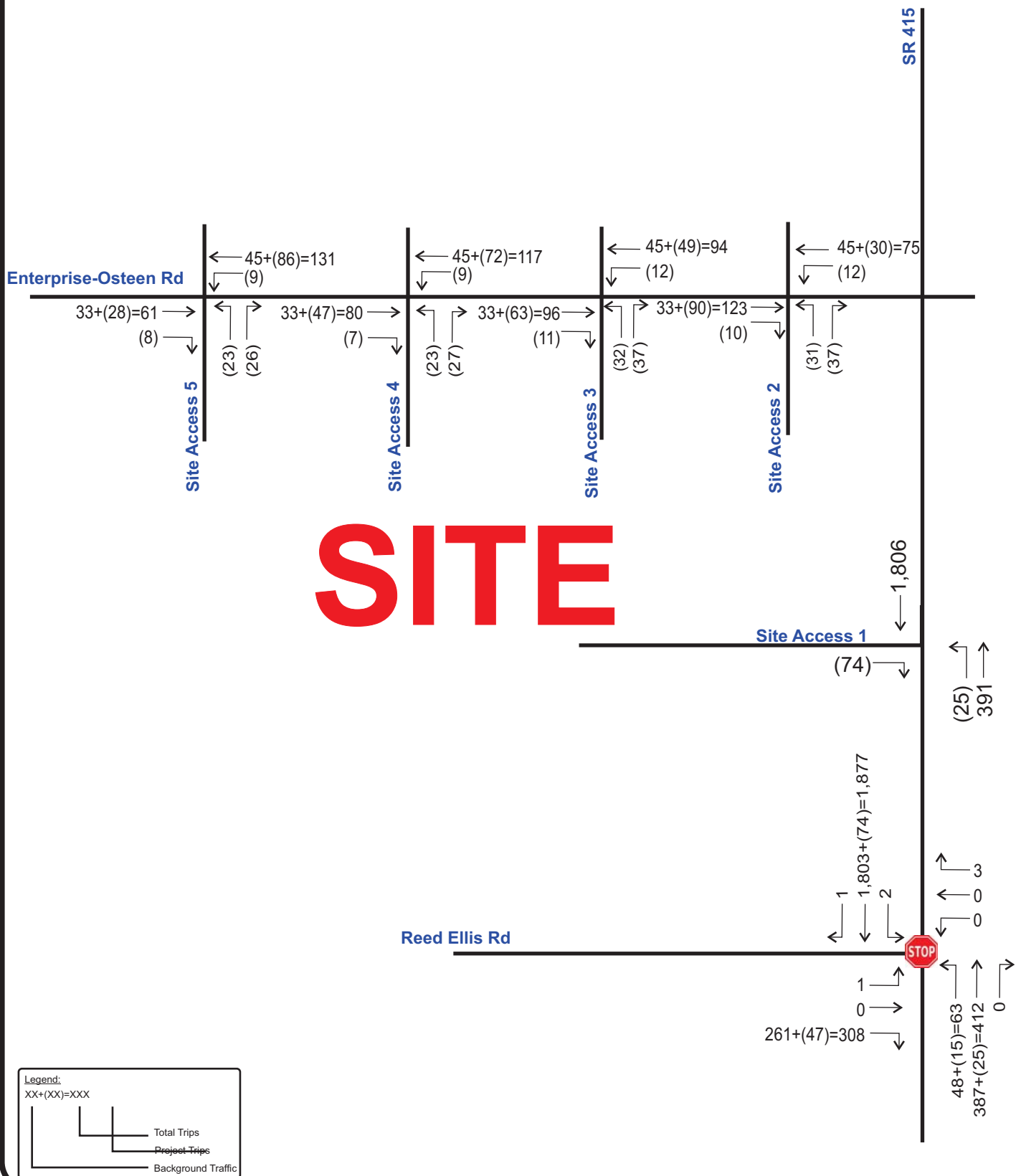
Table 6
Projected Intersection Capacity Analysis

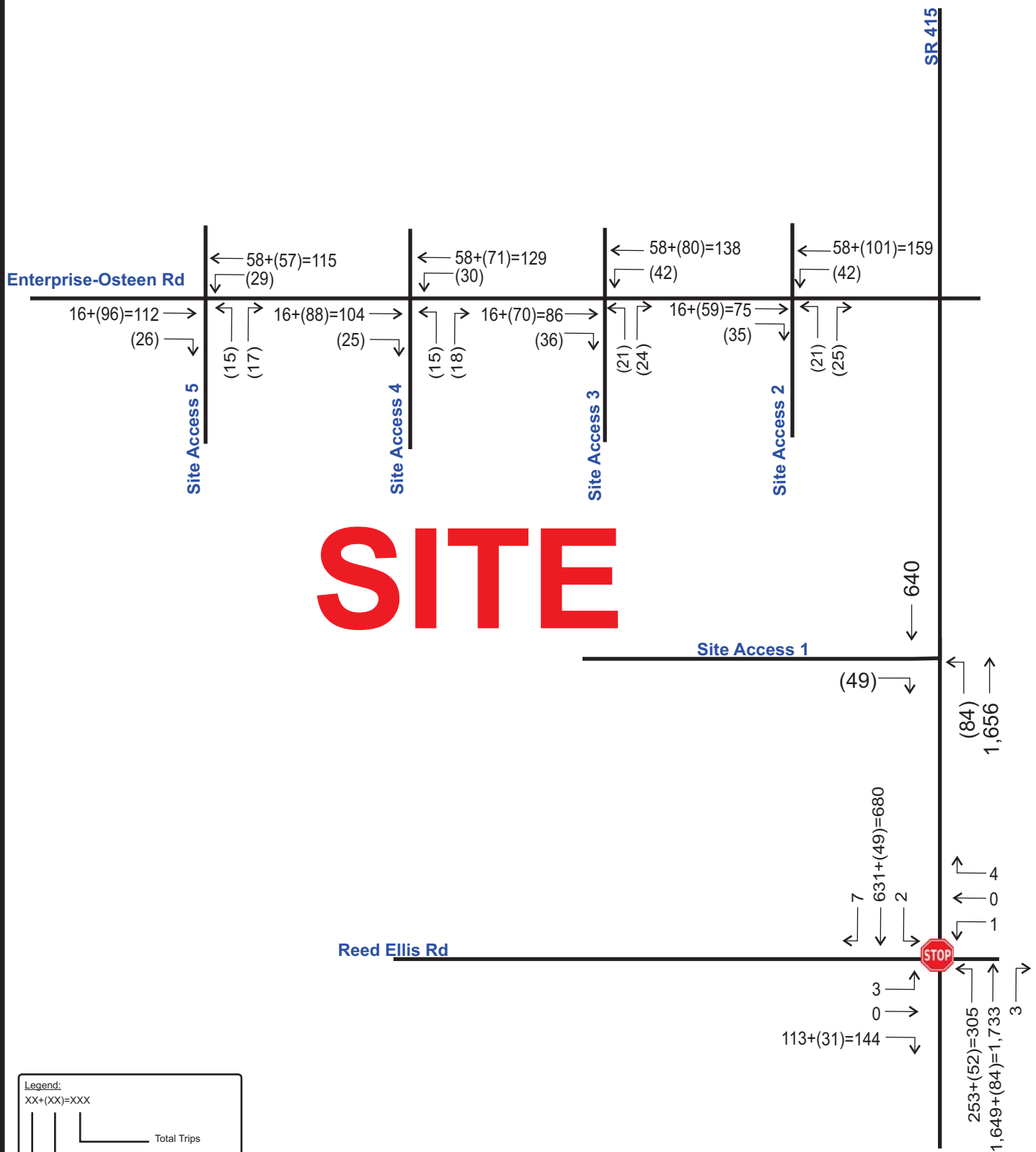
Intersection	Control	Time Period	EB		WB		NB		SB		Overall	
			Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
SR 415 & Howland Blvd	Signal	A.M.	63.5	E	--	--	17.3	B	28.7	C	43.1	D
		P.M.	27.8	C	--	--	12.8	B	23.5	C	17.3	B
SR 415 & Doyle Rd	Signal	A.M.	35.2	D	--	--	10.9	B	18.2	B	19.7	B
		P.M.	26.2	C	--	--	8.6	A	11.8	B	11.5	B
SR 415 & Enterprise Osteen Rd	Stop	A.M.	366.5	F	39.9	E	16.1	C	8.5	A	--	--
		P.M.	68.4	F	68.4	F	9.8	A	16.3	C	--	--
SR 415 & Reed Ellis Rd	Stop	A.M.	398.8	F	--	--	25.3	D	8.3	A	--	--
		P.M.	15.4	C	76	F	11.9	B	16.6	C	--	--
Courtland Blvd & Doyle Rd	Signal	A.M.	12.4	B	22.1	C	18.5	B	22.2	C	18.5	B
		P.M.	11.2	B	28.9	C	25.7	C	27.0	C	22.3	C
Courtland Blvd & Enterprise Osteen Rd	Stop	A.M.	7.8	A	--	--	--	--	10.6	B	--	--
		P.M.	7.5	A	--	--	--	--	10.6	B	--	--
SR 415 & Site Access 1	Stop	A.M.	26.5	D	--	--	18.8	C	--	--	--	--
		P.M.	11.1	B	--	--	9.5	A	--	--	--	--
Enterprise Osteen Rd & Site Access 2	Stop	A.M.	--	--	7.5	A	9.8	A	--	--	--	--
		P.M.	--	--	7.5	A	10.1	B	--	--	--	--
Enterprise Osteen Rd & Site Access 3	Stop	A.M.	--	--	7.5	A	9.7	A	--	--	--	--
		P.M.	--	--	7.6	A	10.1	B	--	--	--	--
Enterprise Osteen Rd & Site Access 4	Stop	A.M.	--	--	7.4	A	9.5	A	--	--	--	--
		P.M.	--	--	7.6	A	9.9	A	--	--	--	--
Enterprise Osteen Rd & Site Access 5	Stop	A.M.	--	--	7.4	A	9.5	A	--	--	--	--
		P.M.	--	--	7.6	A	9.9	A	--	--	--	--











Turn Lane Analysis

Due to the relatively low left and right turns at the site entrances on Enterprise Osteen Road, no separate turn lanes are warranted. The warrant analysis charts as per NCHRP Report 457 are included in **Appendix F**.



STUDY CONCLUSIONS

This traffic analysis was performed to assess the impact of the Enterprise Osteen-PUD project in the City of Deltona, Florida. The proposed development consists of a 568-unit single-family subdivision in two areas of the site separated by wetlands. Located on Enterprise Osteen Road immediately to the west of SR 415. The East Area will consist of 331 units served by one access driveway on SR 415 and two access driveways on Enterprise Osteen Road. The West Area will consist of 237 units to be served by two access driveways on Enterprise Osteen Road. The project is anticipated to be built in 2023. The results of the study as documented herein are summarized below:

- o The proposed development is expected to generate 5,425 daily trips, of which 413 will occur in the A.M. peak hour and 554 will occur in the P.M. peak hour.
- o The classified roadway segments and the signalized study intersections within a study area delineated as per the County's 3% significance threshold were included in the analysis along with the proposed access connections.
- o The study roadway segments currently operate at satisfactory Levels of Service and will continue to do so when project trips are added.
- o The intersection analysis indicated that all the study intersections currently operate at acceptable Levels of Service and are projected to continue to do so upon project buildout, except for SR 415 & Enterprise Osteen Road and SR 415 & Reed Ellis Road. The stop-controlled approaches at these intersections are failing due to delays caused by the stop control. These conditions will continue to prevail until a signal becomes warranted and installed.
- o The East Area will be served by one access driveway on SR 415 and two access driveways on Enterprise Osteen Road. The West Area will be served by two access driveways on Enterprise Osteen Road. These driveways are projected to operate at satisfactory Levels of Service.



APPENDICES

APPENDIX A

Study Methodology & Correspondence

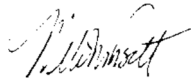
Volusia County
Traffic Engineering

The following proposed development project has an *APPROVED TIA METHODOLOGY* (valid for 6 months):

Project: _____Enterprise Osteen PUD_____

Date of Approval: _____November 6, 2018_____

Conditions: _____



Approval Signature:

A TIA can now be accepted for review by the county. TIAs must be completed per the River-to-Sea TPO TIA Guidelines, which can be found on the R2CTPO.org website.

- ☐ **If submitting a Volusia County development application, the following TIA-related items are required at project submission:**

Completed TIA Checklist

Two (2) Hard Copies of the complete TIA

One (1) CD that includes a PDF copy of the complete TIA

All computer input files

Response to Comments (if resubmitted)

City Development projects that need a TIA approval from the county must submit TIAs through the Volusia County Right-of-Way Use Permit application process. Please see the following for more information: <http://www.volusia.org/services/public-works/engineering-and-construction/development-engineering/use-permits.stml>. The items below are required (Please coordinate this with the Project Engineer/Manager since a TIA is required with the Use Permit application. Not including the TIA limits our review and prolongs the review period.):

Completed TIA Checklist

Two (2) Hard Copies of the complete TIA

One (1) CD that includes a PDF copy of the complete TIA

All computer input files

Response to Comments (if resubmitted)

Applicants with large projects, complex projects, or projects with access concerns on county roads are highly suggested to meet with county reviewers earlier in the process. The applicant is responsible for setting up these meetings with the county. A city development review staff representative must also be in attendance for coordination purposes.

Questions about TIAs and TIA methodologies should be addressed to Melissa Winsett at mwinsett@volusia.org or Anthony Taylor at ataylor@volusia.org.



TO: Phyllis Wallace, Project Administrator
City of Deltona, Florida
Melissa K. Winsett, Transportation Planner/ Planner III
Volusia County Traffic Engineering

FROM: Turgut Dervish, P.E.
Bakhan Hamagharib

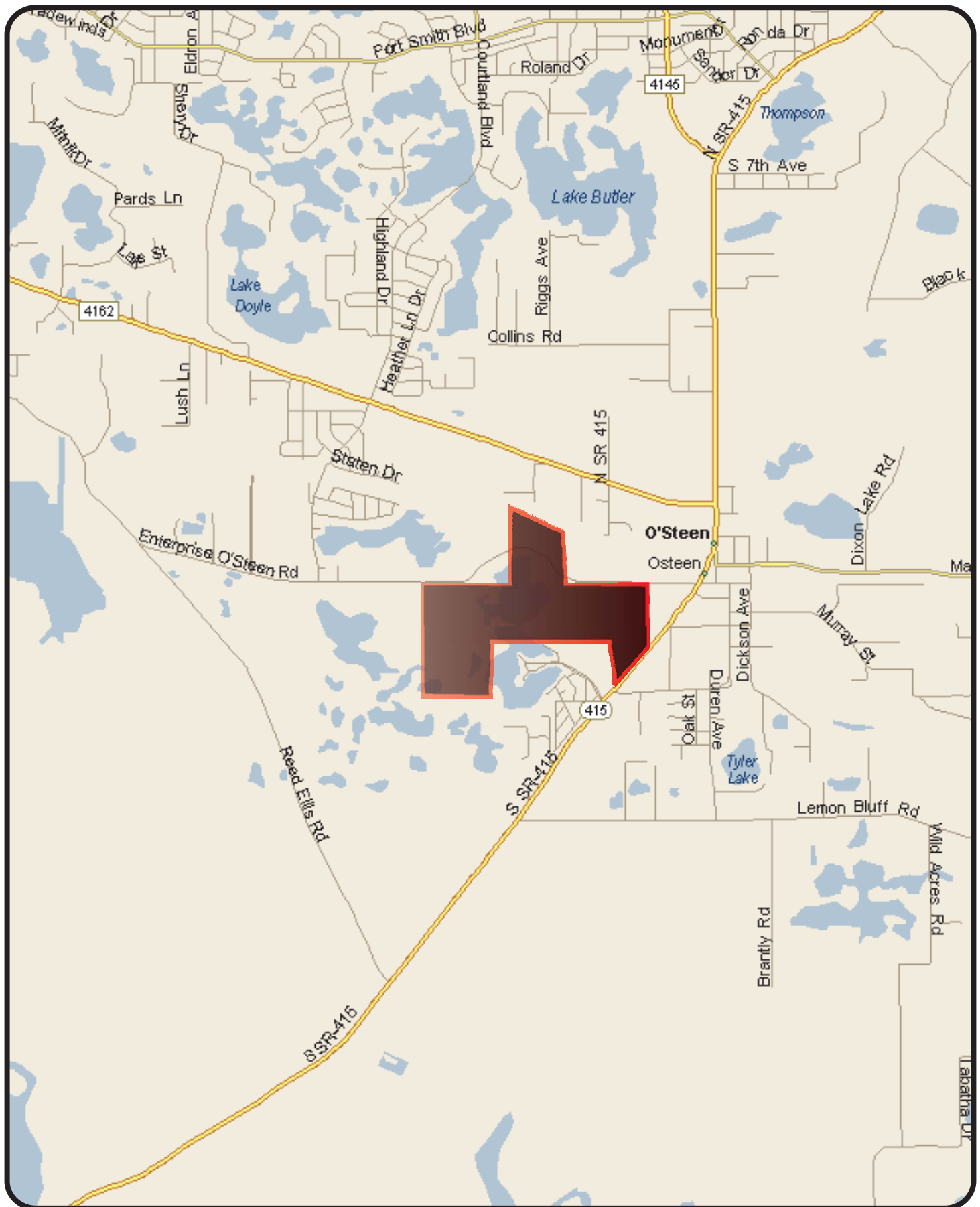
DATE: October 29, 2018

RE: **Enterprise Osteen-PUD (Revised)**
Deltona, Florida
TPD № 5132

The following is our proposed traffic study methodology for the Traffic Impact Analysis (TIA) for the above-referenced development located on Enterprise Osteen Road immediately to the west of SR 415 in the city of Deltona, Florida. **Figure 1** depicts this site location. The analysis will be conducted as per the guidelines established by the River to Sea Transportation Planning Organization (R2C TPO). In accordance with these guidelines, this memorandum outlines the proposed methodology by which the analysis will be conducted.

1. Proposed Development

The proposed development consists of a 568-unit single-family subdivision in two areas of the site separated by wetlands. The East Area will consist of 331 units served by one access driveway on SR 415 and two access driveways on Enterprise Osteen Road. The West Area will consist of 237 units to be served by two access driveways on Enterprise Osteen Road. **Figure 2** depicts the site plan and its access configuration. The project buildout year is anticipated to be 2023.

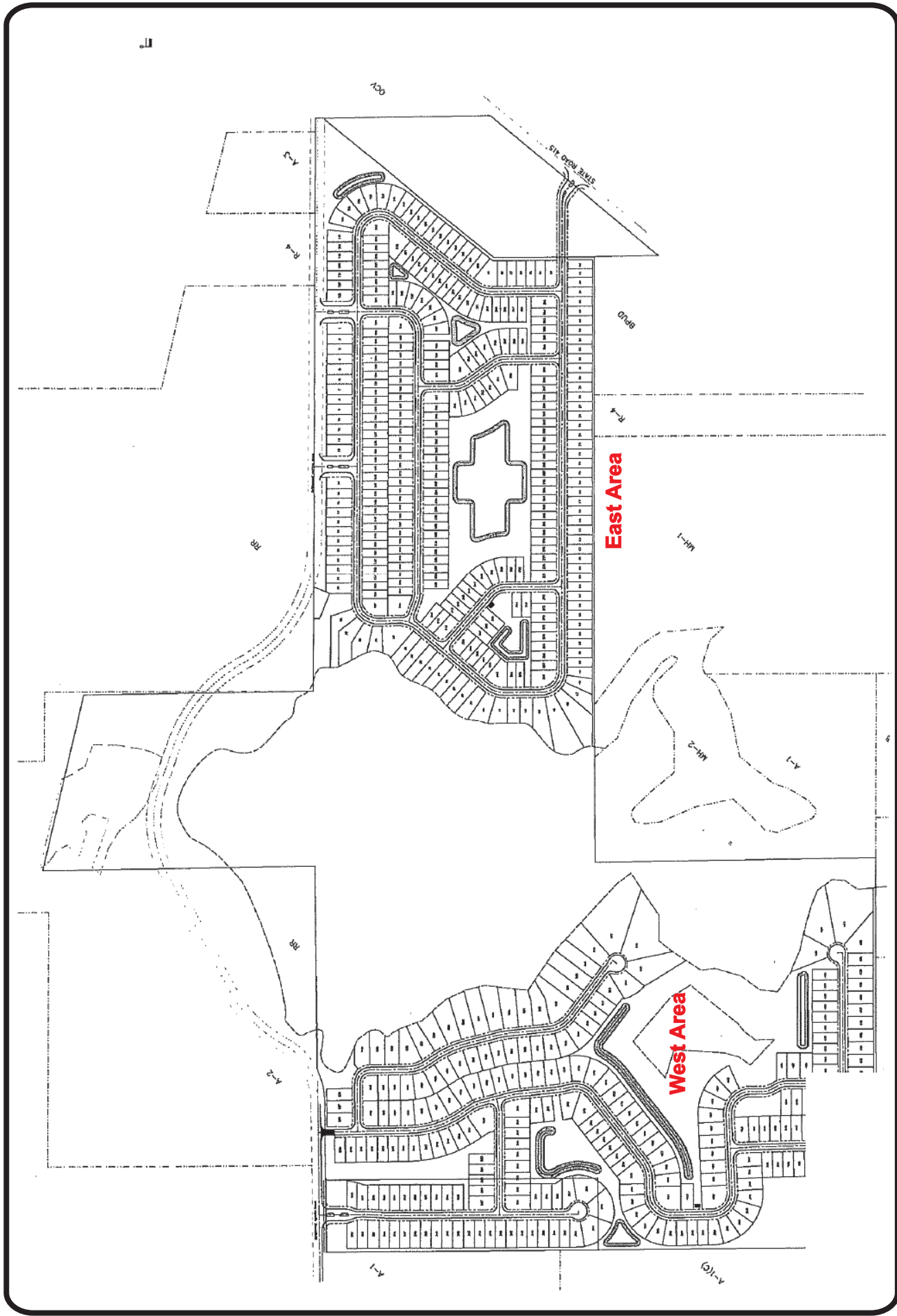


Enterprise Osteen-PUD
Project No 5132

Figure 1

Project Location Map





Preliminary Site Plan

Enterprise Osteen-PUD
 Project No. 5132
 Figure 2



2. Trip Generation

The trip generation of the proposed development will be calculated with the use of the trip generation rates from the *10th Edition of the ITE Trip Generation Manual*. This calculation is summarized in **Table 1**. Detailed trip generation worksheets can be found in **Attachment A**. As shown in the table, the proposed development is estimated to generate 5,425 daily trips, of which 413 will occur during the A.M. peak hour and 554 during the P.M. peak hour.

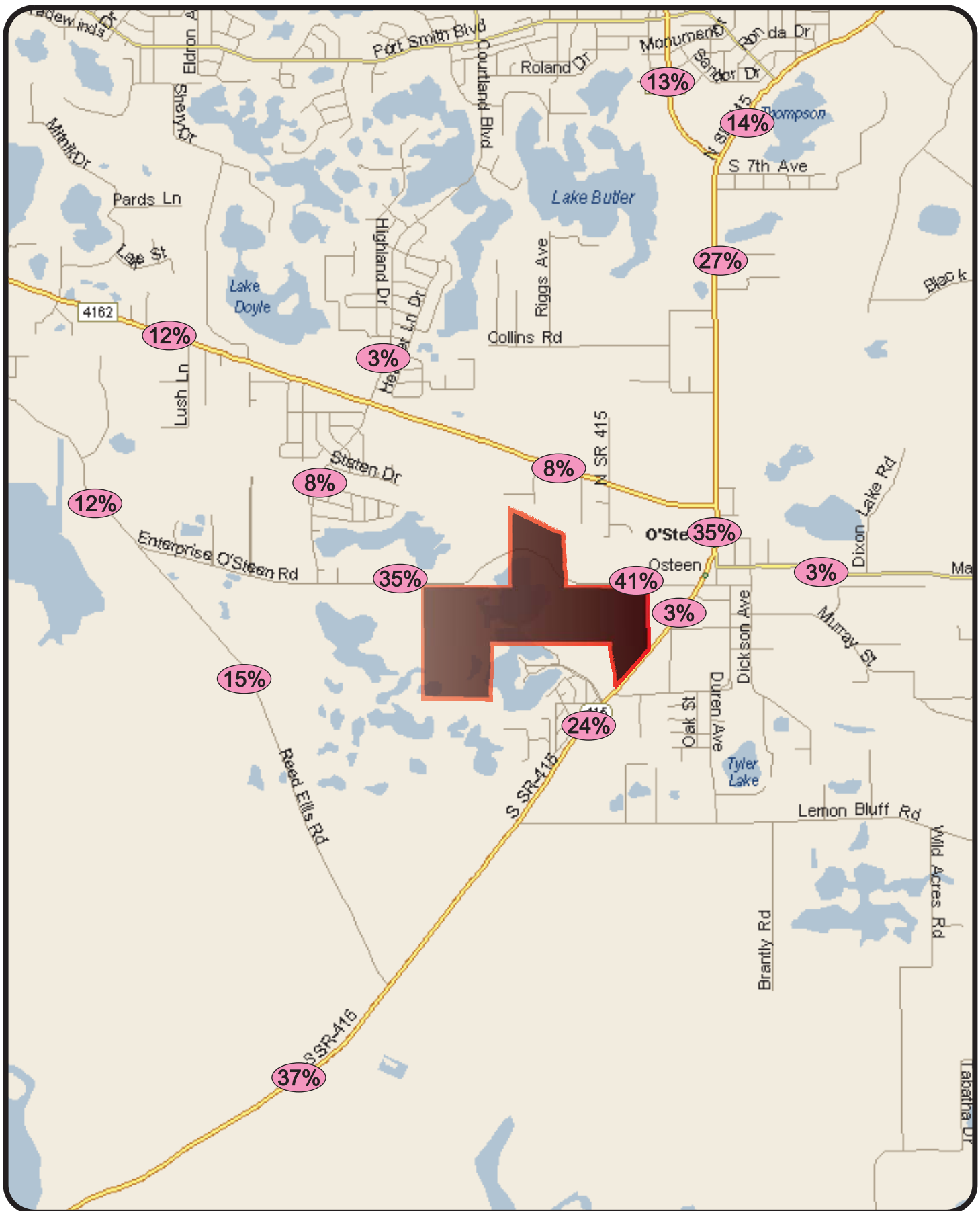
TABLE 1
Trip Generation Calculation Summary

ITE Code	Land Use	Size	Daily		AM Peak Hour				PM Peak Hour			
			Rate	Trips	Rate	Enter	Exit	Total	Rate	Enter	Exit	Total
210	Single Family/East Side	331 DUs	9.43	3124	0.73	60	180	240	0.97	202	119	321
210	Single Family/West Side	237 DUs	9.71	2301	0.73	43	130	173	0.98	147	86	233
Total		568 DUs	--	5,425	--	103	310	413	--	349	205	554

**The ITE equations were used as the R-squared correlation coefficient was greater than 0.75*

3. Trip Distribution

An initial distribution pattern was determined for each area (East Area & West Area) with the use of the adopted Central Florida Regional Planning Model (CFRPM 2040). These distributions included in **Attachment B** were reviewed for reasonableness and a modification was made. The model assigned zero trip to Enterprise Osteen Road west of Reed Ellis Road. The model is assigning project trips to go east and north and then west on DeBary/Doyle Road. Enterprise Osteen Road provides direct access to the project site and runs parallel to DeBary/Doyle Road westerly towards Deltona. Therefore, a modification was made to direct some trips from DeBary/Doyle Road to Enterprise Osteen Road. The modified distribution was used to assign trips from the East and West areas to the area roadways. Subsequently, the trips for each area were combined to determine total project trips on the roadway segments. The total project trips on each segment were divided by the project's total trips to determine a distribution pattern as shown in **Figure 3**. This distribution will be used to assign the project trips to the study roadways and intersections.



4. Traffic Impact Area

The R2C TPO Guidelines require that all roadway segments where the project peak hour trips consume three percent (3%) or more of the roadway's two-way peak hour service volume based upon the adopted LOS be included in the analysis. To determine the traffic impact area for this project, a significance test was conducted using two-way P.M. peak hour volumes as summarized in **Table 2**.

TABLE 2
Significance Analysis

Roadway Segment	Num	Area	Functional Class	# of Lanes	Peak Hour Two-Way Capacity*	LOS Std	Project Distribution**	Project Trips	Significance
Howland Blvd									
Ft Smith Blvd to SR 415	915	U	Minor Arterial-Urban	4LD	3,410	E	13%	72	2.11%
SR 415									
Acorn Lake Road to Howland Blvd	321	U	Minor Arterial-Urban	4LD	3,580	D	14%	78	2.17%
Howland Blvd to Enterprise-Osteen Rd	437	U	Minor Arterial-Urban	4LD	3,580	D	35%	194	5.41%
Enterprise-Osteen Rd to Seminole County Co.	25	U	Minor Arterial-Urban/Rural	4LD	5,900	D	37%	205	3.47%
Dirksen/DeBary/Doyle									
Garfield Rd to Saxon Blvd	530	U	Minor Arterial-Urban	2LU	1,230	E	5%	28	2.27%
Saxon Blvd to Courtland Blvd	531	U	Minor Arterial-Urban	2LU	1,230	E	12%	66	5.36%
Courtland Blvd to SR 415	533	U	Minor Arterial-Urban	2LU	1,230	E	8%	44	3.57%
Enterprise-Osteen Rd									
Providence to Garfield Road	600	U	Minor Collector-Urban	2LU	1,020	E	0%	0	0.0%
Garfield Rd to Reed Ellis Rd	601	U	Minor Collector-Urban	2LU	1,020	E	12%	66	6.47%
Reed Ellis Rd to SR 415	602	U	Minor Collector-Urban	2LU	1,020	E	41%	227	22.26%
Reed Ellis Rd									
Enterprise-Osteen Rd to SR 415	1571	U	Minor Collector-Urban	2LU	1,230	E	15%	83	6.75%

* Obtained from 2017 Volusia County AADT & Historical Counts

** Highest % distribution on the segment

Roadway Segments

As the significance analysis shows, the project's trip generation will consume 3% or more of the capacity of several of the area roadways. Therefore, these significantly updated roadway segments will be included in the analysis:

SR 415:

- Howland Boulevard to Enterprise-Osteen Road
- Enterprise-Osteen Road to Seminole County Co.

Dirksen/DeBary/Doyle:

- Saxon Boulevard to Courtland Boulevard
- Courtland Boulevard to SR 415

Enterprise-Osteen Road:

- Garfield Road to Reed Ellis Road
- Reed Ellis Road to SR 415

Reed Ellis Road:

- Enterprise-Osteen Road to SR 415

The roadway segments will be analyzed for the PM peak hour traffic conditions.

Study Intersections

It is proposed that the following intersections be included in the traffic analysis:

- Howland Boulevard and SR 415
- Doyle Road and SR 415
- Enterprise-Osteen Road and SR 415
- Reed Ellis Road and SR 415
- Courtland Boulevard and Doyle Road
- Courtland Boulevard and Enterprise Osteen Road
- All Project Drive ways

The intersections will be analyzed utilizing weekday A.M./P.M. peak hour counts. The counts will be obtained during the 7-9 A.M and 4-6 P.M. time period by 15-minute intervals at each intersection

5. Traffic Impact Assessment

The impacted roadway segments and intersections will be analyzed for existing and projected conditions using the peak hour traffic volumes. For existing conditions, existing traffic volumes obtained from the 2017 Volusia County AADT Historical Counts will be used for the roadway segments. For the intersections, the exiting traffic counts will be obtained from 7-9 A.M and 4-6 P.M traffic counts by 15-minute intervals.

For projected conditions, background traffic will be estimated by adding existing traffic volumes to vested trips from approved developments in the vicinity. If vested traffic information is not available, background traffic volumes will be determined with the use of growth factors determined from trends analysis of historical traffic volumes. A minimum annual growth rate of 2% will be used in the growth factor estimation. Background traffic will be combined with project trips to obtain total traffic volumes.

The roadway segments will be analyzed by comparing the peak hour volume of each segment with the corresponding capacity of the adopted LOS standard. The intersections will be analyzed with the use of HCS software in accordance with the procedures of the 2010 Highway Capacity Manual.

6. Site Access

The East Area subdivision will be served via an access driveway on SR 415 and two access driveways on Enterprise Osteen Road. The West Area subdivision will be served via two access driveways on Enterprise Osteen Road. Turn lane requirements and turn lane lengths will be considered and evaluated as per City/County requirements as appropriate.

7. Critical and Near-Critical Roadways

To determine whether the development will impact critical and near-critical roadways, an impact area map of three-mile radius was obtained from Volusia County. This map, included in **Attachment C**, shows that there are no critical or near-critical roadways within three miles of the site.

8. Multimodal Analysis

This analysis will be performed as per the River to Sea TPO TIA Guidelines addressing the available multi-modal components of the transportation system in the area.

9. Traffic Report

A traffic report will be prepared documenting the study procedures, analysis and calculations/recommendations.

Attachment A
ITE Trip Generation Sheets

Single-Family Detached Housing (210)

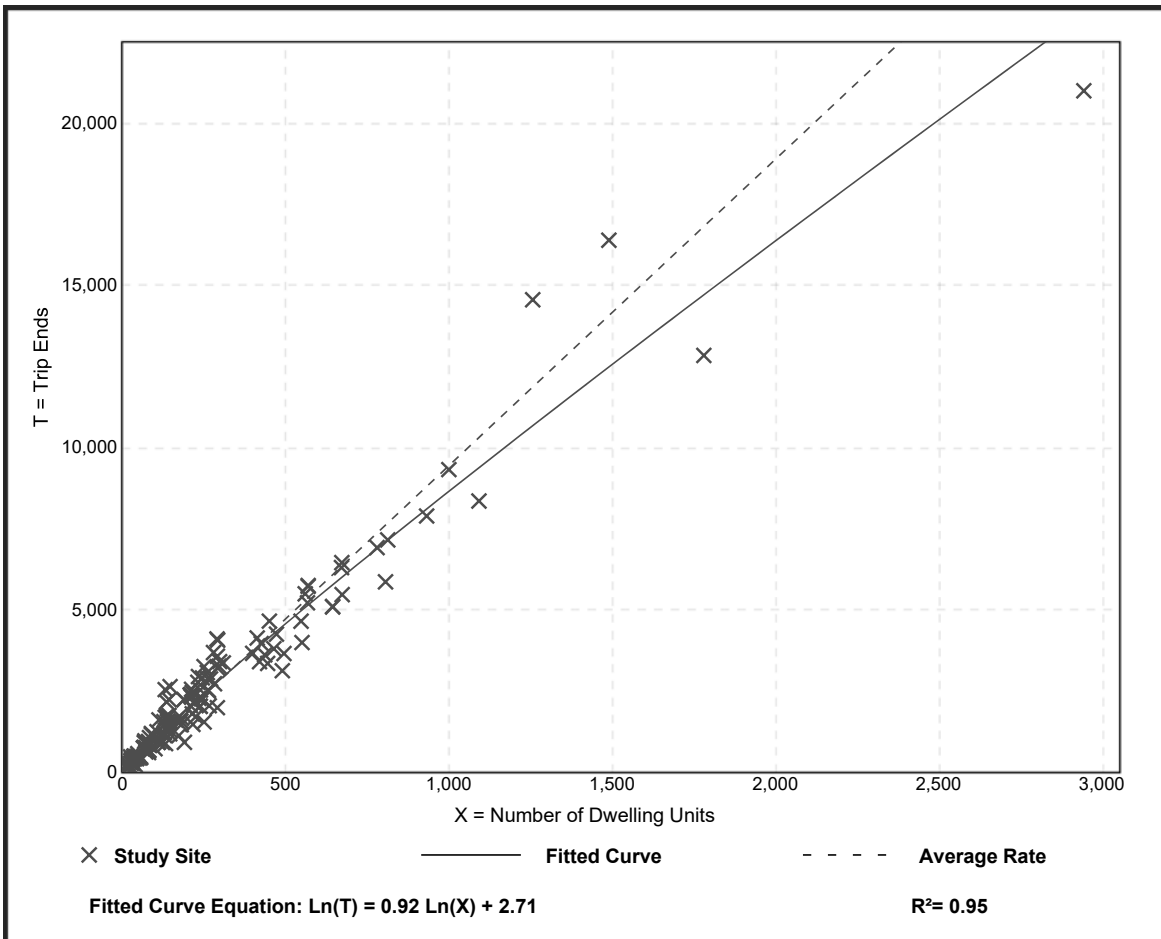
Vehicle Trip Ends vs: Dwelling Units
On a: Weekday

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



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

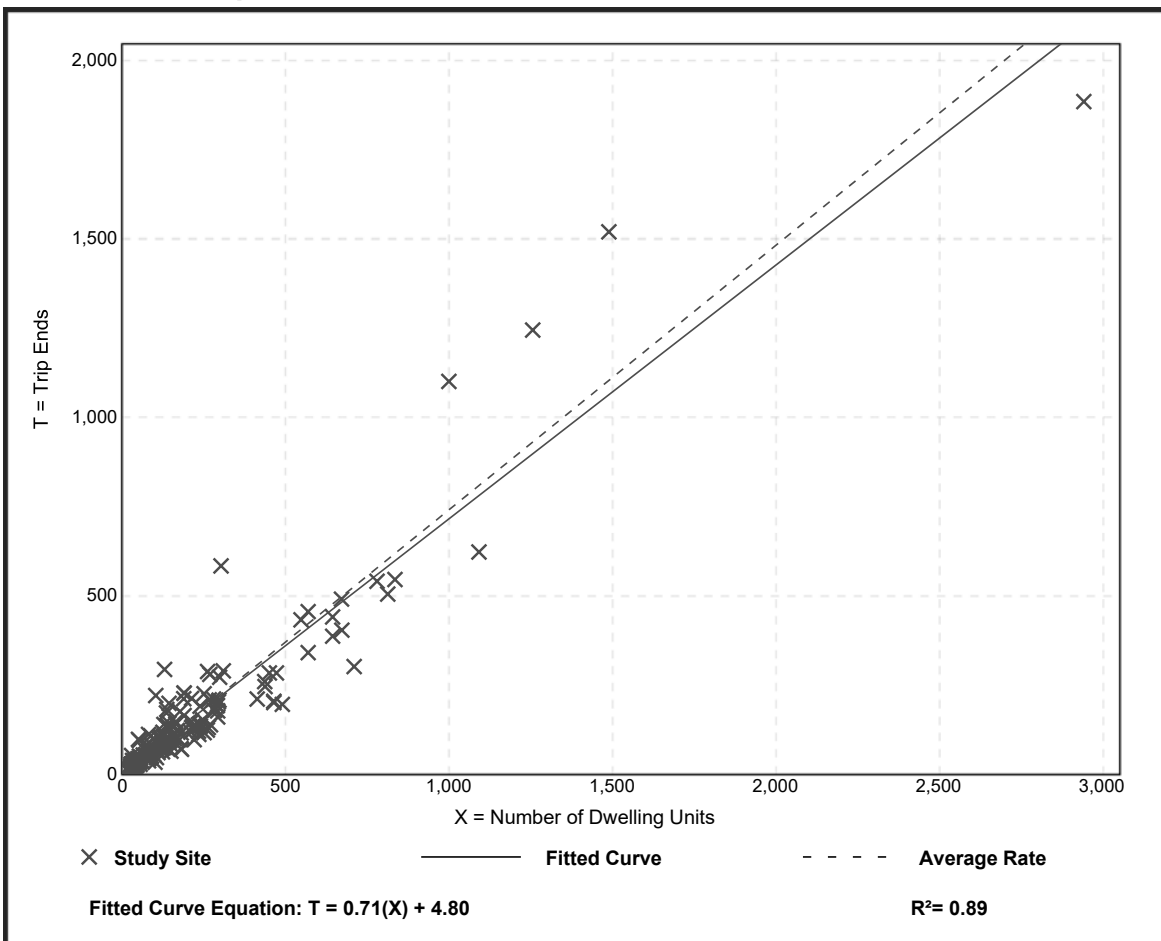
Avg. Num. of Dwelling Units: 219

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

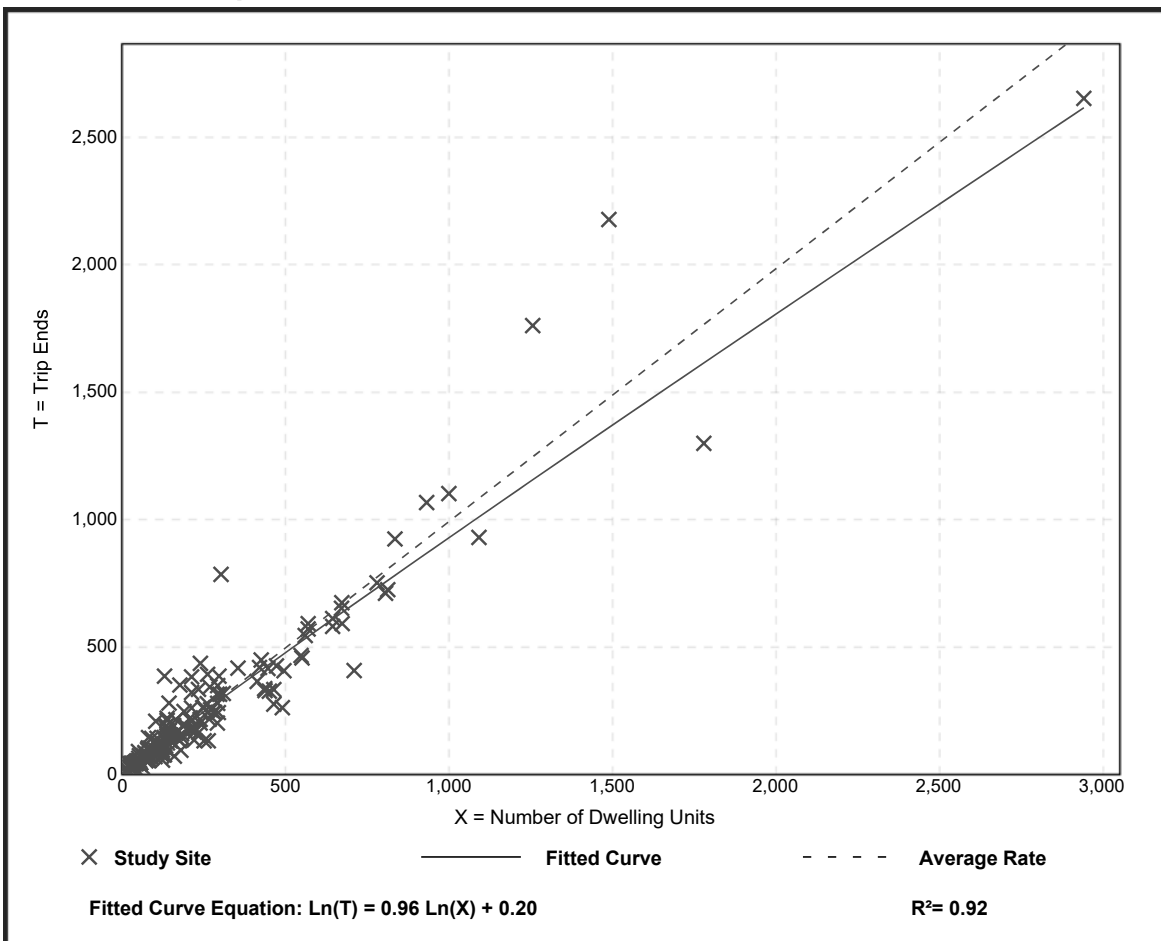
Avg. Num. of Dwelling Units: 242

Directional Distribution: 63% entering, 37% exiting

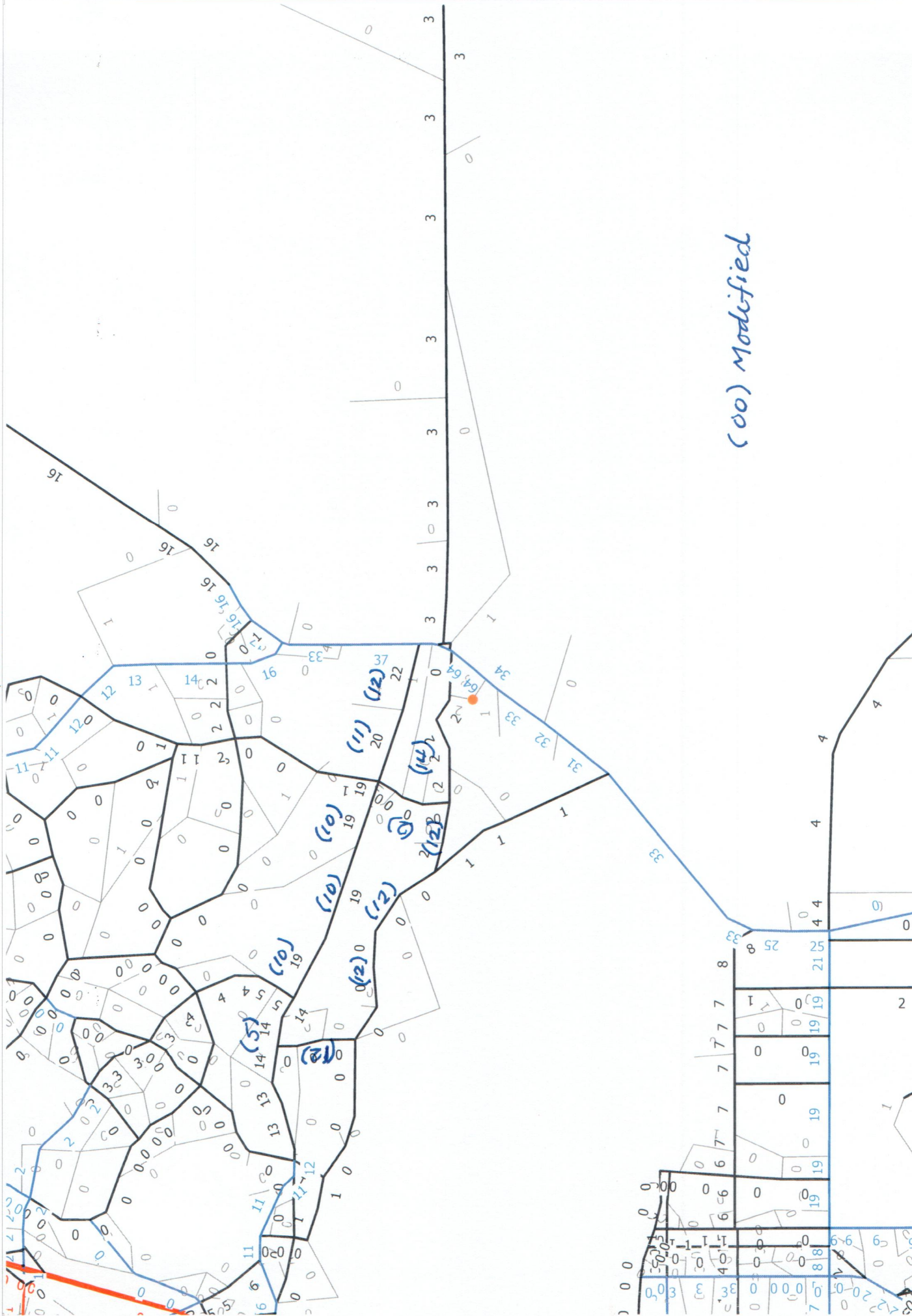
Vehicle Trip Generation per Dwelling Unit

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

Data Plot and Equation



Attachment B
Model Distribution Plots

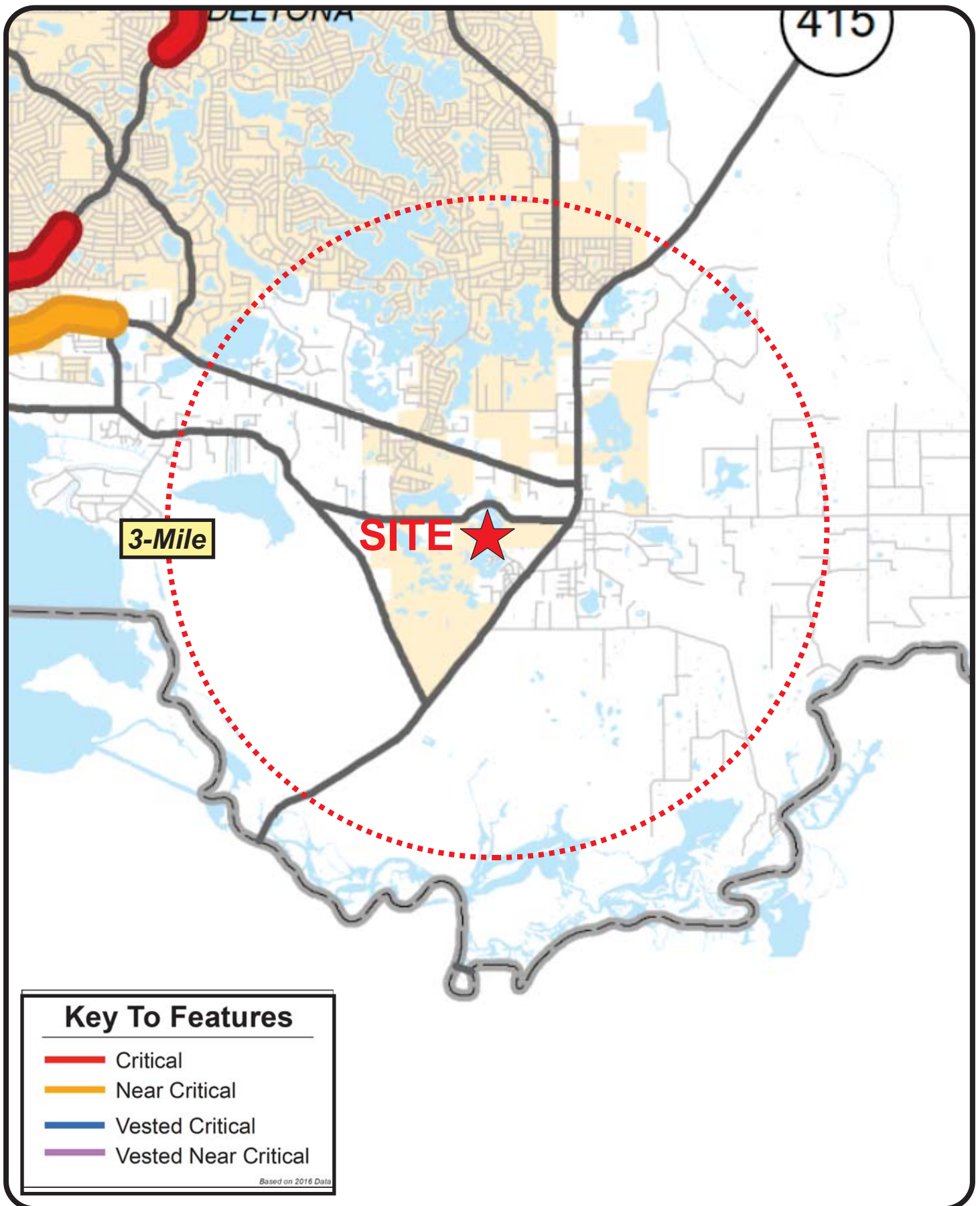


(00) Modified



(00) Modified

Attachment C
Critical/Near-Critical Map



APPENDIX B

Turning Movement Counts, Signal Timing Data &
FDOT Seasonal Adjustment Factors

15 MINUTE TURNING MOVEMENT COUNTS

(Cars and Trucks)

DATE: September 20, 2018 (Thursday)

CITY: Deltona

LATITUDE: 0

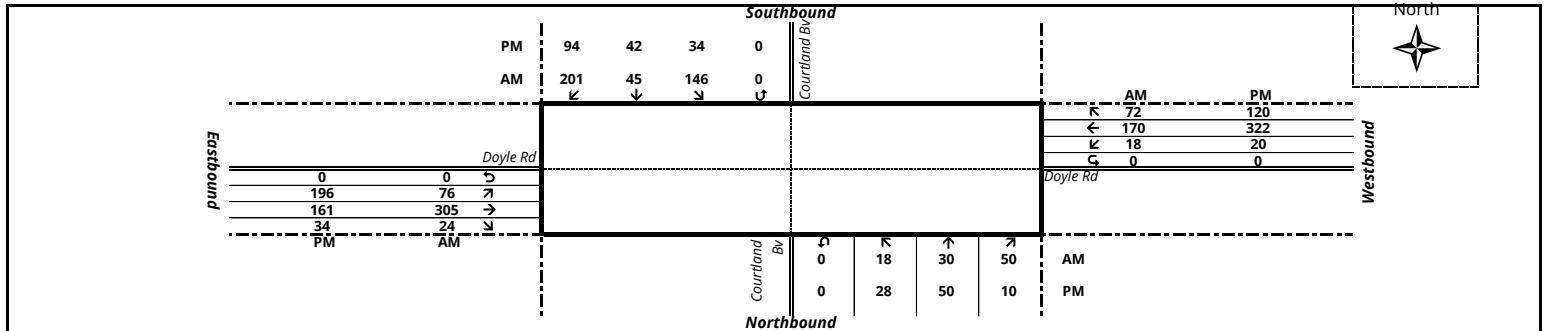
LOCATION: Courtland Bv & Doyle Rd

COUNTY: Volusia County

LONGITUDE: 0

Courtland Bv						Courtland Bv						Doyle Rd						Doyle Rd							
TIME BEGIN	NORTHBOUND					SOUTHBOUND					N/S TOTAL	EASTBOUND					WESTBOUND					E/W TOTAL	GRAND TOTAL		
	L	T	R	U-turn	TOTAL	L	T	R	U-turn	TOTAL		L	T	R	U-turn	TOTAL	L	T	R	U-turn	TOTAL				
07:00 AM	4	13	10	0	27	26	8	48	0	82	109	24	60	7	0	91	0	19	3	0	22	113	222		
07:15 AM	3	7	13	0	23	36	14	55	0	105	128	18	95	5	0	118	3	40	8	0	51	169	297		
07:30 AM	8	6	18	0	32	48	15	59	0	122	154	20	75	6	0	101	6	51	19	0	76	177	331		
07:45 AM	3	4	9	0	16	36	8	39	0	83	99	14	75	6	0	95	9	60	42	0	111	206	305		
TOTAL	18	30	50	0	98	146	45	201	0	392	490	76	305	24	0	405	18	170	72	0	260	665	1,155		
08:00 AM	2	7	4	0	13	19	10	34	0	63	76	21	49	0	0	70	5	28	19	0	52	122	198		
08:15 AM	3	8	9	0	20	21	8	49	0	78	98	22	61	8	0	91	2	31	10	0	43	134	232		
08:30 AM	9	5	3	0	17	15	11	29	0	55	72	19	25	3	0	47	1	26	6	0	33	80	152		
08:45 AM	4	7	6	0	17	19	4	51	0	74	91	13	34	4	0	51	1	35	11	0	47	98	189		
TOTAL	18	27	22	0	67	74	33	163	0	270	337	75	169	15	0	259	9	120	46	0	175	434	771		
04:00 PM	6	14	2	0	22	10	9	20	0	39	61	50	31	3	0	84	6	52	22	0	80	164	225		
04:15 PM	6	14	3	0	23	14	9	16	0	39	62	59	56	8	0	123	8	58	18	0	84	207	269		
04:30 PM	6	14	6	0	26	18	8	25	0	51	77	56	37	9	0	102	7	72	28	0	107	209	286		
04:45 PM	7	14	0	0	21	10	10	25	0	45	66	51	34	7	0	92	1	51	13	0	65	157	223		
TOTAL	25	56	11	0	92	52	36	86	0	174	266	216	158	27	0	401	22	233	81	0	336	737	1,003		
05:00 PM	6	17	3	0	26	14	9	26	0	49	75	43	41	8	0	92	6	80	21	0	107	199	274		
05:15 PM	7	13	1	0	21	5	11	18	0	34	55	59	38	8	0	105	3	79	37	0	119	224	279		
05:30 PM	7	12	4	0	23	7	14	24	0	45	68	53	54	3	0	110	8	81	31	0	120	230	298		
05:45 PM	8	8	2	0	18	8	8	26	0	42	60	41	28	15	0	84	3	82	31	0	116	200	260		
TOTAL	28	50	10	0	88	34	42	94	0	170	258	196	161	34	0	391	20	322	120	0	462	853	1,111		

AM Peak																		Peak Hour Factor: 0.872					
07:00 AM to 08:00 AM	18	30	50	0	98	146	45	201	0	392	490	76	305	24	0	405	18	170	72	0	260	665	1,155
PM Peak																		Peak Hour Factor: 0.932					
05:00 PM to 06:00 PM	28	50	10	0	88	34	42	94	0	170	258	196	161	34	0	391	20	322	120	0	462	853	1,111



15 MINUTE TURNING MOVEMENT COUNTS

(Trucks Only)

DATE: September 20, 2018 (Thursday)

CITY: Deltona

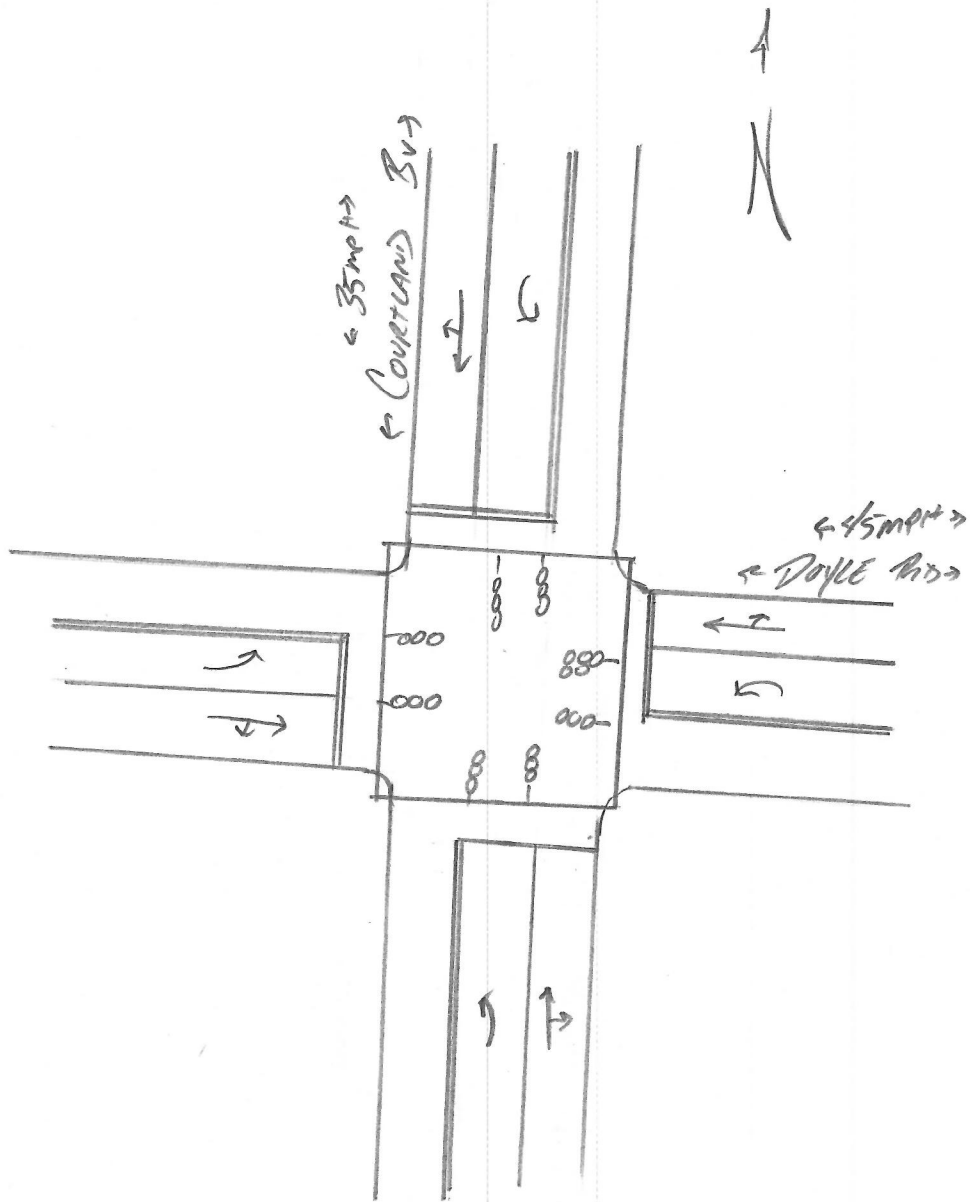
LATITUDE: 0

LOCATION: Courtland Bv & Doyle Rd

COUNTY: Volusia County

LONGITUDE: 0

Courtland Bv						Courtland Bv						Doyle Rd						Doyle Rd						E/W TOTAL	GRAND TOTAL
TIME BEGIN	NORTHBOUND					SOUTHBOUND					N/S TOTAL	EASTBOUND					WESTBOUND								
	L	T	R	U-turn	TOTAL	L	T	R	U-turn	TOTAL		L	T	R	U-turn	TOTAL	L	T	R	U-turn	TOTAL				
07:00 AM	0	0	0	0	0	0	0	1	0	1	1	0	0	1	0	1	0	1	0	0	1	2	3		
07:15 AM	0	1	0	0	1	1	1	1	0	3	4	0	2	0	0	2	0	1	0	0	1	3	7		
07:30 AM	0	1	1	0	2	1	1	1	0	3	5	2	0	0	0	2	0	2	3	0	5	7	12		
07:45 AM	0	0	0	0	0	0	0	3	0	3	3	0	1	2	0	3	0	1	0	0	1	4	7		
TOTAL	0	2	1	0	3	2	2	6	0	10	13	2	3	3	0	8	0	5	3	0	8	16	29		
08:00 AM	0	1	0	0	1	0	0	1	0	1	2	0	0	0	0	0	0	0	0	0	0	0	2		
08:15 AM	0	2	0	0	2	0	0	0	0	0	2	0	0	0	0	0	0	0	1	0	1	1	3		
08:30 AM	0	0	0	0	0	2	0	0	0	2	2	2	0	0	0	2	0	1	0	0	1	3	5		
08:45 AM	0	0	0	0	0	1	0	0	0	1	1	1	1	0	0	2	0	3	0	0	3	5	6		
TOTAL	0	3	0	0	3	3	0	1	0	4	7	3	1	0	0	4	0	4	1	0	5	9	16		
04:00 PM	0	0	0	0	0	1	1	1	0	3	3	1	0	0	0	1	0	0	0	0	1	4	4		
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	3	3	3		
04:30 PM	0	1	0	0	1	0	0	0	0	0	1	2	1	0	0	3	0	1	0	0	1	4	5		
04:45 PM	1	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	1	1	2		
TOTAL	1	1	0	0	2	1	1	1	0	3	5	3	1	0	0	4	0	5	0	0	5	9	14		
05:00 PM	0	0	0	0	0	1	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	1		
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	1			
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	1			
TOTAL	0	0	0	0	0	1	0	0	0	1	1	0	0	0	0	0	0	1	1	0	2	2	3		
AM Peak																									
07:00 AM to 08:00 AM	0	2	1	0	3	2	2	6	0	10	13	2	3	3	0	8	0	5	3	0	8	16	29		
PM Peak																									
05:00 PM to 06:00 PM	0	0	0	0	0	1	0	0	0	1	1	0	0	0	0	0	0	1	1	0	2	2	3		



15 MINUTE TURNING MOVEMENT COUNTS

(Cars and Trucks)

DATE: October 10, 2018 (Wednesday)

CITY: Deltona

LATITUDE: 0

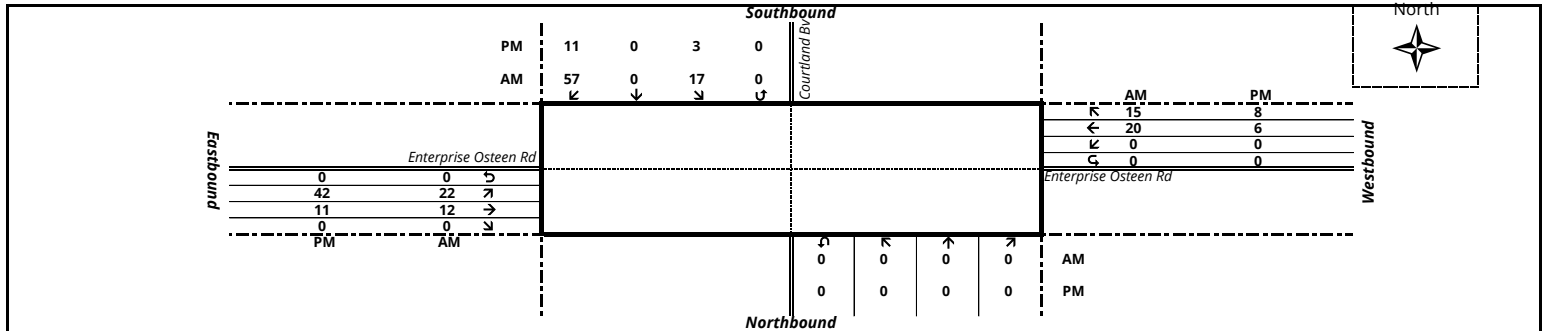
LOCATION: Courtland Bv & Enterprise Osteen Rd

COUNTY: Volusia County

LONGITUDE: 0

	101112					Courtland Bv						Enterprise Osteen Rd						Enterprise Osteen Rd							
TIME BEGIN	NORTHBOUND					SOUTHBOUND					N/S TOTAL	EASTBOUND					WESTBOUND					E/W TOTAL	GRAND TOTAL		
	L	T	R	U-turn	TOTAL	L	T	R	U-turn	TOTAL		L	T	R	U-turn	TOTAL	L	T	R	U-turn	TOTAL				
07:00 AM	0	0	0	0	0	2	0	9	0	11	11	2	4	0	0	6	0	3	5	0	8	14	25		
07:15 AM	0	0	0	0	0	2	0	10	0	12	12	7	5	0	0	12	0	5	4	0	9	21	33		
07:30 AM	0	0	0	0	0	11	0	24	0	35	35	7	0	0	0	7	0	7	4	0	11	18	53		
07:45 AM	0	0	0	0	0	2	0	14	0	16	16	6	3	0	0	9	0	5	2	0	7	16	32		
TOTAL	0	0	0	0	0	17	0	57	0	74	74	22	12	0	0	34	0	20	15	0	35	69	143		
08:00 AM	0	0	0	0	0	3	0	10	0	13	13	4	1	0	0	5	0	1	5	0	6	11	24		
08:15 AM	0	0	0	0	0	2	0	5	0	7	7	8	0	0	0	8	0	4	4	0	8	16	23		
08:30 AM	0	0	0	0	0	4	0	13	0	17	17	0	3	0	0	3	0	4	5	0	9	12	29		
08:45 AM	0	0	0	0	0	1	0	9	0	10	10	1	2	0	0	3	0	2	2	0	4	7	17		
TOTAL	0	0	0	0	0	10	0	37	0	47	47	13	6	0	0	19	0	11	16	0	27	46	93		
04:00 PM	0	0	0	0	0	1	0	3	0	4	4	3	3	0	0	6	0	3	6	0	9	15	19		
04:15 PM	0	0	0	0	0	0	0	2	0	2	2	7	3	0	0	10	0	3	0	0	3	13	15		
04:30 PM	0	0	0	0	0	1	0	3	0	4	4	12	2	0	0	14	0	3	4	0	7	21	25		
04:45 PM	0	0	0	0	0	0	0	2	0	2	2	11	5	0	0	16	0	1	1	0	2	18	20		
TOTAL	0	0	0	0	0	2	0	10	0	12	12	33	13	0	0	46	0	10	11	0	21	67	79		
05:00 PM	0	0	0	0	0	0	0	2	0	2	2	7	1	0	0	8	0	0	2	0	2	10	12		
05:15 PM	0	0	0	0	0	2	0	4	0	6	6	12	3	0	0	15	0	2	1	0	3	18	24		
05:30 PM	0	0	0	0	0	1	0	0	0	1	1	1	0	0	0	1	0	0	0	0	0	1	2		
05:45 PM	0	0	0	0	0	4	0	5	0	9	9	5	1	0	0	6	0	1	0	0	1	7	16		
TOTAL	0	0	0	0	0	7	0	11	0	18	18	25	5	0	0	30	0	3	3	0	6	36	54		

AM Peak																	Peak Hour Factor: 0.675						
07:00 AM to 08:00 AM	0	0	0	0	0	17	0	57	0	74	74	22	12	0	0	34	0	20	15	0	35	69	143
PM Peak																	Peak Hour Factor: 0.810						
04:30 PM to 05:30 PM	0	0	0	0	0	3	0	11	0	14	14	42	11	0	0	53	0	6	8	0	14	67	81



(Trucks Only)

LATITUDE: 0

LONGITUDE: 0

AM Peak																							
07:00 AM to 08:00 AM	0	0	0	0	0	1	0	1	0	2	2	0	0	0	0	0	0	1	2	0	3	3	5

PM Peak																							
04:30 PM to 05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



30 MPH
COURTLAND BL



1/4 MI

35 MPH

WESTWICH OSTEEN RD



15 MINUTE TURNING MOVEMENT COUNTS

(Cars and Trucks)

DATE: September 13, 2018 (Thursday)

CITY: Deltona

LATITUDE: 0

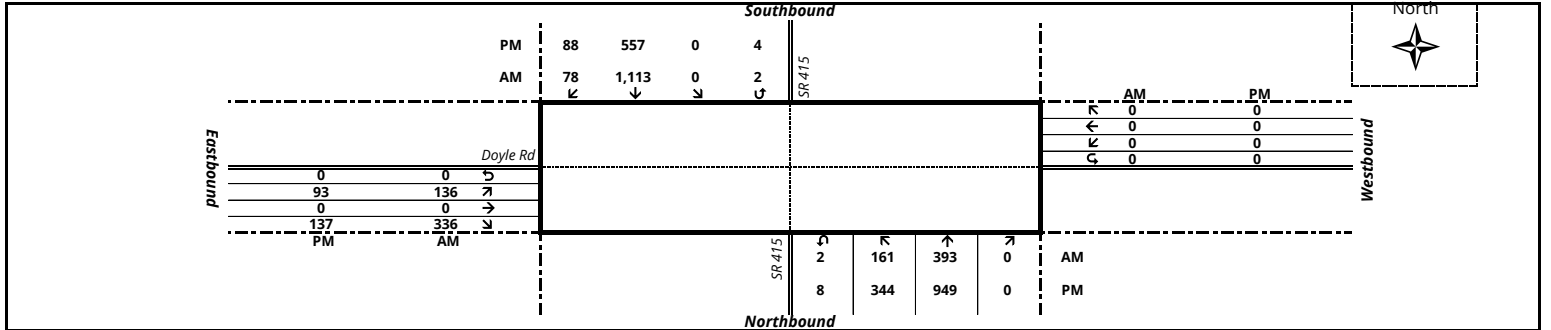
LOCATION: SR 415 & Doyle Rd

COUNTY: Volusia County

LONGITUDE: 0

SR 415						SR 415						Doyle Rd											
TIME BEGIN	NORTHBOUND					SOUTHBOUND					N/S TOTAL	EASTBOUND					WESTBOUND					E/W TOTAL	GRAND TOTAL
	L	T	R	U-turn	TOTAL	L	T	R	U-turn	TOTAL		L	T	R	U-turn	TOTAL	L	T	R	U-turn	TOTAL		
07:00 AM	32	110	0	0	142	0	273	18	1	292	434	31	0	63	0	94	0	0	0	0	0	94	528
07:15 AM	44	85	0	1	130	0	289	26	0	315	445	31	0	94	0	125	0	0	0	0	0	125	570
07:30 AM	57	115	0	1	173	0	294	23	0	317	490	35	0	89	0	124	0	0	0	0	0	124	614
07:45 AM	28	83	0	0	111	0	257	11	1	269	380	39	0	90	0	129	0	0	0	0	0	129	509
TOTAL	161	393	0	2	556	0	1,113	78	2	1,193	1,749	136	0	336	0	472	0	0	0	0	0	472	2,221
08:00 AM	27	97	0	0	124	0	210	10	4	224	348	25	0	59	0	84	0	0	0	0	0	84	432
08:15 AM	27	122	0	0	149	0	201	9	0	210	359	20	0	67	0	87	0	0	0	0	0	87	446
08:30 AM	27	101	0	0	128	0	137	11	1	149	277	12	0	38	0	50	0	0	0	0	0	50	327
08:45 AM	31	87	0	0	118	0	139	13	0	152	270	18	0	44	0	62	0	0	0	0	0	62	332
TOTAL	112	407	0	0	519	0	687	43	5	735	1,254	75	0	208	0	283	0	0	0	0	0	283	1,537
04:00 PM	67	274	0	1	342	0	145	37	2	184	526	29	0	52	0	81	0	0	0	0	0	81	607
04:15 PM	64	189	0	2	255	0	114	17	0	131	386	29	0	41	0	70	0	0	0	0	0	70	456
04:30 PM	67	228	0	0	295	0	137	21	0	158	453	33	0	33	0	66	0	0	0	0	0	66	519
04:45 PM	61	205	0	1	267	0	122	14	0	136	403	25	0	34	0	59	0	0	0	0	0	59	462
TOTAL	259	896	0	4	1,159	0	518	89	2	609	1,768	116	0	160	0	276	0	0	0	0	0	276	2,044
05:00 PM	71	203	0	1	275	0	130	26	1	157	432	21	0	37	0	58	0	0	0	0	0	58	490
05:15 PM	87	276	0	1	364	0	143	30	0	173	537	29	0	31	0	60	0	0	0	0	0	60	597
05:30 PM	102	242	0	2	346	0	148	15	3	166	512	22	0	39	0	61	0	0	0	0	0	61	573
05:45 PM	84	228	0	4	316	0	136	17	0	153	469	21	0	30	0	51	0	0	0	0	0	51	520
TOTAL	344	949	0	8	1,301	0	557	88	4	649	1,950	93	0	137	0	230	0	0	0	0	0	230	2,180

AM Peak 07:00 AM to 08:00 AM											Peak Hour Factor: 0.904											
161	393	0	2	556	0	1,113	78	2	1,193	1,749	136	0	336	0	472	0	0	0	0	0	472	2,221
PM Peak 05:00 PM to 06:00 PM											Peak Hour Factor: 0.913											
344	949	0	8	1,301	0	557	88	4	649	1,950	93	0	137	0	230	0	0	0	0	0	230	2,180



15 MINUTE TURNING MOVEMENT COUNTS

(Trucks Only)

DATE: September 13, 2018 (Thursday)

CITY: Deltona

LATITUDE: 0

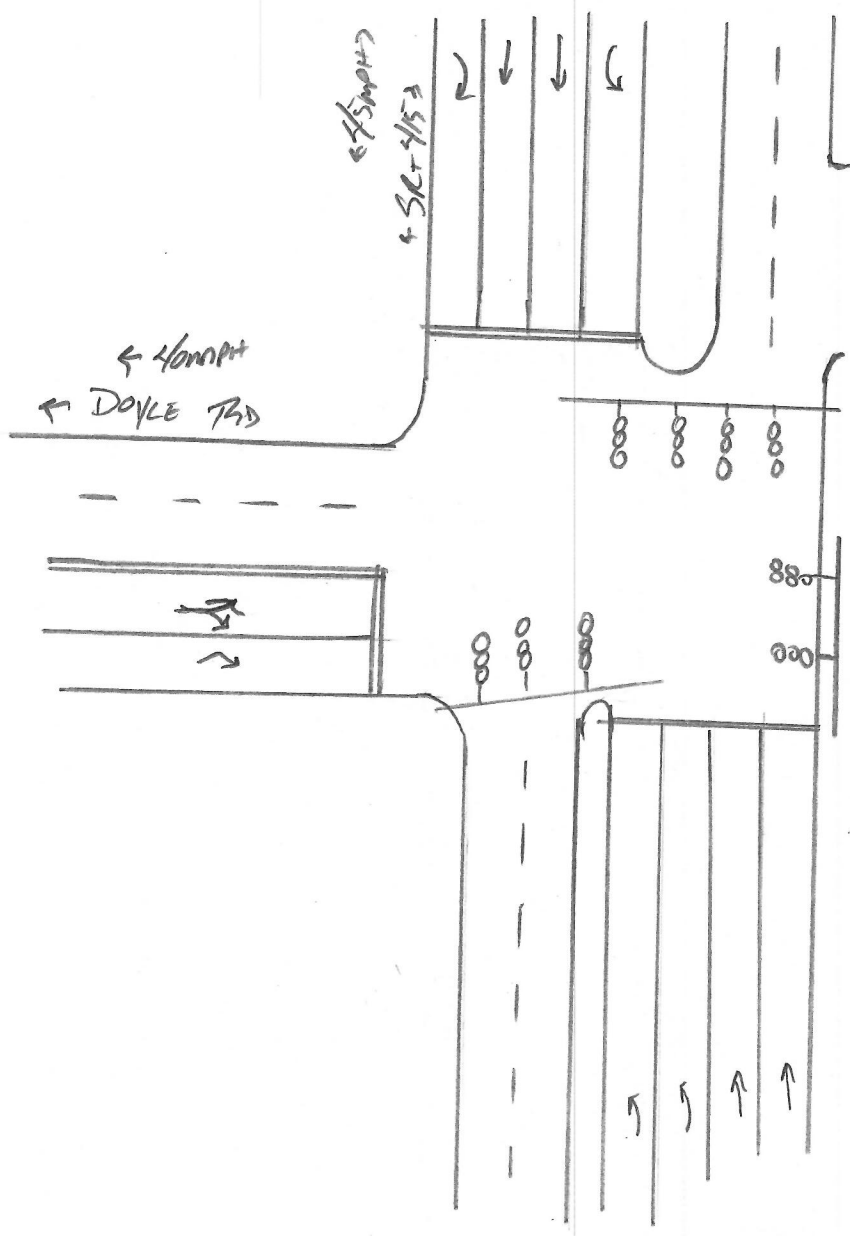
LOCATION: SR 415 & Doyle Rd

COUNTY: Volusia County

LONGITUDE: 0

SR 415						SR 415						Doyle Rd						6					7	
TIME BEGIN	NORTHBOUND					SOUTHBOUND					N/S TOTAL	EASTBOUND					WESTBOUND					E/W TOTAL	GRAND TOTAL	
	L	T	R	U-turn	TOTAL	L	T	R	U-turn	TOTAL		L	T	R	U-turn	TOTAL	L	T	R	U-turn	TOTAL			
07:00 AM	0	1	0	0	1	0	1	0	0	1	2	0	0	1	0	1	0	0	0	0	0	1	3	
07:15 AM	5	1	0	0	6	0	0	0	0	0	6	0	0	1	0	1	0	0	0	0	0	1	7	
07:30 AM	1	5	0	0	6	0	2	0	0	2	8	0	0	1	0	1	0	0	0	0	0	1	9	
07:45 AM	0	1	0	0	1	0	3	0	0	3	4	1	0	1	0	2	0	0	0	0	0	2	6	
TOTAL	6	8	0	0	14	0	6	0	0	6	20	1	0	4	0	5	0	0	0	0	0	5	25	
08:00 AM	0	4	0	0	4	0	3	0	0	3	7	1	0	1	0	2	0	0	0	0	0	2	9	
08:15 AM	0	2	0	0	2	0	2	2	0	4	6	0	0	0	0	0	0	0	0	0	0	0	6	
08:30 AM	0	3	0	0	3	0	1	0	0	1	4	0	0	0	0	0	0	0	0	0	0	0	4	
08:45 AM	2	1	0	0	3	0	4	0	0	4	7	0	0	0	0	0	0	0	0	0	0	0	7	
TOTAL	2	10	0	0	12	0	10	2	0	12	24	1	0	1	0	2	0	0	0	0	0	2	26	
04:00 PM	0	4	0	0	4	0	3	1	0	4	8	1	0	1	0	2	0	0	0	0	0	2	10	
04:15 PM	0	2	0	0	2	0	1	0	0	1	3	0	0	0	0	0	0	0	0	0	0	0	3	
04:30 PM	1	2	0	0	3	0	2	0	0	2	5	0	0	1	0	1	0	0	0	0	0	1	6	
04:45 PM	0	1	0	0	1	0	2	1	0	3	4	0	0	0	0	0	0	0	0	0	0	0	4	
TOTAL	1	9	0	0	10	0	8	2	0	10	20	1	0	2	0	3	0	0	0	0	0	3	23	
05:00 PM	0	3	0	0	3	0	1	0	0	1	4	0	0	1	0	1	0	0	0	0	0	1	5	
05:15 PM	0	1	0	0	1	0	1	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	2	
05:30 PM	0	2	0	0	2	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	2	
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
TOTAL	0	6	0	0	6	0	2	0	0	2	8	0	0	1	0	1	0	0	0	0	0	1	9	
AM Peak																								
07:00 AM to 08:00 AM		6	8	0	0	14	0	6	0	0	6	20	1	0	4	0	5	0	0	0	0	0	5	25
PM Peak																								
05:00 PM to 06:00 PM		0	6	0	0	6	0	2	0	0	2	8	0	0	1	0	1	0	0	0	0	0	1	9

N



15 MINUTE TURNING MOVEMENT COUNTS

(Cars and Trucks)

DATE: September 20, 2018 (Thursday)

CITY: Deltona

LATITUDE: 0

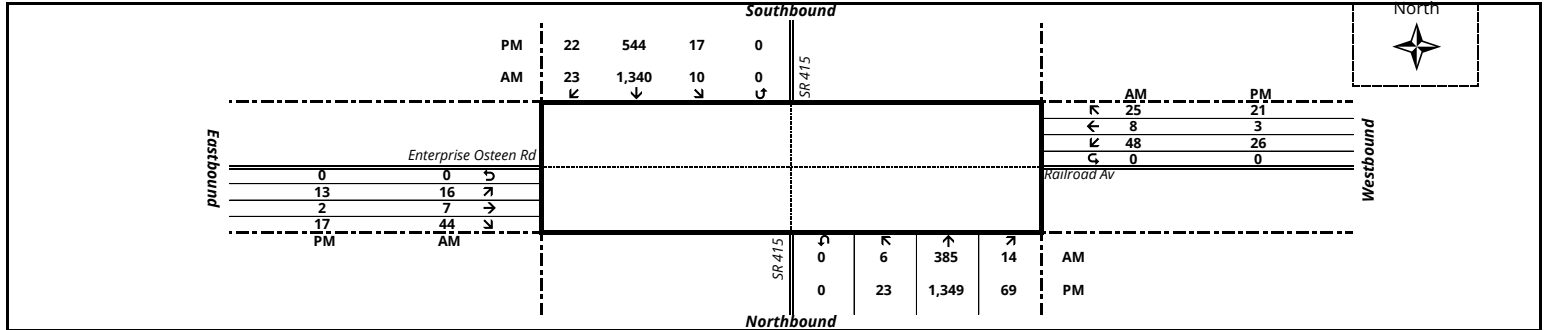
LOCATION: SR 415 & Enterprise Osteen Rd/Railroad Av

COUNTY: Volusia County

LONGITUDE: 0

SR 415						SR 415						Enterprise Osteen Rd						Railroad Av							
TIME BEGIN	NORTHBOUND					SOUTHBOUND					N/S TOTAL	EASTBOUND					WESTBOUND					E/W TOTAL	GRAND TOTAL		
	L	T	R	U-turn	TOTAL	L	T	R	U-turn	TOTAL		L	T	R	U-turn	TOTAL	L	T	R	U-turn	TOTAL				
07:00 AM	3	95	3	0	101	2	305	5	0	312	413	3	0	7	0	10	13	1	7	0	21	31	444		
07:15 AM	2	99	3	0	104	1	337	6	0	344	448	6	1	15	0	22	11	4	8	0	23	45	493		
07:30 AM	1	98	1	0	100	5	383	10	0	398	498	4	3	12	0	19	14	2	5	0	21	40	538		
07:45 AM	0	93	7	0	100	2	315	2	0	319	419	3	3	10	0	16	10	1	5	0	16	32	451		
TOTAL	6	385	14	0	405	10	1,340	23	0	1,373	1,778	16	7	44	0	67	48	8	25	0	81	148	1,926		
08:00 AM	1	101	1	0	103	4	232	4	0	240	343	1	0	3	0	4	11	0	2	0	13	17	360		
08:15 AM	3	95	4	0	102	0	215	6	0	221	323	1	0	7	0	8	14	0	4	0	18	26	349		
08:30 AM	3	113	6	0	122	0	186	4	0	190	312	4	0	3	0	7	13	1	3	0	17	24	336		
08:45 AM	2	117	5	0	124	3	177	4	0	184	308	3	1	5	0	9	7	0	11	1	19	28	336		
TOTAL	9	426	16	0	451	7	810	18	0	835	1,286	9	1	18	0	28	45	1	20	1	67	95	1,381		
04:00 PM	6	226	17	0	249	5	118	6	0	129	378	3	2	4	0	9	6	1	6	0	13	22	400		
04:15 PM	8	254	14	0	276	3	122	6	0	131	407	2	0	1	0	3	1	2	7	0	10	13	420		
04:30 PM	5	257	10	0	272	7	113	4	0	124	396	3	0	0	0	3	7	2	4	0	13	16	412		
04:45 PM	1	319	16	0	336	5	118	6	0	129	465	5	0	5	0	10	5	1	4	0	10	20	485		
TOTAL	20	1,056	57	0	1,133	20	471	22	0	513	1,646	13	2	10	0	25	19	6	21	0	46	71	1,717		
05:00 PM	8	283	21	0	312	1	156	4	0	161	473	6	2	4	0	12	8	0	5	0	13	25	498		
05:15 PM	3	406	13	0	422	2	132	4	0	138	560	3	0	4	0	7	3	0	3	0	6	13	573		
05:30 PM	6	330	17	0	353	8	131	6	0	145	498	0	0	3	0	3	4	3	4	0	11	14	512		
05:45 PM	6	330	18	0	354	6	125	8	0	139	493	4	0	6	0	10	11	0	9	0	20	30	523		
TOTAL	23	1,349	69	0	1,441	17	544	22	0	583	2,024	13	2	17	0	32	26	3	21	0	50	82	2,106		

AM Peak																			Peak Hour Factor: 0.895				
07:00 AM to 08:00 AM	6	385	14	0	405	10	1,340	23	0	1,373	1,778	16	7	44	0	67	48	8	25	0	81	148	1,926
PM Peak																			Peak Hour Factor: 0.919				
05:00 PM to 06:00 PM	23	1,349	69	0	1,441	17	544	22	0	583	2,024	13	2	17	0	32	26	3	21	0	50	82	2,106



15 MINUTE TURNING MOVEMENT COUNTS

(Trucks Only)

DATE: September 20, 2018 (Thursday)

CITY: Deltona

LATITUDE: 0

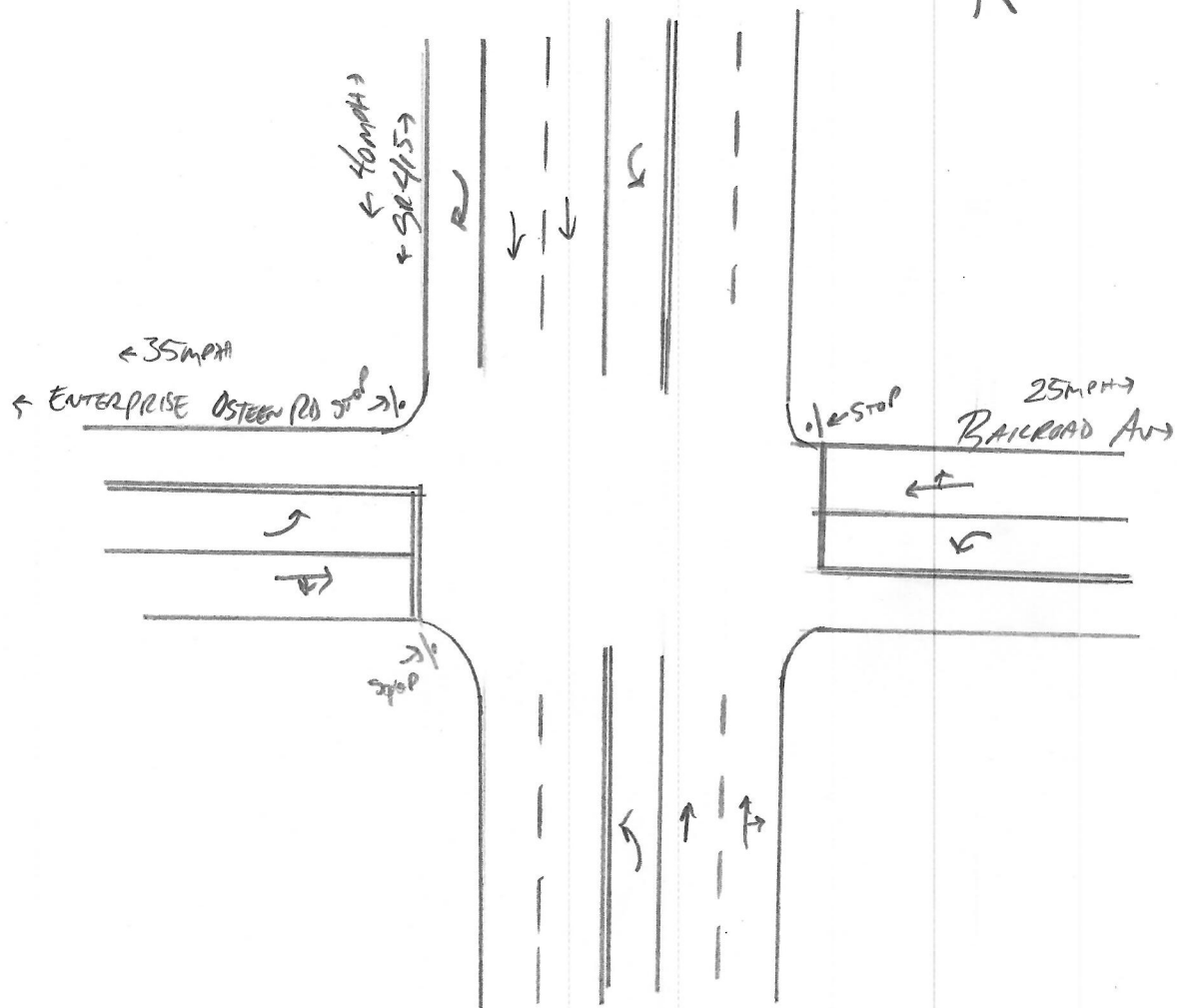
LOCATION: SR 415 & Enterprise Osteen Rd/Railroad Av

COUNTY: Volusia County

LONGITUDE: 0

SR 415						SR 415						Enterprise Osteen Rd						Railroad Av							
TIME BEGIN	NORTHBOUND					SOUTHBOUND					N/S TOTAL	EASTBOUND					WESTBOUND					E/W TOTAL	GRAND TOTAL		
	L	T	R	U-turn	TOTAL	L	T	R	U-turn	TOTAL		L	T	R	U-turn	TOTAL	L	T	R	U-turn	TOTAL				
07:00 AM	0	2	0	0	2	0	1	0	0	1	3	0	0	0	0	0	0	0	0	0	0	0	3		
07:15 AM	1	3	0	0	4	0	4	0	0	4	8	0	0	0	0	0	0	0	1	0	1	1	9		
07:30 AM	0	3	0	0	3	0	1	0	0	1	4	0	0	0	0	0	0	0	1	0	1	1	5		
07:45 AM	0	3	0	0	3	0	1	0	0	1	4	0	0	0	0	0	1	0	0	0	1	1	5		
TOTAL	1	11	0	0	12	0	7	0	0	7	19	0	0	0	0	0	1	0	2	0	3	3	22		
08:00 AM	0	3	0	0	3	0	2	0	0	2	5	0	0	0	0	0	0	0	0	0	0	0	5		
08:15 AM	2	2	0	0	4	0	2	0	0	2	6	0	0	0	0	0	0	0	1	0	1	1	7		
08:30 AM	0	3	0	0	3	0	2	0	0	2	5	0	0	0	0	0	0	0	0	0	0	0	5		
08:45 AM	0	2	0	0	2	0	3	0	0	3	5	0	0	0	0	0	0	0	1	0	1	1	6		
TOTAL	2	10	0	0	12	0	9	0	0	9	21	0	0	0	0	0	0	0	2	0	2	2	23		
04:00 PM	0	3	0	0	3	0	1	0	0	1	4	0	0	0	0	0	0	0	0	0	0	0	4		
04:15 PM	1	2	0	0	3	1	1	0	0	2	5	0	0	0	0	0	0	0	0	0	0	0	5		
04:30 PM	0	3	1	0	4	0	4	0	0	4	8	0	0	0	0	0	0	0	0	0	0	0	8		
04:45 PM	0	1	0	0	1	0	3	0	0	3	4	0	0	0	0	0	0	0	1	0	1	1	5		
TOTAL	1	9	1	0	11	1	9	0	0	10	21	0	0	0	0	0	0	0	1	0	1	1	22		
05:00 PM	0	4	0	0	4	0	2	0	0	2	6	0	1	0	0	1	0	0	0	0	0	1	7		
05:15 PM	0	0	0	0	0	0	1	0	0	1	1	0	0	0	0	0	1	0	0	0	1	1	2		
05:30 PM	0	2	0	0	2	0	3	0	0	3	5	0	0	0	0	0	0	0	0	0	0	0	5		
05:45 PM	0	1	0	0	1	0	0	0	0	0	1	0	0	1	0	1	0	0	0	0	0	1	2		
TOTAL	0	7	0	0	7	0	6	0	0	6	13	0	1	1	0	2	1	0	0	0	1	3	16		
AM Peak																									
07:00 AM to 08:00 AM	1	11	0	0	12	0	7	0	0	7	19	0	0	0	0	0	1	0	2	0	3	3	22		
PM Peak																									
05:00 PM to 06:00 PM	0	7	0	0	7	0	6	0	0	6	13	0	1	1	0	2	1	0	0	0	1	3	16		

N



15 MINUTE TURNING MOVEMENT COUNTS

(Cars and Trucks)

DATE: September 19, 2018 (Wednesday)

CITY: Deltona

LATITUDE: 0

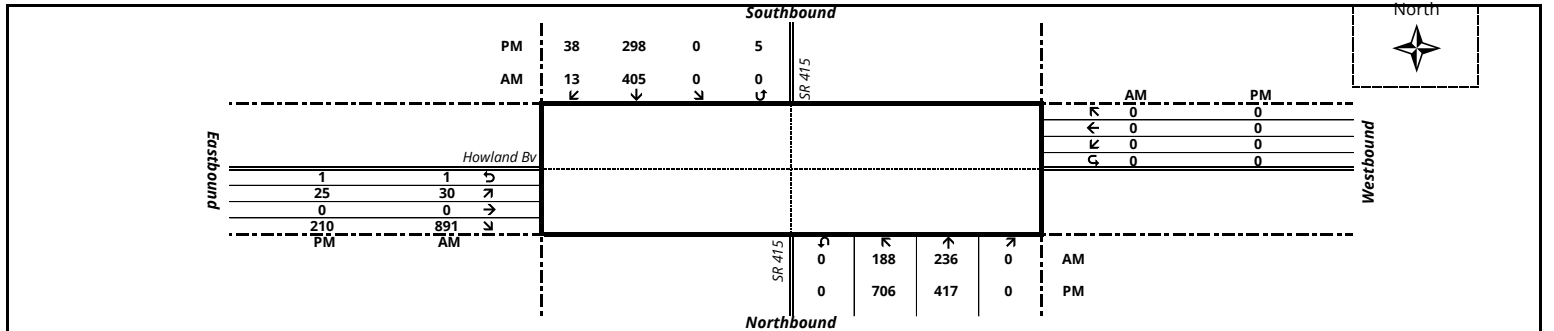
LOCATION: SR 415 & Howland Bv

COUNTY: Volusia County

LONGITUDE: 0

SR 415						SR 415						Howland Bv													
TIME BEGIN	NORTHBOUND					SOUTHBOUND					N/S TOTAL	EASTBOUND					WESTBOUND					E/W TOTAL	GRAND TOTAL		
	L	T	R	U-turn	TOTAL	L	T	R	U-turn	TOTAL		L	T	R	U-turn	TOTAL	L	T	R	U-turn	TOTAL				
07:00 AM	47	51	0	0	98	0	91	3	0	94	192	7	0	190	1	198	0	0	0	0	0	198	390		
07:15 AM	48	68	0	0	116	0	112	1	0	113	229	10	0	248	0	258	0	0	0	0	0	258	487		
07:30 AM	45	59	0	0	104	0	102	5	0	107	211	5	0	254	0	259	0	0	0	0	0	259	470		
07:45 AM	48	58	0	0	106	0	100	4	0	104	210	8	0	199	0	207	0	0	0	0	0	207	417		
TOTAL	188	236	0	0	424	0	405	13	0	418	842	30	0	891	1	922	0	0	0	0	0	922	1,764		
08:00 AM	32	59	0	0	91	0	76	7	1	84	175	9	0	136	1	146	0	0	0	0	0	146	321		
08:15 AM	49	51	0	0	100	0	71	5	1	77	177	5	0	106	0	111	0	0	0	0	0	111	288		
08:30 AM	41	53	0	0	94	0	75	3	0	78	172	8	0	112	0	120	0	0	0	0	0	120	292		
08:45 AM	49	49	0	0	98	0	57	10	1	68	166	6	0	69	0	75	0	0	0	0	0	75	241		
TOTAL	171	212	0	0	383	0	279	25	3	307	690	28	0	423	1	452	0	0	0	0	0	452	1,142		
04:00 PM	149	82	0	0	231	0	58	7	1	66	297	6	0	35	0	41	0	0	0	0	0	41	338		
04:15 PM	126	99	0	0	225	0	63	12	2	77	302	6	0	63	0	69	0	0	0	0	0	69	371		
04:30 PM	139	95	0	0	234	0	84	10	0	94	328	10	0	58	1	69	0	0	0	0	0	69	397		
04:45 PM	161	109	0	0	270	0	80	6	1	87	357	9	0	53	0	62	0	0	0	0	0	62	419		
TOTAL	575	385	0	0	960	0	285	35	4	324	1,284	31	0	209	1	241	0	0	0	0	0	241	1,525		
05:00 PM	139	77	0	0	216	0	70	10	0	80	296	6	0	57	0	63	0	0	0	0	0	63	359		
05:15 PM	221	132	0	0	353	0	73	8	2	83	436	6	0	51	0	57	0	0	0	0	0	57	493		
05:30 PM	185	99	0	0	284	0	75	14	2	91	375	4	0	49	1	54	0	0	0	0	0	54	429		
05:45 PM	153	101	0	0	254	0	65	13	3	81	335	8	0	58	0	66	0	0	0	0	0	66	401		
TOTAL	698	409	0	0	1,107	0	283	45	7	335	1,442	24	0	215	1	240	0	0	0	0	0	240	1,682		

AM Peak																		Peak Hour Factor: 0.906					
07:00 AM to 08:00 AM	188	236	0	0	424	0	405	13	0	418	842	30	0	891	1	922	0	0	0	0	0	922	1,764
PM Peak																		Peak Hour Factor: 0.862					
04:45 PM to 05:45 PM	706	417	0	0	1,123	0	298	38	5	341	1,464	25	0	210	1	236	0	0	0	0	0	236	1,700



15 MINUTE TURNING MOVEMENT COUNTS

(Trucks Only)

DATE: September 19, 2018 (Wednesday)

CITY: Deltona

LATITUDE: 0

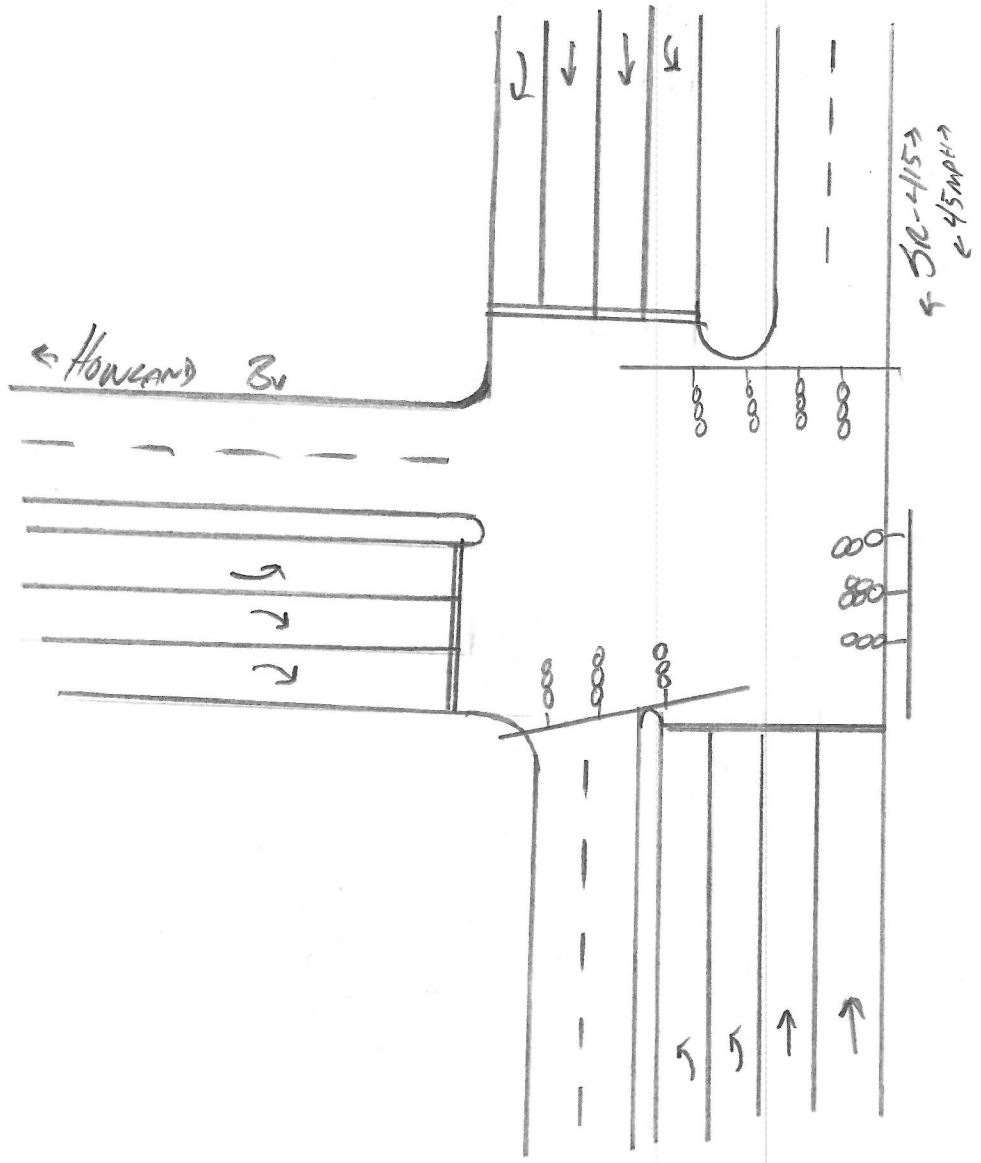
LOCATION: SR 415 & Howland Bv

COUNTY: Volusia County

LONGITUDE: 0

SR 415						SR 415						Howland Bv						6						7	
TIME BEGIN	NORTHBOUND					SOUTHBOUND					N/S TOTAL	EASTBOUND					WESTBOUND					E/W TOTAL	GRAND TOTAL		
	L	T	R	U-turn	TOTAL	L	T	R	U-turn	TOTAL		L	T	R	U-turn	TOTAL	L	T	R	U-turn	TOTAL				
07:00 AM	0	2	0	0	2	0	3	0	0	3	5	0	0	2	0	2	0	0	0	0	0	2	7		
07:15 AM	0	4	0	0	4	0	1	0	0	1	5	0	0	2	0	2	0	0	0	0	0	2	7		
07:30 AM	0	4	0	0	4	0	1	1	0	2	6	0	0	1	0	1	0	0	0	0	0	1	7		
07:45 AM	4	0	0	0	4	0	0	0	0	0	4	0	0	1	0	1	0	0	0	0	0	1	5		
TOTAL	4	10	0	0	14	0	5	1	0	6	20	0	0	6	0	6	0	0	0	0	0	6	26		
08:00 AM	1	3	0	0	4	0	3	1	0	4	8	2	0	1	0	3	0	0	0	0	0	3	11		
08:15 AM	3	1	0	0	4	0	3	0	0	3	7	0	0	1	0	1	0	0	0	0	0	1	8		
08:30 AM	2	2	0	0	4	0	1	0	0	1	5	0	0	0	0	0	0	0	0	0	0	0	5		
08:45 AM	1	1	0	0	2	0	5	0	0	5	7	0	0	2	0	2	0	0	0	0	0	2	9		
TOTAL	7	7	0	0	14	0	12	1	0	13	27	2	0	4	0	6	0	0	0	0	0	6	33		
04:00 PM	1	2	0	0	3	0	2	2	0	4	7	0	0	0	0	0	0	0	0	0	0	0	7		
04:15 PM	2	2	0	0	4	0	4	1	0	5	9	0	0	1	0	1	0	0	0	0	0	1	10		
04:30 PM	2	0	0	0	2	0	1	0	0	1	3	0	0	0	0	0	0	0	0	0	0	0	3		
04:45 PM	0	1	0	0	1	0	1	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	2		
TOTAL	5	5	0	0	10	0	8	3	0	11	21	0	0	1	0	1	0	0	0	0	0	1	22		
05:00 PM	2	1	0	0	3	0	1	0	0	1	4	0	0	2	0	2	0	0	0	0	0	2	6		
05:15 PM	0	1	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1		
05:30 PM	1	1	0	0	2	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	2		
05:45 PM	0	2	0	0	2	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	2		
TOTAL	3	5	0	0	8	0	1	0	0	1	9	0	0	2	0	2	0	0	0	0	0	2	11		
AM Peak																									
07:00 AM to 08:00 AM	4	10	0	0	14	0	5	1	0	6	20	0	0	6	0	6	0	0	0	0	0	6	26		
PM Peak																									
04:45 PM to 05:45 PM	3	4	0	0	7	0	2	0	0	2	9	0	0	2	0	2	0	0	0	0	0	2	11		

4
N



15 MINUTE TURNING MOVEMENT COUNTS

(Cars and Trucks)

DATE: September 13, 2018 (Thursday)

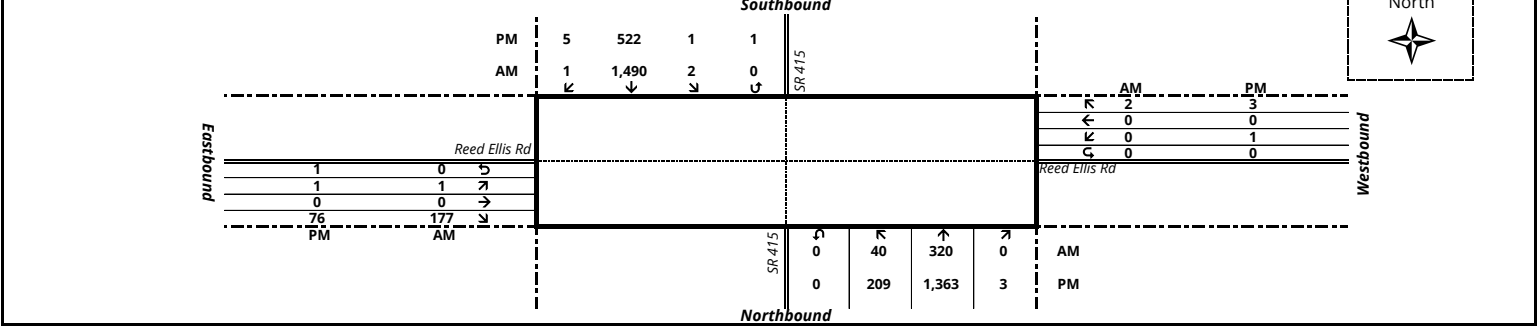
CITY: Deltona LATITUDE: 0

LOCATION: SR 415 & Reed Ellis Rd

COUNTY: Volusia County LONGITUDE: 0

SR 415						SR 415					Reed Ellis Rd					Reed Ellis Rd							
TIME BEGIN	NORTHBOUND					SOUTHBOUND					N/S TOTAL	EASTBOUND					WESTBOUND					E/W TOTAL	GRAND TOTAL
	L	T	R	U-turn	TOTAL	L	T	R	U-turn	TOTAL		L	T	R	U-turn	TOTAL	L	T	R	U-turn	TOTAL		
07:00 AM	5	76	0	0	81	0	354	0	0	354	435	0	0	41	0	41	0	0	1	0	1	42	477
07:15 AM	11	81	0	0	92	1	369	0	0	370	462	0	0	44	0	44	0	0	0	0	0	44	506
07:30 AM	14	83	0	0	97	0	436	0	0	436	533	0	0	53	0	53	0	0	0	0	0	53	586
07:45 AM	10	80	0	0	90	1	331	1	0	333	423	1	0	39	0	40	0	0	1	0	1	41	464
TOTAL	40	320	0	0	360	2	1,490	1	0	1,493	1,853	1	0	177	0	178	0	0	2	0	2	180	2,033
08:00 AM	5	76	1	0	82	0	282	0	0	282	364	0	0	43	0	43	0	0	0	0	0	43	407
08:15 AM	7	93	0	0	100	0	255	0	0	255	355	1	0	27	0	28	0	0	0	0	0	28	383
08:30 AM	12	97	0	0	109	0	249	1	0	250	359	0	0	28	0	28	0	1	0	0	1	29	388
08:45 AM	6	82	0	0	88	2	166	0	0	168	256	0	0	17	0	17	0	0	0	0	0	17	273
TOTAL	30	348	1	0	379	2	952	1	0	955	1,334	1	0	115	0	116	0	1	0	0	1	117	1,451
04:00 PM	39	254	1	0	294	0	113	0	0	113	407	0	0	9	0	9	0	0	2	0	2	11	418
04:15 PM	49	272	1	0	322	0	120	1	0	121	443	0	1	8	0	9	0	0	1	0	1	10	453
04:30 PM	48	280	1	0	329	1	107	0	0	108	437	1	0	12	0	13	0	0	0	0	0	13	450
04:45 PM	56	309	0	0	365	1	121	1	0	123	488	0	0	14	0	14	0	0	0	0	0	14	502
TOTAL	192	1,115	3	0	1,310	2	461	2	0	465	1,775	1	1	43	0	45	0	0	3	0	3	48	1,823
05:00 PM	51	311	1	0	363	0	127	1	0	128	491	1	0	16	0	17	1	0	0	0	1	18	509
05:15 PM	49	364	1	0	414	0	129	3	1	133	547	0	0	21	1	22	0	0	2	0	2	24	571
05:30 PM	53	379	1	0	433	0	145	0	0	145	578	0	0	25	0	25	0	0	1	0	1	26	604
05:45 PM	44	290	1	0	335	1	99	0	0	100	435	0	0	9	0	9	0	0	1	0	1	10	445
TOTAL	197	1,344	4	0	1,545	1	500	4	1	506	2,051	1	0	71	1	73	1	0	4	0	5	78	2,129

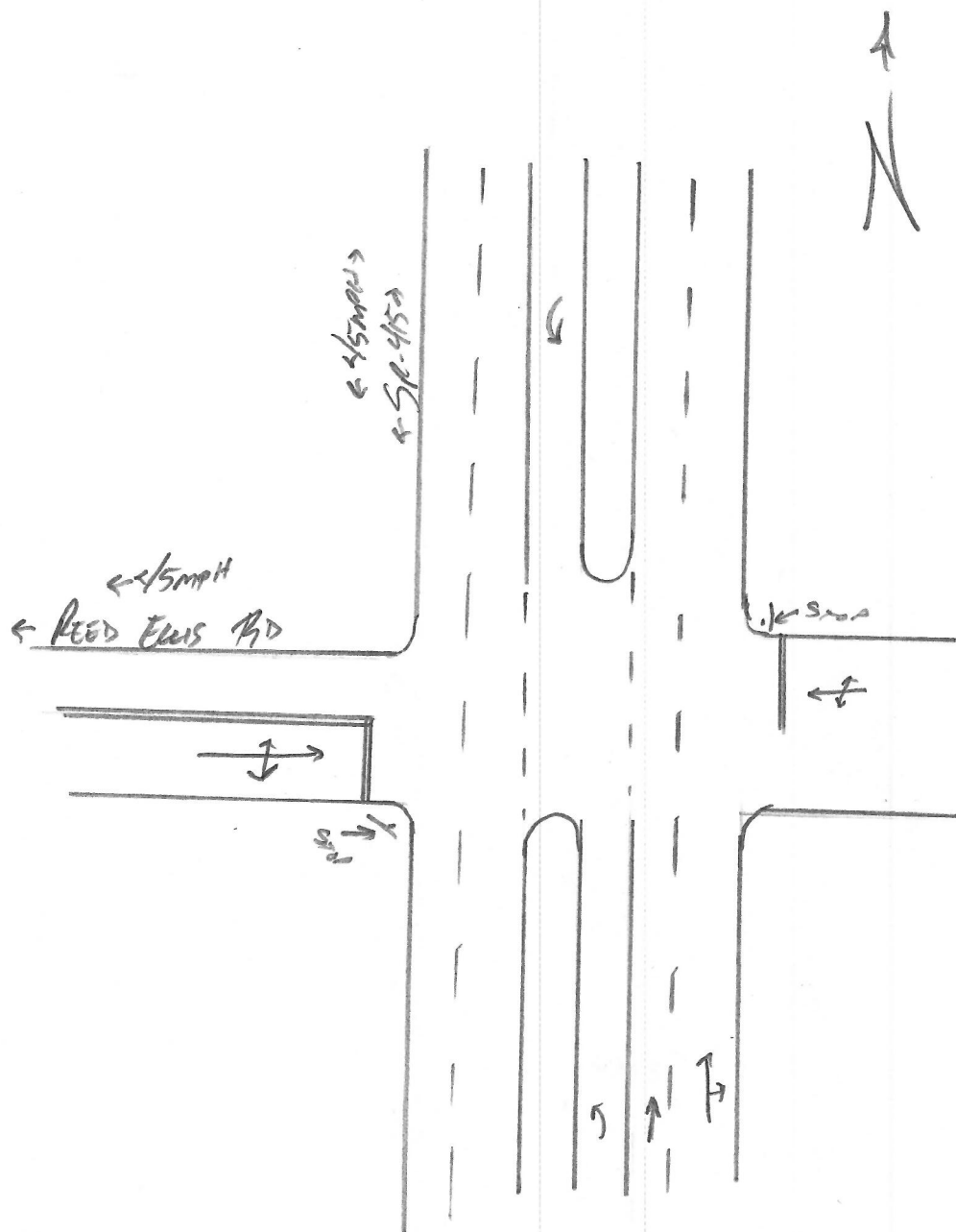
AM Peak																Peak Hour Factor: 0.867							
07:00 AM to 08:00 AM	40	320	0	0	360	2	1,490	1	0	1,493	1,853	1	0	177	0	178	0	0	2	0	2	180	2,033
PM Peak																Peak Hour Factor: 0.905							
04:45 PM to 05:45 PM	209	1,363	3	0	1,575	1	522	5	1	529	2,104	1	0	76	1	78	1	0	3	0	4	82	2,186



(Trucks Only)

LONGITUDE: 0

[illegible]



2017 PEAK SEASON FACTOR CATEGORY REPORT - REPORT TYPE: ALL
 CATEGORY: 7900 VOLUSIA COUNTYWIDE

WEEK	DATES	SF	MOCF: 0.96 PSCF
1	01/01/2017 - 01/07/2017	1.01	1.05
2	01/08/2017 - 01/14/2017	1.02	1.06
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	1.01	1.05
6	02/05/2017 - 02/11/2017	0.99	1.03
* 7	02/12/2017 - 02/18/2017	0.98	1.02
* 8	02/19/2017 - 02/25/2017	0.96	1.00
* 9	02/26/2017 - 03/04/2017	0.95	0.99
* 10	03/05/2017 - 03/11/2017	0.94	0.98
* 11	03/12/2017 - 03/18/2017	0.93	0.97
* 12	03/19/2017 - 03/25/2017	0.94	0.98
* 13	03/26/2017 - 04/01/2017	0.95	0.99
* 14	04/02/2017 - 04/08/2017	0.96	1.00
* 15	04/09/2017 - 04/15/2017	0.97	1.01
* 16	04/16/2017 - 04/22/2017	0.97	1.01
* 17	04/23/2017 - 04/29/2017	0.98	1.02
* 18	04/30/2017 - 05/06/2017	0.98	1.02
* 19	05/07/2017 - 05/13/2017	0.99	1.03
20	05/14/2017 - 05/20/2017	1.00	1.04
21	05/21/2017 - 05/27/2017	1.00	1.04
22	05/28/2017 - 06/03/2017	1.01	1.05
23	06/04/2017 - 06/10/2017	1.02	1.06
24	06/11/2017 - 06/17/2017	1.03	1.07
25	06/18/2017 - 06/24/2017	1.03	1.07
26	06/25/2017 - 07/01/2017	1.04	1.08
27	07/02/2017 - 07/08/2017	1.04	1.08
28	07/09/2017 - 07/15/2017	1.05	1.09
29	07/16/2017 - 07/22/2017	1.04	1.08
30	07/23/2017 - 07/29/2017	1.03	1.07
31	07/30/2017 - 08/05/2017	1.03	1.07
32	08/06/2017 - 08/12/2017	1.02	1.06
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	1.06	1.10
36	09/03/2017 - 09/09/2017	1.08	1.13
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	1.02	1.06
41	10/08/2017 - 10/14/2017	1.00	1.04
42	10/15/2017 - 10/21/2017	0.97	1.01
43	10/22/2017 - 10/28/2017	0.98	1.02
44	10/29/2017 - 11/04/2017	0.98	1.02
45	11/05/2017 - 11/11/2017	0.99	1.03
46	11/12/2017 - 11/18/2017	1.00	1.04
47	11/19/2017 - 11/25/2017	1.00	1.04
48	11/26/2017 - 12/02/2017	1.00	1.04
49	12/03/2017 - 12/09/2017	1.01	1.05
50	12/10/2017 - 12/16/2017	1.01	1.05
51	12/17/2017 - 12/23/2017	1.02	1.06
52	12/24/2017 - 12/30/2017	1.03	1.07
53	12/31/2017 - 12/31/2017	1.04	1.08

* PEAK SEASON

02-MAR-2018 15:35:06

830UPD

5_7900_PKSEASON.TXT

COUNTY OF VOLUSIA TRAFFIC SIGNAL TIMING SHEET

LOCATION: SR 415 & Doyle Rd.

Deltona

ISOLATED: ☒ X

DATE: 2/1/2012

SIGNAL #: 442

CO-ORD: ☐

Design By: GMB-Kathy Lee, PE

System #: -

Controller Timing Chart

PHASE	1	2	3	4	5	6	7	8	
DIRECTION	NBL	SB	EBL	WB	SBL	NB	WBL	EB	
TURN TYPE	PROT	-	PROT		PROT	-	-	-	
MIN GREEN	5	15	5		5	15		5	
EXTENSION	3	3	3		3	3		3	
CLEARANCE	4.3	4.3	4.0		4.3	4.3		4.0	
ALL RED	1.8	1.8	2.4		1.8	1.6		1.5	
WALK	-	7		7					
FDW	-	23		27					
MAX 1	20	50	20		20	50		20	
MAX 2	-	-		-	-	-		-	
MAX 3	-	-		-	-	-		-	
ADJUST	-	-		-	-	-		-	
RECALL	-	MIN		-	-	MIN		-	
DETECTOR	NON-LOCK	LOCK			NON-LOCK	LOCK		NON-LOCK	
FLASH	-	YELLOW			-	YELLOW		RED	
SET	-	-		-	-	-		-	
CLEAR	-	-		-	-	-		-	
BASE DAY	1	2	3	4	5	6	7	Crosswalk Length	
MON #1	TIME	00:01-00:00						P2	
	PLAN	FREE							
TUES#1	TIME	00:01-00:00						59 Feet	
	PLAN	FREE							
WED #1	TIME	00:01-00:00						P4	
	PLAN	FREE							
THU #1	TIME	00:01-00:00						84 Feet	
	PLAN	FREE							
FRI #1	TIME	00:01-00:00						P6	
	PLAN	FREE							
SAT #2	TIME	00:01-00:00						44 Feet	
	PLAN	FREE							
SUN #3	TIME	00:01-00:00						P8	
	PLAN	FREE							
CONTROLLER TYPE		CONDITION OF OVERHEAD		New 11/2009		PROM NUMBER		84 Feet	
3000E		OVERHEAD STREET NAMES		NO					
PHASES:		ILLUMINATED STREET NAMES		YES		8216A 3.7.3		SIGNAL OWNER ⁴	
CABINET TYPE		PRE-EMPTION		NO		IP ADDRESS		County	
CABINET DATE		PRE-EMPTION TYPE		N/A		10.40.91.35		LED	YES

REMARKS:

1	2	4
5	6	8

Switch IP.# _____
Controller IP.# _____
Radio IP # _____



GMB-Kathy Lee, PE

SR 415 & Doyle Rd.

SIGNAL ID NO: 442

TP# XX

1	2	4
5	6	8

CY/SP	C1/S1	C2/S1	C3/S1	C4/S1	C5/S1	C6/S1	
PH 1	-	-	-	-	-	-	
PH 2	-	-	-	-	-	-	
PH 3	-	-	-	-	-	-	
PH 4	-	-	-	-	-	-	
PH 5	-	-	-	-	-	-	
PH 6	-	-	-	-	-	-	
PH 7	-	-	-	-	-	-	
PH 8	-	-	-	-	-	-	

[illegible]

COUNTY OF VOLUSIA TRAFFIC SIGNAL TIMING SHEET

LOCATION: SR 415 & Howland Blvd.
Deltona

ISOLATED: ☒ X

DATE: 2/24/2016

SIGNAL #: 441

CO-ORD:

Design By: M. Tobin

System #: -

Controller Timing Chart

PHASE		1	2	3	4	5	6	7	8 OLA	
DIRECTION		NBL	SB	EBL	WB	SBL	NB	WBL	EB	
TURN TYPE		PROT	-	PROT		PROT	-	-	-	
MIN GREEN		5	15	5	5	5	15		5	
EXTENSION		3	3	3	3	3	3		3	
CLEARANCE		4.5	4.5	4.5	4.5	5.0	5.0		4.0	
ALL RED		2.5	2.0	2.0	2.0	3.5	3.0		3.5	
WALK		-	7		7	-				
FDW		-	30		28	-				
MAX 1		23	50	30	20	20	50		30	
MAX 2		-	-		-	-	-		-	
MAX 3		-	-		-	-	-		-	
ADJUST		-	-		-	-	-		-	
RECALL		-	MIN		-	-	MIN		-	
DETECTOR		NON-LOCK	LOCK			NON-LOCK	LOCK		NON-LOCK	
FLASH		-	YELLOW			-	YELLOW		RED	
SET		-	-		-	-	-		-	
CLEAR		-	-		-	-	-		-	
BASE DAY		1	2	3	4	5	6	7	Crosswalk Length	
MON #1	TIME	00:00-00:00							P2	
	PLAN	FREE								
TUES#1	TIME	00:00-00:00							59 Feet	
	PLAN	FREE								
WED #1	TIME	00:00-00:00							P4	
	PLAN	FREE								
THU #1	TIME	00:00-00:00							84 Feet	
	PLAN	FREE								
FRI #1	TIME	00:00-00:00							P6	
	PLAN	FREE								
SAT #2	TIME	00:00-00:00							44 Feet	
	PLAN	FREE								
SUN #3	TIME	00:00-00:00							P8	
	PLAN	FREE								
CONTROLLER TYPE			CONDITION OF OVERHEAD		New 11/2009		PROM NUMBER		84 Feet	
ECONOLITE ASC/3			OVERHEAD STREET NAMES		NO					
PHASES:		8Φ	ILLUMINATED STREET NAMES		YES				SIGNAL OWNER ⁴	
CABINET TYPE		V	PRE-EMPTION		NO		IP ADDRESS		County	
CABINET DATE		-	PRE-EMPTION TYPE		N/A		10.40.91.34		LED	YES

REMARKS:

(OVERLAP A) PARENT PHASES 1,3,4 AND 8

1	2	3	4
5	6	8	

Switch IP #	_____
Controller IP #	_____
Camera IP #	_____
Radio IP #	_____

M. Tobin

SIGNAL ID NO: 441 SYSTEM ID: -



1	2	3	4
5	6	8	

CV/SP	C1/S1	C2/S1	C3/S1	C4/S1	C5/S1	C6/S1	
PH 1	-	-	-	-	-	-	
PH 2	-	-	-	-	-	-	
PH 3	-	-	-	-	-	-	
PH 4	-	-	-	-	-	-	
PH 5	-	-	-	-	-	-	
PH 6	-	-	-	-	-	-	
PH 7	-	-	-	-	-	-	
PH 8	-	-	-	-	-	-	

[illegible]

COUNTY OF VOLUSIA TRAFFIC SIGNAL TIMING SHEET

LOCATION: Doyle Road & Courtland Blvd
Deltona

ISOLATED: ☒ X

DATE: 3/2/2015

SIGNAL #: 382

CO-ORD: ☐

Design By: M. Tobin

System #: -

Controller Timing Chart

PHASE	1	2	3	4	5	6	7	8	
DIRECTION	EBL	WB	-	NB	-	EB	-	SB	
TURN TYPE	PERM/PROT	-	-	-	-	-	-	-	
MIN GREEN	5	12		7		12		7	
EXTENSION	3	3		3		3		3	
CLEARANCE	5.0	4.5		4.0		5.0		4.5	
ALL RED	3.0	3.0		3.0		3.0		3.0	
WALK	-	10		10		10		10	
FDW	-	20		22		20		22	
MAX 1	15	30		25		30		25	
MAX 2	-	-		-		-		-	
MAX 3	-	-		-		-		-	
ADJUST	-	-		-		-		-	
RECALL	-	MIN		-		MIN		-	
DETECTOR	NON-LOCK	LOCK		NON-LOCK		LOCK		NON-LOCK	
FLASH	-	YELLOW		RED		YELLOW		RED	
SET	-	-		-		-		-	
CLEAR	-	-		-		-		-	
BASE DAY	1	2	3	4	5	6	7	Crosswalk Length	
MON #1	TIME 00:01-00:00								
	PLAN FREE							P2	
TUES#1	TIME 00:01-00:00							55 Feet	
	PLAN FREE							P4	
WED #1	TIME 00:01-00:00							74 Feet	
	PLAN FREE							P6	
THU #1	TIME 00:01-00:00							65 Feet	
	PLAN FREE							P8	
FRI #1	TIME 00:01-00:00							74 Feet	
	PLAN FREE							P6	
SAT #2	TIME 00:01-00:00							65 Feet	
	PLAN FREE							P8	
SUN #3	TIME 00:01-00:00							74 Feet	
	PLAN FREE							P8	
CONTROLLER TYPE		CONDITION OF OVERHEAD		OK		PROM NUMBER		74 Feet	
1880 EL		OVERHEAD STREET NAMES		NO					
PHASES:		ILLUMINATED STREET NAMES		YES		92R07		SIGNAL OWNER	
CABINET TYPE		PRE-EMPTION		NO		IP ADDRESS		County	
CABINET DATE		PRE-EMPTION TYPE		N/A		-		LED	YES

REMARKS:

1	2	4
6	8	

Switch IP.#	
Controller IP.#	-
Camera IP #	



DESIGNED BY:

DATE: 3/2/2015

LOCATION: Doyle Road & Courtland Blvd

CITY: Deltona

SIGNAL ID NO: 382

SYSTEM ID: -

CONTROLLER TIME CHART													CO-ORDINATION					TP#		XX	
MIN	EXT	CLR	A.R.	WALK	FDW	MAX1	MAX2	MAX3	ADJUST	REC	DET	FL	SET	CLR	C1/S1	C2/S1	C3/S1	C4/S1	C5/S1	C6/S1	
1	5	3	3	-	-	15	-	-	-	-	NIL	-	-	-	PLAN						
2	12	3	4.5	3	20	30	-	-	-	MIN	L	Y	-	-	CYCLE						
3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	OFF 1						
4	7	3	4	3	10	25	-	-	-	-	NIL	R	-	-	OFF 2						
5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	OFF 3						
6	12	3	5	3	10	30	-	-	MIN	-	L	Y	-	-	OFF 4						
7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	OFF 5						
8	7	3	4.5	3	10	22	25	-	-	-	NIL	R	-	-	PERM	10%	10%	10%	10%	10%	

PHASE SPLITS (seconds)

CY/SP	C1/S1	C2/S1	C3/S1	C4/S1	C5/S1	C6/S1	
PH 1	-	-	-	-	-	-	
PH 2	-	-	-	-	-	-	
PH 3	-	-	-	-	-	-	
PH 4	-	-	-	-	-	-	
PH 5	-	-	-	-	-	-	
PH 6	-	-	-	-	-	-	
PH 7	-	-	-	-	-	-	
PH 8	-	-	-	-	-	-	

1	2	4
	6	8

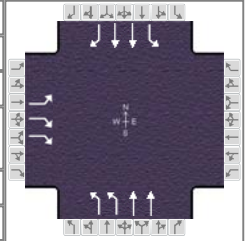
[illegible]

APPENDIX C

Existing Conditions Capacity Analysis Worksheets

HCS7 Signalized Intersection Results Summary

General Information					Intersection Information	
Agency	TPD, Inc.				Duration, h	0.25
Analyst	TPD, Inc.		Analysis Date	10/22/2018	Area Type	Other
Jurisdiction	Volusia County		Time Period	A.M. Peak Hour (Existing)	PHF	0.91
Urban Street	SR 415		Analysis Year	2018	Analysis Period	1 > 7:00
Intersection	SR 415 & Howland Blvd		File Name	SR 415 & Howland Blvd.xus		
Project Description	Enterprise Osteen-PUD					



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	32		953				201	253		0	433	14

Signal Information														
Cycle, s	72.5	Reference Phase	2											
Offset, s	0	Reference Point	End											
Uncoordinated	Yes	Simult. Gap E/W	On	Green	0.0	6.0	16.5	28.9	0.0	0.0				
				Yellow	5.0	4.5	4.5	4.0	0.0	0.0				
Force Mode	Fixed	Simult. Gap N/S	On	Red	3.5	2.5	2.0	3.5	0.0	0.0				

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		8			1	6	5	2
Case Number		9.0			1.1	4.0	2.0	3.0
Phase Duration, s		36.4			13.0	36.0	0.0	23.0
Change Period, ($Y+R_c$), s		7.5			7.0	8.0	8.5	8.0
Max Allow Headway (MAH), s		4.3			4.0	3.9	0.0	3.9
Queue Clearance Time (g_s), s		27.6			5.4	5.8		10.8
Green Extension Time (g_e), s		1.3			0.7	3.2	0.0	3.2
Phase Call Probability		1.00			0.99	1.00		1.00
Max Out Probability		1.00			0.00	0.00		0.00

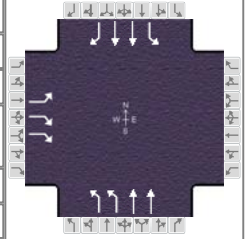
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3		18				1	6		5	2	12
Adjusted Flow Rate (v), veh/h	35		1047				221	278		0	476	15
Adjusted Saturation Flow Rate (s), veh/h/ln	1810		1414				1730	1752		1810	1795	1572
Queue Service Time (g_s), s	0.9		25.6				3.4	3.8		0.0	8.8	0.6
Cycle Queue Clearance Time (g_c), s	0.9		25.6				3.4	3.8		0.0	8.8	0.6
Green Ratio (g/C)	0.40		0.40				0.32	0.39			0.21	0.21
Capacity (c), veh/h	722		1129				645	1356		2	743	325
Volume-to-Capacity Ratio (X)	0.049		0.928				0.343	0.205		0.000	0.640	0.047
Back of Queue (Q), ft/ln (95 th percentile)	14		351.7				55.8	62.3		0	158.7	9.1
Back of Queue (Q), veh/ln (95 th percentile)	0.6		14.0				2.2	2.4		0.0	6.3	0.4
Queue Storage Ratio (RQ) (95 th percentile)	0.04		1.02				0.12	0.00		0.00	0.00	0.04
Uniform Delay (d_1), s/veh	13.3		20.8				18.9	14.8		0.0	26.3	23.0
Incremental Delay (d_2), s/veh	0.0		12.4				0.3	0.1		0.0	0.9	0.1
Initial Queue Delay (d_3), s/veh	0.0		0.0				0.0	0.0		0.0	0.0	0.0
Control Delay (d), s/veh	13.4		33.1				19.2	14.9		0.0	27.2	23.1
Level of Service (LOS)	B		C				B	B			C	C
Approach Delay, s/veh / LOS	32.5		C		0.0		16.8	B		27.1		C
Intersection Delay, s/veh / LOS	27.4						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.46	B	2.46	B	1.39	A	2.28	B
Bicycle LOS Score / LOS		F			0.90	A	0.89	A

HCS7 Signalized Intersection Results Summary

General Information

Agency	TPD, Inc.		
Analyst	TPD, Inc.	Analysis Date	10/22/2018
Jurisdiction	Volusia	Time Period	A.M. Peak Hour (Existing)
Urban Street	SR 415	Analysis Year	2018
Intersection	SR 415 & Dyle Rd	File Name	SR 415 & Doyle R
Project Description	Enterprise Osteen-PUD		



Demand Information

	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	150		370				177	432		2	1224	86

Signal Information

Cycle, s	70.1	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	Yes	Simult. Gap E/W	On	Green	0.2	4.7	34.2	13.3	0.0	0.0		
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.3	0.0	4.3	4.0	0.0	0.0		
				Red	1.8	0.0	1.8	1.5	0.0	0.0		

Timer Results

	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		8			1	6	5	2
Case Number		9.0			1.1	4.0	2.0	3.0
Phase Duration, s		18.8			11.0	45.0	6.3	40.3
Change Period, (Y+R _c), s		5.5			6.1	6.1	6.1	6.1
Max Allow Headway (MAH), s		4.2			4.0	3.9	4.0	3.9
Queue Clearance Time (g _s), s		11.7			3.9	6.9	2.1	23.9
Green Extension Time (g _e), s		1.6			0.6	11.8	0.0	10.3
Phase Call Probability		1.00			0.98	1.00	0.04	1.00
Max Out Probability		0.23			0.00	0.04	0.00	0.17

Movement Group Results

	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3		18				1	6		5	2	12
Adjusted Flow Rate (v), veh/h	167		411				197	480		2	1360	96
Adjusted Saturation Flow Rate (s), veh/h/ln	1810		1414				1716	1781		1810	1795	1610
Queue Service Time (g _s), s	5.8		9.7				1.9	4.9		0.1	21.9	2.3
Cycle Queue Clearance Time (g _c), s	5.8		9.7				1.9	4.9		0.1	21.9	2.3
Green Ratio (g/C)	0.19		0.19				0.57	0.55		0.00	0.49	0.49
Capacity (c), veh/h	344		538				584	1975		6	1751	786
Volume-to-Capacity Ratio (X)	0.485		0.765				0.337	0.243		0.403	0.777	0.122
Back of Queue (Q), ft/ln (95 th percentile)	105.5		141.6				24.5	65.6		4.4	294.6	29.9
Back of Queue (Q), veh/ln (95 th percentile)	4.2		5.6				1.0	2.6		0.2	11.7	1.2
Queue Storage Ratio (RQ) (95 th percentile)	0.00		0.00				0.00	0.00		0.00	0.00	0.00
Uniform Delay (d ₁), s/veh	25.4		26.9				11.8	8.0		34.9	14.8	9.8
Incremental Delay (d ₂), s/veh	1.1		2.5				0.3	0.1		41.2	0.9	0.1
Initial Queue Delay (d ₃), s/veh	0.0		0.0				0.0	0.0		0.0	0.0	0.0
Control Delay (d), s/veh	26.4		29.4				12.1	8.1		76.2	15.8	9.8
Level of Service (LOS)	C		C				B	A		E	B	A
Approach Delay, s/veh / LOS	28.5		C	0.0			9.3	A		15.5		B
Intersection Delay, s/veh / LOS	16.7						B					

Multimodal Results

	EB			WB			NB			SB		
Pedestrian LOS Score / LOS	2.46		B	2.46		B	1.36		A	2.25		B
Bicycle LOS Score / LOS			F				1.05		A	1.69		B

HCS7 Two-Way Stop-Control Report

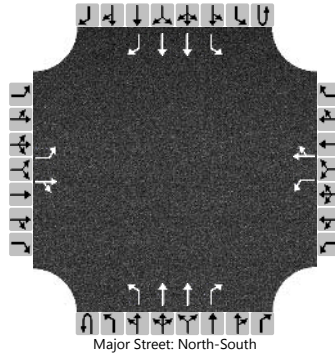
General Information

Analyst	TPD, Inc.
Agency/Co.	TPD, Inc.
Date Performed	10/22/2018
Analysis Year	2018
Time Analyzed	A.M. Peak Hour (Existing)
Intersection Orientation	North-South
Project Description	Enterprise Osteen Rd

Site Information

Intersection	SR 415 & Enterprise Osteen
Jurisdiction	Volusia County
East/West Street	Enterprise Osteen Rd
North/South Street	SR 415
Peak Hour Factor	0.90
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		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		1	1	0		1	1	0	0	1	2	1	0	1	2	1
Configuration		L		TR		L		TR		L	T	R		L	T	R
Volume (veh/h)		17	8	47		51	9	27	0	6	412	15	0	11	1434	25
Percent Heavy Vehicles (%)		1	1	1		1	1	1	1	1			1	1		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized									No				No			
Median Type Storage	Left + Thru								1							

Critical and Follow-up Headways

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

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		19		61		57		40		7				12		
Capacity, c (veh/h)		92		269		194		329		402				1091		
v/c Ratio		0.20		0.23		0.29		0.12		0.02				0.01		
95% Queue Length, Q ₉₅ (veh)		0.7		0.9		1.2		0.4		0.1				0.0		
Control Delay (s/veh)		53.8		22.3		31.0		17.4		14.1				8.3		
Level of Service (LOS)		F		C		D		C		B				A		
Approach Delay (s/veh)	29.7				25.4				0.2				0.1			
Approach LOS	D				D											

HCS7 Two-Way Stop-Control Report

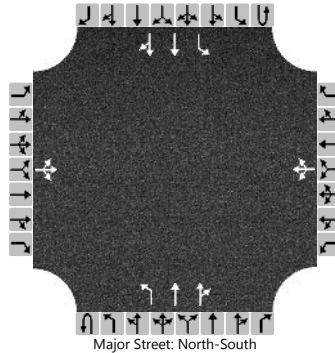
General Information

Analyst	TPD, Inc.
Agency/Co.	TPD, Inc.
Date Performed	10/22/2018
Analysis Year	2018
Time Analyzed	A.M. Peak Hour (Existing)
Intersection Orientation	North-South
Project Description	Enterprise Osteen Rd-PUD

Site Information

Intersection	SR 415 & Reed Ellis Rd
Jurisdiction	Volusia County
East/West Street	Reed Ellis Rd
North/South Street	SR 415
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		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	1	2	0	0	1	2	0
Configuration			LTR				LTR			L	T	TR		L	T	TR
Volume (veh/h)		1	0	195		0	0	2	0	44	352	0	0	2	1639	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	Undivided															

Critical and Follow-up Headways

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

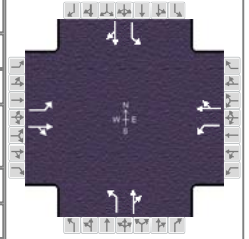
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			225				2			51				2		
Capacity, c (veh/h)			252				808			318				1158		
v/c Ratio			0.90				0.00			0.16				0.00		
95% Queue Length, Q ₉₅ (veh)			7.7				0.0			0.6				0.0		
Control Delay (s/veh)			75.2				9.5			18.5				8.1		
Level of Service (LOS)			F				A			C				A		
Approach Delay (s/veh)	75.2				9.5				2.1				0.0			
Approach LOS	F				A											

HCS7 Signalized Intersection Results Summary

General Information

Agency	TPD, Inc.		
Analyst	TPD, Inc.	Analysis Date	10/22/2018
Jurisdiction	Volusia County	Time Period	A.M. Peak Hour (Existing)
Urban Street	Doyle Rd	Analysis Year	2018
Intersection	Doyle Rd & Courtland Blvd	File Name	Doyle RD & Court
Project Description	Enterprise Osteen-PUD		



Demand Information

	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	81	326	26	19	182	77	19	32	54	156	48	215

Signal Information

Cycle, s	54.5	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	Yes	Simult. Gap E/W	On	Green	3.8	13.5	14.8	0.0	0.0	0.0		
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	5.0	4.5	4.0	0.0	0.0	0.0		
				Red	3.0	3.0	3.0	0.0	0.0	0.0		

Timer Results

	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	1	6		2		4		8
Case Number	1.0	4.0		6.3		6.0		6.0
Phase Duration, s	11.8	32.8		21.0		21.8		21.8
Change Period, ($Y+R_c$), s	8.0	8.0		8.0		7.5		7.5
Max Allow Headway (MAH), s	4.0	4.0		4.0		4.2		4.2
Queue Clearance Time (g_s), s	4.0	10.3		10.5		12.4		11.4
Green Extension Time (g_e), s	0.2	2.5		2.5		1.9		2.0
Phase Call Probability	0.76	1.00		1.00		1.00		1.00
Max Out Probability	0.00	0.01		0.01		0.06		0.05

Movement Group Results

	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	1	6	16	5	2	12	7	4	14	3	8	18
Adjusted Flow Rate (v), veh/h	93	405		22	298		22	99		179	302	
Adjusted Saturation Flow Rate (s), veh/h/ln	1767	1860		996	1761		1094	1640		1307	1605	
Queue Service Time (g_s), s	2.0	8.3		0.9	8.5		1.0	2.6		6.8	9.3	
Cycle Queue Clearance Time (g_c), s	2.0	8.3		0.9	8.5		10.4	2.6		9.4	9.3	
Green Ratio (g/C)	0.34	0.45		0.24	0.24		0.26	0.26		0.26	0.26	
Capacity (c), veh/h	344	845		369	419		231	429		412	420	
Volume-to-Capacity Ratio (X)	0.271	0.479		0.059	0.710		0.095	0.230		0.435	0.720	
Back of Queue (Q), ft/ln (95 th percentile)	30.6	114.6		8.3	143.5		10.7	38.9		82.2	144.1	
Back of Queue (Q), veh/ln (95 th percentile)	1.2	4.5		0.3	5.6		0.4	1.5		3.3	5.6	
Queue Storage Ratio (RQ) (95 th percentile)	0.00	0.00		0.00	0.00		0.00	0.00		0.00	0.00	
Uniform Delay (d_1), s/veh	13.5	10.4		16.2	19.1		23.0	15.8		19.5	18.3	
Incremental Delay (d_2), s/veh	0.4	0.4		0.1	2.2		0.2	0.3		0.7	2.3	
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Control Delay (d), s/veh	13.9	10.8		16.3	21.3		23.2	16.1		20.2	20.6	
Level of Service (LOS)	B	B		B	C		C	B		C	C	
Approach Delay, s/veh / LOS	11.4	B		20.9	C		17.4	B		20.5	C	
Intersection Delay, s/veh / LOS	17.1						B					

Multimodal Results

	EB			WB			NB			SB		
Pedestrian LOS Score / LOS	1.88	B		1.91	B		1.90	B		1.91	B	
Bicycle LOS Score / LOS	1.31	A		1.01	A		0.69	A		1.28	A	

HCS7 Two-Way Stop-Control Report

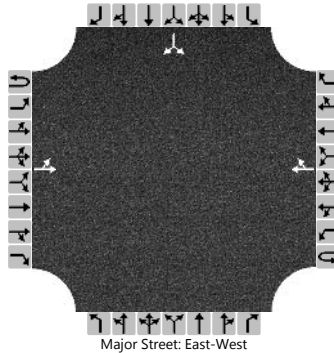
General Information

Analyst	TPD, Inc.
Agency/Co.	TPD, Inc.
Date Performed	10/22/2018
Analysis Year	2018
Time Analyzed	A.M. Peak Hour (Existing)
Intersection Orientation	East-West
Project Description	Enterprise Osteen-PUD

Site Information

Intersection	Enter. Ost. Rd & Courtlan
Jurisdiction	Volusia County
East/West Street	Enterprise Osteen Rd
North/South Street	Courtland Blvd
Peak Hour Factor	0.68
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	0	0		0	1	0
Configuration		LT						TR							LR	
Volume (veh/h)		22	12				20	15						17		57
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

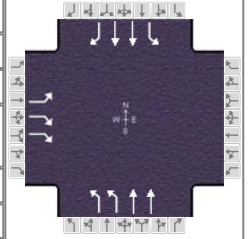
Flow Rate, v (veh/h)		32													109	
Capacity, c (veh/h)		1548													981	
v/c Ratio		0.02													0.11	
95% Queue Length, Q ₉₅ (veh)		0.1													0.4	
Control Delay (s/veh)		7.4													9.1	
Level of Service (LOS)		A													A	
Approach Delay (s/veh)	4.8												9.1			
Approach LOS													A			

HCS7 Signalized Intersection Results Summary

General Information

Agency	TPD, Inc.		
Analyst	TPD, Inc.	Analysis Date	10/22/2018
Jurisdiction	Volusia County	Time Period	P.M. Peak Hour (Existing)
Urban Street	SR 415	Analysis Year	2018
Intersection	SR 415 & Howland Blvd	File Name	SR 415 & Howland Blvd
Project Description	Enterprise Osteen-PUD		

Intersection Information



Demand Information

	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	27		225				755	446		5	319	41

Signal Information

Cycle, s	60.8	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	Yes	Simult. Gap E/W	On	Green	0.5	5.9	16.5	8.5	0.0	0.0		
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	5.0	4.5	4.5	4.0	0.0	0.0		
				Red	3.5	2.5	2.0	3.5	0.0	0.0		

Timer Results

	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		8			1	6	5	2
Case Number		9.0			1.1	4.0	2.0	3.0
Phase Duration, s		16.0			21.9	35.9	9.0	23.0
Change Period, ($Y+R_c$), s		7.5			7.0	8.0	8.5	8.0
Max Allow Headway (MAH), s		4.2			4.0	3.9	4.0	3.9
Queue Clearance Time (g_s), s		7.3			11.8	7.6	2.2	7.3
Green Extension Time (g_e), s		1.2			3.1	4.0	0.0	4.0
Phase Call Probability		0.99			1.00	1.00	0.09	1.00
Max Out Probability		0.00			0.16	0.00	0.00	0.00

Movement Group Results

	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3		18				1	6		5	2	12
Adjusted Flow Rate (v), veh/h	31		262				878	519		6	371	48
Adjusted Saturation Flow Rate (s), veh/h/ln	1810		1414				1743	1795		1810	1795	1610
Queue Service Time (g_s), s	0.9		5.3				9.8	5.6		0.2	5.3	1.4
Cycle Queue Clearance Time (g_c), s	0.9		5.3				9.8	5.6		0.2	5.3	1.4
Green Ratio (g/C)	0.14		0.14				0.52	0.46		0.01	0.25	0.25
Capacity (c), veh/h	252		394				1414	1645		14	885	397
Volume-to-Capacity Ratio (X)	0.124		0.663				0.621	0.315		0.416	0.419	0.120
Back of Queue (Q), ft/ln (95 th percentile)	16.4		76.5				121.8	77.9		6.7	87.8	20.9
Back of Queue (Q), veh/ln (95 th percentile)	0.7		3.0				4.8	3.1		0.3	3.5	0.8
Queue Storage Ratio (RQ) (95 th percentile)	0.05		0.22				0.26	0.00		0.03	0.00	0.09
Uniform Delay (d_1), s/veh	22.9		24.8				10.0	10.4		30.1	19.3	17.8
Incremental Delay (d_2), s/veh	0.2		1.9				0.4	0.1		18.5	0.3	0.1
Initial Queue Delay (d_3), s/veh	0.0		0.0				0.0	0.0		0.0	0.0	0.0
Control Delay (d), s/veh	23.1		26.7				10.4	10.5		48.5	19.6	17.9
Level of Service (LOS)	C		C				B	B		D	B	B
Approach Delay, s/veh / LOS	26.4		C	0.0			10.5	B		19.8		B
Intersection Delay, s/veh / LOS	14.6						B					

Multimodal Results

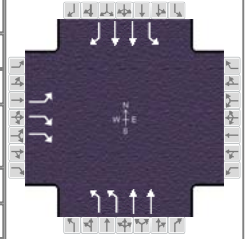
	EB			WB			NB			SB		
Pedestrian LOS Score / LOS	2.46		B	2.45		B	1.37		A	2.27		B
Bicycle LOS Score / LOS			F				1.64		B	0.84		A

HCS7 Signalized Intersection Results Summary

General Information

Agency	TPD, Inc.		
Analyst	TPD, Inc.	Analysis Date	10/22/2018
Jurisdiction	Volusia	Time Period	P.M. Peak Hour (Existing)
Urban Street	SR 415	Analysis Year	2018
Intersection	SR 415 & Dyle Rd	File Name	SR 415 & Doyle R
Project Description	Enterprise Osteen-PUD		

Intersection Information



Demand Information

	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	102		151				378	1044		4	613	97

Signal Information

Cycle, s	49.8	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	Yes	Simult. Gap E/W	On	Green	0.3	6.1	20.1	5.7	0.0	0.0		
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.3	0.0	4.3	4.0	0.0	0.0		
				Red	1.8	0.0	1.8	1.5	0.0	0.0		

Timer Results

	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		8			1	6	5	2
Case Number		9.0			1.1	4.0	2.0	3.0
Phase Duration, s		11.2			12.4	32.2	6.4	26.2
Change Period, ($Y+R_c$), s		5.5			6.1	6.1	6.1	6.1
Max Allow Headway (MAH), s		4.2			4.0	3.9	4.0	3.9
Queue Clearance Time (g_s), s		4.9			4.9	13.1	2.1	8.9
Green Extension Time (g_e), s		0.9			1.5	11.0	0.0	11.2
Phase Call Probability		0.98			1.00	1.00	0.06	1.00
Max Out Probability		0.00			0.00	0.06	0.00	0.04

Movement Group Results

	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3		18				1	6		5	2	12
Adjusted Flow Rate (v), veh/h	112		166				415	1147		4	674	107
Adjusted Saturation Flow Rate (s), veh/h/ln	1810		1414				1743	1795		1810	1795	1610
Queue Service Time (g_s), s	2.9		2.8				2.9	11.1		0.1	6.9	2.1
Cycle Queue Clearance Time (g_c), s	2.9		2.8				2.9	11.1		0.1	6.9	2.1
Green Ratio (g/C)	0.11		0.11				0.57	0.52		0.01	0.40	0.40
Capacity (c), veh/h	207		324				1143	1883		11	1447	649
Volume-to-Capacity Ratio (X)	0.541		0.513				0.364	0.609		0.407	0.466	0.164
Back of Queue (Q), ft/ln (95 th percentile)	52.3		37.2				26.5	119.5		5.1	90.4	24.9
Back of Queue (Q), veh/ln (95 th percentile)	2.1		1.5				1.1	4.7		0.2	3.6	1.0
Queue Storage Ratio (RQ) (95 th percentile)	0.00		0.00				0.00	0.00		0.00	0.00	0.00
Uniform Delay (d_1), s/veh	20.8		20.8				6.3	8.3		24.7	10.9	9.5
Incremental Delay (d_2), s/veh	2.2		1.3				0.2	0.3		22.8	0.2	0.1
Initial Queue Delay (d_3), s/veh	0.0		0.0				0.0	0.0		0.0	0.0	0.0
Control Delay (d), s/veh	23.0		22.0				6.5	8.6		47.5	11.2	9.6
Level of Service (LOS)	C		C				A	A		D	B	A
Approach Delay, s/veh / LOS	22.4		C	0.0			8.0	A		11.2		B
Intersection Delay, s/veh / LOS	10.5						B					

Multimodal Results

	EB			WB			NB			SB		
Pedestrian LOS Score / LOS	2.45		B	2.45		B	1.35		A	2.24		B
Bicycle LOS Score / LOS			F				1.78		B	1.13		A

HCS7 Two-Way Stop-Control Report

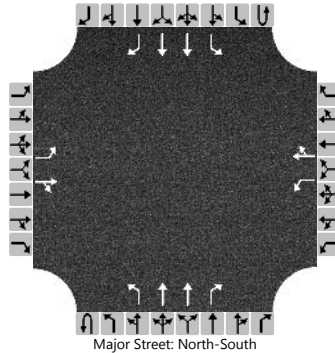
General Information

Analyst	TPD, Inc.
Agency/Co.	TPD, Inc.
Date Performed	10/22/2018
Analysis Year	2018
Time Analyzed	P.M. Peak Hour (Existing)
Intersection Orientation	North-South
Project Description	Enterprise Osteen Rd

Site Information

Intersection	SR 415 & Enterprise Osteen
Jurisdiction	Volusia County
East/West Street	Enterprise Osteen Rd
North/South Street	SR 415
Peak Hour Factor	0.92
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		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		1	1	0		1	1	0	0	1	2	1	0	1	2	1
Configuration		L		TR		L		TR		L	T	R		L	T	R
Volume (veh/h)		14	2	18		28	3	22	0	25	1443	74	0	18	582	24
Percent Heavy Vehicles (%)		1	1	1		0	0	0	1	1			1	1		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized									No				No			
Median Type Storage	Left + Thru								1							

Critical and Follow-up Headways

Base Critical Headway (sec)		7.5	6.5	6.9		7.5	6.5	6.9		4.1				4.1		
Critical Headway (sec)		7.52	6.52	6.92		7.50	6.50	6.90		4.12				4.12		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.51	4.01	3.31		3.50	4.00	3.30		2.21				2.21		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		15		22		30		27		27				20		
Capacity, c (veh/h)		177		426		89		276		932				392		
v/c Ratio		0.09		0.05		0.34		0.10		0.03				0.05		
95% Queue Length, Q ₉₅ (veh)		0.3		0.2		1.3		0.3		0.1				0.2		
Control Delay (s/veh)		27.2		13.9		65.4		19.5		9.0				14.7		
Level of Service (LOS)		D		B		F		C		A				B		
Approach Delay (s/veh)		19.4				43.7				0.1				0.4		
Approach LOS		C				E										

HCS7 Two-Way Stop-Control Report

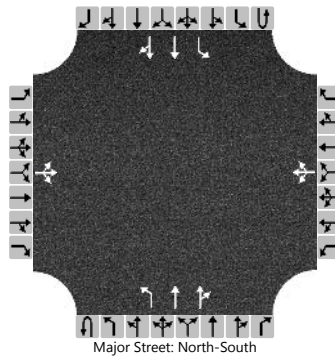
General Information

Analyst	TPD, Inc.
Agency/Co.	TPD, Inc.
Date Performed	10/22/2018
Analysis Year	2018
Time Analyzed	P.M. Peak Hour (Existing)
Intersection Orientation	North-South
Project Description	Enterprise Osteen Rd-PUD

Site Information

Intersection	SR 415 & Reed Ellis Rd
Jurisdiction	Volusia County
East/West Street	Reed Ellis Rd
North/South Street	SR 415
Peak Hour Factor	0.91
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		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	1	2	0	0	1	2	0
Configuration			LTR				LTR			L	T	TR		L	T	TR
Volume (veh/h)		2	0	84		1	0	3	0	230	1499	3	0	2	574	6
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

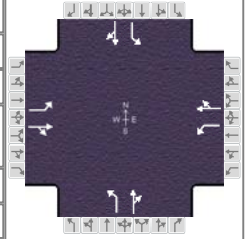
Base Critical Headway (sec)		7.5	6.5	6.9		7.5	6.5	6.9		4.1				4.1		
Critical Headway (sec)		7.52	6.52	6.92		7.52	6.52	6.92		4.12				4.12		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.51	4.01	3.31		3.51	4.01	3.31		2.21				2.21		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			95				4			253				2		
Capacity, c (veh/h)			593				97			949				392		
v/c Ratio			0.16				0.05			0.27				0.01		
95% Queue Length, Q ₉₅ (veh)			0.6				0.1			1.1				0.0		
Control Delay (s/veh)			12.2				43.9			10.2				14.2		
Level of Service (LOS)			B				E			B				B		
Approach Delay (s/veh)	12.2				43.9				1.3				0.0			
Approach LOS	B				E											

HCS7 Signalized Intersection Results Summary

General Information					Intersection Information	
Agency	TPD, Inc.				Duration, h	0.25
Analyst	TPD, Inc.		Analysis Date	10/22/2018	Area Type	Other
Jurisdiction	Volusia County		Time Period	P.M. Peak Hour (Existing)	PHF	0.93
Urban Street	Doyle Rd		Analysis Year	2018	Analysis Period	1 > 7:00
Intersection	Doyle Rd & Courtland Blvd		File Name	Doyle RD & Courtland Blvd.xus		
Project Description	Enterprise Osteen-PUD					



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	210	172	36	21	345	128	30	54	11	36	45	101

Signal Information											
Cycle, s	58.9	Reference Phase	2								
Offset, s	0	Reference Point	End								
Uncoordinated	Yes	Simult. Gap E/W	On	Green	6.7	19.8	9.9	0.0	0.0	0.0	
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	5.0	4.5	4.0	0.0	0.0	0.0	
				Red	3.0	3.0	3.0	0.0	0.0	0.0	

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	1	6		2		4		8
Case Number	1.0	4.0		6.3		6.0		6.0
Phase Duration, s	14.7	42.0		27.3		16.9		16.9
Change Period, (Y+R _c), s	8.0	8.0		8.0		7.5		7.5
Max Allow Headway (MAH), s	4.0	4.0		4.0		4.1		4.1
Queue Clearance Time (g _s), s	6.4	5.4		17.6		8.6		7.1
Green Extension Time (g _e), s	0.5	2.8		1.7		0.9		0.9
Phase Call Probability	0.98	1.00		1.00		0.99		0.99
Max Out Probability	0.05	0.00		0.10		0.00		0.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	1	6	16	5	2	12	7	4	14	3	8	18
Adjusted Flow Rate (v), veh/h	226	224		23	509		32	70		39	157	
Adjusted Saturation Flow Rate (s), veh/h/ln	1810	1843		1176	1798		1249	1844		1352	1676	
Queue Service Time (g _s), s	4.4	3.4		0.8	15.6		1.4	2.0		1.5	5.1	
Cycle Queue Clearance Time (g _c), s	4.4	3.4		0.8	15.6		6.6	2.0		3.5	5.1	
Green Ratio (g/C)	0.48	0.58		0.33	0.33		0.16	0.16		0.16	0.16	
Capacity (c), veh/h	385	1064		508	590		214	295		294	268	
Volume-to-Capacity Ratio (X)	0.587	0.210		0.044	0.862		0.151	0.237		0.132	0.586	
Back of Queue (Q), ft/ln (95 th percentile)	64.7	39.8		8	258.3		18.2	34.9		20	87.1	
Back of Queue (Q), veh/ln (95 th percentile)	2.6	1.6		0.3	10.2		0.7	1.4		0.8	3.5	
Queue Storage Ratio (RQ) (95 th percentile)	0.00	0.00		0.00	0.00		0.00	0.00		0.00	0.00	
Uniform Delay (d ₁), s/veh	12.7	6.0		13.6	18.6		26.0	21.6		23.1	23.0	
Incremental Delay (d ₂), s/veh	1.4	0.1		0.0	5.4		0.3	0.4		0.2	2.0	
Initial Queue Delay (d ₃), s/veh	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Control Delay (d), s/veh	14.1	6.1		13.6	23.9		26.3	22.0		23.3	25.0	
Level of Service (LOS)	B	A		B	C		C	C		C	C	
Approach Delay, s/veh / LOS	10.1	B		23.5	C		23.4	C		24.7	C	
Intersection Delay, s/veh / LOS	19.0						B					

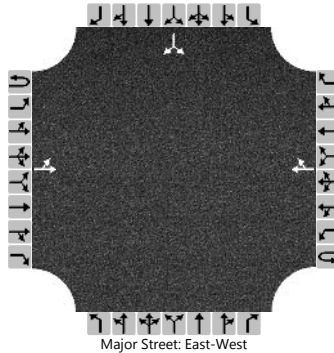
Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.86	B	1.90	B	1.92	B	1.92	B
Bicycle LOS Score / LOS	1.23	A	1.36	A	0.66	A	0.81	A

HCS7 Two-Way Stop-Control Report

General Information

Analyst	TPD, Inc.	Intersection	Enter. Ost. Rd & Courtlan
Agency/Co.	TPD, Inc.	Jurisdiction	Volusia County
Date Performed	10/22/2018	East/West Street	Enterprise Osteen Rd
Analysis Year	2018	North/South Street	Courtland Blvd
Time Analyzed	P.M. Peak Hour (Existing)	Peak Hour Factor	0.81
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Enterprise Osteen-PUD		

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	0	0		0	1	0
Configuration		LT						TR							LR	
Volume (veh/h)		42	11				6	8						3		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)		52													17	
Capacity, c (veh/h)		1593													1005	
v/c Ratio		0.03													0.02	
95% Queue Length, Q ₉₅ (veh)		0.1													0.1	
Control Delay (s/veh)		7.3													8.6	
Level of Service (LOS)		A													A	
Approach Delay (s/veh)	5.9												8.6			
Approach LOS													A			

APPENDIX D

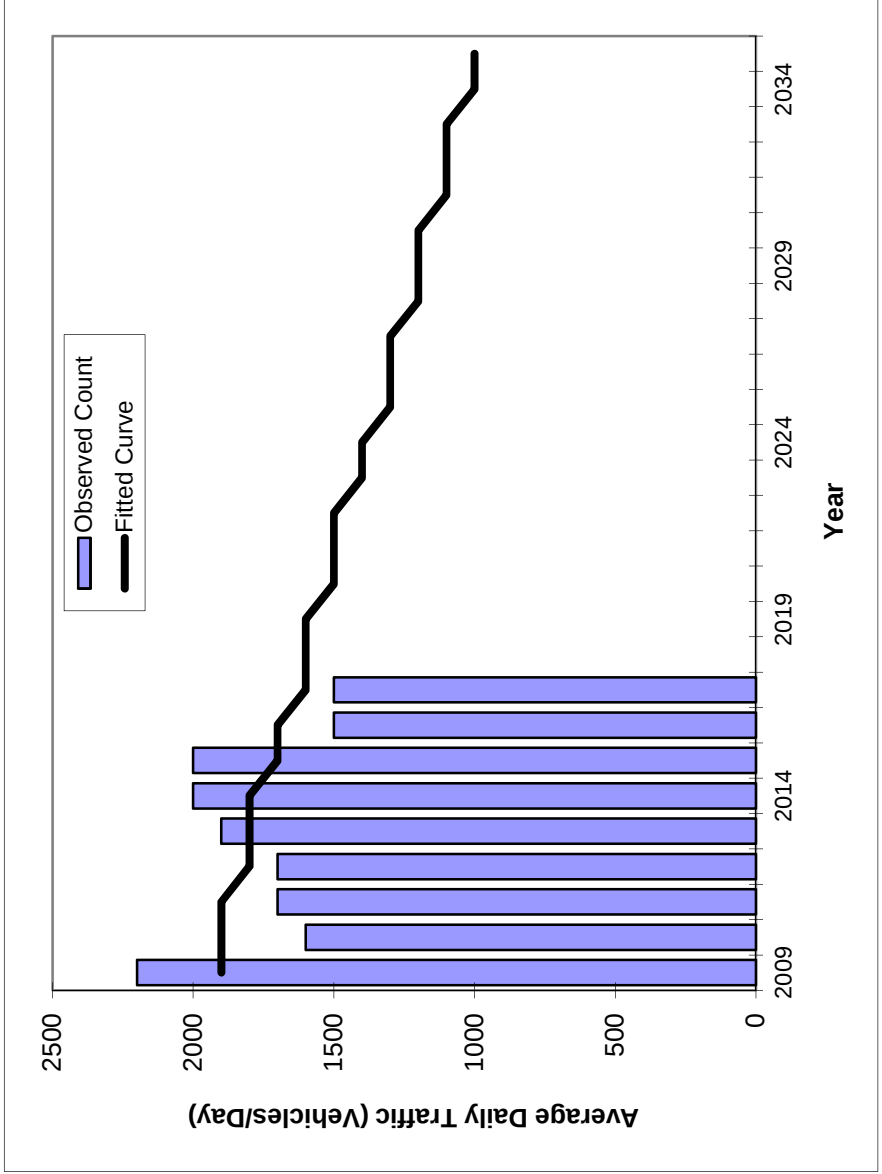
Traffic Trends Analysis Worksheets

Traffic Trends - V3.0

COURTLAND BLVD -- Doyle Rd to Osteen Rd

FIN#	0	1
Location		

County:	Volusia (79)
Station #:	0
Highway:	COURTLAND BLVD



** Annual Trend Increase:	-37
Trend R-squared:	16.50%
Trend Annual Historic Growth Rate:	-1.97%
Trend Growth Rate (2017 to Design Year):	-2.34%
Printed:	22-Oct-18

Straight Line Growth Option

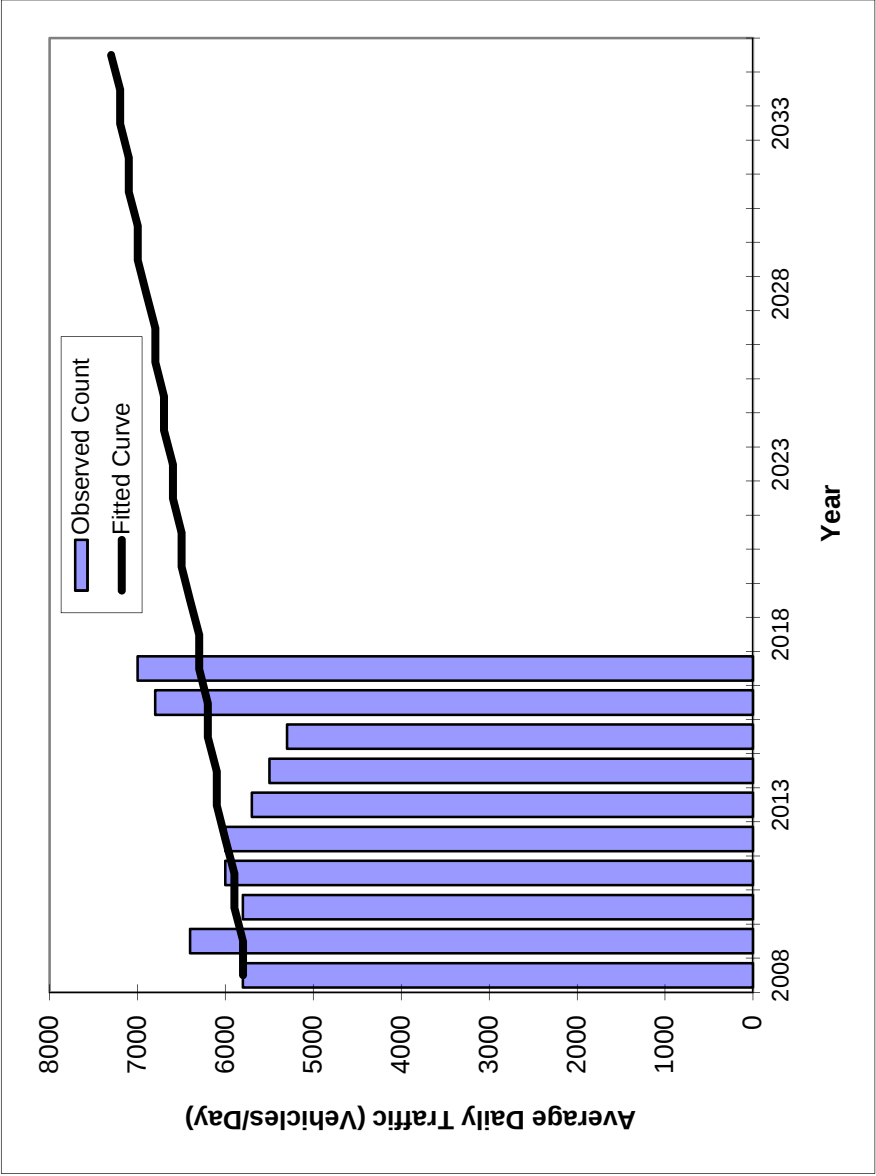
Year	Traffic (ADT/AADT)	Trend**
2009	2200	1900
2010	1600	1900
2011	1700	1900
2012	1700	1800
2013	1900	1800
2014	2000	1800
2015	2000	1700
2016	1500	1700
2017	1500	1600
2020 Opening Year Trend		
2020	N/A	1500
2023 Mid-Year Trend		
2023	N/A	1400
2025 Design Year Trend		
2025	N/A	1300
TRANPLAN Forecasts/Trends		

*Axle-Adjusted

Traffic Trends - V3.0 DOYLE RD -- COURTLAND BLVD TO SR 415

FIN#	0	1
Location		

County:	Volusia (79)
Station #:	0
Highway:	DOYLE RD



** Annual Trend Increase:	56
Trend R-squared:	9.70%
Trend Annual Historic Growth Rate:	0.96%
Trend Growth Rate (2017 to Design Year):	0.79%
Printed:	17-Oct-18
Straight Line Growth Option	

Year	Traffic (ADT/AADT)	Trend**
2008	5800	5800
2009	6400	5800
2010	5800	5900
2011	6000	5900
2012	6000	6000
2013	5700	6100
2014	5500	6100
2015	5300	6200
2016	6800	6200
2017	7000	6300
2020 Opening Year Trend		
2020	N/A	6500
2023 Mid-Year Trend		
2023	N/A	6600
2025 Design Year Trend		
2025	N/A	6700
TRANPLAN Forecasts/Trends		

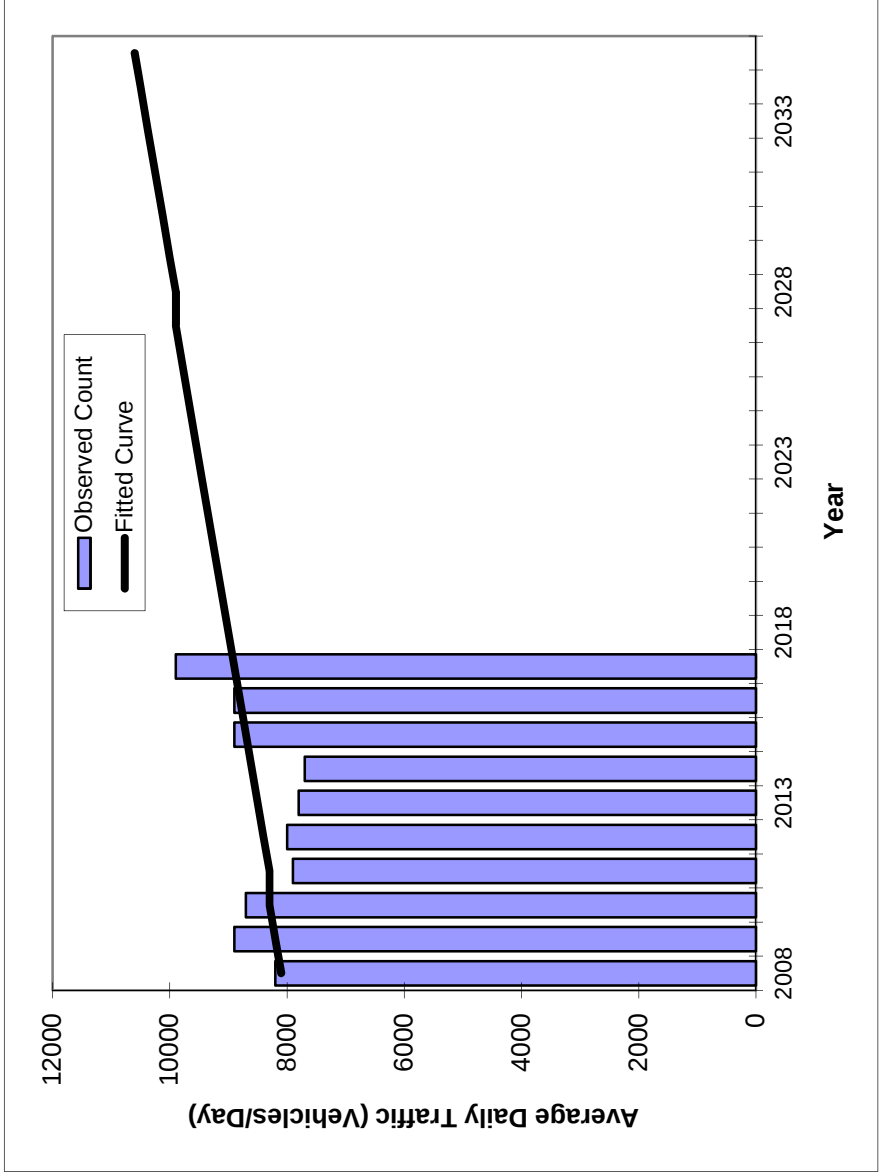
*Axle-Adjusted

Traffic Trends - V3.0

DOYLE RD -- SAXOAN BLVD TO COURTLAND BLVD

FIN#	0	1
Location		

County:	Volusia (79)
Station #:	0
Highway:	DOYLE RD



** Annual Trend Increase:	94
Trend R-squared:	16.90%
Trend Annual Historic Growth Rate:	1.10%
Trend Growth Rate (2017 to Design Year):	1.12%
Printed:	17-Oct-18
Straight Line Growth Option	

Year	Traffic (ADT/AADT)	
	Count*	Trend**
2008	8200	8100
2009	8900	8200
2010	8700	8300
2011	7900	8300
2012	8000	8400
2013	7800	8500
2014	7700	8600
2015	8900	8700
2016	8900	8800
2017	9900	8900
2020 Opening Year Trend		
2020	N/A	9200
2023 Mid-Year Trend		
2023	N/A	9500
2025 Design Year Trend		
2025	N/A	9700
TRANPLAN Forecasts/Trends		

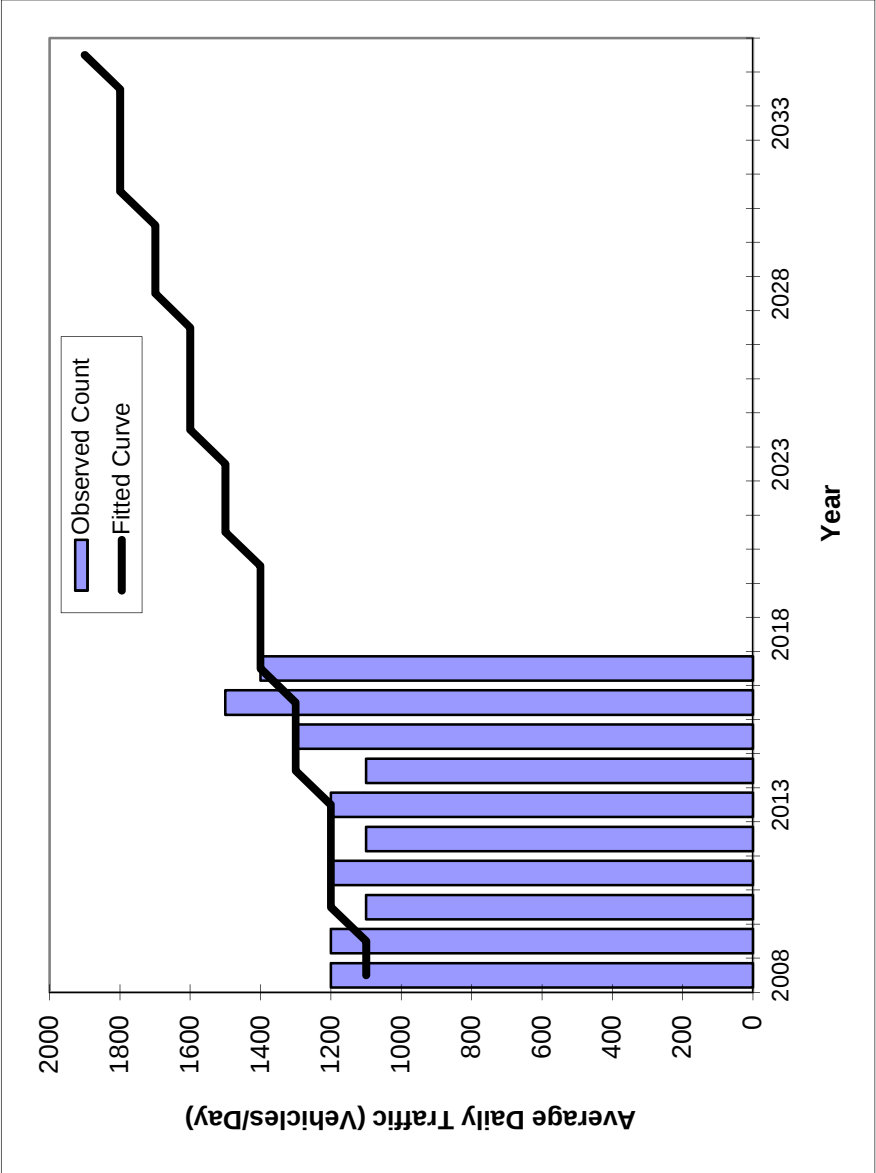
*Axle-Adjusted

Traffic Trends - V3.0

ENTERPRISE OSTEEN RD -- REED ELLIS RD TO SR 415

FIN#	0	1
Location		

County:	Volusia (79)
Station #:	0
Highway:	ENTERPRISE OSTEEN RD



Year	Traffic (ADT/AADT)	Trend**
2008	1200	1100
2009	1200	1100
2010	1100	1200
2011	1200	1200
2012	1100	1200
2013	1200	1200
2014	1100	1300
2015	1300	1300
2016	1500	1300
2017	1400	1400
2020 Opening Year Trend		
2020	N/A	1400
2023 Mid-Year Trend		
2023	N/A	1500
2025 Design Year Trend		
2025	N/A	1600
TRANPLAN Forecasts/Trends		

** Annual Trend Increase:	28
Trend R-squared:	41.58%
Trend Annual Historic Growth Rate:	3.03%
Trend Growth Rate (2017 to Design Year):	1.79%
Printed:	17-Oct-18
Straight Line Growth Option	

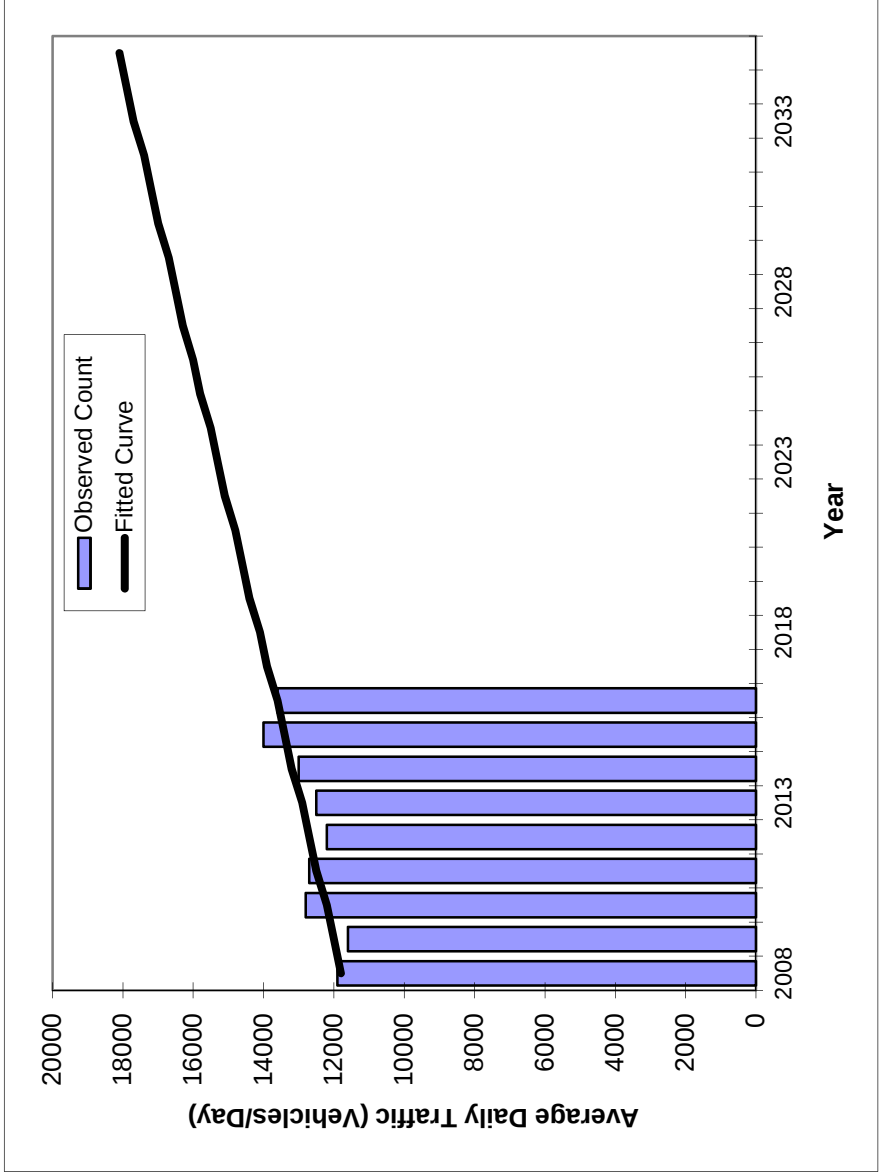
*Axle-Adjusted

Traffic Trends - V3.0

HOWLAND BOULEVARD -- FT SMITH TO SR 415

FIN#	0
Location	1

County:	Volusia (79)
Station #:	0
Highway:	HOWLAND BOULEVARD



Year	Traffic (ADT/AADT)	
	Count*	Trend**
2008	11900	11800
2009	11600	12000
2010	12800	12200
2011	12700	12500
2012	12200	12700
2013	12500	12900
2014	13000	13200
2015	14000	13400
2016	13600	13600

2020 Opening Year Trend	
2020	N/A 14600
2023 Mid-Year Trend	
2023	N/A 15300
2025 Design Year Trend	
2025	N/A 15800
TRANPLAN Forecasts/Trends	

** Annual Trend Increase:	237
Trend R-squared:	70.90%
Trend Annual Historic Growth Rate:	1.91%
Trend Growth Rate (2016 to Design Year):	1.80%
Printed:	22-Oct-18
Straight Line Growth Option	

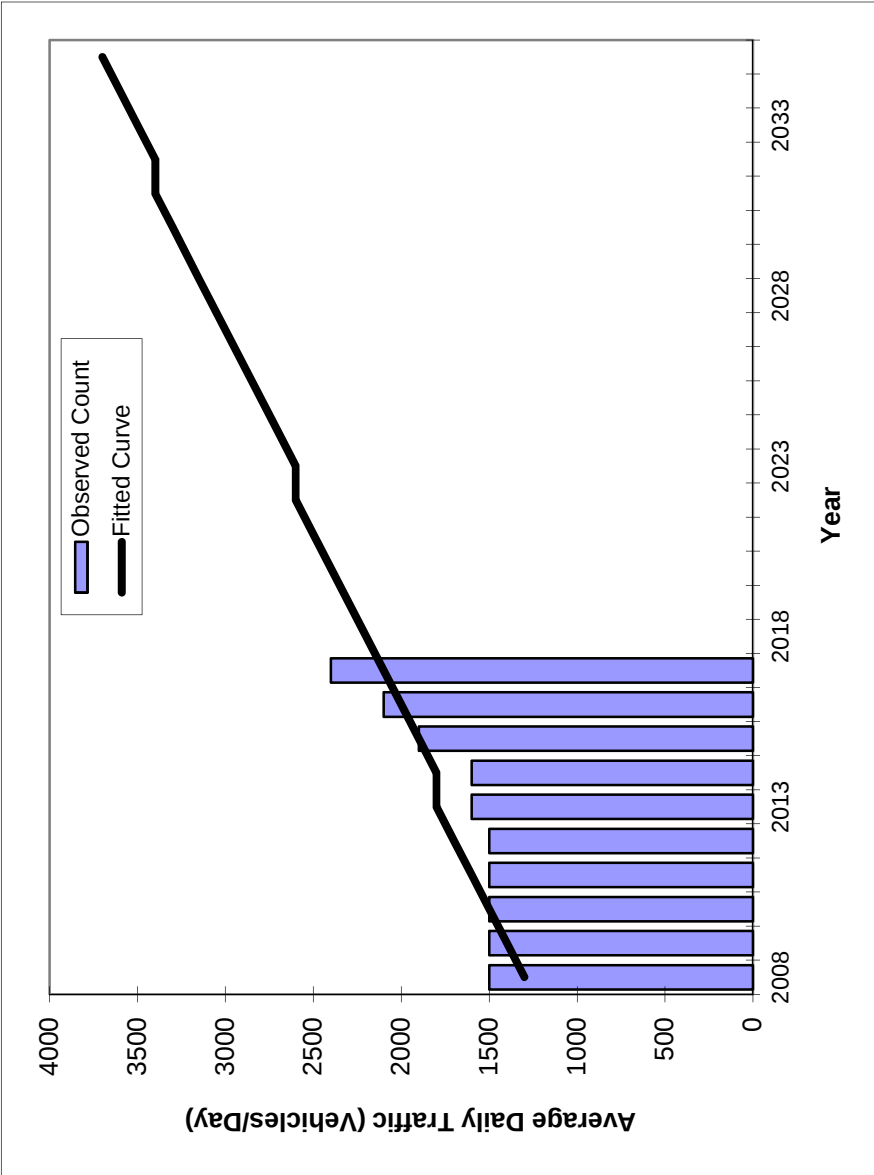
*Axle-Adjusted

Traffic Trends - V3.0

REED ellis rd -- enterprise osteen rd to sr 415

FIN#	0	1
Location		

County:	Volusia (79)
Station #:	0
Highway:	REED ellis rd



** Annual Trend Increase:	89
Trend R-squared:	72.04%
Trend Annual Historic Growth Rate:	6.84%
Trend Growth Rate (2017 to Design Year):	4.17%
Printed:	17-Oct-18

Straight Line Growth Option

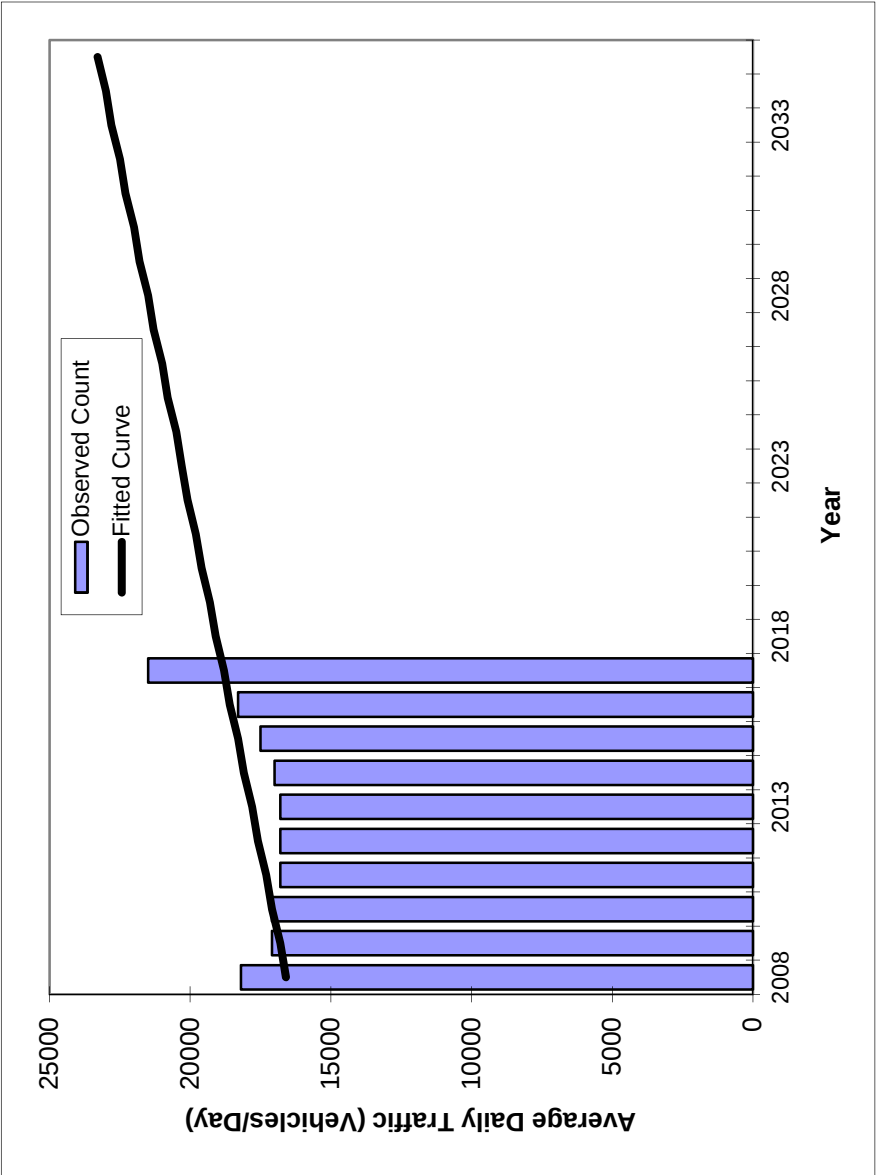
Year	Traffic (ADT/AADT)	
	Count*	Trend**
2008	1500	1300
2009	1500	1400
2010	1500	1500
2011	1500	1600
2012	1500	1700
2013	1600	1800
2014	1600	1800
2015	1900	1900
2016	2100	2000
2017	2400	2100
2020 Opening Year Trend		
2020	N/A	2400
2023 Mid-Year Trend		
2023	N/A	2600
2025 Design Year Trend		
2025	N/A	2800
TRANPLAN Forecasts/Trends		

*Axle-Adjusted

Traffic Trends - V3.0 SR 415 -- Enterprise Osteen Rd to Seminole CO.

FIN#	0	1
Location		

County:	Volusia (79)
Station #:	0
Highway:	SR 415



** Annual Trend Increase:	247
Trend R-squared:	26.80%
Trend Annual Historic Growth Rate:	1.47%
Trend Growth Rate (2017 to Design Year):	1.33%
Printed:	17-Oct-18
Straight Line Growth Option	

Year	Traffic (ADT/AADT)	Trend**
2008	18200	16600
2009	17100	16800
2010	17100	17100
2011	16800	17300
2012	16800	17600
2013	16800	17800
2014	17000	18100
2015	17500	18300
2016	18300	18600
2017	21500	18800
2020 Opening Year Trend		
2020	N/A	19600
2023 Mid-Year Trend		
2023	N/A	20300
2025 Design Year Trend		
2025	N/A	20800
TRANPLAN Forecasts/Trends		

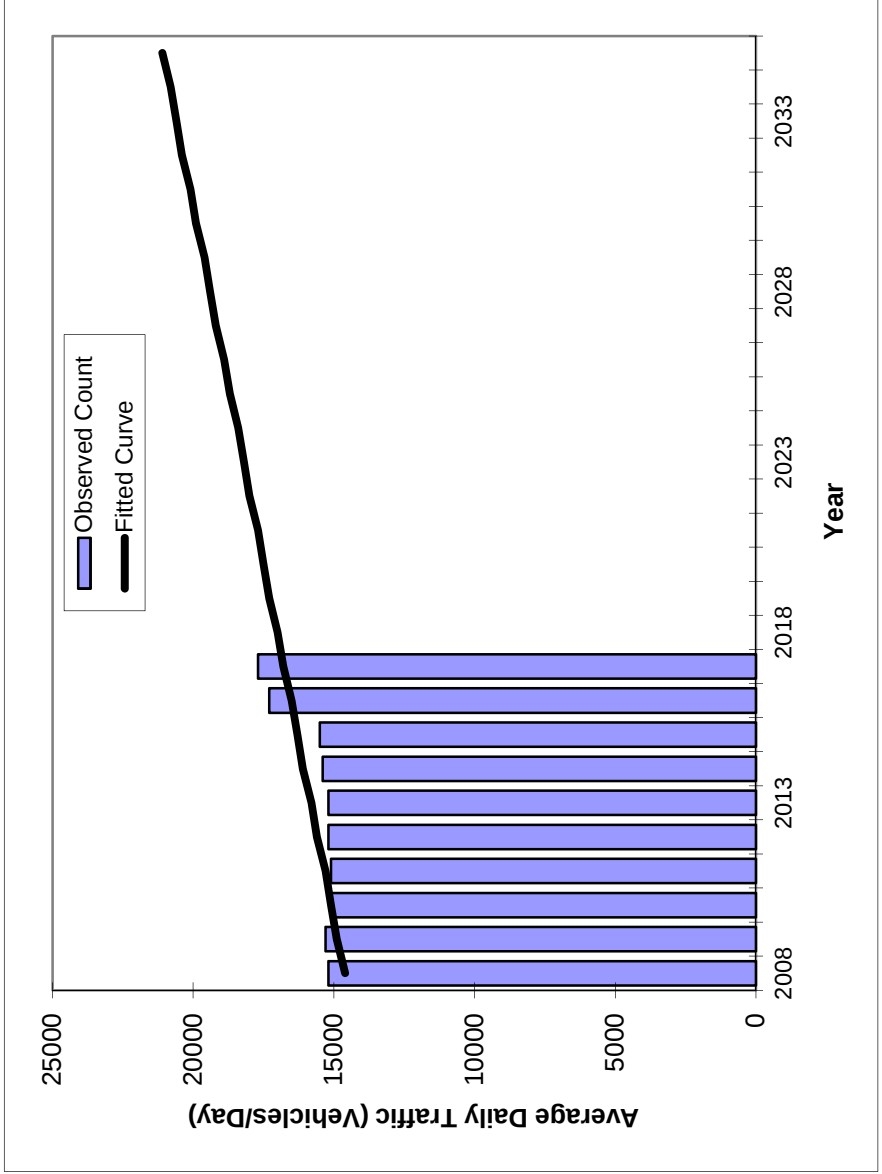
*Axle-Adjusted

Traffic Trends - V3.0

SR 415 -- Howland Blvd to Enterprise Osteen Rd

FIN#	0
Location	1

County:	Volusia (79)
Station #:	0
Highway:	SR 415



** Annual Trend Increase:	239
Trend R-squared:	56.54%
Trend Annual Historic Growth Rate:	1.67%
Trend Growth Rate (2017 to Design Year):	1.41%
Printed:	17-Oct-18

Straight Line Growth Option

Year	Traffic (ADT/AADT)	
	Count*	Trend**
2008	15200	14600
2009	15300	14900
2010	15100	15100
2011	15100	15300
2012	15200	15600
2013	15200	15800
2014	15400	16100
2015	15500	16300
2016	17300	16500
2017	17700	16800
2020 Opening Year Trend		
2020	N/A	17500
2023 Mid-Year Trend		
2023	N/A	18200
2025 Design Year Trend		
2025	N/A	18700
TRANPLAN Forecasts/Trends		

*Axle-Adjusted

APPENDIX E

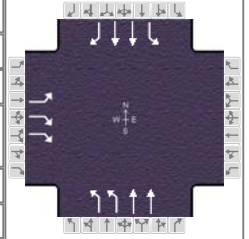
Projected Conditions Capacity Analysis Worksheets

HCS7 Signalized Intersection Results Summary

General Information

Agency	TPD, Inc.		
Analyst	TPD, Inc.	Analysis Date	10/22/2018
Jurisdiction	Volusia County	Time Period	A.M. Peak Hour (Projected)
Urban Street	SR 415	Analysis Year	2018
Intersection	SR 415 & Howland Blvd	File Name	SR 415 & Howland
Project Description	Enterprise Osteen-PUD		

Intersection Information



Demand Information

	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	35		1061				262	321		0	491	15

Signal Information

Cycle, s	76.6	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	Yes	Simult. Gap E/W	On	Green	0.0	7.6	18.0	30.0	0.0	0.0		
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	5.0	4.5	4.5	4.0	0.0	0.0		
				Red	3.5	2.5	2.0	3.5	0.0	0.0		

Timer Results

	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		8			1	6	5	2
Case Number		9.0			1.1	4.0	2.0	3.0
Phase Duration, s		37.5			14.6	39.1	0.0	24.5
Change Period, ($Y+R_c$), s		7.5			7.0	8.0	8.5	8.0
Max Allow Headway (MAH), s		4.3			4.0	3.9	0.0	3.9
Queue Clearance Time (g_s), s		32.0			6.6	7.1		12.6
Green Extension Time (g_e), s		0.0			1.0	3.9	0.0	3.9
Phase Call Probability		1.00			1.00	1.00		1.00
Max Out Probability		1.00			0.00	0.00		0.00

Movement Group Results

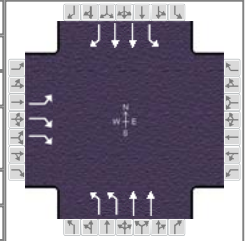
	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3		18				1	6		5	2	12
Adjusted Flow Rate (v), veh/h	38		1166				288	353		0	540	16
Adjusted Saturation Flow Rate (s), veh/h/ln	1810		1414				1730	1752		1810	1795	1572
Queue Service Time (g_s), s	1.0		30.0				4.6	5.1		0.0	10.6	0.6
Cycle Queue Clearance Time (g_c), s	1.0		30.0				4.6	5.1		0.0	10.6	0.6
Green Ratio (g/C)	0.39		0.39				0.34	0.41			0.22	0.22
Capacity (c), veh/h	709		1108				663	1422		2	774	339
Volume-to-Capacity Ratio (X)	0.054		1.052				0.434	0.248		0.000	0.697	0.049
Back of Queue (Q), ft/ln (95 th percentile)	16.8		555.9				76.9	83.4		0	193.4	10.3
Back of Queue (Q), veh/ln (95 th percentile)	0.7		22.1				3.0	3.2		0.0	7.7	0.4
Queue Storage Ratio (RQ) (95 th percentile)	0.05		1.61				0.16	0.00		0.00	0.00	0.04
Uniform Delay (d_1), s/veh	14.5		23.3				19.4	15.0		0.0	27.7	23.8
Incremental Delay (d_2), s/veh	0.0		41.9				0.4	0.1		0.0	1.1	0.1
Initial Queue Delay (d_3), s/veh	0.0		0.0				0.0	0.0		0.0	0.0	0.0
Control Delay (d), s/veh	14.5		65.1				19.9	15.1		0.0	28.9	23.9
Level of Service (LOS)	B		F				B	B			C	C
Approach Delay, s/veh / LOS	63.5		E		0.0		17.3	B		28.7		C
Intersection Delay, s/veh / LOS	43.1						D					

Multimodal Results

	EB			WB			NB			SB		
Pedestrian LOS Score / LOS	2.46		B	2.46		B	1.39		A	2.28		B
Bicycle LOS Score / LOS			F				1.02		A	0.95		A

HCS7 Signalized Intersection Results Summary

General Information					Intersection Information	
Agency	TPD, Inc.				Duration, h	0.25
Analyst	TPD, Inc.		Analysis Date	10/22/2018	Area Type	Other
Jurisdiction	Volusia		Time Period	A.M. Peak Hour (Projected)	PHF	0.90
Urban Street	SR 415		Analysis Year	2018	Analysis Period	1 > 7:00
Intersection	SR 415 & Dyle Rd		File Name	SR 415 & Doyle Rd.xus		
Project Description	Enterprise Osteen-PUD					



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	165		415				220	559		2	1374	95

Signal Information											
Cycle, s	80.6	Reference Phase	2								
Offset, s	0	Reference Point	End								
Uncoordinated	Yes	Simult. Gap E/W	On	Green	0.2	5.0	41.6	16.0	0.0	0.0	
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.3	0.0	4.3	4.0	0.0	0.0	
				Red	1.8	0.0	1.8	1.5	0.0	0.0	

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		8			1	6	5	2
Case Number		9.0			1.1	4.0	2.0	3.0
Phase Duration, s		21.5			11.4	52.8	6.3	47.7
Change Period, ($Y+R_c$), s		5.5			6.1	6.1	6.1	6.1
Max Allow Headway (MAH), s		4.2			4.0	3.9	4.0	3.9
Queue Clearance Time (g_s), s		14.6			4.5	9.2	2.1	30.9
Green Extension Time (g_e), s		1.4			0.8	15.0	0.0	10.7
Phase Call Probability		1.00			1.00	1.00	0.05	1.00
Max Out Probability		0.67			0.00	0.12	0.00	0.42

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3		18				1	6		5	2	12
Adjusted Flow Rate (v), veh/h	183		461				244	621		2	1527	106
Adjusted Saturation Flow Rate (s), veh/h/ln	1810		1414				1716	1781		1810	1795	1610
Queue Service Time (g_s), s	7.3		12.6				2.5	7.2		0.1	28.9	2.7
Cycle Queue Clearance Time (g_c), s	7.3		12.6				2.5	7.2		0.1	28.9	2.7
Green Ratio (g/C)	0.20		0.20				0.59	0.58		0.00	0.52	0.52
Capacity (c), veh/h	360		562				511	2061		5	1853	831
Volume-to-Capacity Ratio (X)	0.510		0.821				0.479	0.301		0.405	0.824	0.127
Back of Queue (Q), ft/ln (95 th percentile)	137		199.2				43.9	101.6		4.7	390.5	37.5
Back of Queue (Q), veh/ln (95 th percentile)	5.5		7.9				1.7	4.0		0.2	15.5	1.5
Queue Storage Ratio (RQ) (95 th percentile)	0.00		0.00				0.00	0.00		0.00	0.00	0.00
Uniform Delay (d_1), s/veh	28.8		30.9				15.6	8.7		40.1	16.4	10.1
Incremental Delay (d_2), s/veh	1.1		6.3				0.7	0.1		41.7	2.2	0.1
Initial Queue Delay (d_3), s/veh	0.0		0.0				0.0	0.0		0.0	0.0	0.0
Control Delay (d), s/veh	29.9		37.2				16.3	8.7		81.8	18.7	10.2
Level of Service (LOS)	C		D				B	A		F	B	B
Approach Delay, s/veh / LOS	35.2		D	0.0			10.9	B		18.2		B
Intersection Delay, s/veh / LOS	19.7						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.46	B	2.46	B	1.36	A	2.25	B
Bicycle LOS Score / LOS		F			1.20	A	1.84	B

HCS7 Two-Way Stop-Control Report

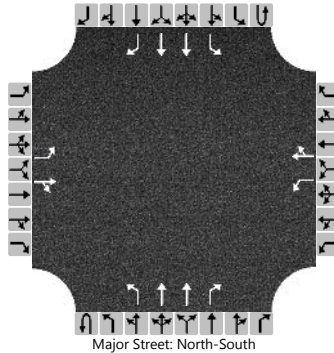
General Information

Analyst	TPD, Inc.
Agency/Co.	TPD, Inc.
Date Performed	10/22/2018
Analysis Year	2018
Time Analyzed	A.M. Peak Hour (Projecte)
Intersection Orientation	North-South
Project Description	Enterprise Osteen Rd

Site Information

Intersection	SR 415 & Enterprise Osteen
Jurisdiction	Volusia County
East/West Street	Enterprise Osteen Rd
North/South Street	SR 415
Peak Hour Factor	0.90
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		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		1	1	0		1	1	0	0	1	2	1	0	1	2	1
Configuration		L		TR		L		TR		L	T	R		L	T	R
Volume (veh/h)		129	18	63		59	13	31	0	10	453	17	0	12	1577	64
Percent Heavy Vehicles (%)		1	1	1		1	1	1	1	1			1	1		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized									No				No			
Median Type Storage	Left + Thru								1							

Critical and Follow-up Headways

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

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		143		90		66		49		11				13		
Capacity, c (veh/h)		73		211		139		240		336				1047		
v/c Ratio		1.97		0.43		0.47		0.20		0.03				0.01		
95% Queue Length, Q ₉₅ (veh)		13.0		2.0		2.2		0.7		0.1				0.0		
Control Delay (s/veh)		575.1		34.2		51.9		23.7		16.1				8.5		
Level of Service (LOS)		F		D		F		C		C				A		
Approach Delay (s/veh)	366.5				39.9				0.3				0.1			
Approach LOS	F				E											

HCS7 Two-Way Stop-Control Report

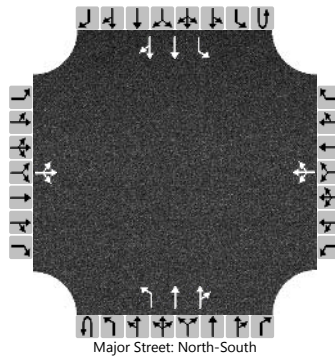
General Information

Analyst	TPD, Inc.
Agency/Co.	TPD, Inc.
Date Performed	10/22/2018
Analysis Year	2018
Time Analyzed	A.M. Peak Hour (Projecte)
Intersection Orientation	North-South
Project Description	Enterprise Osteen Rd-PUD

Site Information

Intersection	SR 415 & Reed Ellis Rd
Jurisdiction	Volusia County
East/West Street	Reed Ellis Rd
North/South Street	SR 415
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		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	1	2	0	0	1	2	0
Configuration			LTR				LTR			L	T	TR		L	T	TR
Volume (veh/h)		1	0	308		0	0	3	0	63	412	0	0	2	1877	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	Undivided															

Critical and Follow-up Headways

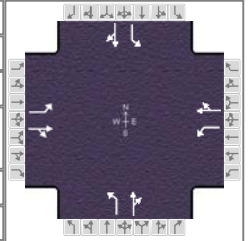
Base Critical Headway (sec)		7.5	6.5	6.9		7.5	6.5	6.9		4.1				4.1		
Critical Headway (sec)		7.52	6.52	6.92		7.52	6.52	6.92		4.12				4.12		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.51	4.01	3.31		3.51	4.01	3.31		2.21				2.21		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			355				3			72				2		
Capacity, c (veh/h)			203							249				1092		
v/c Ratio			1.75							0.29				0.00		
95% Queue Length, Q ₉₅ (veh)			24.5							1.2				0.0		
Control Delay (s/veh)			398.8							25.3				8.3		
Level of Service (LOS)			F							D				A		
Approach Delay (s/veh)	398.8								3.4				0.0			
Approach LOS	F															

HCS7 Signalized Intersection Results Summary

General Information					Intersection Information	
Agency	TPD, Inc.				Duration, h	0.25
Analyst	TPD, Inc.		Analysis Date	10/22/2018	Area Type	Other
Jurisdiction	Volusia County		Time Period	A.M. Peak Hour (Projected)	PHF	0.87
Urban Street	Doyle Rd		Analysis Year	2018	Analysis Period	1 > 7:00
Intersection	Doyle Rd & Courtland Blvd		File Name	Doyle RD & Courtland Blvd.xus		
Project Description	Enterprise Osteen-PUD					



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	89	359	29	37	200	94	21	35	64	175	53	237

Signal Information											
Cycle, s	59.6	Reference Phase	2								
Offset, s	0	Reference Point	End								
Uncoordinated	Yes	Simult. Gap E/W	On	Green	4.1	15.9	17.1	0.0	0.0	0.0	
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	5.0	4.5	4.0	0.0	0.0	0.0	
				Red	3.0	3.0	3.0	0.0	0.0	0.0	

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	1	6		2		4		8
Case Number	1.0	4.0		6.3		6.0		6.0
Phase Duration, s	12.1	35.5		23.4		24.1		24.1
Change Period, ($Y+R_c$), s	8.0	8.0		8.0		7.5		7.5
Max Allow Headway (MAH), s	4.0	4.0		4.0		4.2		4.2
Queue Clearance Time (g_s), s	4.3	12.1		12.5		14.6		13.8
Green Extension Time (g_e), s	0.2	2.9		2.9		2.0		2.1
Phase Call Probability	0.82	1.00		1.00		1.00		1.00
Max Out Probability	0.00	0.03		0.03		0.16		0.13

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	1	6	16	5	2	12	7	4	14	3	8	18
Adjusted Flow Rate (v), veh/h	102	446		43	338		24	114		201	333	
Adjusted Saturation Flow Rate (s), veh/h/ln	1767	1860		959	1755		1063	1636		1289	1605	
Queue Service Time (g_s), s	2.3	10.1		2.0	10.5		1.3	3.2		8.6	11.3	
Cycle Queue Clearance Time (g_c), s	2.3	10.1		2.0	10.5		12.6	3.2		11.8	11.3	
Green Ratio (g/C)	0.36	0.46		0.26	0.26		0.28	0.28		0.28	0.28	
Capacity (c), veh/h	328	859		369	455		215	455		410	446	
Volume-to-Capacity Ratio (X)	0.312	0.519		0.115	0.743		0.112	0.250		0.491	0.747	
Back of Queue (Q), ft/ln (95 th percentile)	37.2	146.9		18	181.5		13.4	49.6		104.8	178.4	
Back of Queue (Q), veh/ln (95 th percentile)	1.5	5.8		0.7	7.1		0.5	1.9		4.2	6.9	
Queue Storage Ratio (RQ) (95 th percentile)	0.00	0.00		0.00	0.00		0.00	0.00		0.00	0.00	
Uniform Delay (d_1), s/veh	14.4	11.3		17.1	20.3		25.3	16.7		21.3	19.6	
Incremental Delay (d_2), s/veh	0.5	0.5		0.1	2.4		0.2	0.3		0.9	2.5	
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Control Delay (d), s/veh	14.9	11.8		17.2	22.7		25.6	17.0		22.2	22.1	
Level of Service (LOS)	B	B		B	C		C	B		C	C	
Approach Delay, s/veh / LOS	12.4	B		22.1	C		18.5	B		22.2	C	
Intersection Delay, s/veh / LOS	18.5						B					

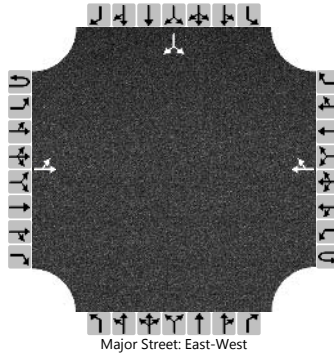
Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.88	B	1.91	B	1.91	B	1.91	B
Bicycle LOS Score / LOS	1.39	A	1.12	A	0.72	A	1.37	A

HCS7 Two-Way Stop-Control Report

General Information

Analyst	TPD, Inc.	Intersection	Enter. Ost. Rd & Courtlan
Agency/Co.	TPD, Inc.	Jurisdiction	Volusia County
Date Performed	10/22/2018	East/West Street	Enterprise Osteen Rd
Analysis Year	2018	North/South Street	Courtland Blvd
Time Analyzed	A.M. Peak Hour (Projecte)	Peak Hour Factor	0.68
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Enterprise Osteen-PUD		

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	0	0		0	1	0
Configuration		LT						TR							LR	
Volume (veh/h)		25	42				107	42						27		63
Percent Heavy Vehicles (%)		3												3		3
Proportion Time Blocked																
Percent Grade (%)													0			
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

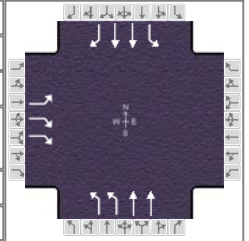
Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.13												6.43		6.23
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.23												3.53		3.33

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		37													132	
Capacity, c (veh/h)		1344													779	
v/c Ratio		0.03													0.17	
95% Queue Length, Q ₉₅ (veh)		0.1													0.6	
Control Delay (s/veh)		7.8													10.6	
Level of Service (LOS)		A													B	
Approach Delay (s/veh)	3.0												10.6			
Approach LOS													B			

HCS7 Signalized Intersection Results Summary

General Information					Intersection Information	
Agency	TPD, Inc.				Duration, h	0.25
Analyst	TPD, Inc.		Analysis Date	10/22/2018	Area Type	Other
Jurisdiction	Volusia County		Time Period	P.M. Peak Hour (Projected)	PHF	0.86
Urban Street	SR 415		Analysis Year	2018	Analysis Period	1 > 7:00
Intersection	SR 415 & Howland Blvd		File Name	SR 415 & Howland Blvd.xus		
Project Description	Enterprise Osteen-PUD					



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	30		293				858	520		6	400	45

Signal Information											
Cycle, s	66.3	Reference Phase	2								
Offset, s	0	Reference Point	End								
Uncoordinated	Yes	Simult. Gap E/W	On	Green	0.6	8.6	16.5	11.1	0.0	0.0	
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	5.0	4.5	4.5	4.0	0.0	0.0	
				Red	3.5	2.5	2.0	3.5	0.0	0.0	

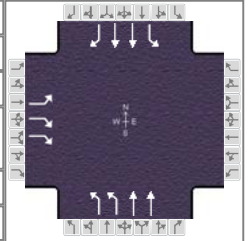
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		8			1	6	5	2
Case Number		9.0			1.1	4.0	2.0	3.0
Phase Duration, s		18.6			24.7	38.6	9.1	23.0
Change Period, ($Y+R_c$), s		7.5			7.0	8.0	8.5	8.0
Max Allow Headway (MAH), s		4.2			4.0	3.9	4.0	3.9
Queue Clearance Time (g_s), s		9.6			14.7	9.2	2.3	9.6
Green Extension Time (g_e), s		1.6			3.0	5.0	0.0	5.0
Phase Call Probability		1.00			1.00	1.00	0.12	1.00
Max Out Probability		0.00			0.39	0.00	0.00	0.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3		18				1	6		5	2	12
Adjusted Flow Rate (v), veh/h	35		341				998	605		7	465	52
Adjusted Saturation Flow Rate (s), veh/h/ln	1810		1414				1743	1795		1810	1795	1610
Queue Service Time (g_s), s	1.1		7.6				12.7	7.2		0.3	7.6	1.7
Cycle Queue Clearance Time (g_c), s	1.1		7.6				12.7	7.2		0.3	7.6	1.7
Green Ratio (g/C)	0.17		0.17				0.52	0.46		0.01	0.23	0.23
Capacity (c), veh/h	303		474				1356	1656		17	812	364
Volume-to-Capacity Ratio (X)	0.115		0.718				0.736	0.365		0.422	0.573	0.144
Back of Queue (Q), ft/ln (95 th percentile)	19.5		109.4				176.2	106.2		8	132.8	26.7
Back of Queue (Q), veh/ln (95 th percentile)	0.8		4.3				7.0	4.2		0.3	5.3	1.1
Queue Storage Ratio (RQ) (95 th percentile)	0.06		0.32				0.37	0.00		0.03	0.00	0.11
Uniform Delay (d_1), s/veh	23.4		26.1				12.0	11.6		32.7	22.8	20.5
Incremental Delay (d_2), s/veh	0.2		2.1				1.4	0.1		16.2	0.6	0.2
Initial Queue Delay (d_3), s/veh	0.0		0.0				0.0	0.0		0.0	0.0	0.0
Control Delay (d), s/veh	23.6		28.2				13.4	11.7		48.9	23.5	20.7
Level of Service (LOS)	C		C				B	B		D	C	C
Approach Delay, s/veh / LOS	27.8		C	0.0			12.8	B		23.5		C
Intersection Delay, s/veh / LOS	17.3						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.46	B	2.46	B	1.37	A	2.27	B
Bicycle LOS Score / LOS		F			1.81	B	0.92	A

HCS7 Signalized Intersection Results Summary

General Information					Intersection Information	
Agency	TPD, Inc.				Duration, h	0.25
Analyst	TPD, Inc.		Analysis Date	10/22/2018	Area Type	Other
Jurisdiction	Volusia		Time Period	P.M. Peak Hour (Projected)	PHF	0.91
Urban Street	SR 415		Analysis Year	2018	Analysis Period	1 > 7:00
Intersection	SR 415 & Dyle Rd		File Name	SR 415 & Doyle Rd.xus		
Project Description	Enterprise Osteen-PUD					



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	112		194				432	1204		4	768	107

Signal Information											
Cycle, s	58.8	Reference Phase	2								
Offset, s	0	Reference Point	End								
Uncoordinated	Yes	Simult. Gap E/W	On	Green	0.3	0.9	26.5	7.3	0.0	0.0	
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.3	4.3	4.3	4.0	0.0	0.0	
				Red	1.8	1.8	1.8	1.5	0.0	0.0	

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		8			1	6	5	2
Case Number		9.0			1.1	4.0	2.0	3.0
Phase Duration, s		12.8			13.4	39.6	6.4	32.6
Change Period, ($Y+R_c$), s		5.5			6.1	6.1	6.1	6.1
Max Allow Headway (MAH), s		4.2			4.0	3.9	4.0	3.9
Queue Clearance Time (g_s), s		6.2			5.6	16.8	2.1	11.9
Green Extension Time (g_e), s		1.1			1.7	13.9	0.0	14.6
Phase Call Probability		1.00			1.00	1.00	0.07	1.00
Max Out Probability		0.01			0.01	0.19	0.00	0.14

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3		18				1	6		5	2	12
Adjusted Flow Rate (v), veh/h	123		213				475	1323		4	844	118
Adjusted Saturation Flow Rate (s), veh/h/ln	1810		1414				1743	1795		1810	1795	1610
Queue Service Time (g_s), s	3.8		4.2				3.6	14.8		0.1	9.9	2.5
Cycle Queue Clearance Time (g_c), s	3.8		4.2				3.6	14.8		0.1	9.9	2.5
Green Ratio (g/C)	0.12		0.12				0.61	0.57		0.01	0.45	0.45
Capacity (c), veh/h	224		350				1050	2043		11	1619	726
Volume-to-Capacity Ratio (X)	0.549		0.609				0.452	0.648		0.410	0.521	0.162
Back of Queue (Q), ft/ln (95 th percentile)	69.7		59.9				36.7	169.5		5.6	137.2	31.7
Back of Queue (Q), veh/ln (95 th percentile)	2.8		2.4				1.5	6.7		0.2	5.4	1.3
Queue Storage Ratio (RQ) (95 th percentile)	0.00		0.00				0.00	0.00		0.00	0.00	0.00
Uniform Delay (d_1), s/veh	24.2		24.4				7.1	8.6		29.1	11.6	9.6
Incremental Delay (d_2), s/veh	2.1		1.7				0.3	0.3		23.2	0.3	0.1
Initial Queue Delay (d_3), s/veh	0.0		0.0				0.0	0.0		0.0	0.0	0.0
Control Delay (d), s/veh	26.3		26.1				7.4	9.0		52.3	11.9	9.7
Level of Service (LOS)	C		C				A	A		D	B	A
Approach Delay, s/veh / LOS	26.2		C	0.0			8.6	A		11.8		B
Intersection Delay, s/veh / LOS	11.5						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.45	B	2.45	B	1.35	A	2.24	B
Bicycle LOS Score / LOS		F			1.97	B	1.28	A

HCS7 Two-Way Stop-Control Report

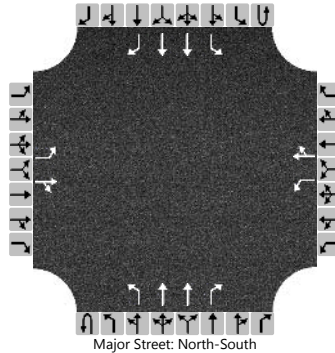
General Information

Analyst	TPD, Inc.
Agency/Co.	TPD, Inc.
Date Performed	10/22/2018
Analysis Year	2018
Time Analyzed	P.M. Peak Hour (Projecte)
Intersection Orientation	North-South
Project Description	Enterprise Osteen Rd

Site Information

Intersection	SR 415 & Enterprise Osteen
Jurisdiction	Volusia County
East/West Street	Enterprise Osteen Rd
North/South Street	SR 415
Peak Hour Factor	0.92
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		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		1	1	0		1	1	0	0	1	2	1	0	1	2	1
Configuration		L		TR		L		TR		L	T	R		L	T	R
Volume (veh/h)		88	8	27		32	15	25	0	38	1587	81	0	20	640	148
Percent Heavy Vehicles (%)		1	1	1		0	0	0	1	1			1	1		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized									No				No			
Median Type Storage	Left + Thru								1							

Critical and Follow-up Headways

Base Critical Headway (sec)		7.5	6.5	6.9		7.5	6.5	6.9		4.1				4.1		
Critical Headway (sec)		7.52	6.52	6.92		7.50	6.50	6.90		4.12				4.12		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.51	4.01	3.31		3.50	4.00	3.30		2.21				2.21		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		96		38		35		43		41				22		
Capacity, c (veh/h)		130		230		66		157		786				339		
v/c Ratio		0.74		0.17		0.53		0.28		0.05				0.06		
95% Queue Length, Q ₉₅ (veh)		4.2		0.6		2.1		1.1		0.2				0.2		
Control Delay (s/veh)		86.2		23.7		108.3		36.5		9.8				16.3		
Level of Service (LOS)		F		C		F		E		A				C		
Approach Delay (s/veh)	68.4				68.4				0.2				0.4			
Approach LOS	F				F											

HCS7 Two-Way Stop-Control Report

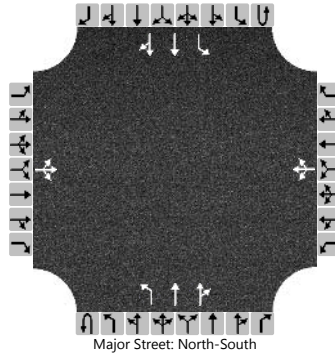
General Information

Analyst	TPD, Inc.
Agency/Co.	TPD, Inc.
Date Performed	10/22/2018
Analysis Year	2018
Time Analyzed	P.M. Peak Hour (Projecte)
Intersection Orientation	North-South
Project Description	Enterprise Osteen Rd-PUD

Site Information

Intersection	SR 415 & Reed Ellis Rd
Jurisdiction	Volusia County
East/West Street	Reed Ellis Rd
North/South Street	SR 415
Peak Hour Factor	0.91
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		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	1	2	0	0	1	2	0
Configuration			LTR				LTR			L	T	TR		L	T	TR
Volume (veh/h)		3	0	144		1	0	4	0	305	1733	3	0	2	680	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								1							

Critical and Follow-up Headways

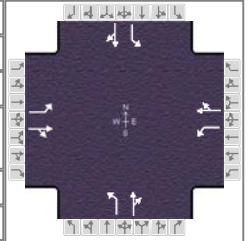
Base Critical Headway (sec)		7.5	6.5	6.9		7.5	6.5	6.9		4.1				4.1		
Critical Headway (sec)		7.52	6.52	6.92		7.52	6.52	6.92		4.12				4.12		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.51	4.01	3.31		3.51	4.01	3.31		2.21				2.21		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			162				5			335				2		
Capacity, c (veh/h)			508				56			858				312		
v/c Ratio			0.32				0.10			0.39				0.01		
95% Queue Length, Q ₉₅ (veh)			1.4				0.3			1.9				0.0		
Control Delay (s/veh)			15.4				76.0			11.9				16.6		
Level of Service (LOS)			C				F			B				C		
Approach Delay (s/veh)	15.4				76.0				1.8				0.0			
Approach LOS	C				F											

HCS7 Signalized Intersection Results Summary

General Information					Intersection Information	
Agency	TPD, Inc.				Duration, h	0.25
Analyst	TPD, Inc.		Analysis Date	10/22/2018	Area Type	Other
Jurisdiction	Volusia County		Time Period	P.M. Peak Hour (Projected)	PHF	0.93
Urban Street	Doyle Rd		Analysis Year	2018	Analysis Period	1 > 7:00
Intersection	Doyle Rd & Courtland Blvd		File Name	Doyle RD & Courtland Blvd.xus		
Project Description	Enterprise Osteen-PUD					



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	231	189	40	33	380	147	33	59	30	50	50	111

Signal Information											
Cycle, s	65.4	Reference Phase	2								
Offset, s	0	Reference Point	End								
Uncoordinated	Yes	Simult. Gap E/W	On	Green	7.6	23.7	11.6	0.0	0.0	0.0	
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	5.0	4.5	4.0	0.0	0.0	0.0	
				Red	3.0	3.0	3.0	0.0	0.0	0.0	

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	1	6		2		4		8
Case Number	1.0	4.0		6.3		6.0		6.0
Phase Duration, s	15.6	46.8		31.2		18.6		18.6
Change Period, ($Y+R_c$), s	8.0	8.0		8.0		7.5		7.5
Max Allow Headway (MAH), s	4.0	4.0		4.0		4.1		4.1
Queue Clearance Time (g_s), s	7.2	6.1		21.5		10.0		8.2
Green Extension Time (g_e), s	0.5	3.3		1.6		1.1		1.1
Phase Call Probability	0.99	1.00		1.00		1.00		1.00
Max Out Probability	0.09	0.01		0.34		0.00		0.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	1	6	16	5	2	12	7	4	14	3	8	18
Adjusted Flow Rate (v), veh/h	248	246		35	567		35	96		54	173	
Adjusted Saturation Flow Rate (s), veh/h/ln	1810	1842		1152	1795		1231	1791		1321	1677	
Queue Service Time (g_s), s	5.2	4.1		1.3	19.5		1.8	3.1		2.4	6.2	
Cycle Queue Clearance Time (g_c), s	5.2	4.1		1.3	19.5		8.0	3.1		5.5	6.2	
Green Ratio (g/C)	0.50	0.59		0.35	0.35		0.17	0.17		0.17	0.17	
Capacity (c), veh/h	369	1092		518	636		202	305		274	286	
Volume-to-Capacity Ratio (X)	0.674	0.225		0.069	0.891		0.175	0.314		0.197	0.606	
Back of Queue (Q), ft/ln (95 th percentile)	81	50.4		13.8	335.1		22.8	54.5		32.3	108	
Back of Queue (Q), veh/ln (95 th percentile)	3.2	2.0		0.6	13.3		0.9	2.2		1.3	4.3	
Queue Storage Ratio (RQ) (95 th percentile)	0.00	0.00		0.00	0.00		0.00	0.00		0.00	0.00	
Uniform Delay (d_1), s/veh	13.9	6.3		14.1	19.9		28.8	23.8		26.2	25.1	
Incremental Delay (d_2), s/veh	2.1	0.1		0.1	9.9		0.4	0.6		0.3	2.1	
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Control Delay (d), s/veh	16.1	6.4		14.1	29.8		29.2	24.4		26.5	27.2	
Level of Service (LOS)	B	A		B	C		C	C		C	C	
Approach Delay, s/veh / LOS	11.2	B		28.9	C		25.7	C		27.0	C	
Intersection Delay, s/veh / LOS	22.3						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.87	B	1.90	B	1.92	B	1.92	B
Bicycle LOS Score / LOS	1.30	A	1.48	A	0.70	A	0.86	A

HCS7 Two-Way Stop-Control Report

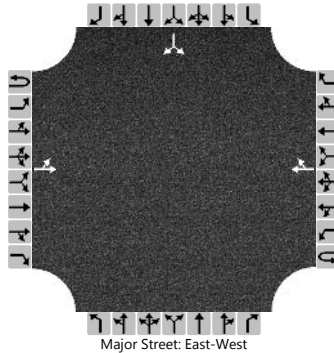
General Information

Analyst	TPD, Inc.
Agency/Co.	TPD, Inc.
Date Performed	10/22/2018
Analysis Year	2018
Time Analyzed	P.M. Peak Hour (Proj.)
Intersection Orientation	East-West
Project Description	Enterprise Osteen-PUD

Site Information

Intersection	Enter. Ost. Rd & Courtlan
Jurisdiction	Volusia County
East/West Street	Enterprise Osteen Rd
North/South Street	Courtland Blvd
Peak Hour Factor	0.81
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	0	0		0	1	0
Configuration		LT						TR							LR	
Volume (veh/h)		48	107				63	25						31		12
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)		59													53	
Capacity, c (veh/h)		1476													690	
v/c Ratio		0.04													0.08	
95% Queue Length, Q ₉₅ (veh)		0.1													0.2	
Control Delay (s/veh)		7.5													10.6	
Level of Service (LOS)		A													B	
Approach Delay (s/veh)	2.6												10.6			
Approach LOS													B			

HCS7 Two-Way Stop-Control Report

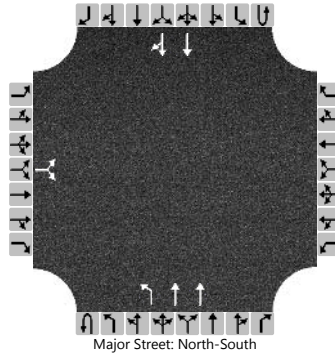
General Information

Analyst	TPD, Inc.
Agency/Co.	BH
Date Performed	10/29/2018
Analysis Year	2018
Time Analyzed	A.M. Peak Hour (Pro.)
Intersection Orientation	North-South
Project Description	Enterprise Osteen-PUD

Site Information

Intersection	SR 415 & Site Access 1
Jurisdiction	Volusia County
East/West Street	Site Access 1
North/South Street	SR 415
Peak Hour Factor	0.92
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		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	0	0	0	1	2	0	0	0	2	0
Configuration			LR							L	T				T	TR
Volume (veh/h)		0		74					0	25	391				1806	0
Percent Heavy Vehicles (%)		3		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)		7.5		6.9						4.1						
Critical Headway (sec)		6.86		6.96						4.16						
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)			80							27						
Capacity, c (veh/h)			247							289						
v/c Ratio			0.33							0.09						
95% Queue Length, Q ₉₅ (veh)			1.4							0.3						
Control Delay (s/veh)			26.5							18.8						
Level of Service (LOS)			D							C						
Approach Delay (s/veh)	26.5								1.1							
Approach LOS	D															

HCS7 Two-Way Stop-Control Report

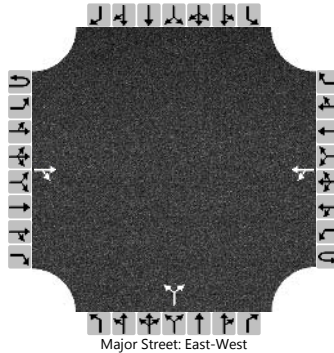
General Information

Analyst	TPD, Inc.
Agency/Co.	BH
Date Performed	10/29/2018
Analysis Year	2018
Time Analyzed	A.M. Peak Hour (Pro.)
Intersection Orientation	East-West
Project Description	Enterprise Osteen Rd

Site Information

Intersection	Ent. Ost. Rd & Site Acc 2
Jurisdiction	Volusia County
East/West Street	Enterprise Osteen Rd
North/South Street	Site Access 2
Peak Hour Factor	0.92
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 (veh/h)			123	10		12	75			31		37				
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					74					
Capacity, c (veh/h)						1432					818					
v/c Ratio						0.01					0.09					
95% Queue Length, Q ₉₅ (veh)						0.0					0.3					
Control Delay (s/veh)						7.5					9.8					
Level of Service (LOS)						A					A					
Approach Delay (s/veh)					1.1				9.8							
Approach LOS									A							

HCS7 Two-Way Stop-Control Report

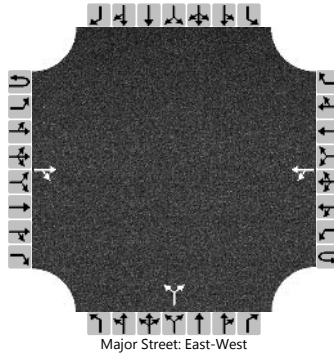
General Information

Analyst	TPD, Inc.
Agency/Co.	BH
Date Performed	10/29/2018
Analysis Year	2018
Time Analyzed	A.M. Peak Hour (Pro.)
Intersection Orientation	East-West
Project Description	Enterprise Osteen-PUD

Site Information

Intersection	Ent. Ost. Rd & Site Acc 3
Jurisdiction	Volusia County
East/West Street	Enterprise Osteen Rd
North/South Street	Site Access 3
Peak Hour Factor	0.92
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 (veh/h)			96	11		12	94			32		37				
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					75					
Capacity, c (veh/h)						1466					836					
v/c Ratio						0.01					0.09					
95% Queue Length, Q ₉₅ (veh)						0.0					0.3					
Control Delay (s/veh)						7.5					9.7					
Level of Service (LOS)						A					A					
Approach Delay (s/veh)					0.9				9.7							
Approach LOS									A							

HCS7 Two-Way Stop-Control Report

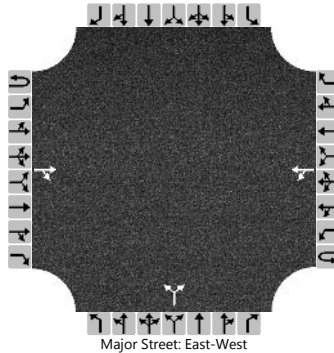
General Information

Analyst	TPD, Inc.
Agency/Co.	BH
Date Performed	10/29/2018
Analysis Year	2018
Time Analyzed	A.M. Peak Hour (Pro.)
Intersection Orientation	East-West
Project Description	Enterprise Osteen-PUD

Site Information

Intersection	Ent. Ost. Rd & Sit Acc 4
Jurisdiction	Volusia County
East/West Street	Enterprise Osteen Rd
North/South Street	Site Access 4
Peak Hour Factor	0.92
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 (veh/h)			80	7		9	117			23		27				
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)						10					54					
Capacity, c (veh/h)						1493					848					
v/c Ratio						0.01					0.06					
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)					0.6				9.5							
Approach LOS									A							

HCS7 Two-Way Stop-Control Report

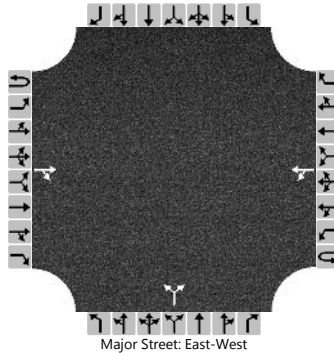
General Information

Analyst	TPD, Inc.
Agency/Co.	BH
Date Performed	10/29/2018
Analysis Year	2018
Time Analyzed	A.M. Peak Hour (Pro.)
Intersection Orientation	East-West
Project Description	Enterprise Osteen-PUD

Site Information

Intersection	Ent. Ost. Rd & Sit Acc 5
Jurisdiction	Volusia County
East/West Street	Enterprise Osteen Rd
North/South Street	Site Access 5
Peak Hour Factor	0.92
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 (veh/h)			61	8		9	131			23		26				
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)						10					53					
Capacity, c (veh/h)						1518					859					
v/c Ratio						0.01					0.06					
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)					0.5				9.5							
Approach LOS									A							

HCS7 Two-Way Stop-Control Report

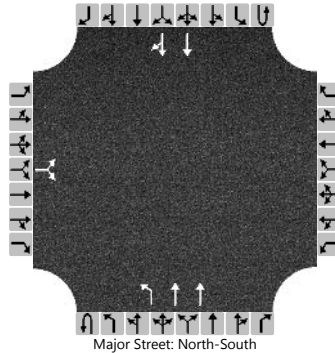
General Information

Analyst	TPD, Inc.
Agency/Co.	BH
Date Performed	10/29/2018
Analysis Year	2018
Time Analyzed	P.M. Peak Hour (Pro.)
Intersection Orientation	North-South
Project Description	Enterprise Osteen-PUD

Site Information

Intersection	SR 415 & Site Access 1
Jurisdiction	Volusia County
East/West Street	Site Access 1
North/South Street	SR 415
Peak Hour Factor	0.92
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		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	0	0	0	1	2	0	0	0	2	0
Configuration			LR							L	T				T	TR
Volume (veh/h)		0		49					0	84	1656				640	0
Percent Heavy Vehicles (%)		3		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)		7.5		6.9						4.1						
Critical Headway (sec)		6.86		6.96						4.16						
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)			53							91						
Capacity, c (veh/h)			645							889						
v/c Ratio			0.08							0.10						
95% Queue Length, Q ₉₅ (veh)			0.3							0.3						
Control Delay (s/veh)			11.1							9.5						
Level of Service (LOS)			B							A						
Approach Delay (s/veh)	11.1								0.5							
Approach LOS	B															

HCS7 Two-Way Stop-Control Report

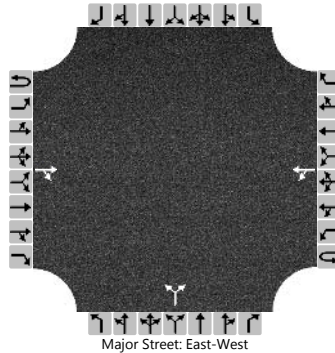
General Information

Analyst	TPD, Inc.
Agency/Co.	BH
Date Performed	10/29/2018
Analysis Year	2018
Time Analyzed	P.M. Peak Hour (Pro.)
Intersection Orientation	East-West
Project Description	Enterprise Osteen Rd

Site Information

Intersection	Ent. Ost. Rd & Site Acc 2
Jurisdiction	Volusia County
East/West Street	Enterprise Osteen Rd
North/South Street	Site Access 2
Peak Hour Factor	0.92
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 (veh/h)			75	35		42	159			21		25				
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)						46					50					
Capacity, c (veh/h)						1462					759					
v/c Ratio						0.03					0.07					
95% Queue Length, Q ₉₅ (veh)						0.1					0.2					
Control Delay (s/veh)						7.5					10.1					
Level of Service (LOS)						A					B					
Approach Delay (s/veh)					1.8				10.1							
Approach LOS									B							

HCS7 Two-Way Stop-Control Report

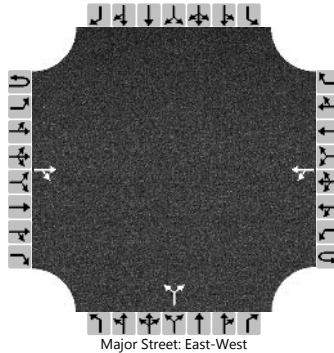
General Information

Analyst	TPD, Inc.
Agency/Co.	BH
Date Performed	10/29/2018
Analysis Year	2018
Time Analyzed	P.M. Peak Hour (Pro.)
Intersection Orientation	East-West
Project Description	Enterprise Osteen-PUD

Site Information

Intersection	Ent. Ost. Rd & Site Acc 3
Jurisdiction	Volusia County
East/West Street	Enterprise Osteen Rd
North/South Street	Site Access 3
Peak Hour Factor	0.92
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 (veh/h)			86	36		42	138			21		24				
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)						46					49					
Capacity, c (veh/h)						1446					756					
v/c Ratio						0.03					0.06					
95% Queue Length, Q ₉₅ (veh)						0.1					0.2					
Control Delay (s/veh)						7.6					10.1					
Level of Service (LOS)						A					B					
Approach Delay (s/veh)					2.0				10.1							
Approach LOS									B							

HCS7 Two-Way Stop-Control Report

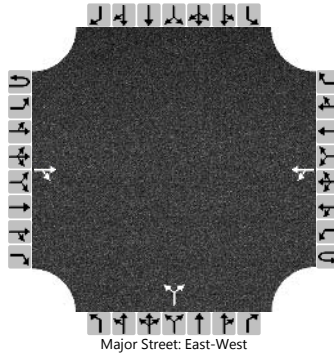
General Information

Analyst	TPD, Inc.
Agency/Co.	BH
Date Performed	10/29/2018
Analysis Year	2018
Time Analyzed	P.M. Peak Hour (Pro.)
Intersection Orientation	East-West
Project Description	Enterprise Osteen-PUD

Site Information

Intersection	Ent. Ost. Rd & Sit Acc 4
Jurisdiction	Volusia County
East/West Street	Enterprise Osteen Rd
North/South Street	Site Access 4
Peak Hour Factor	0.92
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 (veh/h)			104	25		30	129			15		18				
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

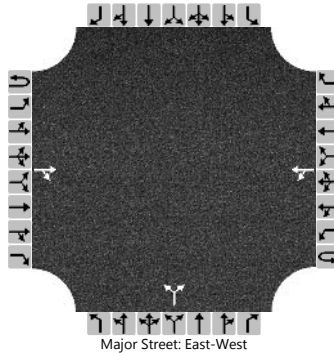
Flow Rate, v (veh/h)						33					36					
Capacity, c (veh/h)						1437					771					
v/c Ratio						0.02					0.05					
95% Queue Length, Q ₉₅ (veh)						0.1					0.1					
Control Delay (s/veh)						7.6					9.9					
Level of Service (LOS)						A					A					
Approach Delay (s/veh)					1.6				9.9							
Approach LOS									A							

HCS7 Two-Way Stop-Control Report

General Information

Analyst	TPD, Inc.	Intersection	Ent. Ost. Rd & Sit Acc 5
Agency/Co.	BH	Jurisdiction	Volusia County
Date Performed	10/29/2018	East/West Street	Enterprise Osteen Rd
Analysis Year	2018	North/South Street	Site Access 5
Time Analyzed	P.M. Peak Hour (Pro.)	Peak Hour Factor	0.92
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Enterprise Osteen-PUD		

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 (veh/h)			112	26		29	115			15		17				
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

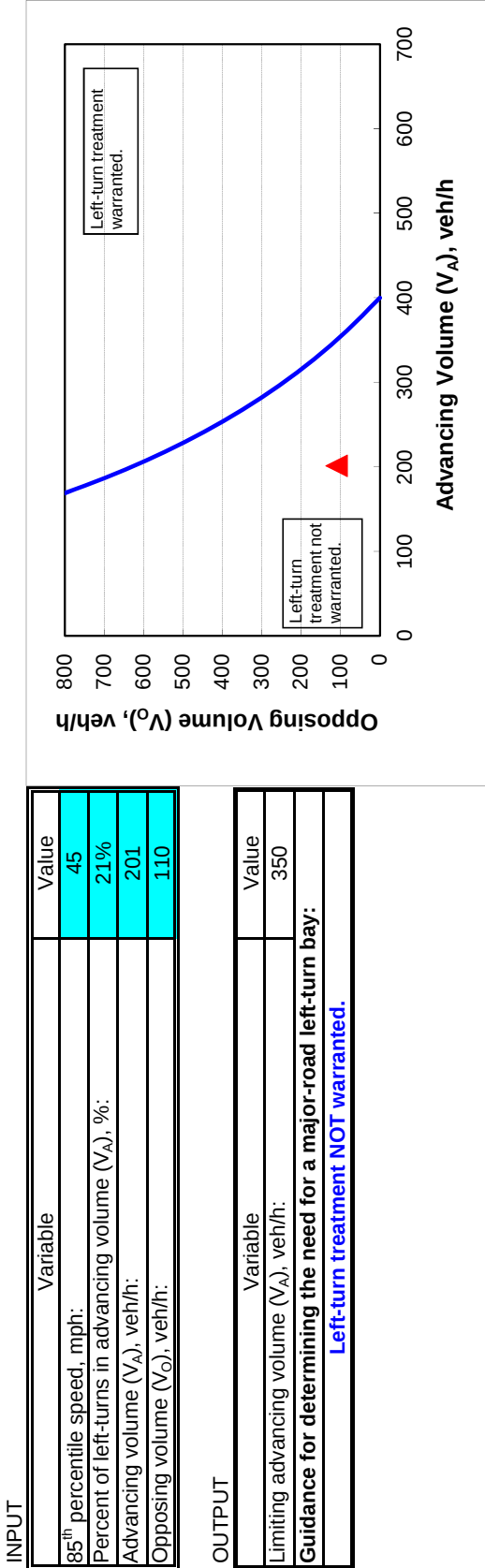
Flow Rate, v (veh/h)						32					35					
Capacity, c (veh/h)						1425					768					
v/c Ratio						0.02					0.05					
95% Queue Length, Q ₉₅ (veh)						0.1					0.1					
Control Delay (s/veh)						7.6					9.9					
Level of Service (LOS)						A					A					
Approach Delay (s/veh)					1.7				9.9							
Approach LOS									A							

APPENDIX F

Turn Lanes Warrant

Figure 2 - 5. Guideline for determining the need for a major-road left-turn bay at a two-way stop-controlled intersection.

2-lane roadway (English)

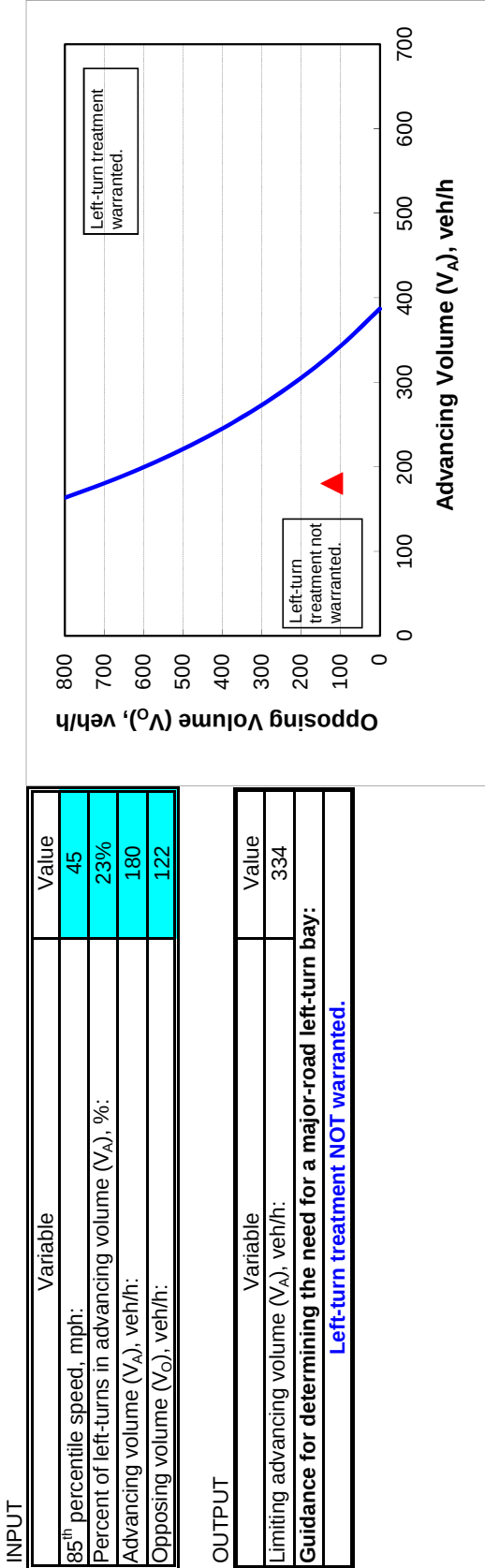


CALIBRATION CONSTANTS

Variable	Value
Average time for making left-turn, s:	3.0
Critical headway, s:	5.0
Average time for left-turn vehicle to clear the advancing lane, s:	1.9

Figure 2 - 5. Guideline for determining the need for a major-road left-turn bay at a two-way stop-controlled intersection.

2-lane roadway (English)

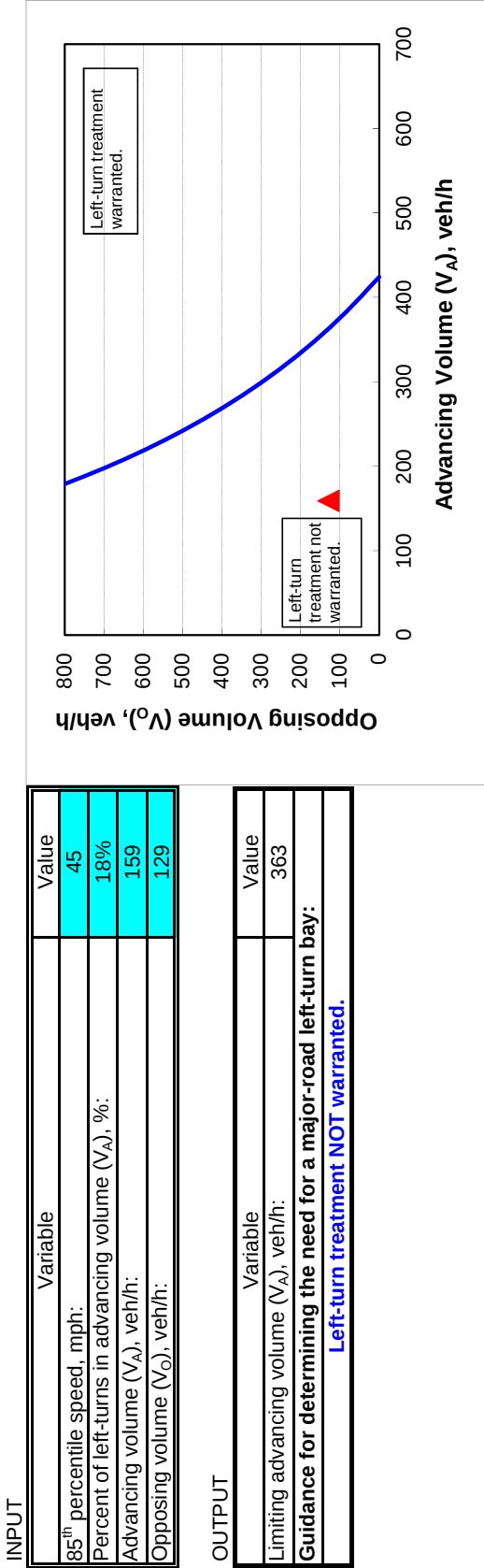


CALIBRATION CONSTANTS

Variable	Value
Average time for making left-turn, s:	3.0
Critical headway, s:	5.0
Average time for left-turn vehicle to clear the advancing lane, s:	1.9

Figure 2 - 5. Guideline for determining the need for a major-road left-turn bay at a two-way stop-controlled intersection.

2-lane roadway (English)

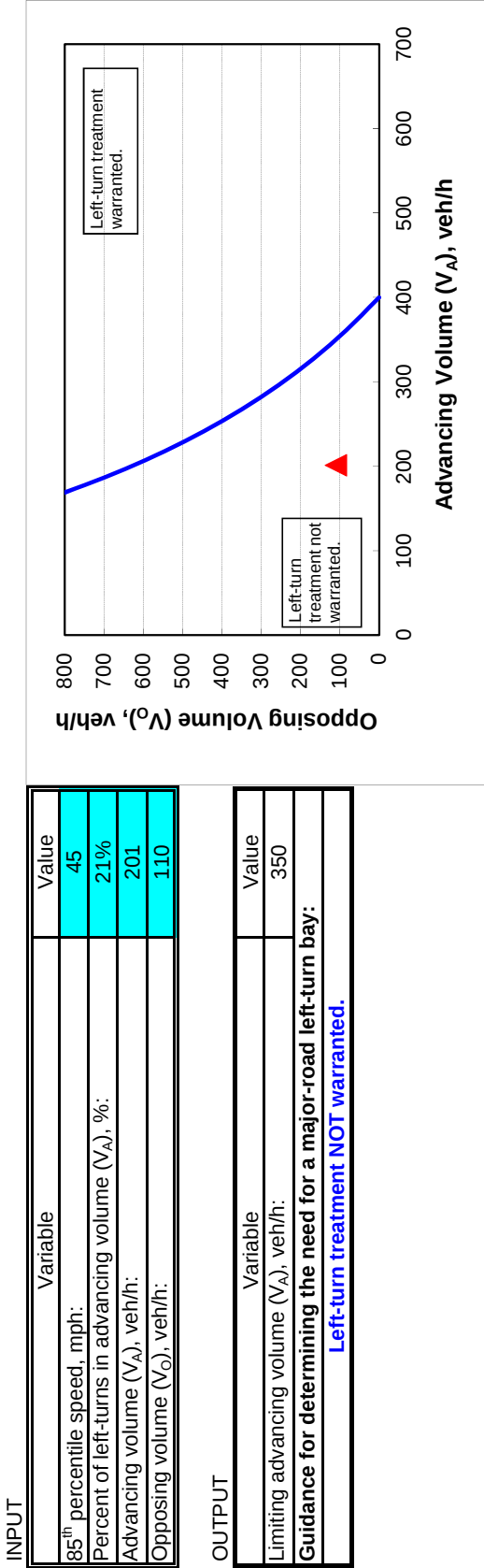


CALIBRATION CONSTANTS

Variable	Value
Average time for making left-turn, s:	3.0
Critical headway, s:	5.0
Average time for left-turn vehicle to clear the advancing lane, s:	1.9

Figure 2 - 5. Guideline for determining the need for a major-road left-turn bay at a two-way stop-controlled intersection.

2-lane roadway (English)



CALIBRATION CONSTANTS

Variable	Value
Average time for making left-turn, s:	3.0
Critical headway, s:	5.0
Average time for left-turn vehicle to clear the advancing lane, s:	1.9

Figure 2 - 6. Guideline for determining the need for a major-road right-turn bay at a two-way stop-controlled intersection.

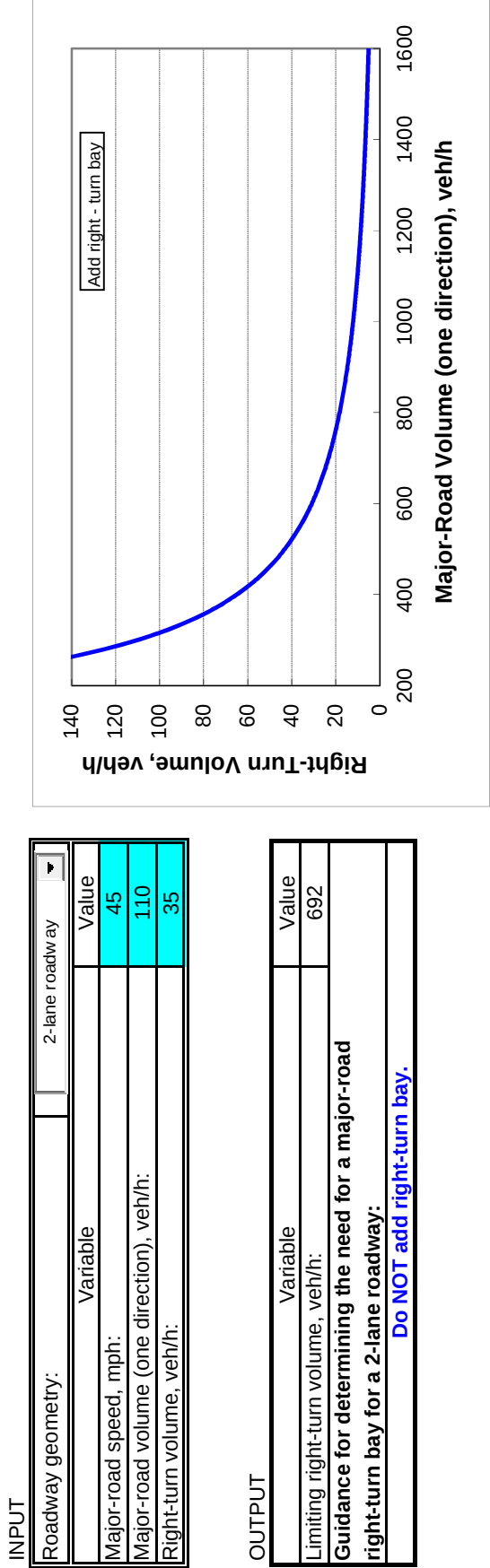


Figure 2 - 6. Guideline for determining the need for a major-road right-turn bay at a two-way stop-controlled intersection.

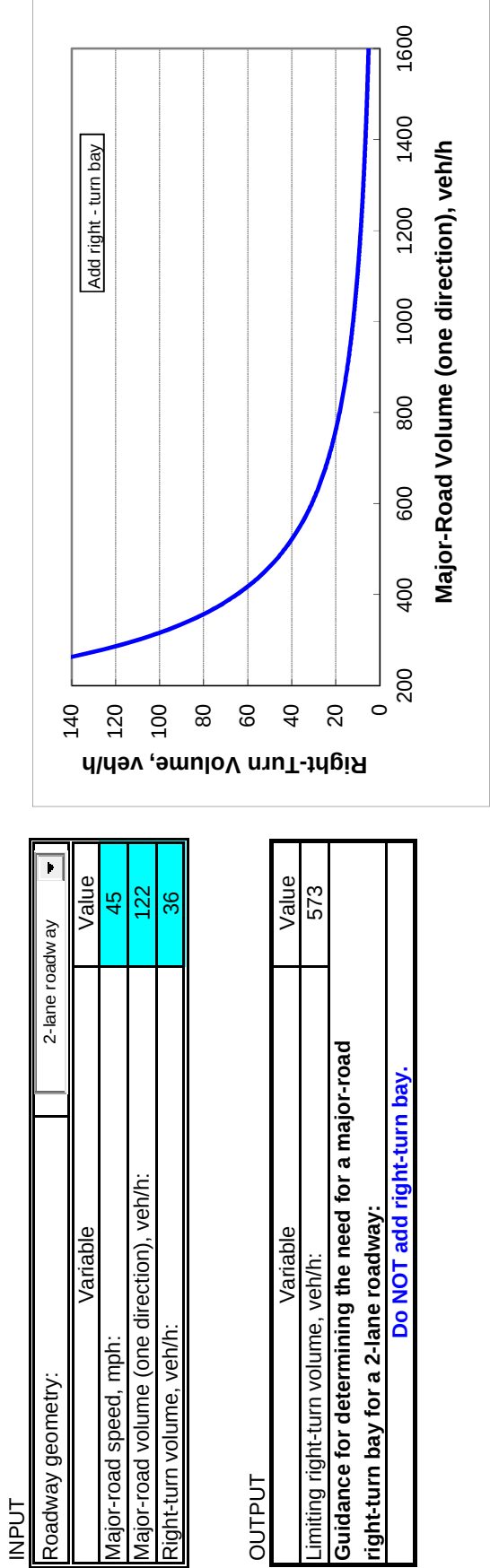


Figure 2 - 6. Guideline for determining the need for a major-road right-turn bay at a two-way stop-controlled intersection.

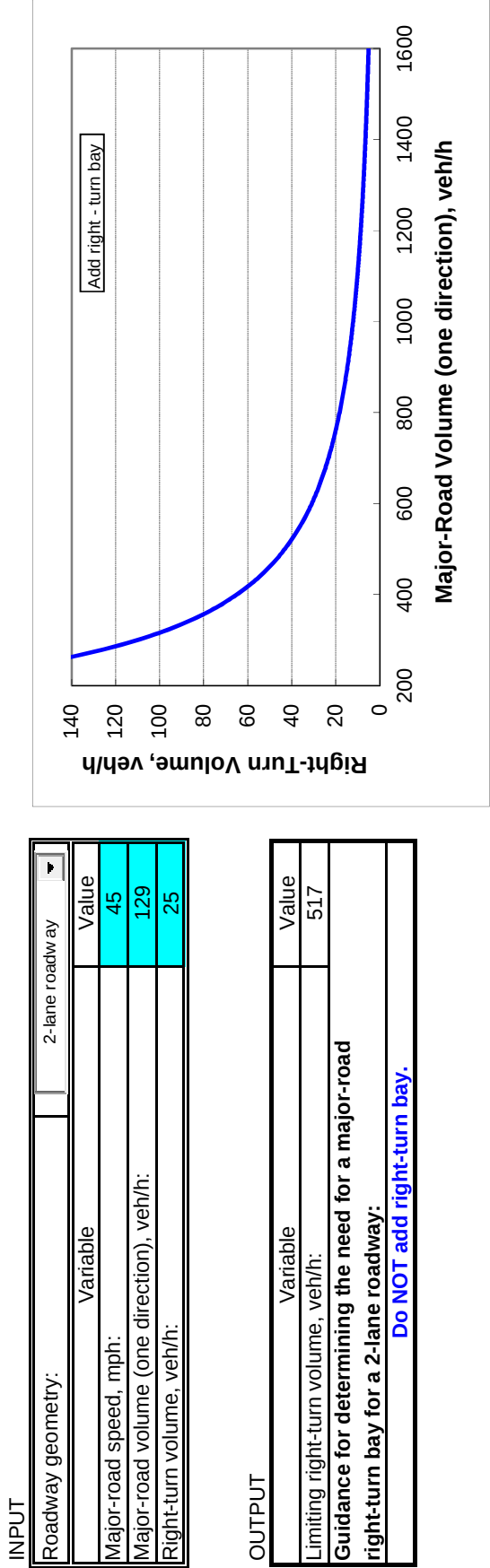


Figure 2 - 6. Guideline for determining the need for a major-road right-turn bay at a two-way stop-controlled intersection.

