

**Resolution 2019-**

**A RESOLUTION OF THE BOARD OF COUNTY COMMISSIONERS OF NASSAU COUNTY, FLORIDA, RELATING TO THE ESTABLISHMENT OF A FOUR WAY STOP AT THE INTERSECTION OF SOUTH 14<sup>TH</sup> STREET AND SIMMONS ROAD IN FERNANDINA BEACH, FLORIDA, PROVIDING FOR FINDINGS BY THE BOARD OF COUNTY COMMISSIONERS; PROVIDING FOR PLACEMENT OF "STOP " SIGNS; PROVIDING FOR PENALTIES; AND PROVIDING FOR AN EFFECTIVE DATE.**

**WHEREAS**, Chapter 316, Florida Statutes, the Florida Uniform Traffic Control Law, Section 316.006, Jurisdiction, subsection 316.006(3), Counties, provides that Nassau County has original jurisdiction over all its streets and highways located within its boundaries, except all state roads and municipal streets and highways, and may place and maintain such traffic control devices which conform to the specifications of the Florida Department of Transportation upon all streets and highways under their original jurisdiction as they shall deem necessary to regulate, warn, or guide traffic; and

**WHEREAS**, Chapter 316, Florida Statutes, the Florida Uniform Traffic Control Law, Section 316.008, Powers of Local Authorities, subsection 316.008 (1)(i), further provides that local authorities may, with respect to streets and highways under their jurisdiction, exercise the police power to regulate or prohibit stopping, left turns, or parking; and

**WHEREAS**, the Board of County Commissioners of Nassau County, Florida finds that traffic movement at the intersection of South 14<sup>th</sup> Street and Simmons Road hereinafter described will create traffic operations hazards; and

**WHEREAS**, the Board of County Commissioners of Nassau County, Florida, further finds that placement of four way "STOP" signs as hereinafter described shall serve the health, safety, welfare, and convenience of the residents of Nassau County.

**NOW, THEREFORE, BE IT RESOLVED** by the Board of County Commissioners of Nassau County, Florida, that:

**Section 1. Findings.** The Board of County Commissioners has examined the recommendation by the Department of Engineering Services in relation to a four way stop at the intersection of South 14<sup>th</sup> Street and Simmons Road, and based upon the investigation, hereby determines the placement of four way "STOP" signs is necessary.

**Section 2. Four Way "STOP" signs to be placed.** "STOP" signs may be placed at the intersection of South 14<sup>th</sup> Street and Simmons Road.

**Section 3. Penalties.** Any person found guilty of violating the Stop sign restriction established by this Resolution shall be punished according to the provisions of Chapter 316, Florida Statutes, the Florida Uniform Traffic Control Law, Section 316.655, Penalties and Chapter 318, Disposition of Traffic Infractions.

**Section 4. Effective Date.** This resolution shall take effect each on posting of the STOP signs.

**PASSED AND ADOPTED** this \_\_\_\_\_ day of \_\_\_\_\_, 2019.

BOARD OF COUNTY COMMISSIONERS  
OF NASSAU COUNTY, FLORIDA

\_\_\_\_\_  
JUSTIN M. TAYLOR  
Its: Chairman

Attest as to Chairman's signature:

\_\_\_\_\_  
JOHN A. CRAWFORD  
Ex-Officio Clerk

Approved as to form by the  
Nassau County Attorney:

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MICHAEL S. MULLIN

*Signal Warrant Analysis  
For Submittal to Nassau County*

**City of Fernandina Beach  
South 14<sup>th</sup> Street/ Simmons Road  
Fernandina Beach, Florida**

*Prepared for:  
Nassau County*

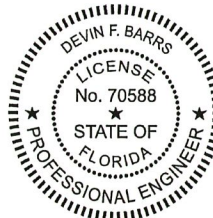
*June 2019*



**Engineers  
Planners  
Landscape Architects  
Surveyors  
Construction Management  
Design/Build**

*Certificate of Authorization No. 00003215*

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Barrs  
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OU=CPH INC., CN=Devin  
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Date: 2019-09-23 10:59:07

Devin Barrs  
70588

**P.E. Number**

**Date**



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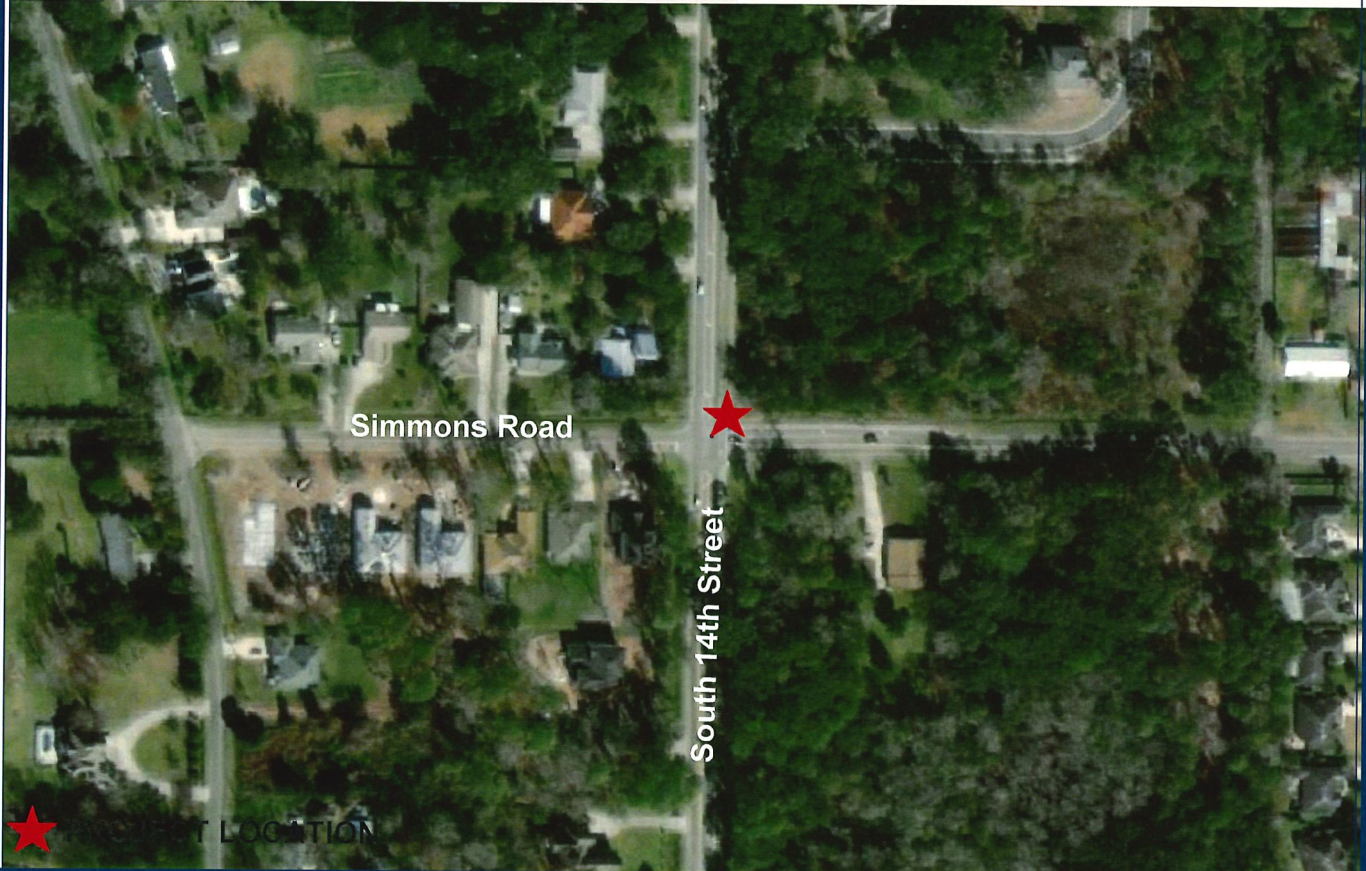
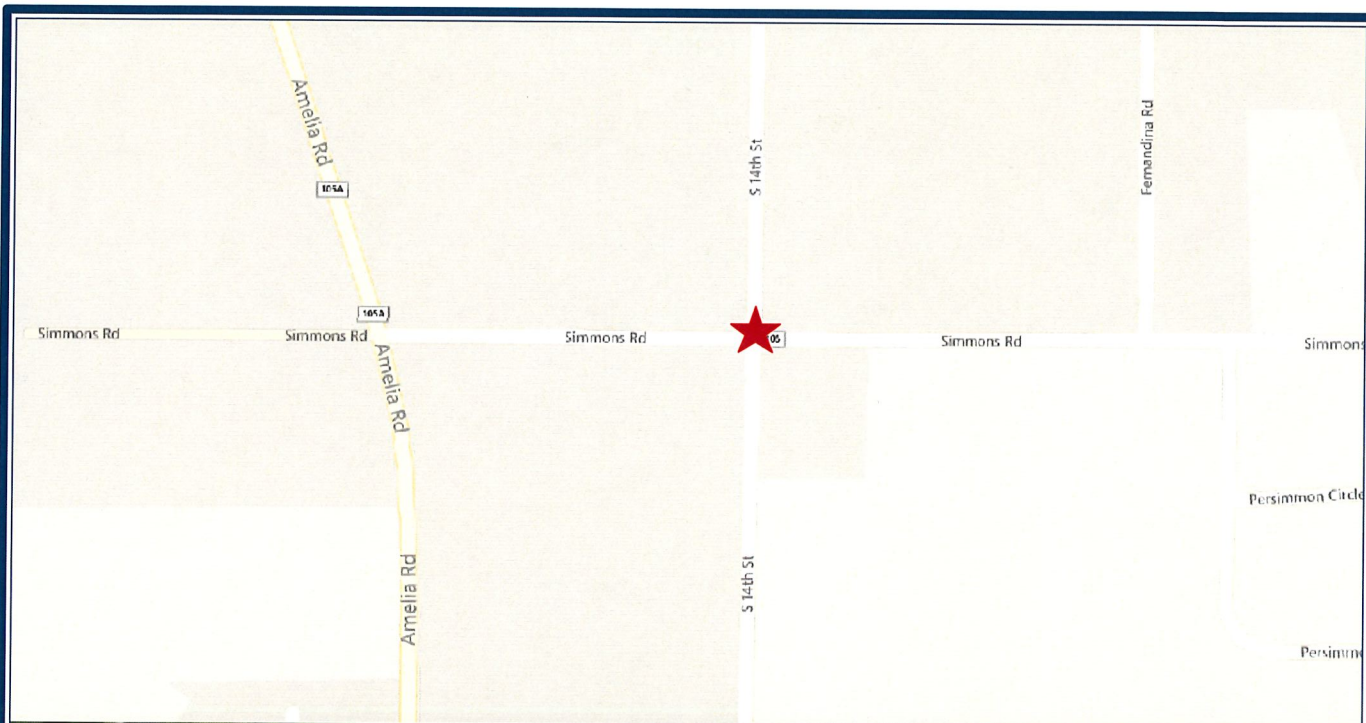
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**Introduction**

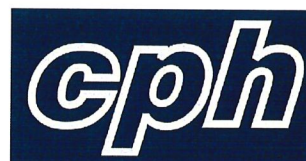
A signal warrant analysis has been requested for the intersection of S. 14<sup>th</sup> Street and Simmons Road in Fernandina Beach, Nassau County, Florida. **Figure 1** illustrates the project location.

The major southbound approach of S. 14<sup>th</sup> Street has one shared through and right turn lane and one left turn lane. The major northbound approach has one shared through, left, and right turn lane. The minor westbound approach of Simmons Road has one shared through/left turn lane and one right turn lane. The minor eastbound approach of Simmons Road has one shared through, left, and right turn lane.

The following report has been prepared to evaluate the need for a traffic signal at the intersection. The warrant analysis is presented using traffic approach data and turning movement counts collected in May 2019. The analysis methods used in this report are consistent with the Federal Highway Administration's (FHWA) *Manual on Uniform Traffic Control Devices*.



**FIGURE 1**  
**SITE LOCATION MAP**  
**SIMMONS ROAD & SOUTH 14TH STREET**  
**FERNANDINA BEACH, FLORIDA**  
**NASSAU COUNTY**



Engineers  
 Architects  
 Planners  
 Landscape Architects  
 Transportation/Traffic  
 Surveyors  
 Environmental Scientists  
 Construction Management

### **Traffic Volumes**

Twenty-four hour approach volumes were obtained on May 2, 2019. The approach volumes were then utilized to identify the 8 highest hours of traffic for the intersection. Turning movement counts were obtained on May 2, 2019 from 10:00 AM to 6:15 PM. The turning movement counts were utilized in the signal warrant analysis. The westbound approach was found to consistently have the higher approach volume among the minor approaches to the intersection, and therefore was utilized in the warrant analysis.

### **Signal Warrant Analysis**

The MUTCD recommends that the following traffic signal warrants be considered when evaluating the need for a traffic signal at an intersection:

Warrant 1 – Eight Hour Vehicular Volume  
Warrant 2 – Four Hour Vehicular Volume  
Warrant 3 – Peak Hour  
Warrant 4 – Pedestrian Volume  
Warrant 5 – School Crossing  
Warrant 6 – Coordinated Signal System  
Warrant 7 – Crash Experience  
Warrant 8 – Roadway Network  
Warrant 9 – Railroad Crossing

The intersection will be analyzed as: major street 2 lane, minor street 1 lane, as noted in the MUTCD. The posted speed on S. 14<sup>th</sup> Street is 45 mph, therefore the 70% volume criteria will be used for Warrants 1 and 2. Each of the eight warrants is described in detail below and applied to the project intersection. Signal warrant summary sheets are included in the Appendix.

#### **Warrant 1 – Eight Hour Vehicular Warrant**

The minimum vehicular volume, Condition A, is intended for application where a large volume of intersecting traffic is the principal reason to consider installing a traffic control signal. The interruption of continuous traffic, Condition B, is intended for application where the traffic volume on a major street is so heavy that traffic on a minor intersecting street suffers excessive delay or conflict in entering or crossing the major street.

If either of these conditions are met during any eight hours over the course of a typical day, then the warrant is satisfied.

Based upon the approach volumes, Warrant 1 – Condition A is **not satisfied**, and Condition B is **satisfied**. Therefore, Warrant 1 the Eight Hour Vehicular Warrant is **satisfied**.

#### **Warrant 2 – Four Hour Vehicular Volume**

This warrant specifies a different set of minimum volume conditions for warranting a signal and is intended to be applied where the volume of intersecting traffic is the principal reason to consider a traffic control signal. Based upon the collected approach volumes, Warrant 2 is **satisfied**.

Warrant 3 – Peak Hour

The peak hour signal warrant is intended for use at a location where traffic conditions are such that, for a minimum of one hour of an average day, the minor street traffic suffers undue delay when entering or crossing the major street. This signal warrant shall be applied only in unusual cases. Such cases include office complexes, manufacturing plants, industrial complexes, or high occupancy vehicle facilities that attract or discharge large numbers of vehicles over a short time. Based upon the nature of the surrounding area, this warrant was **not applicable**.

Warrant 4 – Pedestrian Volume

The pedestrian volume signal warrant is intended for application where the traffic volume on a major street is so heavy that pedestrians experience excessive delay in crossing the major street. Based upon the pedestrian volume observed during field review, Warrant 4 is **not applicable**.

Warrant 5 – School Crossing

The school crossing signal warrant is intended for application where a significant number of school children cross the major street. Based upon the pedestrian volume observed, Warrant 5 is **not applicable**.

Warrant 6 – Coordinated Signal System

Progressive movement in a coordinated signal system sometimes necessitates installing traffic control signals at intersections where they would not otherwise be needed in order to maintain proper platooning of vehicles. This intersection is not along a coordinated signal system, therefore, this warrant is **not applicable** to this location.

Warrant 7 – Crash Experience

Detailed crash records for this area have been requested from the FDOT and Nassau County Sheriff's Office. FDOT provided crash data for the study intersection from 2012 to 2019. Since 2012 there have been 13 "angle" crashes, 5 "left-turn" crashes, 2 "rear end" crashes, 1 "right turn" crash, and two "unknown" crashes. The warrant specifies that five or more signal correctable crashes must be reported within a 12 month period. Between March 10, 2018 and January 9, 2019, five "angle" or "left-turn" crashes occurred, which are considered signal correctable crashes. Therefore, Warrant 7, Item B, **is satisfied**.

Warrant 8 – Roadway Network

Installing a traffic control signal at some intersections might be justified to encourage concentration and organization of traffic flow on a roadway network. This warrant is **not applicable** to the intersection.

Warrant 9 – Railroad Crossing

This warrant is applied at intersections adjacent to or impacted by a nearby railroad crossing. This warrant is **not applicable** to the study intersection.

**Conclusion**

Traffic conditions were evaluated for the intersection of S. 14<sup>th</sup> Street and Simmons Road. Based upon the evaluation of the signal warrant criteria presented in the MUTCD. A traffic signal is currently warranted at this location.

# APPENDIX

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# **APPENDIX A**

## **Traffic Counts**

# National Data & Surveying Services

## Intersection Turning Movement Count

Location: S 14th St & Simmons Rd  
City: Fernandina Beach  
Control: 2-Way Stop(EB/WB)

Project ID: 19-03254-001  
Date: 5/2/2019

### Total

NS/EW Streets:		S 14th St				Simmons Rd				Simmons Rd			
NOON		NORTHBOUND				SOUTHBOUND				EASTBOUND			
		NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU
10:00 AM		0	0	0	0	0	0	0	0	0	0	0	0
10:15 AM		1	102	9	0	9	76	3	0	0	1	2	0
10:30 AM		0	104	13	0	10	72	3	0	0	0	2	0
10:45 AM		1	81	11	0	13	68	1	0	4	5	2	0
11:00 AM		0	94	12	0	7	92	3	0	0	4	2	0
11:15 AM		0	90	11	0	11	86	3	0	5	0	2	0
11:30 AM		0	92	13	0	13	87	1	0	1	2	0	0
11:45 AM		1	104	19	0	9	90	5	0	0	2	1	0
12:00 PM		1	98	12	0	12	90	8	0	3	5	1	0
12:15 PM		0	98	13	0	12	93	3	0	2	4	4	0
12:30 PM		1	97	15	0	11	90	1	1	2	2	0	0
12:45 PM		1	110	19	0	6	109	4	0	0	4	1	0
1:00 PM		1	89	18	0	17	100	3	0	0	4	2	0
1:15 PM		2	96	23	0	14	90	1	0	2	1	2	0
1:30 PM		1	89	18	0	13	92	4	0	3	1	1	0
1:45 PM		0	77	14	0	10	67	2	0	1	3	2	0
		0	105	11	0	11	91	2	0	1	6	1	0
TOTAL VOLUMES :		NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU
APPROACH % :		11	1526	231	0	178	1393	47	1	24	44	25	0
PEAK HR :		0.62%	86.31%	13.07%	0.00%	10.99%	86.04%	2.90%	0.06%	25.81%	47.31%	26.88%	0.00%
PEAK HR VOL :		5	392	75	0	48	389	9	1	4	11	5	0
PEAK HR FACTOR :		0.625	0.891	0.815	0.000	0.706	0.892	0.563	0.250	0.500	0.688	0.625	0.000
		0.908				0.931				0.833			

## National Data &amp; Surveying Services

## Intersection Turning Movement Count

Location: S 14th St & Simmons Rd  
City: Fernandina Beach  
Control: 2-Way Stop(EB/WB)

Project ID: 19-03254-001  
Date: 5/2/2019

## Cars

NS/EW Streets:		S 14th St					S 14th St					Simmons Rd					Simmons Rd				
NOON		NORTHBOUND					SOUTHBOUND					EASTBOUND					WESTBOUND				
	NL	NT	NR	NU		SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL			
10:00 AM	0	102	9	0	0	9	74	3	0	0	1	2	0	16	3	13	0	233			
10:15 AM	0	100	13	0	0	9	71	3	0	0	0	1	0	15	2	11	0	225			
10:30 AM	1	80	10	0	0	13	66	1	0	4	5	2	0	13	3	7	0	205			
10:45 AM	0	94	12	0	0	7	92	3	0	0	4	2	0	13	0	11	0	238			
11:00 AM	0	89	11	0	0	11	85	3	0	5	0	2	0	10	3	16	0	235			
11:15 AM	0	90	13	0	0	13	85	1	0	1	2	0	0	17	8	8	0	238			
11:30 AM	1	102	18	0	0	9	90	5	0	0	2	1	0	14	7	7	0	256			
11:45 AM	1	97	12	0	0	12	89	8	0	3	5	1	0	18	8	15	0	269			
12:00 PM	0	96	13	0	0	12	93	3	0	2	4	3	0	15	3	10	0	254			
12:15 PM	1	96	14	0	0	11	83	1	1	2	2	0	0	17	7	15	0	250			
12:30 PM	1	108	19	0	0	6	106	4	0	0	4	1	0	17	5	10	0	281			
12:45 PM	1	88	17	0	0	17	100	3	0	0	4	2	0	17	5	12	0	266			
1:00 PM	2	94	23	0	0	14	85	1	0	2	1	2	0	24	5	7	0	260			
1:15 PM	1	87	18	0	0	13	89	4	0	3	1	0	0	16	2	9	0	243			
1:30 PM	0	75	14	0	0	10	67	2	0	1	3	2	0	22	4	9	0	209			
1:45 PM	0	105	11	0	0	11	89	2	0	1	6	1	0	16	3	9	0	254			
TOTAL VOLUMES :		NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL			
APPROACH %'s :		10	1503	227	0	177	1364	47	1	24	44	22	0	260	68	169	0	3916			
PEAK HR :		0.57%	86.38%	13.05%	0.00%	11.14%	85.84%	2.96%	0.06%	26.67%	48.89%	24.44%	0.00%	52.31%	13.68%	34.00%	0.00%				
PEAK HR VOL :		5	386	73	0	48	374	9	1	4	11	5	0	75	22	44	0	1057			
PEAK HR FACTOR :		0.63	0.894	0.793	0.000	0.706	0.882	0.563	0.250	0.500	0.688	0.625	0.000	0.781	0.786	0.733	0.000	0.940			
		0.906				0.900				0.833				0.904							



# National Data & Surveying Services

## Intersection Turning Movement Count

Location: S 14th St & Simmons Rd  
City: Fernandina Beach  
Control: 2-Way Stop(EB/WB)

Project ID: 19-03254-001  
Date: 5/2/2019

HT

NS/EW Streets:		S 14th St					S 14th St					Simmons Rd					Simmons Rd				
NOON		NORTHBOUND					SOUTHBOUND					EASTBOUND					WESTBOUND				
	NL	NT	NR	NU		SL	ST	SR	SU		EL	ET	ER	EU		WL	WT	WR	WU		
10:00 AM	0	0	0	0		0	2	0	0		0	0	0	0		1	0	0	0		
10:15 AM	0	0	0	0		0	1	0	0		0	0	1	0		0	0	0	0		
10:30 AM	0	1	1	0		0	2	0	0		0	0	0	0		0	0	0	0		
10:45 AM	0	0	0	0		0	0	0	0		0	0	0	0		1	0	0	0		
11:00 AM	0	1	0	0		0	1	0	0		0	0	0	0		1	0	0	0		
11:15 AM	0	2	0	0		0	2	0	0		0	0	0	0		1	0	0	0		
11:30 AM	0	2	1	0		0	0	0	0		0	0	0	0		0	1	0	0		
11:45 AM	0	1	0	0		0	1	0	0		0	0	0	0		0	0	1	0		
12:00 PM	0	2	0	0		0	0	0	0		0	0	1	0		0	0	0	0		
12:15 PM	0	1	1	0		0	7	0	0		0	0	0	0		1	0	0	0		
12:30 PM	0	2	0	0		0	3	0	0		0	0	0	0		0	0	0	0		
12:45 PM	0	1	1	0		0	0	0	0		0	0	0	0		0	0	1	0		
1:00 PM	0	2	0	0		0	5	0	0		0	0	0	0		0	0	0	0		
1:15 PM	0	2	0	0		0	3	0	0		0	0	1	0		0	0	0	0		
1:30 PM	1	2	0	0		0	0	0	0		0	0	0	0		0	0	0	0		
1:45 PM	0	0	0	0		0	2	0	0		0	0	0	0		0	0	0	0		
TOTAL VOLUMES :	NL	NT	NR	NU		SL	ST	SR	SU		EL	ET	ER	EU		WL	WT	WR	WU		
APPROACH %s :	1	23	4	0		1	29	0	0		0	0	3	0		4	1	2	0		
APPROACH %s :	3.57%	82.14%	14.29%	0.00%		3.33%	96.67%	0.00%	0.00%		0.00%	0.00%	100.00%	0.00%		57.14%	14.29%	28.57%	0.00%		
PEAK HR :	12:15 PM - 01:15 PM																				
PEAK HR VOL :	0	6	2	0		0	15	0	0		0	0	0	0		1	0	1	0		
PEAK HR FACTOR :	0.00	0.750	0.500	0.000		0.000	0.536	0.000	0.000		0.000	0.000	0.000	0.000		0.250	0.000	0.250	0.000		
					1.000					0.536					0.000						

## Intersection Turning Movement Count

**Project ID:** 19-03254-001  
**Date:** 5/2/2019

**NS/EW Streets:**

PMI	NORTHBOUND						SOUTHBOUND						EASTBOUND						WESTBOUND				TOTAL
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU							
2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
2:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
2:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
3:15 PM	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0						
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
4:30 PM	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	2						
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
5:00 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1						
5:15 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1						
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
6:15 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	1						
TOTAL VOLUMES :	0	2	1	0	0	1	0	0	1	0	1	0	0	0	0	0	6						
APPROACH %'s :	0.00%	66.67%	33.33%	0.00%	0.00%	100.00%	0.00%	0.00%	50.00%	0.00%	50.00%	0.00%	0	0	0	0							
PEAK HR :	04:30 PM - 05:30 PM																						
PEAK HR VOL :	0	2	1	0	0	0	0	0	0	0	1	0	0	0	0	0	4						
PEAK HR FACTOR :	0.00	0.500	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.500						



# National Data & Surveying Services

## Intersection Turning Movement Count

Location: 18th St & S 14th St

City: Fernandina Beach

Date: 5/2/2019

### Pedestrians (Crosswalks)

NS/EW Streets:		S 14th St		S 14th St		Simmons Rd		Simmons Rd	
NOON	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		TOTAL
	EB	WB	EB	WB	NB	SB	NB	SB	
	0	1	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	
	0	0	0	0	1	1	0	0	
	1	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	
	TOTAL VOLUMES :		EB	WB	EB	WB	NB	SB	
APPROACH %'s :		1	1	0	1	1	0	6	
PEAK HR :		50.00%	50.00%	0.00%	100.00%	50.00%	100.00%	0.00%	
PEAK HR VOL :		0	0	0	0	0	0	0	
PEAK HR FACTOR :		0	0	0	0	0	0	0	

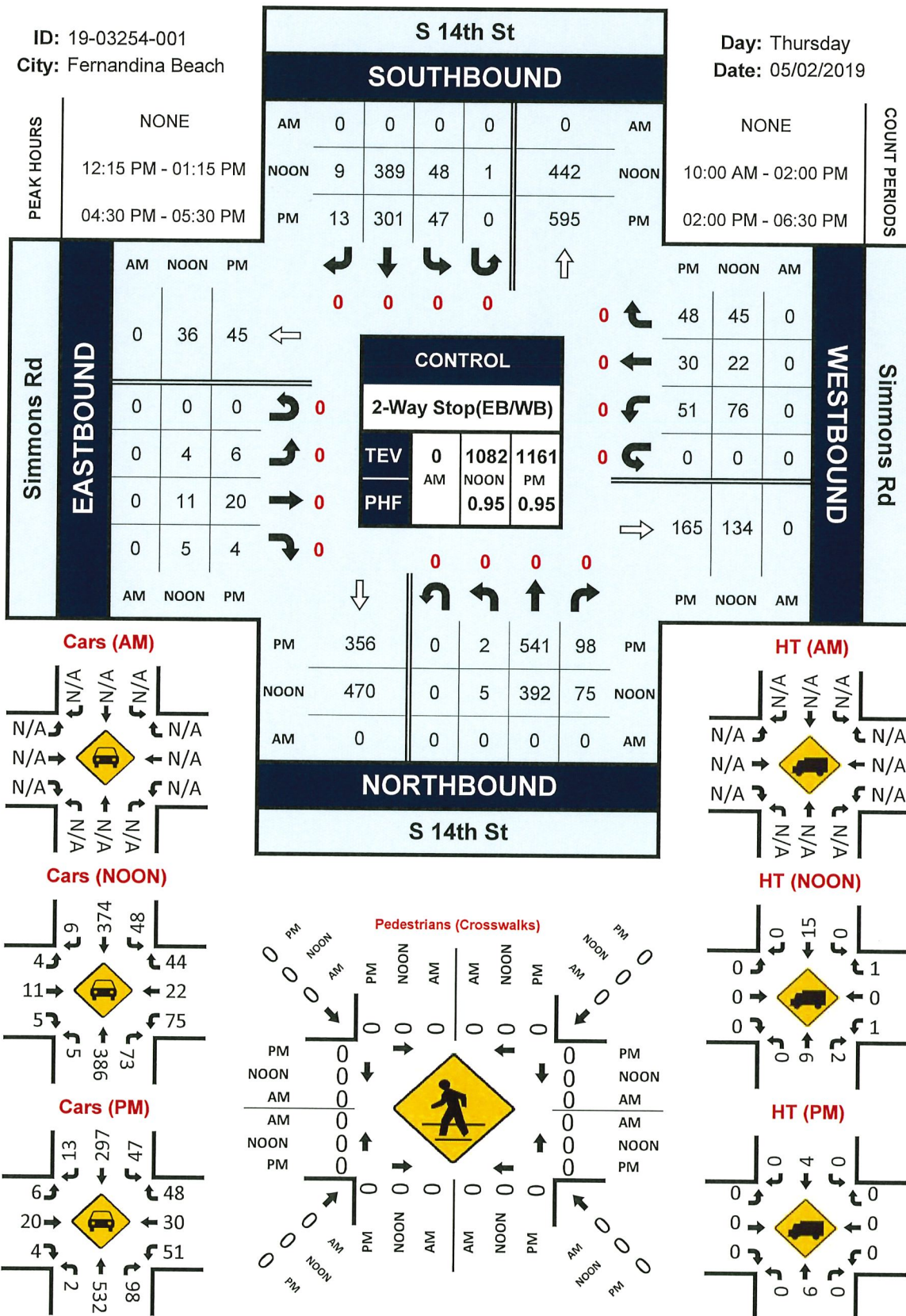
PM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		TOTAL
	EB	WB	EB	WB	NB	SB	NB	SB	
2:00 PM	0	0	0	0	0	0	0	0	0
2:15 PM	0	0	0	0	0	0	0	0	0
2:30 PM	0	0	0	0	0	0	0	0	0
2:45 PM	0	0	0	0	0	0	0	0	0
3:00 PM	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0
4:00 PM	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0
6:00 PM	0	0	0	0	0	0	0	0	0
6:15 PM	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES :	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
APPROACH %'s :	0	0	0	0	0	0	0	0	0
PEAK HR :	04:30 PM - 05:30 PM								TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :									

## S 14th St &amp; Simmons Rd

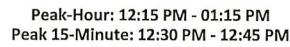
## Peak Hour Turning Movement Count

ID: 19-03254-001  
City: Fernandina Beach

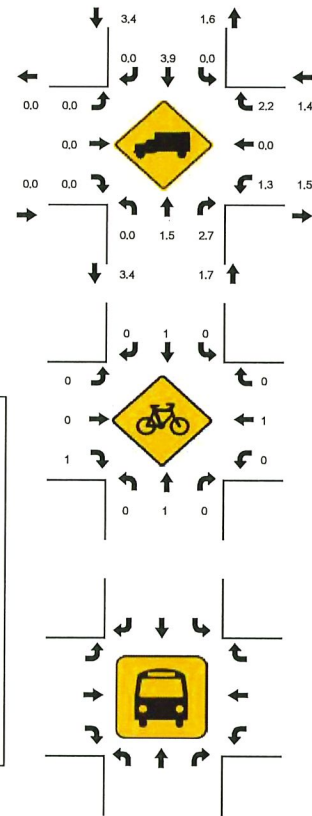
Day: Thursday  
Date: 05/02/2019



PROJECT ID: 19-03254-001  
DATE: 05/02/2019

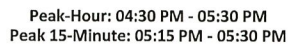


National Data &amp; Surveying Services

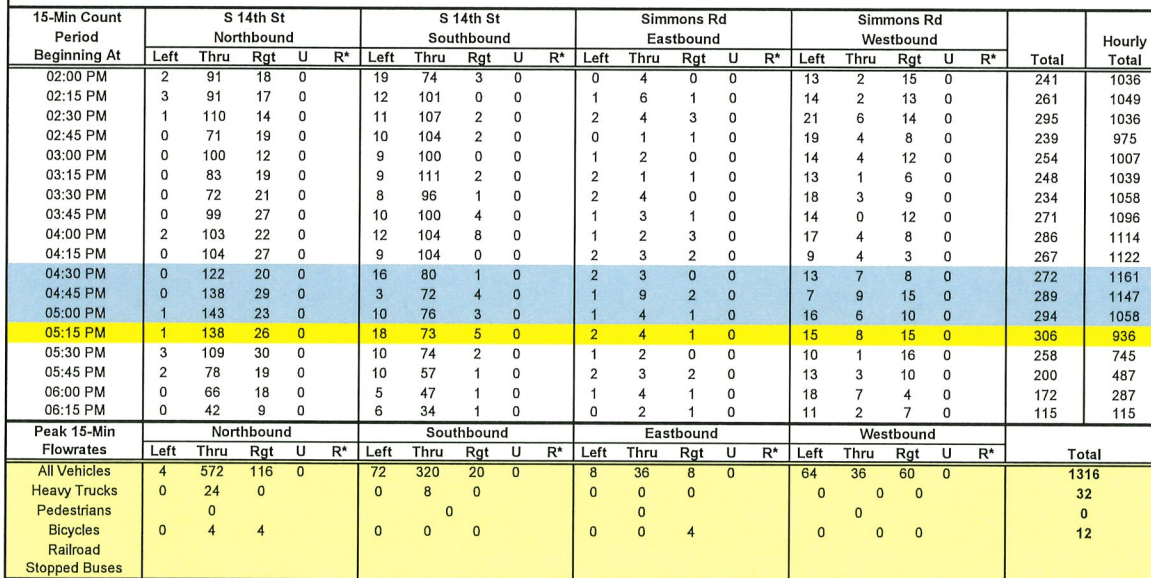
[illegible]



PROJECT ID: 19-03254-001  
DATE: 05/02/2019



A diagram of a four-way intersection. A north arrow is in the top right corner. The intersection has a central vertical road and a central horizontal road. On the left side of the vertical road, there is a sign with a left-turn arrow and a right-turn arrow. On the right side of the vertical road, there is a sign with a left-turn arrow and a right-turn arrow. On the left side of the horizontal road, there is a sign with a left-turn arrow and a right-turn arrow. On the right side of the horizontal road, there is a sign with a left-turn arrow and a right-turn arrow. The intersection is labeled with the number 19-3254-001 in the top left corner.



## **APPENDIX B**

### **Data Summary**

## VOLUME

Simmons Rd W/O S 14th St

City: Fernandina Beach  
Project #: FL19\_3255\_001Day: Wednesday  
Date: 4/17/2019

DAILY TOTALS										Total	
				NB	SB	EB	WB		903		
				0	0	404	499				
AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL
00:00			1	0	1	12:00		8	15	23	
00:15			1	1	2	12:15		3	13	16	
00:30			0	1	1	12:30		5	7	12	
00:45			1	3	4	12:45		5	21	26	
01:00			0	0	0	13:00		6	11	17	
01:15			0	0	0	13:15		2	9	11	
01:30			0	0	0	13:30		10	10	20	
01:45			0	0	0	13:45		7	25	32	
02:00			0	0	0	14:00		6	12	18	
02:15			0	0	0	14:15		5	3	8	
02:30			0	0	0	14:30		13	12	25	
02:45			0	0	0	14:45		8	32	40	
03:00			0	0	0	15:00		9	9	18	
03:15			0	0	0	15:15		5	4	9	
03:30			0	0	0	15:30		5	11	16	
03:45			0	0	0	15:45		6	25	31	
04:00			0	1	1	16:00		13	11	24	
04:15			0	1	1	16:15		9	14	23	
04:30			0	0	0	16:30		6	11	17	
04:45			0	1	1	16:45		9	37	46	
05:00			0	0	0	17:00		7	12	19	
05:15			0	0	0	17:15		8	7	15	
05:30			1	3	4	17:30		5	12	17	
05:45			0	1	1	17:45		2	22	24	
06:00			1	1	2	18:00		5	11	16	
06:15			1	1	2	18:15		1	7	8	
06:30			0	3	3	18:30		1	7	8	
06:45			4	6	10	18:45		4	11	15	
07:00			0	5	5	19:00		2	6	8	
07:15			2	4	6	19:15		3	5	8	
07:30			8	6	14	19:30		2	7	9	
07:45			7	17	24	19:45		4	11	15	
08:00			6	4	10	20:00		4	4	8	
08:15			7	7	14	20:15		2	5	7	
08:30			13	4	17	20:30		2	3	5	
08:45			13	39	52	20:45		2	10	12	
09:00			16	9	25	21:00		1	2	3	
09:15			13	6	19	21:15		0	1	1	
09:30			7	9	16	21:30		1	0	1	
09:45			10	46	56	21:45		2	4	6	
10:00			12	7	19	22:00		3	3	6	
10:15			10	13	23	22:15		2	3	5	
10:30			11	7	18	22:30		0	1	1	
10:45			8	41	49	22:45		0	5	5	
11:00			13	10	23	23:00		3	0	3	
11:15			10	9	19	23:15		0	0	0	
11:30			9	9	18	23:30		1	1	2	
11:45			12	44	56	23:45		0	4	4	
TOTALS			197	167	364	TOTALS		207	332	539	
SPLIT %			54.1%	45.9%	40.3%	SPLIT %		38.4%	61.6%	59.7%	

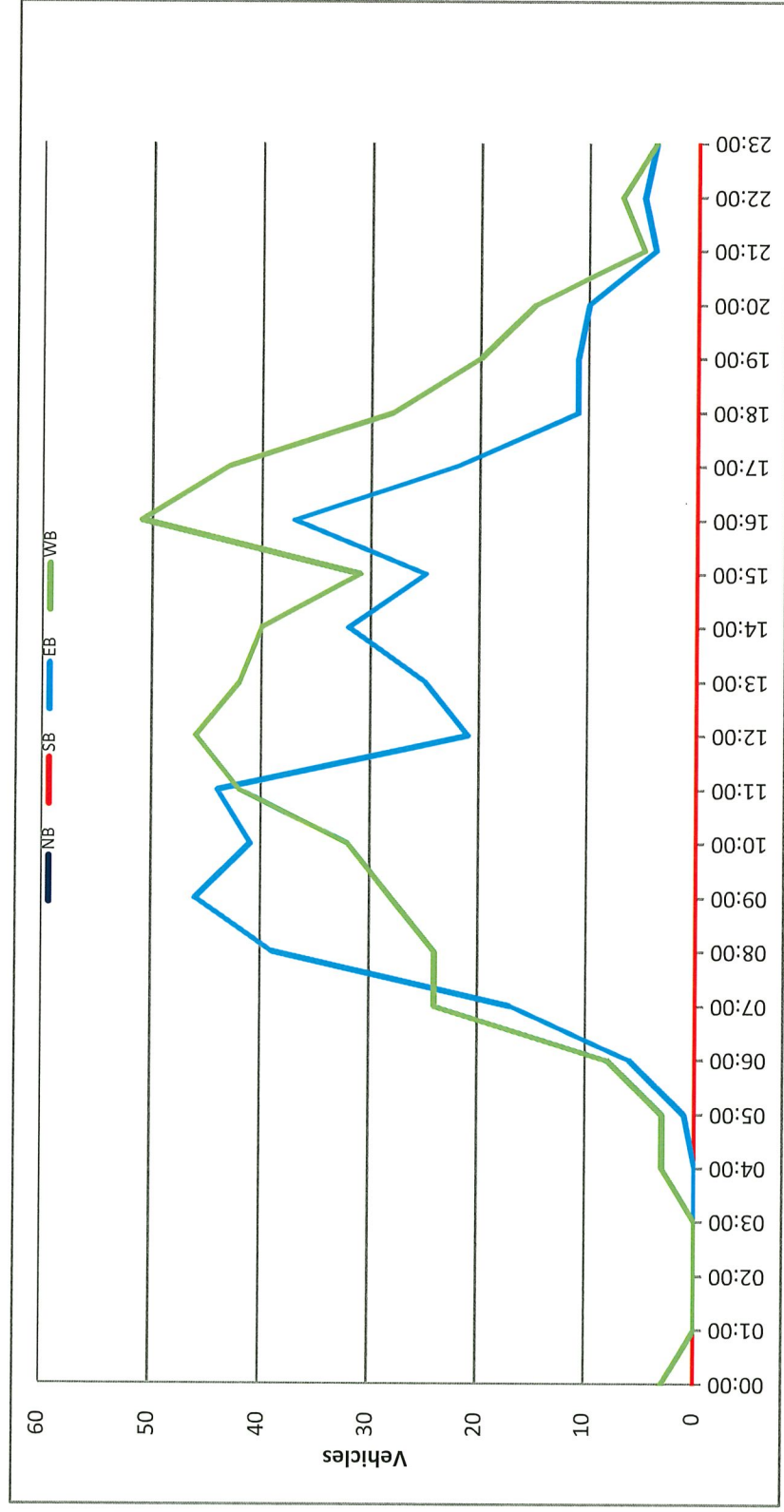
DAILY TOTALS										Total	
				NB	SB	EB	WB		903		
				0	0	404	499				
AM Peak Hour	NB	SB	EB	WB	TOTAL	PM Peak Hour	NB	SB	EB	WB	TOTAL
08:30			1	0	1	16:00		8	15	23	
08:45			1	1	2	16:15		3	13	16	
09:00			0	1	1	16:30		5	7	12	
09:15			1	3	4	16:45		6	11	17	
09:30			0	0	0	17:00		2	9	11	
09:45			0	0	0	17:15		10	10	20	
10:00			0	0	0	17:30		7	25	32	
10:15			0	0	0	17:45		6	12	18	
10:30			0	0	0	18:00		13	11	24	
10:45			0	0	0	18:15		9	14	23	
11:00			0	0	0	18:30		6	11	17	
11:15			0	0	0	18:45		9	37	46	
11:30			0	0	0	19:00		7	15	22	
11:45			0	0	0	19:15		8	7	15	
TOTALS			0	0	0	19:30		5	12	17	
SPLIT %			0	0	0	19:45		2	22	24	

Project #: FL19\_3255\_001

City: Fernandina Beach

Location: Simmons Rd W/O S 14th St

Date: 4/17/2019





## VOLUME

S 14th St S/O Simmons Rd

City: Fernandina Beach  
Project #: FL19\_3255\_002Day: Wednesday  
Date: 4/17/2019

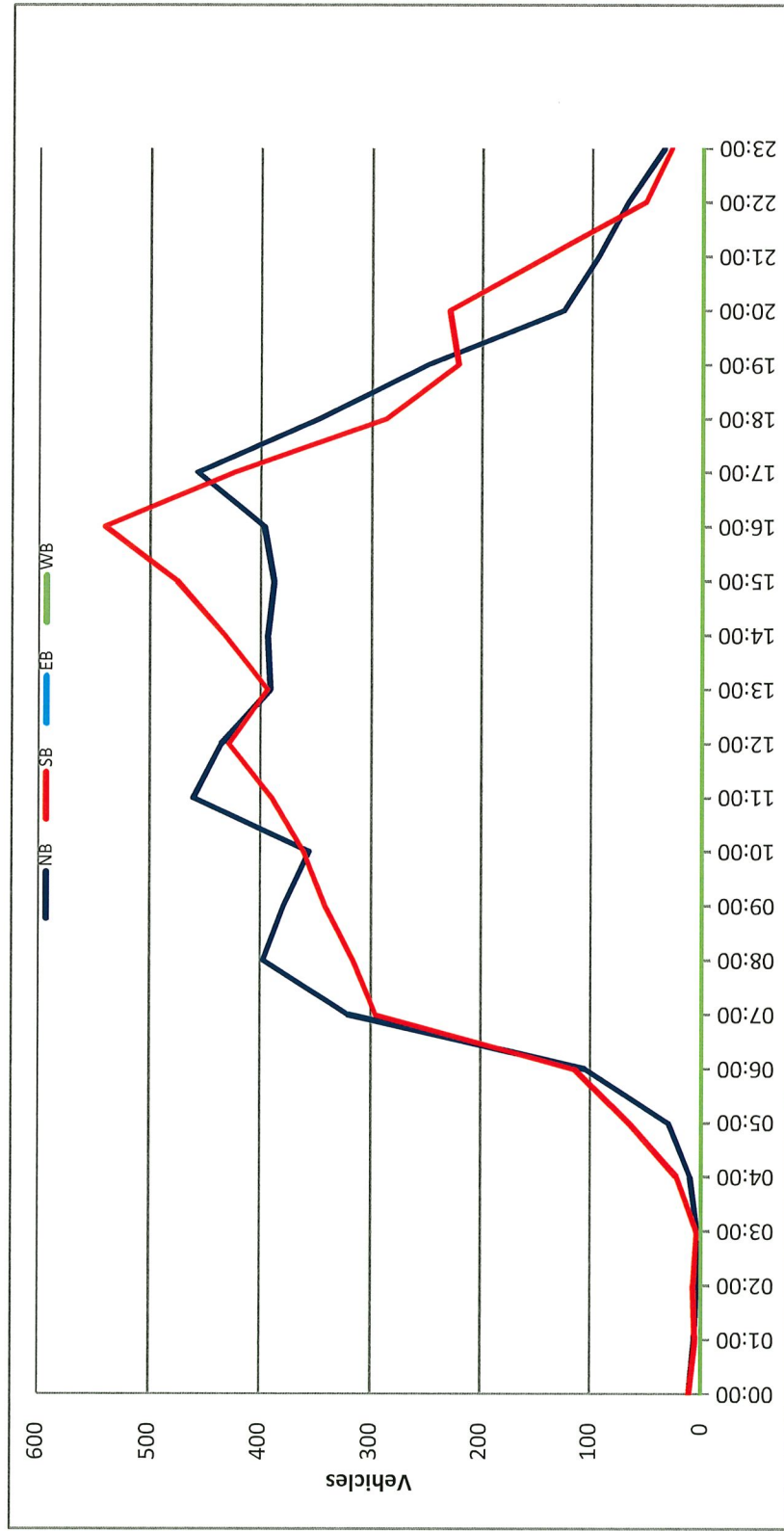
DAILY TOTALS												Total	
NB						SB		EB		WB		Total	
5,476						5,597		0		0		11,073	
AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL		
00:00	2	4			6	12:00	93	124			217		
00:15	2	2			4	12:15	130	97			227		
00:30	5	4			9	12:30	101	114			215		
00:45	3	12	2	12	5 24	12:45	112	436	94	429	206 865		
01:00	2	0			2	13:00	100	80			180		
01:15	1	3			4	13:15	115	113			228		
01:30	3	1			4	13:30	94	105			199		
01:45	1	7	2	6	3 13	13:45	82	391	96	394	178 785		
02:00	2	3			5	14:00	90	120			210		
02:15	2	1			3	14:15	100	92			192		
02:30	0	1			1	14:30	97	93			190		
02:45	1	5	3	8	4 13	14:45	107	394	128	433	235 827		
03:00	1	2			3	15:00	102	110			212		
03:15	3	1			4	15:15	110	100			210		
03:30	0	0			0	15:30	93	128			221		
03:45	0	4	2	5	2 9	15:45	83	388	138	476	221 864		
04:00	1	4			5	16:00	87	158			245		
04:15	3	4			7	16:15	110	165			275		
04:30	4	7			11	16:30	98	119			217		
04:45	3	11	8	23	11 34	16:45	102	397	99	541	201 938		
05:00	2	9			11	17:00	110	120			230		
05:15	7	8			15	17:15	122	118			240		
05:30	10	12			22	17:30	110	101			211		
05:45	11	30	36	65	47 95	17:45	116	458	85	424	201 882		
06:00	12	28			40	18:00	100	98			198		
06:15	27	18			45	18:15	92	69			161		
06:30	21	34			55	18:30	79	60			139		
06:45	45	105	35	115	80 220	18:45	77	348	60	287	137 635		
07:00	56	50			106	19:00	78	48			126		
07:15	68	53			121	19:15	59	69			128		
07:30	88	85			173	19:30	55	54			109		
07:45	109	321	108	296	217 617	19:45	58	250	51	222	109 472		
08:00	90	70			160	20:00	40	61			101		
08:15	96	79			175	20:15	32	64			96		
08:30	101	75			176	20:30	27	61			88		
08:45	111	398	92	316	203 714	20:45	27	126	44	230	71 356		
09:00	92	97			189	21:00	26	42			68		
09:15	86	71			157	21:15	21	32			53		
09:30	98	84			182	21:30	24	44			68		
09:45	103	379	90	342	193 721	21:45	24	95	23	141	47 236		
10:00	94	83			177	22:00	23	19			42		
10:15	90	84			174	22:15	12	17			29		
10:30	86	95			181	22:30	15	8			23		
10:45	86	356	99	361	185 717	22:45	18	68	8	52	26 120		
11:00	130	67			197	23:00	7	5			12		
11:15	111	115			226	23:15	15	7			22		
11:30	107	99			206	23:30	6	9			15		
11:45	113	461	109	390	222 851	23:45	8	36	8	29	16 65		
TOTALS	2089	1939			4028	TOTALS	3387	3658			7045		
SPLIT %	51.9%	48.1%			36.4%	SPLIT %	48.1%	51.9%			63.6%		
DAILY TOTALS												Total	
NB						SB		EB		WB		Total	
5,476						5,597		0		0		11,073	
AM Peak Hour	11:00	11:15			11:45	PM Peak Hour	17:00	15:30			15:30		
AM Pk Volume	461	447			881	PM Pk Volume	458	589			962		
Pk Hr Factor	0.887	0.901			0.970	Pk Hr Factor	0.939	0.892			0.875		
7 - 9 Volume	719	612			1331	4 - 6 Volume	855	965			1820		
7 - 9 Peak Hour	08:00	07:30			07:45	4 - 6 Peak Hour	17:00	16:00			16:00		
7 - 9 Pk Volume	398	342			728	4 - 6 Pk Volume	458	541			938		
Pk Hr Factor	0.896	0.792			0.839	Pk Hr Factor	0.939	0.820			0.853		

Project #: FL19\_3255\_002

City: Fernandina Beach

Location: S 14th St S/O Simmons Rd

Date: 4/17/2019



## VOLUME

Simmons Rd E/O S 14th St

Day: Wednesday  
Date: 4/17/2019City: Fernandina Beach  
Project #: FL19\_3255\_003

DAILY TOTALS										Total	
AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL
00:00	7	1	4	1	8	12:00			37	37	74
00:15	4	1	5	1	5	12:15			44	30	74
00:30	2	0	2	0	2	12:30			32	33	65
00:45	0	13	1	3	1	12:45			32	145	37
01:00	0	0	0	0	0	13:00			37	30	67
01:15	1	0	1	0	1	13:15			39	32	71
01:30	0	3	0	3	3	13:30			41	32	73
01:45	0	1	1	4	1	13:45			40	157	31
02:00	1	2	1	2	3	14:00			36	40	76
02:15	1	1	1	1	2	14:15			36	20	56
02:30	0	0	0	0	0	14:30			36	36	72
02:45	1	3	1	4	2	14:45			29	137	32
03:00	1	1	1	1	2	15:00			44	43	87
03:15	2	0	2	0	2	15:15			45	23	68
03:30	0	0	0	0	0	15:30			43	43	86
03:45	1	4	1	2	2	15:45			42	174	36
04:00	0	2	0	2	2	16:00			44	41	85
04:15	1	2	1	2	3	16:15			38	36	74
04:30	0	4	0	4	4	16:30			34	30	64
04:45	1	2	4	12	5	16:45			48	164	22
05:00	0	2	2	2	2	17:00			47	42	89
05:15	1	1	1	2	2	17:15			41	36	77
05:30	1	7	1	8	8	17:30			48	34	82
05:45	1	3	9	19	10	17:45			29	165	24
06:00	2	9	11	11	11	18:00			32	42	74
06:15	3	7	10	10	10	18:15			31	29	60
06:30	5	19	24	24	24	18:30			22	33	55
06:45	13	23	21	56	34	18:45			20	105	20
07:00	9	29	38	38	79	19:00			18	16	34
07:15	9	17	26	26	18	19:15			16	18	34
07:30	21	35	56	56	27	19:30			27	17	44
07:45	27	66	31	112	58	19:45			19	80	11
08:00	27	33	60	60	178	20:00			14	8	22
08:15	33	27	60	60	17	20:15			17	10	27
08:30	35	30	65	65	27	20:30			16	11	27
08:45	28	123	38	128	66	20:45			21	68	6
09:00	29	32	61	61	21	21:00			12	7	19
09:15	32	40	72	72	11	21:15			11	9	20
09:30	24	41	65	65	18	21:30			9	50	4
09:45	28	113	33	146	61	21:45			10	7	17
10:00	28	40	68	68	12	22:00			12	7	19
10:15	28	24	52	52	4	22:15			10	2	6
10:30	37	32	69	69	6	22:30			4	2	8
10:45	32	125	28	124	60	22:45			6	32	2
11:00	36	27	63	63	4	23:00			4	1	5
11:15	33	26	59	59	3	23:15			3	3	6
11:30	40	36	76	76	2	23:30			3	2	5
11:45	37	146	21	110	58	23:45			2	12	3
TOTALS	622	720	1342	256	36.3%	TOTALS	1289	1071	54.6%	45.4%	63.7%
SPLIT %	46.3%	53.7%	36.3%			SPLIT %					

DAILY TOTALS										Total	
AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL
AM Peak Hour	11:30	09:15	11:30	PM Peak Hour	16:45	15:30					
AM Pk Volume	158	154	282	PM Pk Volume	184	156					
Pk Hr Factor	0.898	0.939	0.928	Pk Hr Factor	0.958	0.907					
7 - 9 Volume	189	240	429	4 - 6 Volume	329	265					
7 - 9 Peak Hour	08:00	08:00	08:00	4 - 6 Peak Hour	16:45	17:00					
7 - 9 Pk Volume	123	128	251	4 - 6 Pk Volume	184	136					
Pk Hr Factor	0.879	0.842	0.951	Pk Hr Factor	0.958	0.810					

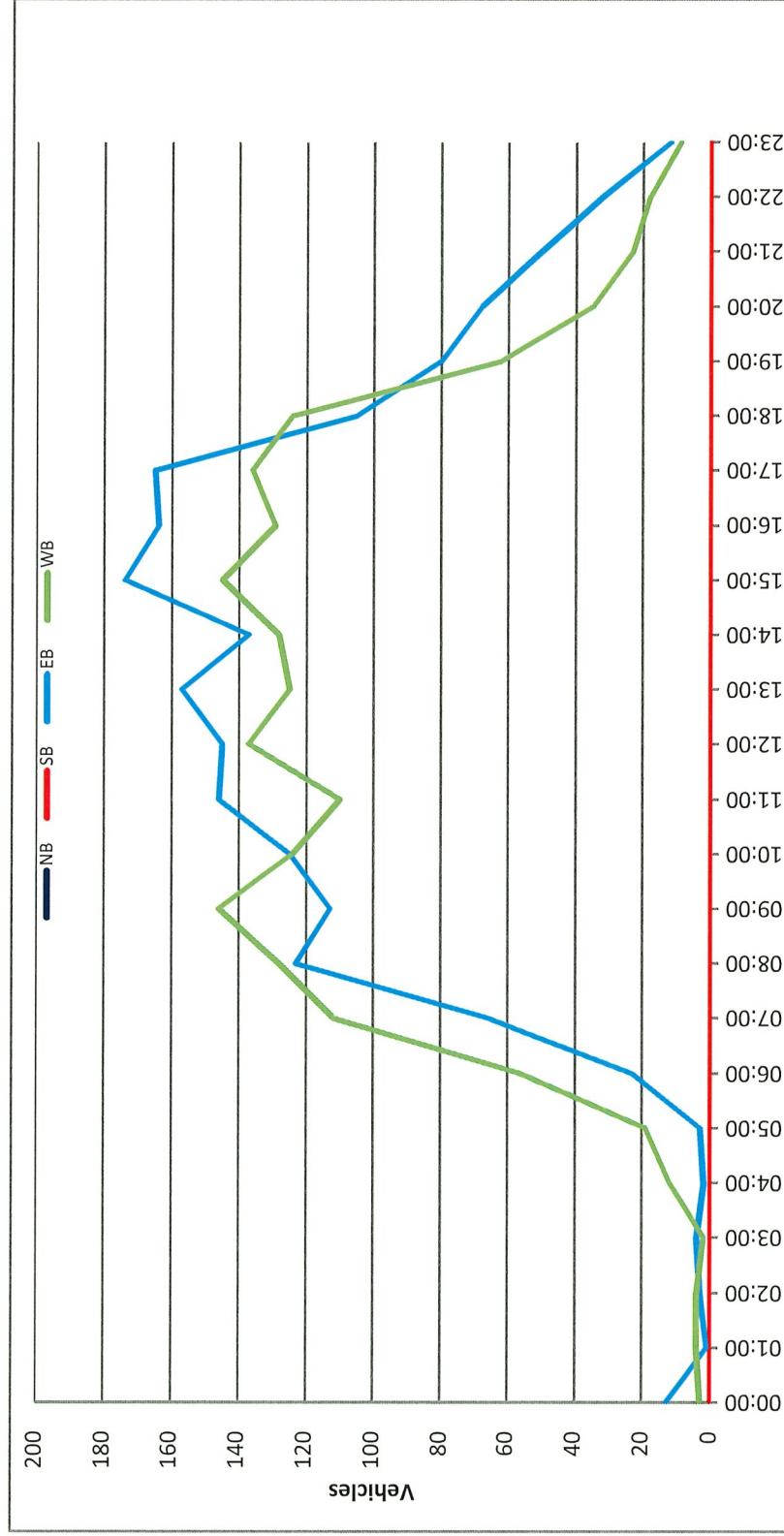


Project #: FL19\_3255\_003

City: Fernandina Beach

Location: Simmons Rd E/O S 14th St

Date: 4/17/2019





## VOLUME

S 14th St N/O Simmons Rd

City: Fernandina Beach  
Project #: FL19\_3255\_004Day: Wednesday  
Date: 4/17/2019

DAILY TOTALS										Total	
AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	WB	TOTAL	10,923
00:00	2	2			4	12:00	97	127		224	
00:15	2	2			4	12:15	118	108		226	
00:30	3	1	6		4	12:30	103	108		211	
00:45	3	10	1		4	12:45	108	426	97	440	866
01:00	3	0			3	13:00	95	94		189	
01:15	1	3			4	13:15	102	121		223	
01:30	4	1	1		5	13:30	93	116		209	
01:45	1	9	1	5	2	13:45	84	374	95	426	800
02:00	1	0			1	14:00	91	137		228	
02:15	2	1			3	14:15	87	112		199	
02:30	0	2			2	14:30	93	102		195	
02:45	0	3	1	4	1	14:45	106	377	147	498	875
03:00	0	1			1	15:00	87	119		206	
03:15	1	1			2	15:15	83	115		198	
03:30	0	0			0	15:30	88	154		242	
03:45	0	1	3		1	15:45	76	334	169	557	891
04:00	1	3			4	16:00	72	182		254	
04:15	3	3			6	16:15	106	193		299	
04:30	5	5	16		10	16:30	82	126		208	
04:45	3	12	5		8	16:45	75	335	102	603	938
05:00	3	8			11	17:00	97	118		215	
05:15	8	6			14	17:15	114	110		224	
05:30	12	12			24	17:30	101	94		195	
05:45	17	40	28	54	45	17:45	115	427	86	408	835
06:00	15	19			34	18:00	99	95		201	
06:15	28	15			43	18:15	93	67		194	
06:30	25	23			48	18:30	78	58		136	
06:45	56	124	25	82	81	18:45	80	350	59	279	629
07:00	60	33			93	19:00	76	47		123	
07:15	72	44			116	19:15	54	64		118	
07:30	103	74			177	19:30	49	62		111	
07:45	107	342	96	247	203	19:45	56	235	51	224	459
08:00	90	64			154	20:00	37	67		104	
08:15	86	69			155	20:15	29	69		98	
08:30	97	55			152	20:30	23	62		85	
08:45	119	392	82	270	201	20:45	21	110	49	247	357
09:00	93	90			183	21:00	27	48		75	
09:15	93	60			153	21:15	25	38		63	
09:30	101	60			161	21:30	20	51		71	
09:45	110	397	80	290	190	21:45	24	96	25	162	258
10:00	106	71			177	22:00	21	24		45	
10:15	88	71			159	22:15	15	16		31	
10:30	83	86			169	22:30	19	12		31	
10:45	84	361	95	323	179	22:45	16	71	13	65	136
11:00	119	59			178	23:00	11	5		16	
11:15	111	106			217	23:15	15	4		19	
11:30	105	101			206	23:30	7	9		16	
11:45	106	441	118	384	224	23:45	6	39	6	24	63
TOTALS	2132	1684			3816	TOTALS		3174	3933		7107
SPLIT %	55.9%	44.1%			34.9%	SPLIT %		44.7%	55.3%		65.1%

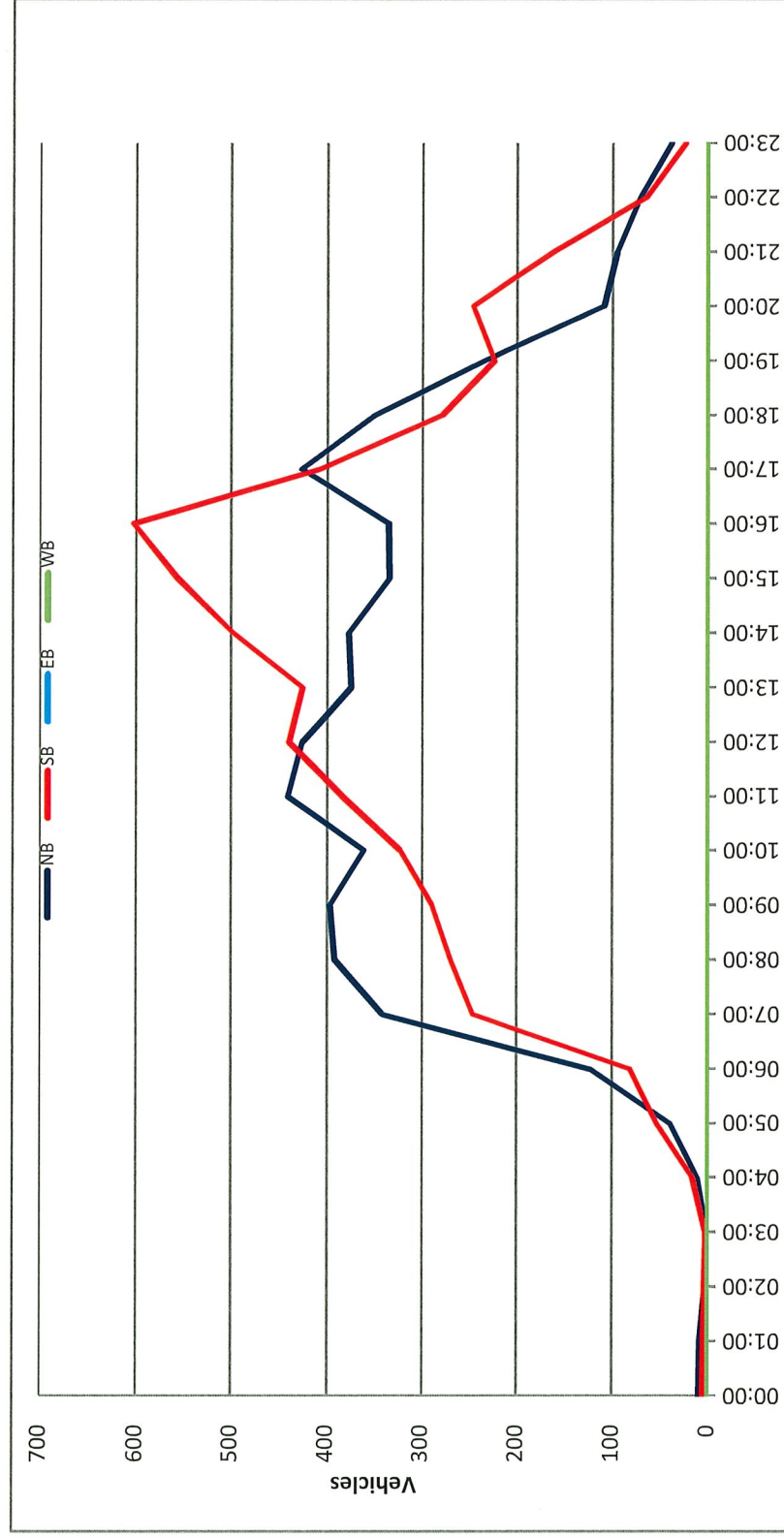
DAILY TOTALS										Total	
AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	WB	TOTAL	10,923
AM Peak Hour	11:00	11:45			11:45	PM Peak Hour	17:15	15:30		15:30	
AM Pk Volume	441	461			885	PM Pk Volume	429	698		1040	
Pk Hr Factor	0.926	0.907			0.979	Pk Hr Factor	0.933	0.904		0.870	
7 - 9 Volume	734	517			1251	4 - 6 Volume	762	1011		1773	
7 - 9 Peak Hour	08:00	07:30			689	4 - 6 Peak Hour	17:00	16:00		16:00	
7 - 9 Pk Volume	392	303			689	4 - 6 Pk Volume	427	603		938	
Pk Hr Factor	0.824	0.789			0.849	Pk Hr Factor	0.928	0.781		0.784	

Project #: FL19\_3255\_004

City: Fernandina Beach

Location: S 14th St N/O Simmons Rd

Date: 4/17/2019



## **APPENDIX C**

# **Signal Warrant Analysis**

State of Florida Department of Transportation

## TRAFFIC SIGNAL WARRANT SUMMARY

Form 750-020-01  
TRAFFIC ENGINEERING  
10/15

City: **Fernandina Beach**  
County: **74 – Nassau**  
District: **Two**

Engineer: **D. Barrs**  
Date: **May 21, 2019**

Major Street: **S. 14th Street**  
Minor Street: **Simmons Road**

Lanes: **2**  
Lanes: **1**

Major Approach Speed: **45**  
Minor Approach Speed: **40**

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

### Volume Level Criteria

1. Is the posted speed or 85th-percentile of major street > 40 mph (70 km/h)?
2. Is the intersection in a built-up area of an isolated community with a population < 10,000?

☒ Yes ☐ No

☐ Yes ☒ No

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

☒ 70% ☐ 100%

### WARRANT 1 - EIGHT-HOUR VEHICULAR VOLUME

Warrant 1 is satisfied if Condition A or Condition B is "100%" satisfied for eight hours.

☒ Yes ☐ No

Warrant 1 is also satisfied if both Condition A and Condition B are "80%" satisfied (should only be applied after an adequate trial of other alternatives that could cause less delay and inconvenience to traffic has failed to solve the traffic problems).

☐ Yes ☒ No

#### Condition A - Minimum Vehicular Volume

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

100% Satisfied:

☐ Yes ☒ No

80% Satisfied:

☐ Yes ☒ No

70% Satisfied:

☐ Yes ☒ No

Number of Lanes for moving traffic on each approach		Vehicles per hour on major-street (total of both approaches)			Vehicles per hour on minor-street (one direction only)		
Major	Minor	100% <sup>a</sup>	80% <sup>b</sup>	70% <sup>c</sup>	100% <sup>a</sup>	80% <sup>b</sup>	70% <sup>c</sup>
1	1	500	400	350	150	120	105
2 or more	1	600	480	420	150	120	105
2 or more	2 or more	600	480	420	200	160	140
1	2 or more	500	400	350	200	160	140

<sup>a</sup> Basic Minimum hourly volume

<sup>b</sup> Used for combination of Conditions A and B after adequate trial of other remedial measures

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

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

Street	Eight Highest Hours							
	10:00-11:00AM	11:00-12:00PM	12:00-1:00PM	1:00-2:00PM	2:00-3:00PM	3:00-4:00PM	4:00-5:00PM	5:00-6:00PM
Major	730	784	835	759	807	797	869	803
Minor	67	87	87	92	81	67	70	72

Existing Volumes



State of Florida Department of Transportation  
**TRAFFIC SIGNAL WARRANT SUMMARY**

Form 750-020-01  
TRAFFIC ENGINEERING  
10/15

**Condition B - Interruption of Continuous Traffic**

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

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

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

<sup>a</sup> Basic Minimum hourly volume

<sup>b</sup> Used for combination of Conditions A and B after adequate trial of other remedial measures

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

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

Eight Highest Hours								
Street	10:00-11:00AM	11:00-12:00PM	12:00-1:00PM	1:00-2:00PM	2:00-3:00PM	3:00-4:00PM	4:00-5:00PM	5:00-6:00PM
Major	730	784	835	759	807	797	869	803
Minor	67	87	87	92	81	67	70	72

Existing Volumes

State of Florida Department of Transportation

## TRAFFIC SIGNAL WARRANT SUMMARY

Form 750-020-01  
TRAFFIC ENGINEERING  
10/15

City: **Fernandina Beach**  
County: **74 – Nassau**  
District: **Two**

Engineer: **D. Barrs**  
Date: **May 21, 2019**

Major Street: **S. 14th Street**  
Minor Street: **Simmons Road**

Lanes: **2**  
Lanes: **1**  
Major Approach Speed: **45**  
Minor Approach Speed: **40**

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

### Volume Level Criteria

1. Is the posted speed or 85th-percentile of major street > 40 mph (70 km/h)?
2. Is the intersection in a built-up area of an isolated community with a population < 10,000?

☒ Yes ☐ No

☐ Yes ☒ No

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

☒ Yes ☐ No

### WARRANT 2 - FOUR-HOUR VEHICULAR VOLUME

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

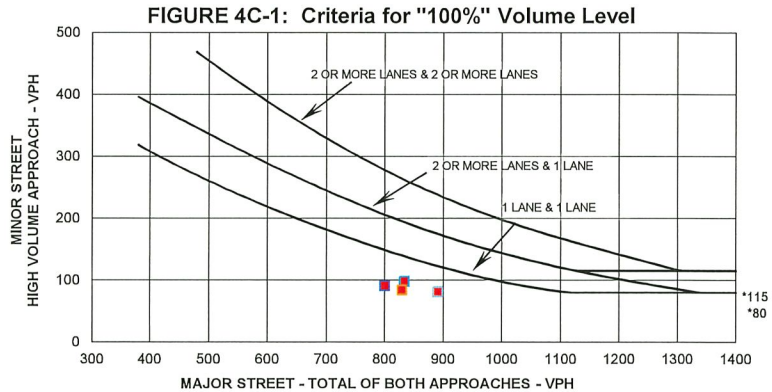
Applicable: ☒ Yes ☐ No

Satisfied: ☒ Yes ☐ No

*Plot four volume combinations on the applicable figure below.*

#### 100% Volume Level

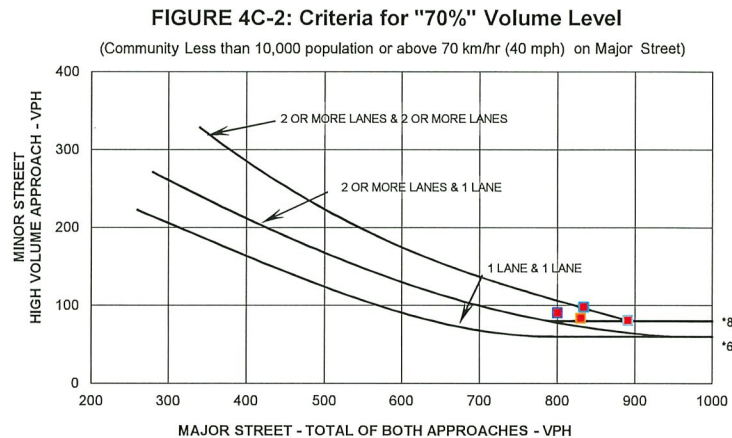
Four Highest Hours	Volumes	
	Major Street	Minor Street
11:00-12:00PM	800	91
12:00-1:00PM	834	98
2:15-3:15PM	830	84
4:30-5:30PM	891	81



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

#### 70% Volume Level

Four Highest Hours	Volumes	
	Major Street	Minor Street
11:00-12:00PM	800	91
12:00-1:00PM	834	98
2:15-3:15PM	830	84
4:30-5:30PM	891	81



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



State of Florida Department of Transportation  
**TRAFFIC SIGNAL WARRANT SUMMARY**

Form 750-020-01  
TRAFFIC ENGINEERING  
10/15

City: **Fernandina Beach**  
County: **74 - Nassau**  
District: **Two**

Engineer: **D. Barrs**  
Date: **May 21, 2019**

Major Street: **S. 14th Street**  
Minor Street: **Simmons Road**

Lanes: **2** Major Approach Speed: **45**  
Lanes: **1** Minor Approach Speed: **40**

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

**Volume Level Criteria**

1. Is the posted speed or 85th-percentile of major street > 40 mph (70 km/h)?
  2. Is the intersection in a built-up area of an isolated community with a population < 10,000?
- "70%" volume level **may** be used if Question 1 or 2 above is answered "Yes"

☒ Yes ☐ No  
☐ Yes ☒ No  
☒ 70% ☐ 100%

**WARRANT 3 - PEAK HOUR**

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

Applicable: ☐ Yes ☒ No  
Satisfied: ☐ Yes ☐ No

Unusual condition justifying use of warrant:

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

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

Peak Hour 70% Volume		
Time	Major Vol.	Minor Vol.
4:30-5:30PM	891	81

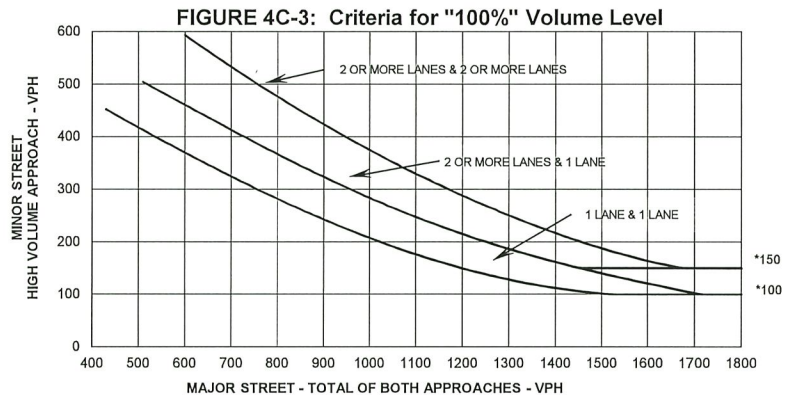
**Criteria**

1. Delay on Minor Approach *(vehicle-hours)		
Approach Lanes	1	2
Delay Criteria*	4.0	5.0
Delay*		
Fulfilled?:	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No

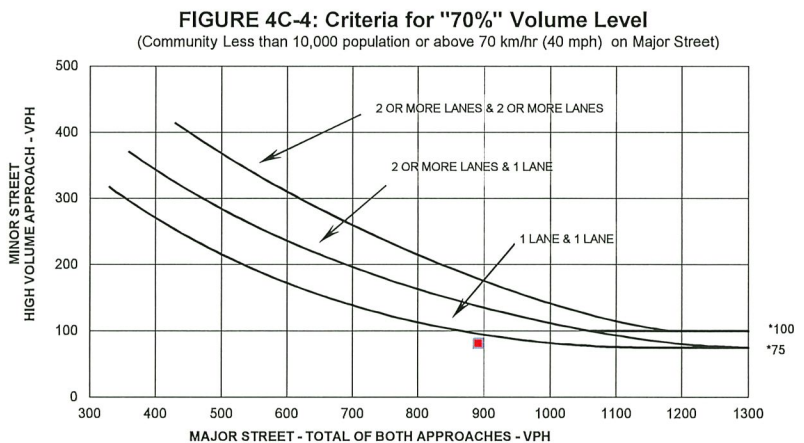
2. Volume on Minor Approach One-Direction *(vehicles per hour)		
Approach Lanes	1	2
Volume Criteria*	100	150
Volume*		
Fulfilled?:	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No

3. Total Intersection Entering Volume *(vehicles per hour)		
No. of Approaches	3	4
Volume Criteria*	650	800
Volume*		
Fulfilled?:	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No

*Plot volume combination on the applicable figure below.*



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



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

State of Florida Department of Transportation

## TRAFFIC SIGNAL WARRANT SUMMARY

Form 750-020-01  
TRAFFIC ENGINEERING  
10/15

City: **Fernandina Beach**  
County: **74 - Nassau**  
District: **Two**

Engineer: **D. Barrs**  
Date: **May 21, 2019**

Major Street: **S. 14th Street**  
Minor Street: **Simmons Road**

Lanes: **2**  
Lanes: **1**

Major Approach Speed: **45**  
Minor Approach Speed: **40**

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

### Volume Level Criteria

1. Is the posted speed or 85th-percentile of major street > 40 mph (70 km/h)?
2. Is the intersection in a built-up area of an isolated community with a population < 10,000?

☒ Yes ☐ No

☐ Yes ☒ No

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

☒ 70% ☐ 100%

### WARRANT 4 - PEDESTRIAN VOLUME

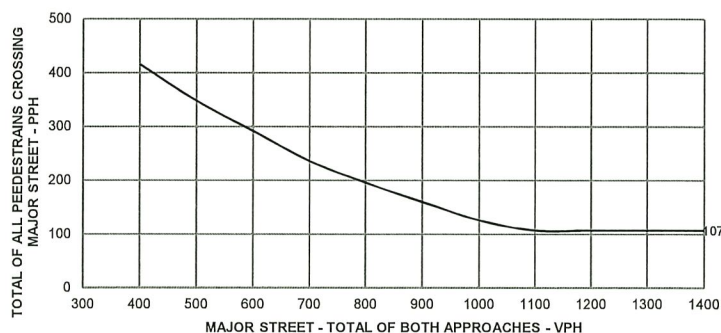
For each of any 4 hours of an average day, the plotted points lie above the appropriate line, then the warrant is satisfied.

Applicable: ☐ Yes ☒ No

Satisfied: ☐ Yes ☒ No

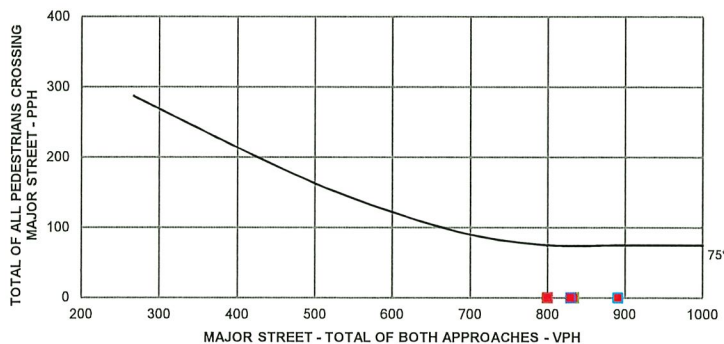
Plot four volume combinations on the applicable figure below.

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



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

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



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

#### 100% Volume Level

Four Highest Hours	Volumes	
	Major Street	Pedestrian Total

#### 70% Volume Level

Four Highest Hours	Volumes	
	Major Street	Pedestrian Total
11:00-12:00PM	800	
12:00-1:00PM	834	
2:15-3:15PM	830	
4:30-5:30PM	891	



## WARRANT 4 - PEDESTRIAN VOLUME

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

Applicable: ☐ Yes ☐ No

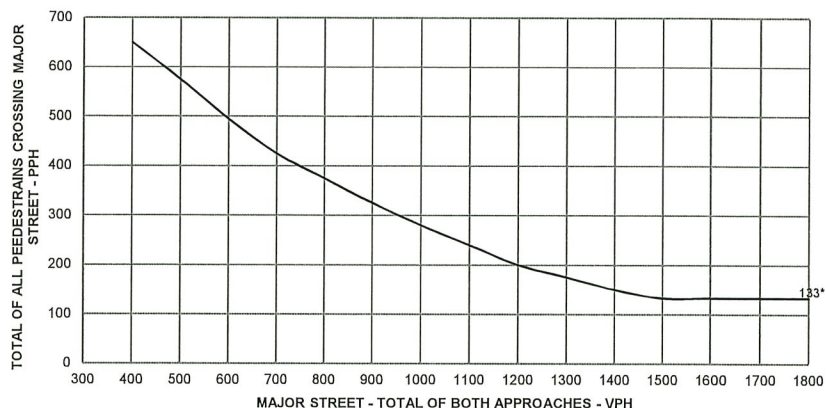
Satisfied: ☐ Yes ☐ No

Plot one volume combination on the applicable figure below.

### 100% Volume Level

Peak Hour	Volumes	
	Major Street	Pedestrian Total

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

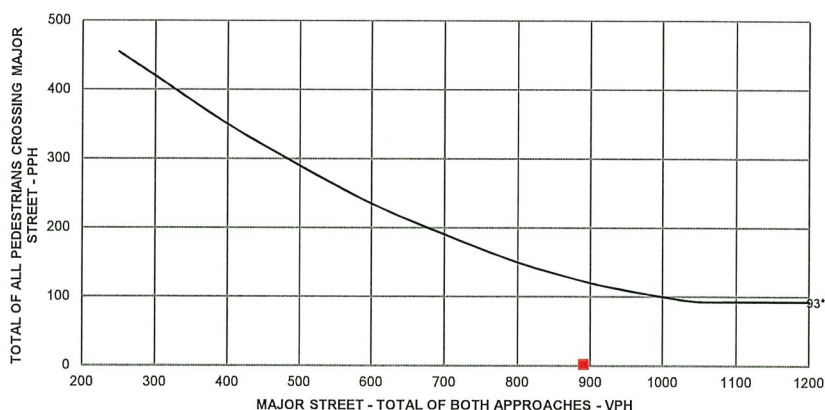


\* Note: 133 pph applies as the lower threshold volume

### 70% Volume Level

Peak Hour	Volumes	
	Major Street	Pedestrian Total
4:30-5:30PM	891	2

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



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

State of Florida Department of Transportation

## TRAFFIC SIGNAL WARRANT SUMMARY

Form 750-020-01  
TRAFFIC ENGINEERING  
10/15

City: **Fernandina Beach**  
County: **74 – Nassau**  
District: **Two**

Engineer: **D. Barrs**  
Date: **May 21, 2019**

Major Street: <b>S. 14th Street</b>	Lanes: <b>2</b>	Major Approach Speed: <b>45</b>
Minor Street: <b>Simmons Road</b>	Lanes: <b>1</b>	Minor Approach Speed: <b>40</b>

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

### WARRANT 5 - SCHOOL CROSSING

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

Applicable: ☐ Yes ☒ No

Satisfied: ☐ Yes ☒ No

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

State of Florida Department of Transportation

## TRAFFIC SIGNAL WARRANT SUMMARY

Form 750-020-01  
TRAFFIC ENGINEERING  
10/15

City: **Fernandina Beach**  
County: **74 – Nassau**  
District: **Two**

Engineer: **D. Barrs**  
Date: **May 21, 2019**

Major Street: **S. 14th Street**  
Minor Street: **Simmons Road**

Lanes: **2**  
Lanes: **1**

Major Approach Speed: **45**  
Minor Approach Speed: **40**

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

### **WARRANT 6 - COORDINATED SIGNAL SYSTEM**

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

Applicable: ☐ Yes ☒ No

Satisfied: ☐ Yes ☒ No

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

State of Florida Department of Transportation

## TRAFFIC SIGNAL WARRANT SUMMARY

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TRAFFIC ENGINEERING  
10/15

City: **Fernandina Beach**  
County: **74 – Nassau**  
District: **Two**

Engineer: **D. Barrs**  
Date: **May 21, 2019**

Major Street: **S. 14th Street**  
Minor Street: **Simmons Road**

Lanes: **2** Major Approach Speed: **45**  
Lanes: **1** Minor Approach Speed: **40**

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

### WARRANT 7 - CRASH EXPERIENCE

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

Applicable: ☒ Yes ☐ No  
Satisfied: ☒ Yes ☐ No

Criteria		Hour								Volume		Met?		Fulfilled?	
										Major	Minor	Yes	No	Yes	No
1. warrants to the right is met.	Warrant 1, Condition A (80% satisfied)												No	Yes	
	Warrant 1, Condition B (80% satisfied)											Yes			
	Warrant 4, Pedestrian Volume at 80% of volume requirements: # ped/hr for four (4) hours or # ped/hr for one (1) hour.												No		
2.	Adequate trial of other remedial measure has failed to reduce crash frequency.	Measure tried:	Unknown												
3.	Five or more reported crashes, of types susceptible to correction by signal, have occurred within a 12-month period.	Observed Crash Types:	Angle and Left-Turn		Number of crashes per 12 months:		6							Yes	



State of Florida Department of Transportation

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10/15

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County: **74 – Nassau**  
District: **Two**

Engineer: **D. Barrs**  
Date: **May 21, 2019**

Major Street: **S. 14th Street**  
Minor Street: **Simmons Road**

Lanes: **2** Major Approach Speed: **45**  
Lanes: **1** Minor Approach Speed: **40**

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

### WARRANT 8 - ROADWAY NETWORK

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

Applicable: ☐ Yes ☒ No  
Satisfied: ☐ Yes ☐ No

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

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

State of Florida Department of Transportation

## TRAFFIC SIGNAL WARRANT SUMMARY

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TRAFFIC ENGINEERING  
10/15

City: **Fernandina Beach**  
County: **74 – Nassau**  
District: **Two**

Engineer: **D. Barrs**  
Date: **May 21, 2019**

Major Street: **S. 14th Street** Lanes: **2** Major Approach Speed: **45**  
Minor Street: **Simmons Road** Lanes: **1** Minor Approach Speed: **40**

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

### Approach Lane Criteria

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

☐ 1 ☐ 2 or

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

☐ Fig 4C-9 ☐ Fig 4C-10

### WARRANT 9 - INTERSECTION NEAR A GRADE CROSSING

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

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

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

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

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

#### Inputs

Occurrences of Rail traffic per day  
% of High Occupancy Buses on Minor-Street Approach  
Enter D (feet)  
% of Tractor-Trailer Trucks on Minor-Street Approach

#### Adjustment Factors from Tables

**1.00**

**0.50**

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

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

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

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

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

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

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

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

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

After adjustment factors are applied

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

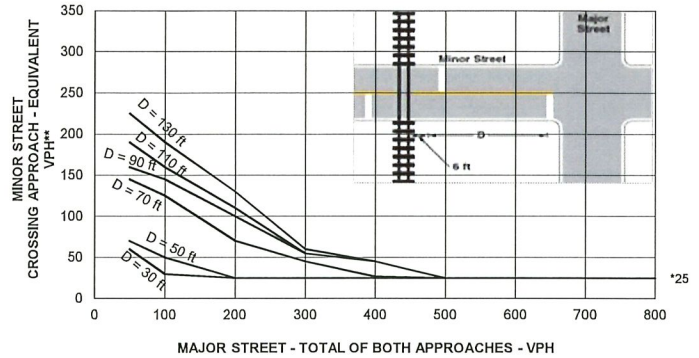
Input D and the major and minor street volumes before adjustment factors are applied

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

After adjustment factors are applied

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

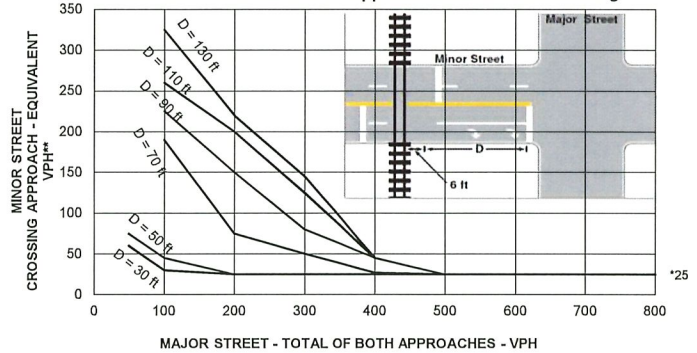
FIGURE 4C-9: Criteria for 1 Approach Lane at the Track Crossing



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

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

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



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

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



State of Florida Department of Transportation

## TRAFFIC SIGNAL WARRANT SUMMARY

Form 750-020-01  
TRAFFIC ENGINEERING  
10/15

City: **Fernandina Beach**  
County: **74 – Nassau**  
District: **Two**

Engineer: **D. Barrs**  
Date: **May 21, 2019**

Major Street: **S. 14th Street**  
Minor Street: **Simmons Road**

Lanes: **2**  
Lanes: **1**  
Major Approach Speed: **45**  
Minor Approach Speed: **40**

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

### CONCLUSIONS

Remarks:

### WARRANTS SATISFIED:

<input checked="" type="checkbox"/> Warrant 1	<input type="checkbox"/> Not Applicable
<input checked="" type="checkbox"/> Warrant 2	<input type="checkbox"/> Not Applicable
<input type="checkbox"/> Warrant 3	<input checked="" type="checkbox"/> Not Applicable
<input type="checkbox"/> Warrant 4	<input checked="" type="checkbox"/> Not Applicable
<input type="checkbox"/> Warrant 5	<input checked="" type="checkbox"/> Not Applicable
<input type="checkbox"/> Warrant 6	<input checked="" type="checkbox"/> Not Applicable
<input type="checkbox"/> Warrant 7	<input type="checkbox"/> Not Applicable
<input type="checkbox"/> Warrant 8	<input checked="" type="checkbox"/> Not Applicable
<input type="checkbox"/> Warrant 9	<input checked="" type="checkbox"/> Not Applicable



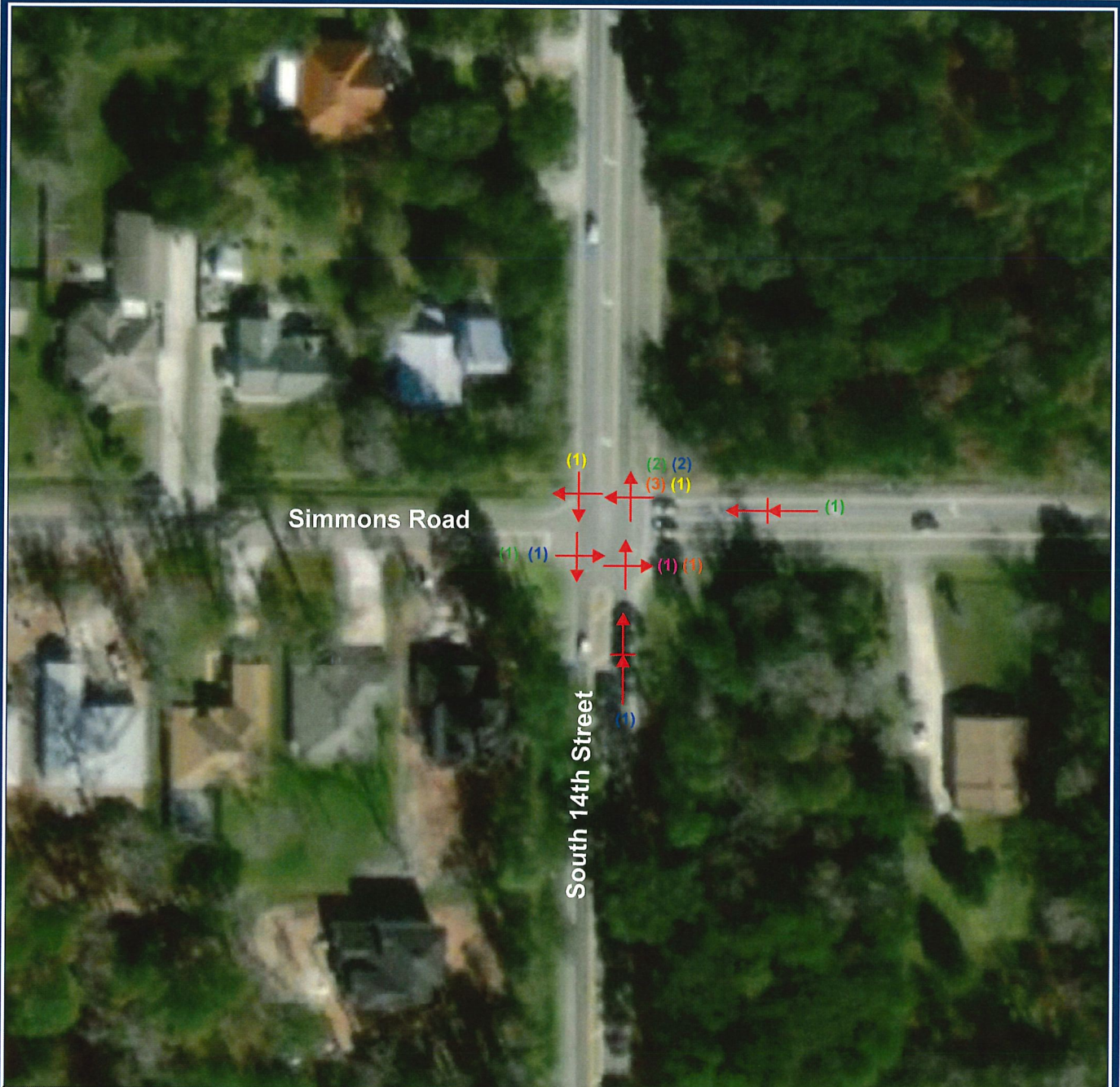
# **APPENDIX D**

## **Crash Data**

### **And**

## **Crash Diagram**

Reporting_Agency	Crash_Date	Crash_Time	County	Crash_Street	Intersecting_Street	Crash_Type	Vehicles	Injuries	Alcohol_Rq	Distraction	Drug_Relat	Estimated	Weather	Light_Cond	Crash_Type_Deel	Crash_Typ	Crash_Severity	Manner_of_Collision
Nassau Co SO	1/6/2012	1:17 PM	Nassau	SOUTH 14TH STREET	SIMMONS ROAD	Angle	2	2	2	N	N	\$5,000	Clear	Daylight	Right Angle	SE	Injury	Sideways, Opposite Direction
Nassau Co SO	11/26/2012	2:06 PM	Nassau	SOUTH 14TH ST	SIMMONS RD	Angle	2	1	1	N	N	\$7,000	Clear	Daylight	Right Angle	NW	Injury	Sideways, Opposite Direction
Nassau Co SO	2/18/2013	5:09 PM	Nassau	SOUTH 14TH STREET	SIMMONS ROAD	Angle	3	3	1	N	N	\$8,000	Clear	Daylight	Right Angle	SW	Injury	Sideways, Opposite Direction
FHP	3/15/2013	10:10 PM	Nassau	SIMMONS RD	14TH ST	Angle	2	1	1	N	N	\$25,000	Clear	Dark - Not Daylight	Right Angle	NW	Injury	Angle
Nassau Co SO	4/23/2014	6:51 PM	Nassau	SOUTH 14 STREET	SIMMONS RD	Left Turn	2	2	1	N	N	\$20,000	Clear	Daylight	Right Angle	NE	Injury	Angle
FHP	6/12/2014	3:45 PM	Nassau	S 14TH ST	SIMMONS RD	Angle	3	2	2	N	N	\$2	Cloudy	Daylight	Other	N	Injury	Angle
Nassau Co SO	10/17/2014	5:05 PM	Nassau	SOUTH 14TH STREET	SIMMONS ROAD	Unknown	2	2	2	N	N	\$20,000	Clear	Daylight	Unknown	W	Property Damage	Angle
FHP	5/25/2015	5:03 PM	Nassau	S 14TH STREET	SIMMONS ROAD	Left Turn	2	2	4	N	N	\$15,000	Clear	Daylight	Right Angle	SE	Injury	Angle
FHP	7/25/2015	1:15 PM	Nassau	S 14TH STREET	SIMMONS ROAD	Left Turn	2	2	0	N	N	\$16,000	Clear	Daylight	Right Angle	W	Property Damage	Angle
Nassau Co SO	9/26/2015	10:44 AM	Nassau	14TH STREET	SIMMONS ROAD	Angle	2	2	2	N	N	\$15,000	Clear	Daylight	Right Angle	SE	Injury	Angle
FHP	2/11/2016	11:27 AM	Nassau	SIMMONS ROAD	S 14TH STREET	Rear End	2	2	0	N	N	\$3,500	Clear	Dark - Not Daylight	Rear End	W	Property Damage	Front to Rear
Nassau Co SO	6/11/2016	3:35 AM	Nassau	S 14TH ST	SIMMONS RD	Left Turn	2	2	0	N	N	\$5,000	Clear	Daylight	Left Entering	S	Property Damage	Angle
Nassau Co SO	7/14/2016	9:29 PM	Nassau	S 14TH ST	SIMMONS RD	Rear End	2	2	0	N	N	\$5,000	Clear	Dark - Not Daylight	Rear End	N	Property Damage	Front to Rear
Nassau Co SO	12/16/2016	9:50 PM	Nassau	SIMMONS RD	SIMMONS RD	Angle	2	2	1	N	N	\$5,000	Clear	Dusk	Right Angle	NW	Injury	Angle
FHP	12/26/2017	3:30 PM	Nassau	SOUTH 14TH ST.	S 14TH ST	Left Turn	2	2	2	N	N	\$5,000	Cloudy	Daylight	Left Entering	W	Injury	Angle
Nassau Co SO	3/10/2018	4:24 PM	Nassau	S 14TH STREET	SIMMONS ROAD	Angle	2	2	0	N	N	\$5,000	Clear	Daylight	Left Entering	NE	Property Damage	Angle
FHP	3/13/2018	5:40 PM	Nassau	SOUTH 14TH STREET	SIMMONS ROAD	Left Turn	2	2	0	N	N	\$27,500	Clear	Daylight	Left Leaving	W	Property Damage	Angle
FHP	5/1/2018	12:12 PM	Nassau	S 14TH ST	SIMMONS RD	Angle	2	3	0	N	N	\$17,500	Clear	Daylight	Right Angle	NW	Property Damage	Front to Front
Nassau Co SO	11/30/2018	7:41 AM	Nassau	S 14TH ST	SIMMONS RD	Angle	2	1	2	N	N	\$20,000	Clear	Daylight	Right Angle	NW	Injury	Angle
Nassau Co SO	1/9/2019	7:58 AM	Nassau	SOUTH 14TH STREET	SIMMONS RD	Angle	2	2	2	N	N	\$15,000	Clear	Daylight	Right Angle	NE	Injury	Angle
FHP	3/31/2019	6:25 PM	Nassau	SOUTH 14TH STREET	SIMMONS ROAD	Right Turn	2	2	1	N	N	\$15,000	Rain	Daylight	Right Through	SW	Property Damage	Angle
Nassau Co SO	5/14/2019	10:55 AM	Nassau	SIMMONS RD	S 14TH ST	Angle	2	2	2	N	N	\$9,700	Clear	Daylight	Right Angle	NW	Injury	Angle



		YEAR	NUMBER OF CRASHES
→+→	REAR END	2015	4
→+→	ANGLE	2016	4
→+→		2017	1
→+→		2018	4
→+→		2019	2

## CRASH SUMMARY

SIMMONS ROAD & SOUTH 14TH STREET  
FERNANDINA BEACH, FLORIDA  
NASSAU COUNTY



Engineers  
Architects  
Planners  
Landscape Architects  
Transportation/Traffic  
Surveyors  
Environmental Scientists  
Construction Management