CERTIFICATION

AGENCY: Florida Department of Transportation District One
801 North Broadway Avenue
Bartow, Florida 33831-1249

I hereby certify that I am a registered professional engineer in the State of Florida and that I have supervised the preparation of, and approved the analysis, findings, opinions, conclusions and technical advice hereby reported for:

REPORT: SR 72/Coash Road/Hawkins Road Intersection Control Evaluation (ICE) - Stage 1

PROJECT: SR 72 Project Development and Environment (PD&E) Study

LOCATION: SR 72 from East of I-75 to Lorraine Road
Sarasota County, Florida

ROADWAY ID: 17070000

MILEPOST No: 7.356

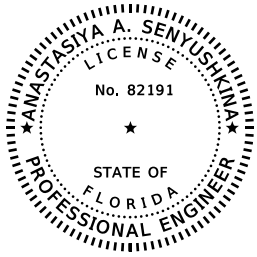
FPID No.: 444634-1-22-01

I acknowledge that the procedures and references used to develop the information contained in this memorandum are standard to the professional practice of transportation engineering as applied through professional judgement and experience.

Engineer in Responsible Charge: Anastasiya A. Senyushkina

Professional Registration No.: 82191

Date: 3/4/2024



Anastasiya A Senyushkina
2024.03.05
10:55:23-05'00'

AIM Engineering & Surveying, Inc.

MEMORANDUM

Tampa Office
201 E. Kennedy Boulevard, Suite 1800
Tampa, Florida 33602
813-627-4144
www.aimengr.com

Date:	March 4, 2024
To:	Steven Andrews, P.E. - FDOT District One DEMO Project Manager
From:	Greg Root/Anastasiya Senyushkina, P.E.
Subject:	SR 72 at Coash Road/Hawkins Road Intersection (Sarasota County) –- Stage 1+ Intersection Control Evaluation

INTRODUCTION/PROJECT BACKGROUND

This memorandum documents the Intersection Control Evaluation (ICE) conducted for the Coash Road/Hawkins Road intersection. This analysis was conducted in support of the SR 72 Project Development & Environment (PD&E) Study from east of I-75 to Lorraine Road in Sarasota County. The length of this study corridor is approximately 2.7 miles. This PD&E study is evaluating the costs and impacts of widening (i.e., four-laning) SR 72 from Hummingbird Avenue to Lorraine Road. This PD&E study is also looking to reduce the posted speeds/target speeds within the corridor. The PD&E study goals are to determine the location and conceptual design of the improvement(s) that satisfy the purpose and need for the project, while also minimizing the impacts to the natural and social environment and satisfying the requirements of the National Environmental Policy Act (NEPA). This memorandum documents the Stage 1 CAP-X and SPICE analyses, as well as the more detailed traffic operations analyses conducted using the SIDRA software.

EXISTING INTERSECTION CHARACTERISTICS

This intersection is a four-legged stop control intersection. Coash Road is the north leg of this intersection and Hawkins Road is the south leg. A residential development (i.e., Wildgrass) is located in the northeast quadrant and an animal rescue facility (Satchel's Last Resort Rescue and Sanctuary) is located in the northwest quadrant. Both of these land uses are accessed via Coash Road only. There is some undeveloped land in the northwest quadrant in the immediate vicinity of the intersection. The Suncoast Academy charter school is located on the east side of Hawkins Road and a small pond is located on the west side. An aerial image depicting the Coash Road/Hawkins Road intersection is provided in **Figure 1**, which is included in **Appendix A.** The posted speed limit on SR 72 in the vicinity of this intersection is 55 miles per hour (mph). The posted speed limits on Coash Road and Hawkins Road are 30 mph and 20 mph, respectively. SR 72 is a two-lane undivided roadway with 12-foot travel lanes and five-foot designated bicycle lanes both west and east of the intersection. Sidewalks exist in the northeast quadrant of the intersection (on both SR 72 and Coash Road) and on the east side of Hawkins Road. The context classification for this roadway is C3R (Suburban Residential).

Crash data from Signal Four Analytics was provided by District One for the years 2017 through 2021. The crash data is included in **Appendix B**. The intersection has experienced six crashes over this five-year period, resulting in five injuries and no fatalities. The most prevalent crash type is angle crashes (four). The other two crashes involved hitting an animal and driving into a ditch. There were no crashes involving bicyclists or pedestrians.

INTERSECTION CONTROL EVALUATION

The proposed typical section includes four 11-foot travel lanes (two in each direction), a 22-foot median and 12-foot shared use paths on both sides of the roadway. The FDOT-approved design speed and target speed for the proposed SR 72 typical section in this area is 45 mph. This speed is 10 mph lower than the existing posted speed limit. The following alternative intersection control strategies were initially analyzed for this intersection:

- Two-Way Stop Control
- Conventional Traffic Signal
- Unsignalized Restricted Crossing U-Turn (RCUT)
- Signalized RCUT
- Unsignalized Thru-Cut
- Signalized Thru-Cut
- Median U-Turn (MUT)
- Partial MUT
- Bowtie
- Two-lane (SR 72) x one-lane (Coash Road/Hawkins Road) roundabout
- Two-lane x two-lane roundabout

Stop control was analyzed since the results of the June 2022 Signal Warrant Study conducted by District One indicated that only Warrant 3B (peak hour volume) is currently satisfied. This study recommended that an ICE analysis be conducted for this intersection. The 2022 Signal Warrant Study is provided in **Appendix B**. The opening year (2030) and design year (2050) Average Annual Daily Traffic (AADT) volumes documented in the SR 72 Project Traffic Analysis Report are provided in **Appendix C** along with the 2050 peak hour volumes documented in this same report. The results of the CAP-X and SPICE analyses are summarized in **Table 1**. Mid-day peak hour CAP-X analyses were also conducted for this intersection to evaluate the capacity during the afternoon dismissal time period for Suncoast Academy. The CAP-X and SPICE analysis summary sheets for this intersection are provided in **Appendix D**.

The unsignalized alternatives (with the exception of the roundabout) were eliminated from further consideration due to the very high v/c ratios. The signalized alternatives were also eliminated from any further consideration because they would not provide positive speed control and are inconsistent with the recent roundabouts that have been constructed at Lorraine Road and Proctor Road/Dove Avenue. The roundabout was estimated to have the highest opening year and design year SSI scores and a low number of fatal and injury crashes (23) over the 20-year analysis period.. Design year (2050) peak hour SIDRA analyses were subsequently conducted to determine the optimal geometry for the roundabout and the results are summarized in **Table 2.** All of the movements are projected to operate under capacity during all three peak hours. In addition, the overall average vehicle delays are projected to be less than 12 seconds per vehicle during all three peak hours. The design year SIDRA analysis summary sheets are provided in **Appendix E**.

Table 1: Stage 1 ICE Analysis Summary - Coash Road/Hawkins Road Intersection

Intersection Type	2050 V/C Ratios			Life-Cycle Crashes		SSI Scores	
	AM Peak Hour	Mid-Day Peak Hour	PM Peak Hour	Total	Fatal & Injury	Opening Year	Design Year
Two-Way Stop Control	**>10**	**2.76**	**1.44**	52	21	95	90
Conventional Signalized Intersection	0.51	0.53	0.43	110	38	97	92
Unsignalized RCUT	0.75	**1.56**	0.54	n/a	n/a	96	92
Signalized RCUT	0.40	0.41	0.33	63	12	98	95
Unsignalized Thru-Cut	**12.89**	**11.39**	**3.84**	n/a	n/a	96	92
Signalized Thru-Cut	0.43	0.48	0.39	n/a	n/a	97	94
Median U-Turn (MUT)	0.47	0.52	0.39	69	29	98	97
Partial MUT (NS)	0.42	0.48	0.38	n/a	n/a	n/a	n/a
Bowtie (NS)	0.53	0.55	0.46	n/a	n/a	97	94
Roundabout (2EW x 1NS)	0.52	0.66	0.49	n/a	n/a	n/a	n/a
Roundabout (2EW x 2NS)	0.52	0.57	0.49	133	23	99	99

Lowest number of crashes of all alternatives analyzed

n/a = No Safety Performance Function (SPF) available

Table 2: Design Year (2050) Peak Hour Operational Analysis Summary - Coash Road/Hawkins Road Roundabout

Intersection Approach	AM Peak Hour			Mid-Day Peak Hour			PM Peak Hour		
	V/C Ratio [(1)]	Avg. Delay	LOS	V/C Ratio [(1)]	Avg. Delay	LOS	V/C Ratio [(1)]	Avg. Delay	LOS
Northbound	0.29	10.6	B	0.51	19.1	C	0.14	9.7	A
Southbound	0.53	22.6	C	0.16	11.3	B	0.16	8.9	A
Westbound	0.59	10.6	B	0.45	8.6	A	0.42	7.2	A
Eastbound	0.53	9.6	A	0.62	11.3	B	0.48	7.4	A
Overall	0.59	11.0	B	0.62	11.6	B	0.48	7.5	A

[(1)] *Highest volume-to-capacity ratio of any approach movements*

An initial geometric improvement concept was developed for this alternative and is provided in **Appendix F**. This roundabout alternative requires some additional right-of-way but does not result in any residential or business relocations.

RECOMMENDED INTERSECTION CONTROL STRATEGY

The implementation of a two-lane roundabout is expected to provide positive speed control and help to facilitate the approved 45 mph design speed/target speed for this portion of SR 72. Reduced vehicle speeds will provide additional safety benefits for the older driving population that travels in this corridor. The roundabout is projected to have a very low number of fatal/injury crashes, low design year peak hour vehicle delays, and the highest SSI scores. The implementation of a two-lane roundabout is also consistent with the recent roundabout construction that has occurred east and west of this intersection (i.e., at the Lorraine Road and Proctor Road/Dove Avenue intersections, respectively). A roundabout also serves as a good option if this intersection does not meet signal warrant criteria when the final design phase of the project is conducted and unsignalized alternatives are expected to result in operational and/or safety concerns. Consequently, the PD&E study recommends a two-lane roundabout for the Coash Road/Hawkins Road intersection.

Appendix A

Existing Intersection Aerial

Figure 1: Existing SR 72 / Coash Road / Hawkins Road Intersection

Appendix B

Historic Crash Data/Signal Warrant Study

LOCATION	CRASH_YEAR	ON_STREET_ROAD_HIGH	FEET_FROM_INTERSECTIC	DIRECTION	FROM_INTERSECTION_OF	LIGHT_CONDITION	WEATHER_CONDITION	ROAD_SURFACE_C	TYPE_OF_IMPACT	FIRST_HARMFUL_EVENT	LOCATION	JUNCTION_FLA	S4_CRASH_TYPE	S4_CRASH_TYPE_SIN	S4_CRASH_SEVERIT	S4_INJURY_COUNT	S4_BICYCLIST_COUNT	S4_PEDESTRIAN_COUNT
Hawkins	2020	CLARK RD	0		COASH RD	Daylight	Clear	Dry	Angle	Motor Vehicle in Transport	On Roadway	Intersection	Right Angle/Front to Side	Angle	Serious Injury	1	0	0
Hawkins	2020	CLARK RD	0		COASH RD	Daylight	Clear	Dry	Front to Front	Motor Vehicle in Transport	On Roadway	Intersection	Right Angle/Front to Side	Angle	Injury	2	0	0
Hawkins	2021	CLARK RD	0		COASH RD	Daylight	Clear	Dry	Angle	Motor Vehicle in Transport	On Roadway	Intersection	Right Angle/Front to Side	Angle	No Injury	0	0	0
Hawkins	2017	COASH RD	0		CLARK RD	Daylight	Clear	Dry	Other	Motor Vehicle in Transport	On Roadway	Intersection	Right/Through/Front to Side	Right Turn	No Injury	0	0	0
e Hawkins	2018	STATE ROAD 72 (CLARK R	20	West	HAWKINS ROAD	Dark - Not Lighted	Rain	Wet	Other	Ditch	Off Roadway	Non-Junction	Off Road	Off Road	Serious Injury	2	0	0
w Hawkins	2019	CLARK RD	31	West	HAWKINS RD	Dark - Not Lighted	Clear	Dry		Animal	On Roadway	Non-Junction	Animal	Animal	No Injury	0	0	0
																5		

SIGNAL WARRANT STUDY

S.R. 72 at Hawkins Road/Coash Road
Section 17070 – M.P. 7.356
Sarasota County

Prepared for:

FLORIDA DEPARTMENT OF TRANSPORTATION
DISTRICT 1 TRAFFIC OPERATIONS
P.O. Box 1249
801 North Broadway Avenue, MS 1-8
Bartow, Florida 33831-1249

Continuing Services Contract for Traffic Operations
Financial Project Identification Number: 420112-2-32-01
Contract Number: C-AE23
TEDS Contract Number: 11489
Task Work Order: 17

Prepared by:
Traffic Engineering Data Solutions, Inc., A Stanley Consultants Company
80 Spring Vista Drive
DeBary, Florida 32713

June 2022

This item has been digitally signed and sealed by

COLLEEN T. CRIGGER LICENSE No. 60128 STATE OF FLORIDA PROFESSIONAL ENGINEER

Digitally signed by Colleen T Crigger
DN: c=US, o=Florida, dnQualifier=A01410D0000017BA2C43C76000047AB, cn=Colleen T Crigger
Date: 2022.06.15 19:10:49 -04'00'

On the date adjacent to the seal

Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

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EXECUTIVE SUMMARY

A Traffic Signal Warrant Study was conducted for the intersection of State Road (S.R.) 72 and Hawkins Road/Coash Road located in Sarasota County, Florida, to determine if a traffic signal should be installed at the intersection. Currently, this intersection operates under two-way STOP control. Based on the results of the traffic signal warrant analysis, a review of crash history, field observations, engineering judgment, and other considerations, **it is recommended that an ICE analysis be undertaken at this time for the intersection of S.R. 72 and Hawkins Road/Coash Road to verify a traffic signal is the appropriate traffic control improvement at this location.**

In addition, the following improvement is recommended:

- **Install SCHOOL ENTRANCE Warning Signs (FTP 33-06) with supplemental flashing beacons to operate during school arrival and dismissal periods on the eastbound and westbound approaches to the intersection.**

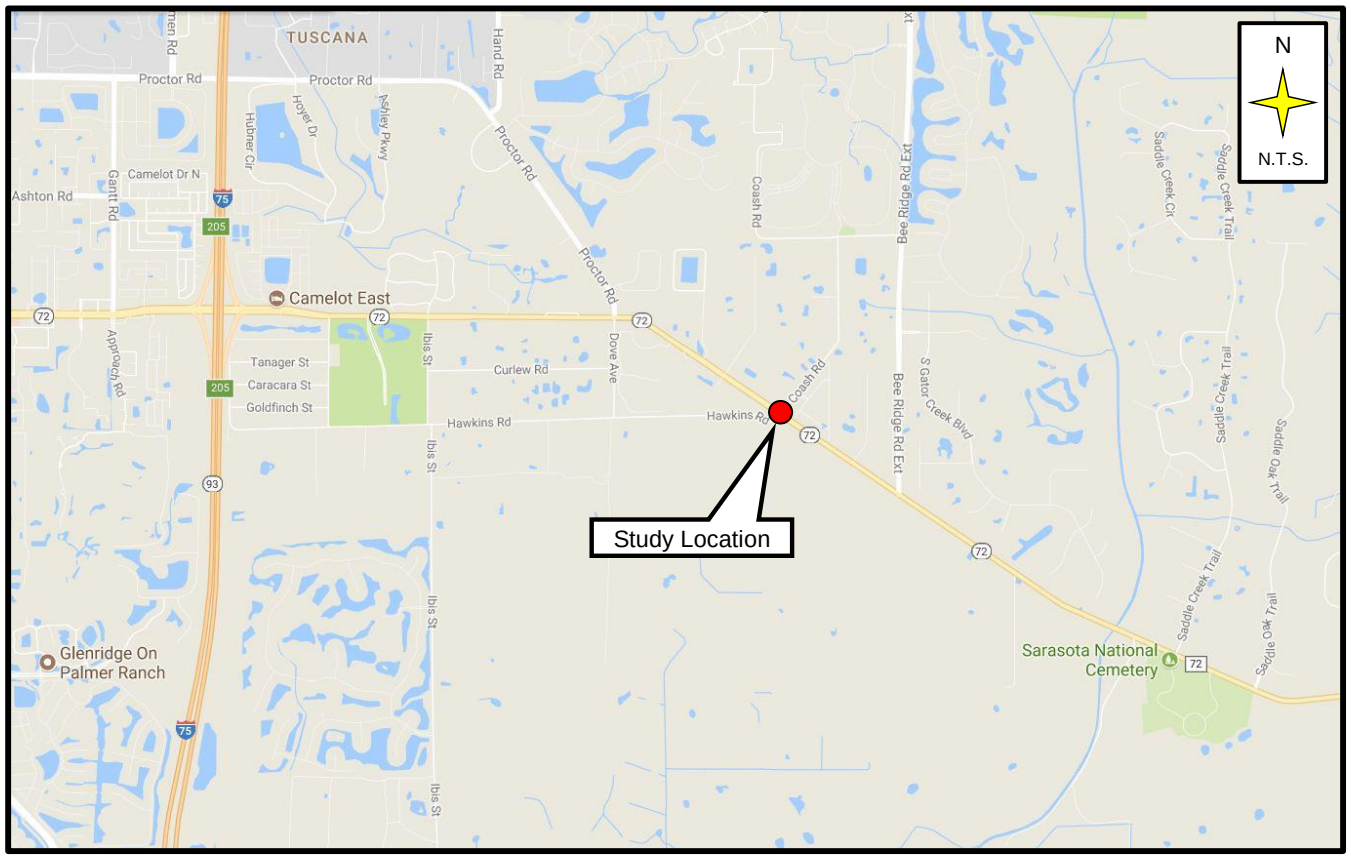
1

INTRODUCTION

Traffic Engineering Data Solutions, Inc. (TEDS) was retained on behalf of the Florida Department of Transportation (FDOT) to conduct a Traffic Signal Warrant Study at the intersection of State Road (S.R.) 72 and Hawkins Road/Coash Road. The study intersection is located in Sarasota County, Florida, as shown in ***Figure 1***.

The analysis methods used in completing this study are consistent with the Federal Highway Administration (FHWA) Manual on Uniform Traffic Control Devices (MUTCD), FDOT Manual on Uniform Traffic Studies (MUTS), FDOT Traffic Engineering Manual (TEM), and engineering judgment. This report documents existing conditions, traffic volumes, collision data, intersection delay, qualitative assessment, traffic signal warrant analysis, and recommendations.

Figure 1
General Location Map



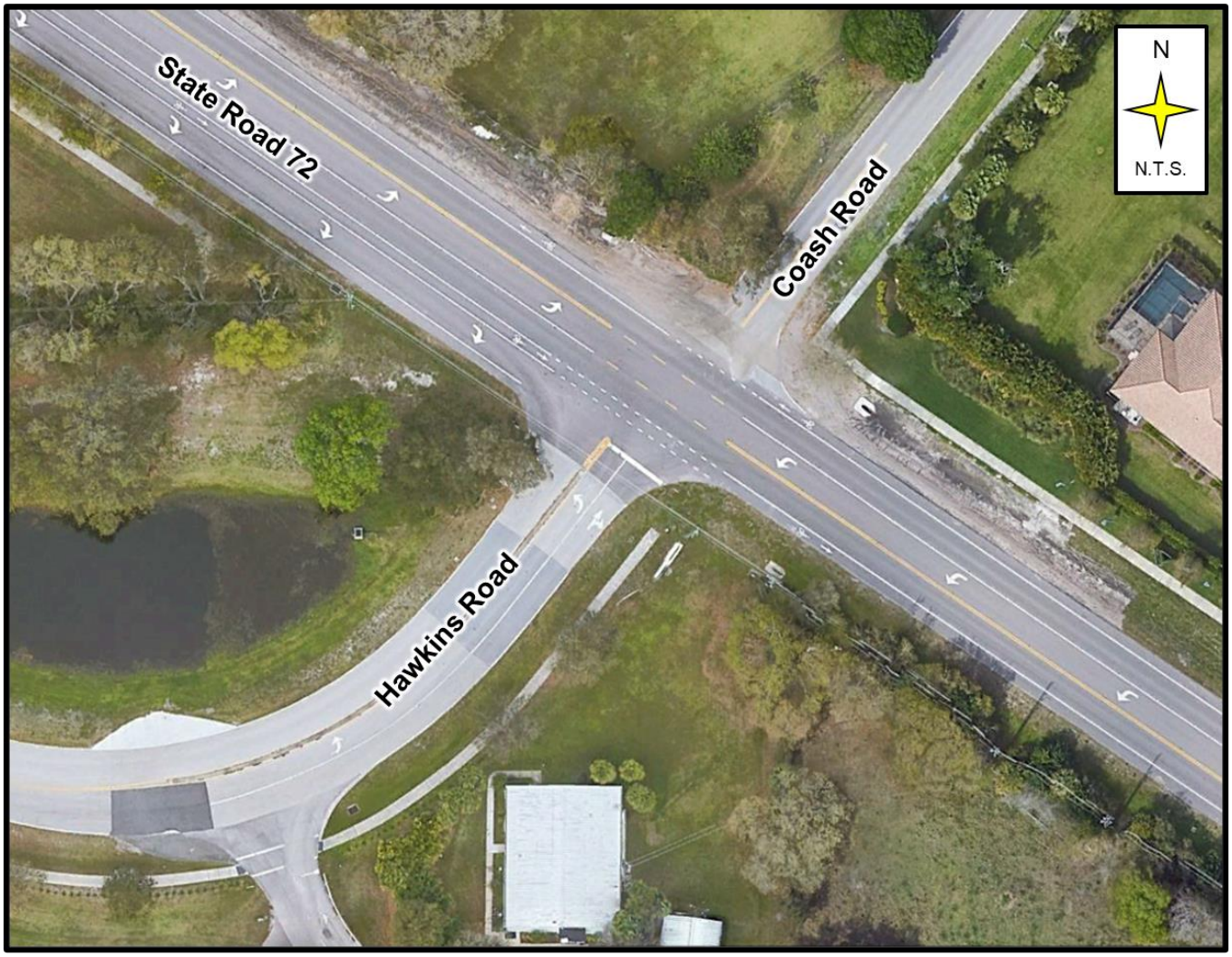
Source: Google Maps

2

EXISTING CONDITIONS

S.R. 72 is an east/west roadway that extends a distance of approximately 43 miles from S.R. 758 in Siesta Key through Sarasota County to its terminus at S.R. 70 in DeSoto County. At the study intersection, S.R. 72 is a two-lane undivided rural arterial with bicycle lanes and swales. The south leg of the intersection is Hawkins Road which is a two-lane undivided east/west collector road, which turns to north/south as it approaches the study intersection. The north leg of the intersection is Coash Road which is a two-lane undivided north/south collector road. A location aerial of the study intersection is shown below in ***Figure 2*****.**

Figure 2
General Location Aerial



Source: Google Earth

Table 1 summarizes the existing conditions for the study intersection. An existing condition diagram, as provided in ***Figure 3***, and photographs of the study intersection follow ***Table 1.*** A straight-line diagram is also included in the ***Appendix***.

Table 1
Summary of Existing Conditions

Feature	Description
Main Street	• S.R. 72
Area Location	• Sarasota County
Adjacent Land Uses	• Southwest: Undeveloped • Southeast: Suncoast Community Church and Sarasota Suncoast Academy Public Charter School • Northwest: Private Residence • Northeast: Wildgrass Residential Community
Traffic Control	• Two-way STOP-sign controlled with S.R. 72 having right-of-way
Adjacent Signalized Intersections	• South: None • North: None • West: Interstate 75 – 2.5 miles • East: None within 20 miles
S.R. 72	• Cross Section: Two-lane undivided rural roadway (no curb and gutter) with bicycle lanes and swales • Posted Speed Limit: 55 mph • AADT: 12,600 vehicles per day (vpd) (2021) (10,000 vpd in 2020 and 10,900 vpd in 2019) • Eastbound Approach Lanes: One (1) left-turn lane, one (1) through lane, and one (1) right-turn lane • Westbound Approach Lanes: One (1) left-turn lane and one (1) through/right-turn lane • Pedestrian Crossings: None • Sidewalks: Along the north side of the road east of the intersection, and along the south side of the road starting at approximately 160 feet west of the intersection and continuing west • Utilities: Overhead power lines run along the south side of the roadway • Street Lighting: None
Hawkins Road/ Coash Road	• Cross Section: Two-lane undivided roadway (no curb and gutter), no paved shoulders, with swales • Posted Speed Limit: 35 mph south of the intersection with a 20 mph curve warning south of S.R. 72, and 30 mph north of the intersection • Northbound Approach Lanes: One (1) left-turn lane and one (1) through/right-turn lane • Southbound Approach Lanes: One (1) left/through/right-turn lane • Pedestrian Crossings: None • Sidewalks: Along the east side of the roadway north and south of the intersection • Utilities: Overhead power lines along the east side of the roadway north of the intersection • Street Lighting: None

Eastbound Approach Photographs

Looking East Towards Intersection

Looking West Away From Intersection

Westbound Approach Photographs

Looking West Towards Intersection

Looking East Away From Intersection

Northbound Approach Photographs

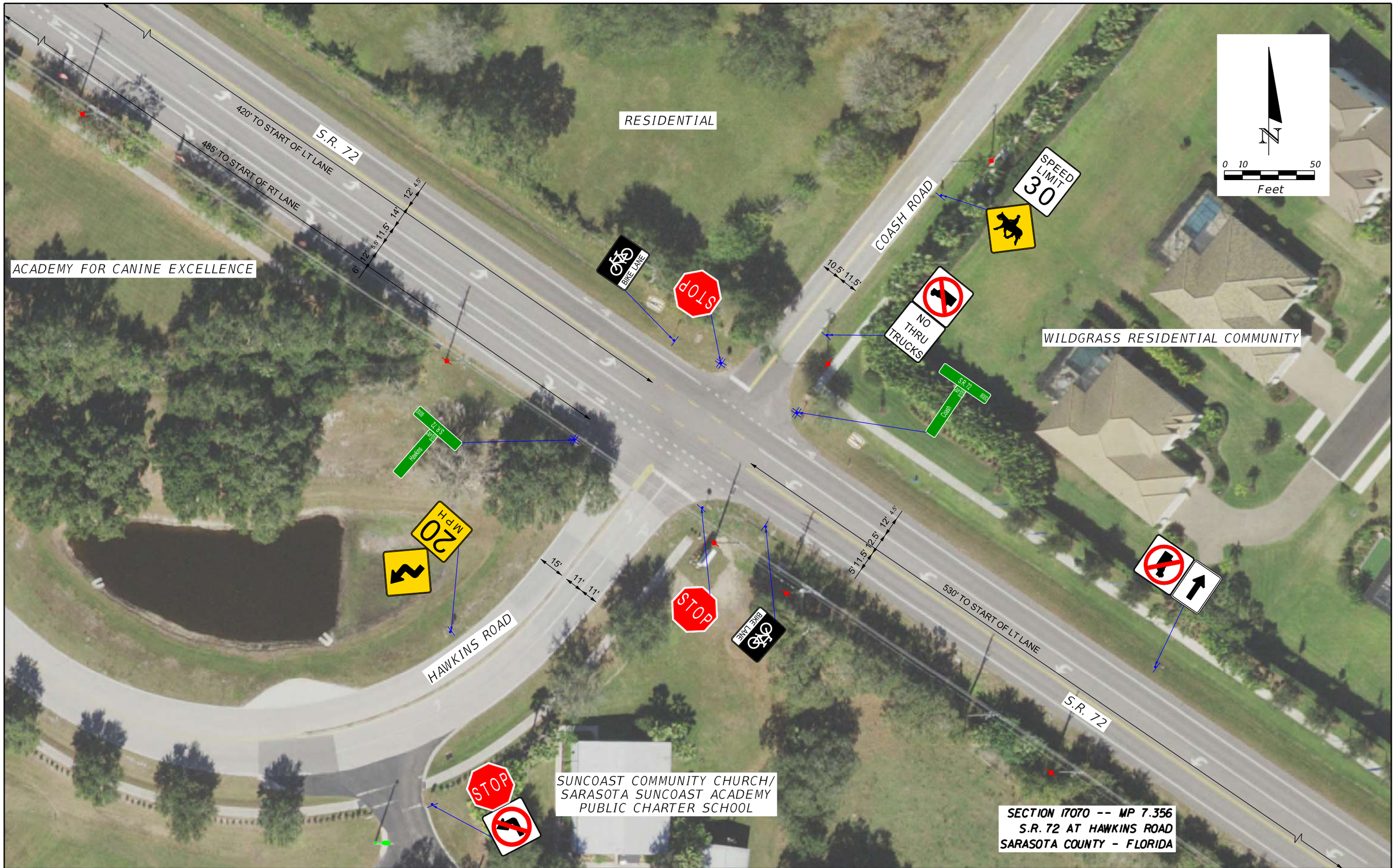
Looking North Towards Intersection

Looking South Away From Intersection

Southbound Approach Photographs

Looking South Towards Intersection

Looking North Away From Intersection



Utility Pole
Traffic Sign
Luminaire

Symbols:

Traffic Controller Cabinet
Ditch Bottom Inlet
Signal Pole
Pedestrian Signal Pole
Mitered End Section

Traffic Engineering Data Solutions, Inc.
Spring Vista Drive
DeBary, FL 32713
Phone: 386.753.0558
Fax: 386.753.0778

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

FIGURE 3
EXISTING CONDITION DIAGRAM

Traffic Volumes

Twenty-four (24) hour approach counts were conducted on all four (4) approaches as summarized below in ***Table 2***. According to these counts, the intersection had a daily traffic volume of 15,312 vehicles that entered the intersection consisting of 1,664 northbound vehicles, 711 southbound vehicles, 6,944 eastbound vehicles, and 5,933 westbound vehicles.

Table 2
Summary of 24-Hour Approach Counts

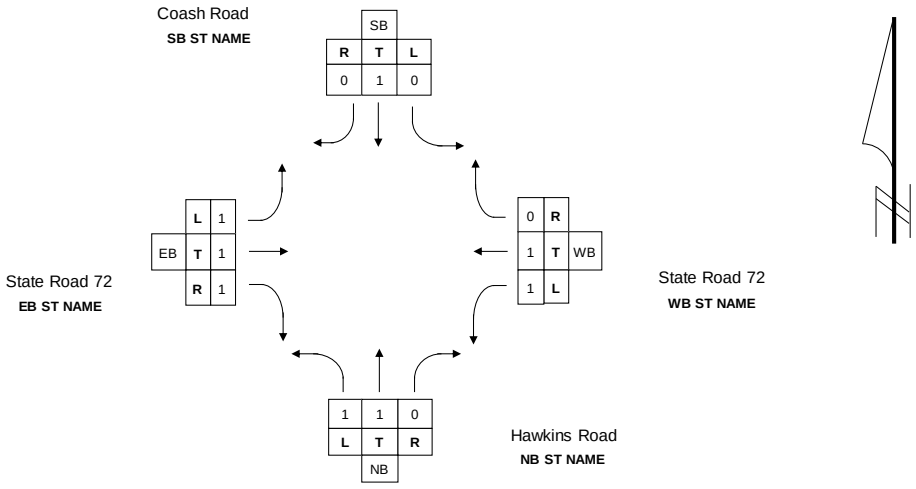
TIME	Northbound	Southbound	N/S TOTAL	Eastbound	Westbound	E/W TOTAL	GRAND TOTAL
24 - 1	1	0	**1**	20	7	**27**	**28**
1 - 2	0	0	**0**	10	6	**16**	**16**
2 - 3	0	1	**1**	10	4	**14**	**15**
3 - 4	0	2	**2**	8	8	**16**	**18**
4 - 5	0	1	**1**	12	27	**39**	**40**
5 - 6	0	10	**10**	46	80	**126**	**136**
6 - 7	8	35	**43**	161	264	**425**	**468**
7 - 8	104	49	**153**	410	498	**908**	**1,061**
8 - 9	359	62	**421**	512	560	**1,072**	**1,493**
9 - 10	117	62	**179**	441	372	**813**	**992**
10 - 11	16	49	**65**	477	409	**886**	**951**
11 - 12	35	66	**101**	478	415	**893**	**994**
12 - 13	19	56	**75**	468	474	**942**	**1,017**
13 - 14	38	65	**103**	524	432	**956**	**1,059**
14 - 15	31	55	**86**	505	481	**986**	**1,072**
15 - 16	402	44	**446**	590	511	**1,101**	**1,547**
16 - 17	82	46	**128**	657	424	**1,081**	**1,209**
17 - 18	98	50	**148**	635	436	**1,071**	**1,219**
18 - 19	128	27	**155**	387	262	**649**	**804**
19 - 20	150	17	**167**	226	136	**362**	**529**
20 - 21	64	9	**73**	161	86	**247**	**320**
21 - 22	6	3	**9**	113	55	**168**	**177**
22 - 23	1	1	**2**	62	25	**87**	**89**
23 - 24	5	1	**6**	31	21	**52**	**58**
	1,664	**711**	**2,375**	**6,944**	**5,993**	**12,937**	**15,312**

Based on a review of the twenty-four (24) hour count data, eight (8) hours of manual turning movement counts were collected from 7:00 a.m. to 10:00 a.m. and 3:00 p.m. to 8:00 p.m. on a typical weekday. The vehicular movements for these hours are summarized on the following page in ***Table 3***. Vehicular, pedestrian, and bicycle movement summaries are provided in the ***Appendix***.

- The intersection morning peak hour occurred from 7:30 to 8:30 a.m., while the afternoon peak hour occurred from 3:00 to 4:00 p.m. As depicted in a peak-hour turning movement summary found in the ***Appendix***, 1,309 and 1,296 vehicles were counted entering the intersection during the morning and afternoon peak hours, respectively.
- During the eight (8) hours of manually collected turning movement counts, heavy trucks, which include single-unit trucks such as delivery trucks (Class 5 to 7) and tractor-trailer trucks (Class 8 to 15), accounted for 3.3 percent of the traffic passing through the intersection.
- During the eight (8) hours of manually collected turning movement counts, two (2) pedestrians and two (2) bicyclists were observed traversing the intersection.

Table 3
Summary of 8-Hour Vehicular Turning Movements

SECTION	17070-000	**CITY**	Sarasota	**COUNTY**	Sarasota
STATE ROUTE	State Road 72	**INTERSECTING ROUTE**	Hawkins Road / Coash Road		
OBSERVER	TEDS	**DATE**	1/27/2022	**MILEPOST**	7.356
WEATHER	Sunny	**ROAD CONDITION**	Good		
REMARKS					
		FORM COMPLETED BY		**DATE**	02/21/22



TIME	NORTHBOUND					SOUTHBOUND					TOTAL	EASTBOUND					WESTBOUND					TOTAL
BEGIN/END	**L**	**T**	**R**	**U**	**TOT**	**L**	**T**	**R**	**U**	**TOT**	**N/S**	**L**	**T**	**R**	**U**	**TOT**	**L**	**T**	**R**	**U**	**TOT**	**E/W**
7:00 - 8:00	36	0	19	0	**55**	1	3	43	0	**47**	**102**	12	295	77	0	**384**	48	415	1	0	**464**	**848**
8:00 - 9:00	83	7	96	0	**186**	1	5	56	0	**62**	**248**	23	346	116	0	**485**	125	389	1	0	**515**	**1,000**
9:00 - 10:00	40	4	13	0	**57**	7	1	54	0	**62**	**119**	35	360	5	0	**400**	8	313	2	0	**323**	**723**
3:00 - 4:00	85	11	104	0	**200**	4	5	34	0	**43**	**243**	62	412	91	0	**565**	46	439	3	0	**488**	**1,053**
4:00 - 5:00	24	5	26	0	**55**	0	1	44	0	**45**	**100**	70	528	33	0	**631**	20	389	3	0	**412**	**1,043**
5:00 - 6:00	32	3	21	0	**56**	0	9	40	0	**49**	**105**	48	503	71	0	**622**	39	387	1	2	**429**	**1,051**
6:00 - 7:00	42	2	21	1	**66**	0	2	26	0	**28**	**94**	45	301	32	0	**378**	18	236	1	0	**255**	**633**
7:00 - 8:00	53	3	19	0	**75**	0	0	18	0	**18**	**93**	32	179	7	0	**218**	3	126	2	0	**131**	**349**
TOTAL	**395**	**35**	**319**	**1**	**750**	**13**	**26**	**315**	**0**	**354**	**1,104**	**327**	**2,924**	**432**	**0**	**3,683**	**307**	**2,694**	**14**	**2**	**3,017**	**6,700**
Percentage	53%	5%	42%	0%		4%	7%	89%	0%			9%	79%	12%	0%		10%	90%	0%	0%		
Average	49	4	40	0	94	2	3	39	0	44		41	366	54	0	460	38	337	2	0	377	
Maximum	85	11	104	1		7	9	56	0			70	528	116	0		125	439	3	2		
Minimum	24	0	13	0		0	0	18	0			12	179	5	0		3	126	1	0		

Collision Data

Crash data for the 60-month period, between January 1, 2017 and December 31, 2021, was obtained from FDOT's *CAR* database and University of Florida's *Signal Four Analytics*. A total of five (5) crashes were reported at the intersection as summarized in ***Table 4*** below:

Table 4
Crash Type Summary

CRASH TYPE	2017	2018	2019	2020	2021	TOTAL	AVERAGE PER YEAR
Angle	1	0	0	2	1	4	0.8
Animal	0	0	1	0	0	1	0.2
Total	**1**	**0**	**1**	**2**	**1**	**5**	**1.0**

Source: Florida Department of Transportation and University of Florida's Signal Four Analytics

- The five (5) crashes resulted in no fatalities, three (3) injuries, and $47,500 in estimated property damage.
- All five (5) of the crashes occurred during the day.
- All five (5) crashes occurred under dry pavement conditions.
- Four (4) of the five (5) crashes were angle crashes which occurred as described below:
    - A northbound left-turning driver failed to yield to an eastbound through vehicle.
    - A northbound through driver failed to yield to an eastbound through vehicle, resulting in one (1) non-incapacitating and one (1) possible injury.
    - A northbound through driver failed to yield to a westbound through vehicle.
    - A southbound through driver failed to yield to a westbound through vehicle, resulting in one (1) incapacitating injury.

Detailed collision summaries and collision diagrams are provided in the ***Appendix***.

Intersection Delay

Intersection delay studies were performed during the peak hours for the northbound left-turn movement approach on Hawkins Road and southbound approach on Coash Road. Procedures from the MUTS document were applied to determine the summarized results presented in ***Table 5***. Due to the southbound single-lane approach, separate left-turn and right-turn stop delays were not attainable.

Table 5
Summary of Delay Studies

Movement	Time	Maximum Queue (Veh)	Average Delay per Vehicle (Sec)	Maximum Delay per Vehicle (Sec)	Volume (Veh/Hr)	Total Delay (Veh-Sec)	Total Delay (Veh-Hr)
Northbound Left-Turn Lane	7:30 - 8:30 A.M.	8	50.2	155	103	5,175	1.51
	3:00 - 4:00 P.M.	9	57.9	240	90	5,211	1.46
Southbound Approach	7:30 - 8:30 A.M.	2	9.6	38	58	559	0.16
	3:00 - 4:00 P.M.	3	17.9	96	43	768	0.23

Generally, an average delay in excess of 60 seconds is considered excessive at an unsignalized intersection and is what could typically be expected if the intersection were signalized. As shown above in ***Table 5***, the average minor street delay ranged from 50.2 to 57.9 seconds per vehicle for the northbound left-turn movement and the average delay for the southbound approach ranged from 9.6 to 17.9 seconds per vehicle. The maximum delays that were recorded for the northbound left-turn movement and southbound approach were 240 seconds and 96 seconds, respectively, which occurred during afternoon peak-hour period. A total of 74 vehicles experienced delay in excess of 60 seconds over the two-hour period with 39 and 35 of these vehicles experiencing this delay in the morning and afternoon peak hour, respectively. Also, 72 out of the 74 vehicles experiencing excessive delays were northbound left-turning vehicles. Based upon these results, the average delay did not exceed congestive-type levels (i.e., over 60 seconds). The worksheet results of the delay studies are provided in the ***Appendix***.

3

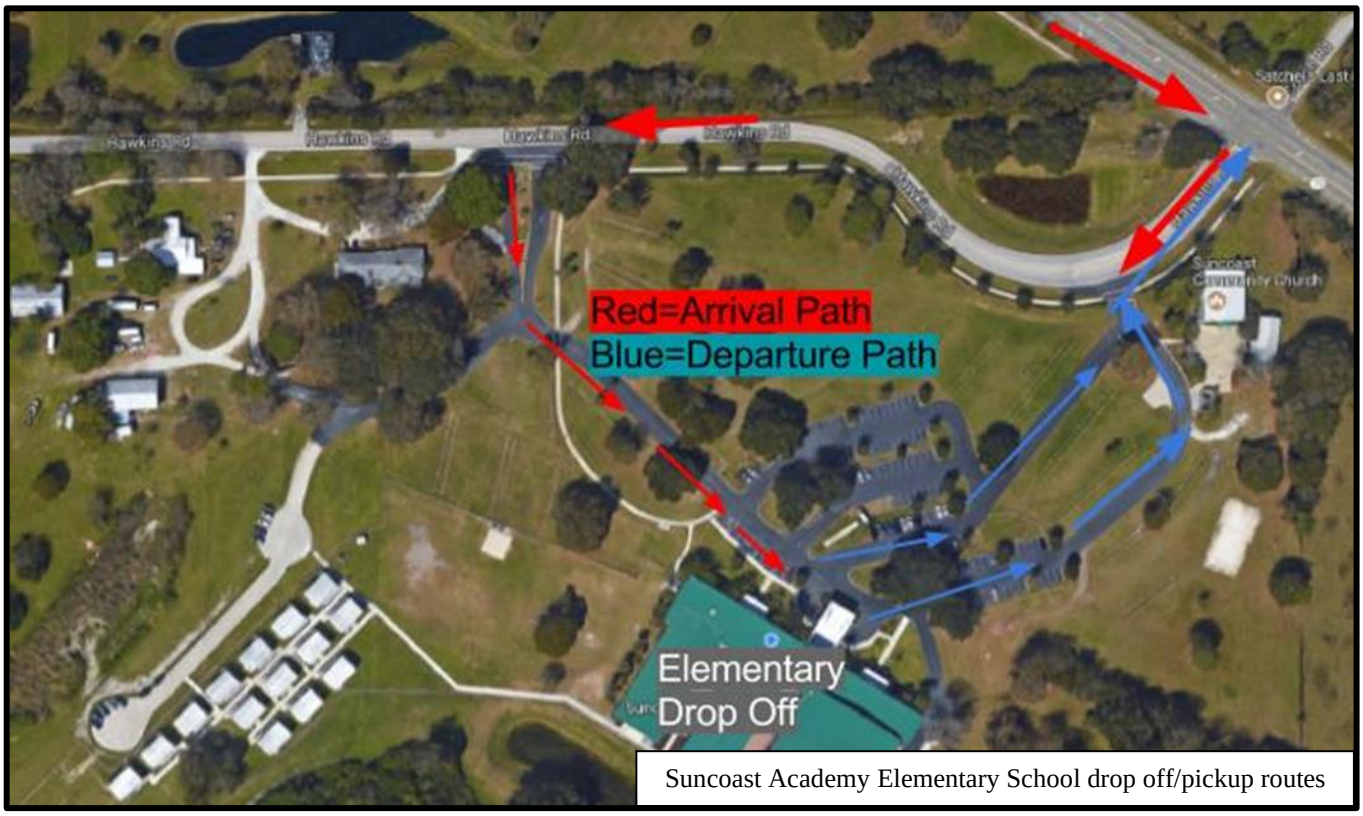
QUALITATIVE ASSESSMENT

The intersection of S.R. 72 at Hawkins Road/Coash Road was observed by a registered professional engineer during the peak hours to assess existing operating conditions and to determine if installing a traffic signal would be potentially beneficial.

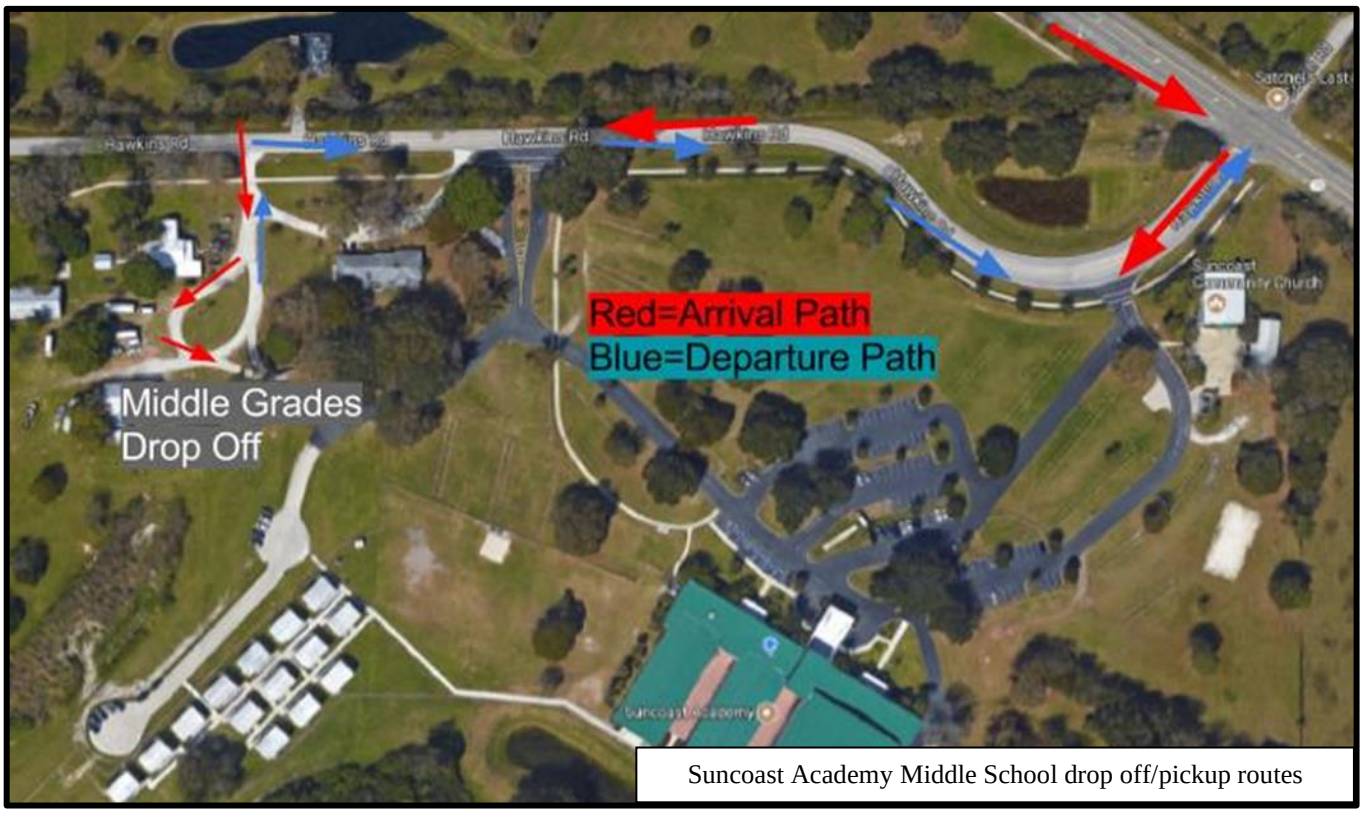
Operations

General Observations: The following observations were made with respect to the operations of the study location:

- The speed limit through the intersection is 55 mph and reduces to 45 mph approximately 0.4 miles west of the study intersection. Traffic was observed to generally be traveling at speeds at or slightly above the 55 mph speed limit.
- It should be noted construction was underway at the Proctor Road intersection located 0.85 miles west of the study intersection and a temporary traffic signal was installed at this location. It appears the construction activities, which involve turn lane improvements and installation of a permanent signal at this location, are not adversely affecting speeds along S.R. 72 through the study intersection. However, the temporary signal is likely producing consistent and steady platoons in the eastbound direction through the intersection.
- Sight distance for motorists is unobstructed from all directions though on Hawkins Road (northbound), motorists were observed to stop partially or fully over the stop line. No issues or conflicts were observed.
- No pedestrian and bicycle activity were observed during either of the peak hours.
- Along Hawkins Road, south of the study intersection, Sarasota Suncoast Academy exists which is a public charter school for elementary and middle school grade levels. School arrival begins at 8:00 a.m. and dismissal begins at 3:15 p.m. The study intersection generally functions as a school driveway during arrival and dismissal periods although there are through trips along Hawkins Road past the school site. The school has three driveways to access Hawkins Road: 200 feet, 980 feet, and 1,330 feet away from S.R. 72. The school has posted restrictive signage at their exits, prohibiting left-turns during school hours at all three (3) driveways. The northernmost driveway closest to S.R. 72 (approximately 200 feet away) is restricted by a raised concrete separator. A review of the school website indicates their car drop-off and pick-up routes are consistent with their signage. These maps are provided on the following page. The objective of the left-turn prohibition from the driveways was intended to route outbound school traffic northbound towards S.R. 72. The primary reason for the left-turn restrictions, per school officials, was to reduce the impacts to the surrounding neighborhoods to the west by school traffic as well as the narrow roadway width west of the school (18 feet) and no sidewalks. This prohibition resulted in significant queues on school property and delays to parents during the arrival and dismissal periods.



Suncoast Academy Elementary School drop off/pickup routes



Suncoast Academy Middle School drop off/pickup routes

- During both the morning and afternoon peak hours, it was observed at the northernmost driveway that vehicles associated with parents dropping off or picking up their children from school would make U-turns south of the raised median to access this driveway. In the morning peak hour, the U-turns totaled approximately 25 vehicles while U-turns during the afternoon hour totaled over 75 vehicles. This movement was likely undertaken to avoid the school queues at the other two (2) driveways. No conflicts were observed with this maneuver.
- Although there is a left-turn prohibition at the northern driveway, it was also observed that at least 15 vehicles in the morning peak hour and over 30 vehicles in the afternoon peak hour turned left illegally south of the raised median. However, no conflicts were observed with this illegal turn because those vehicles turning left waited until no vehicles were coming to/from the south before executing that turn.

Illegal outbound left-turning vehicle from the northern school driveway

- The two (2) predominant turning movements at the study intersection during the eight-hour time period involved the northbound left-turn movement and the eastbound right-turn movement. For the northbound left-turn movement, there were a total of 395 left turns during the eight-hour count period, with 99 and 85 left-turning vehicles during the morning and afternoon peak hours, respectively. For the eastbound right-turn movement, there were a total of 432 right turns during the eight-hour count period, with 155 and 91 right-turning vehicles during the morning and afternoon peak hours, respectively.
- Sidewalks exist along the east side of the side street approaches; however, the sidewalks do not connect to S.R. 72.

Morning Observation

- As previously stated, the morning peak northbound left-turn movement consists of 99 vehicles from 7:30 to 8:30 a.m., with 74 vehicles specifically occurring during the 30-minute period between 8:00 and 8:30 a.m. For the eastbound right-turn movement, a total of 155 vehicles were observed during the morning peak hour, with 102 vehicles occurring during the peak 30-minute period between 8:00 and 8:30 am.
- The maximum queue for the northbound left-turn movement was seven (7) vehicles on Hawkins Road; however, queues were much longer within the school property (in excess of 30 vehicles). While queues and delays appeared excessive, all queues had dissipated by 8:30 a.m.

- It was observed that several northbound left-turning vehicles were delayed by over 60 seconds waiting to make their turn. Once an adequate gap became available and the lead vehicle completed their turn, several trailing vehicles would disregard the stop sign to complete their left-turn movement. A few northbound left-turning drivers were observed completing their turn by using the eastbound left-turn lane as an acceleration lane to merge into the westbound traffic lane. While no conflicts were observed with this maneuver, the potential for higher-speed head-on collisions to occur exists.
- There were a few instances where westbound through drivers had to brake due to northbound left-turning vehicles entering the traffic stream initially at a slower speed than westbound traffic.
- It was noted that northbound right-turning drivers appeared to be delayed in completing their turn if a northbound left-turning vehicle had stopped beyond the stop bar, thus blocking their line of sight of approaching eastbound vehicles. However, their delay was not noted to be excessive or cause conflicts.
- The maximum queue for the southbound approach was two (2) vehicles and 10 vehicles for westbound left turns. Southbound and westbound queues dissipated quickly and without issue or conflict.
- One adult pedestrian was observed traveling along the south leg of S.R. 72. No conflicts were noted with this crossing. Also, no additional pedestrians or bicyclists were observed during this time period.

Afternoon Observation

- As previously stated, the afternoon peak northbound left-turn movement consists of 85 vehicles from 3:00 to 4:00 p.m., with 68 vehicles specifically occurring during the 30-minute period between 3:15 and 3:45 p.m. For the eastbound right-turn movement, a total of 91 vehicles were observed during the afternoon peak hour, with 71 vehicles occurring during the peak 30-minute period between 3:00 and 3:30 pm.
- The afternoon dismissal period operated similar to the morning arrival period, though slightly more efficiently with less delay. School dismissal began at 3:15 p.m. and all queues on-site had dissipated by 3:30 p.m.
- The maximum queue for the northbound left-turn movement was eight (8) vehicles on Hawkins Road; however, all queues had dissipated by 3:30 p.m.

Northbound left-turn queue on Hawkins Road approach

- The maximum queue for the southbound approach was two (2) vehicles and three (3) vehicles for westbound left turns. Southbound and westbound queues dissipated quickly and without issue or conflict.
- No bicyclists and no pedestrians were observed during this time period.

Safety

In addition to the collision analysis, the following observations were made with respect to the safety of the study location:

- No signs of skid marks, broken glass, plastic, or other indications of a crash were observed.
- Due to the observed speeds of vehicles approaching the intersection along S.R. 72, in conjunction with the conflicts noted with northbound left-turning vehicles turning onto S.R. 72 at lower speeds, **it is recommended that SCHOOL ENTRANCE Warning Signs (FTP 33-06) be installed on the eastbound and westbound approaches to the intersection with supplemental flashing beacons to operate during school arrival and dismissal periods.** Per Chapter 15 of the FDOT Speed Zoning Manual, flashing beacons should be used in rural areas where roadway approach speeds are 45 mph or greater to increase conspicuity of the school entrances without school zones.

Maintenance

During the field reviews, the condition of the study intersection's asphalt, striping, signing, and lighting were observed. The following are observations related to maintenance of the intersection:

- The signing, pavement and pavement markings were observed to be in good condition, with the following exceptions:
  - The stop bar, lane lines, and the directional arrows on the northbound approach are worn.

Worn pavement markings on the northbound Hawkins Road approach

  - The STOP sign on the northbound approach is tilted to the west.
  - The sign panel for the STOP sign on the southbound approach is bent/damaged and the STOP sign is tilted to the west.

Damaged STOP sign panel on the southbound approach

4

SIGNAL WARRANT ANALYSIS

The traffic volumes, geometric conditions, and crash data at the intersection were analyzed, summarized, and then compared with the warrants for the installation of a traffic signal contained within the MUTCD and MUTS.

Upon conducting the Signal Warrant Analysis, the eastbound and westbound approaches of S.R. 72 were used as the major street, and the northbound approach of Hawkins Road was used as the minor street because it had the highest minor street volumes. For the purposes of the warrant analysis, both the major and minor streets were treated as one-lane approaches. Additionally, the northbound left-turn and through volumes were used for the minor street volumes. Based on the critical speed of 55 mph on S.R. 72, the 70% volume criteria were applied to the analysis. When considering crash history for the signal warrant analysis, during the 12-month period from November 1, 2020 to October 31, 2021, there were two (2) crashes susceptible to correction by the installation of a traffic signal. ***Table 6*** below summarizes the results of the warrant analysis.

Table 6
Signal Warrant Analysis Summary

Warrant		Applicable	Satisfied	Comments
1A	**Minimum Vehicular Volume**	**Yes**	**No**	This warrant is not satisfied as the minor street volumes do not meet the threshold for any of the hours (must be met for eight (8) hours of an average day).
1B	**Interruption of Continuous Traffic**	**No**	**N/A**	This warrant is not applicable as excessive delay or conflict was not observed for minor street traffic.
2	**Four Hour Vehicular Volume**	**Yes**	**No**	This warrant is not satisfied as the minor street volumes meet the threshold for two (2) hours (must be met for four (4) hours of an average day).
3A	**Peak Hour Delay**	**Yes**	**No**	Peak hour delays do not satisfy the warrant.
3B	**Peak Hour Volume**	**Yes**	**Yes**	This warrant is satisfied. Also, peak hour volumes are directly related to the arrival and dismissal times of the Sarasota Suncoast Academy public charter school.
4	**Pedestrian Volume**	**Yes**	**No**	This warrant is not satisfied as only two (2) pedestrians were recorded traversing the major street during the eight (8) hours.
5	**School Crossing**	**No**	**N/A**	This warrant is not applicable as no school zone exists at the intersection.
6	**Coordinated Signal System**	**No**	**N/A**	This warrant is not applicable as the intersection is not within a coordinated signal system.
7	**Crash Experience**	**Yes**	**No**	This warrant is not met as there were two (2) crashes potentially correctable by the installation of a traffic signal that occurred within any 12-month study period (must have five (5) potentially correctable crashes within any 12-month study period for the warrant to be met.
8	**Roadway Network**	**No**	**N/A**	This warrant is not applicable, as the interesection is not considered to be part of a coordinated network.
9	**Railroad Crossing**	**No**	**N/A**	This warrant is not applicable, as there is no railroad crossing near the study intersection.

Based on the signal warrant analysis, only Warrant 3B (Peak-Hour Volume) is currently met for the consideration of the installation of a traffic signal at the intersection of S.R. 72 and Hawkins Road/Coash Road. The signal warrant analysis worksheets for the study intersection are provided in the ***Appendix***.

In summary, based on the results of the warrant analysis, a review of crash history, field observations, engineering judgment, **it is recommended an Intersection Control Evaluation (ICE) analysis be undertaken at this time for the intersection of S.R. 72 and Hawkins Road/Coash Road to verify that a traffic signal is the appropriate traffic control improvement at this location.**

In addition, the following improvement is recommended:

- **Install SCHOOL ENTRANCE Warning Signs (FTP 33-06) with supplemental flashing beacons to operate during school arrival and dismissal periods on the eastbound and westbound approaches to the intersection.**

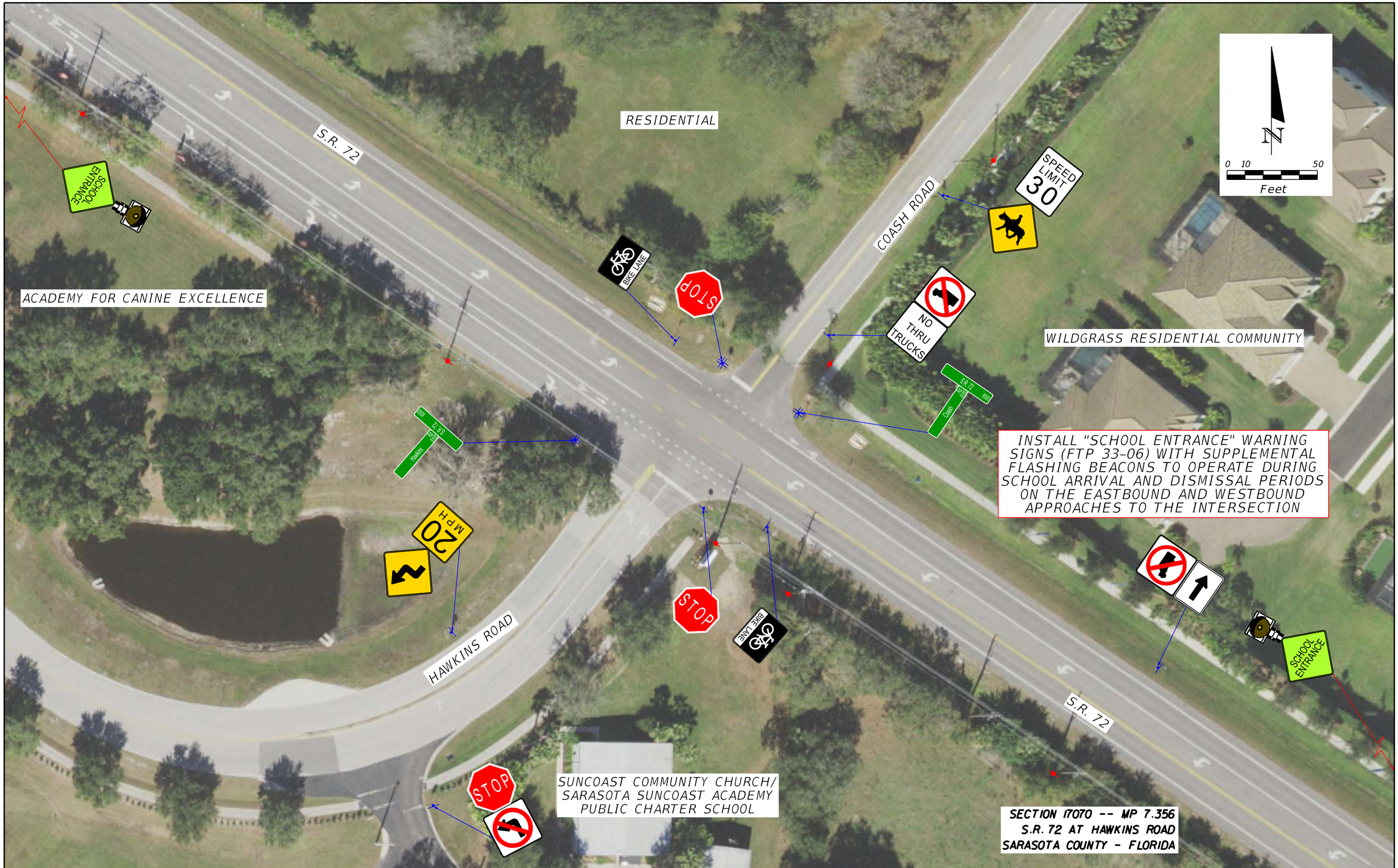
5

RECOMMENDATIONS

Based on the signal warrant analysis, data, crash history, field observations, and engineering judgment, **it is recommended that an ICE analysis be undertaken at this time for the intersection of S.R. 72 and Hawkins Road/Coash Road to verify a traffic signal is the appropriate traffic control improvement at this location.**

In addition, the following improvement is recommended:

- **Install SCHOOL ENTRANCE Warning Signs (FTP 33-06) with supplemental flashing beacons to operate during school arrival and dismissal periods on the eastbound and westbound approaches to the intersection.**



Utility Pole
Traffic Sign
Luminaire

Symbols:

Traffic Controller Cabinet
Ditch Bottom Inlet
Signal Pole
Pedestrian Signal Pole
Mitered End Section

Traffic Engineering Data Solutions, Inc.
Spring Vista Drive, DeBary, FL 32713
Phone: 386.753.0558
Fax: 386.753.0778

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

FIGURE 4
IMPROVEMENT DIAGRAM

APPENDIX

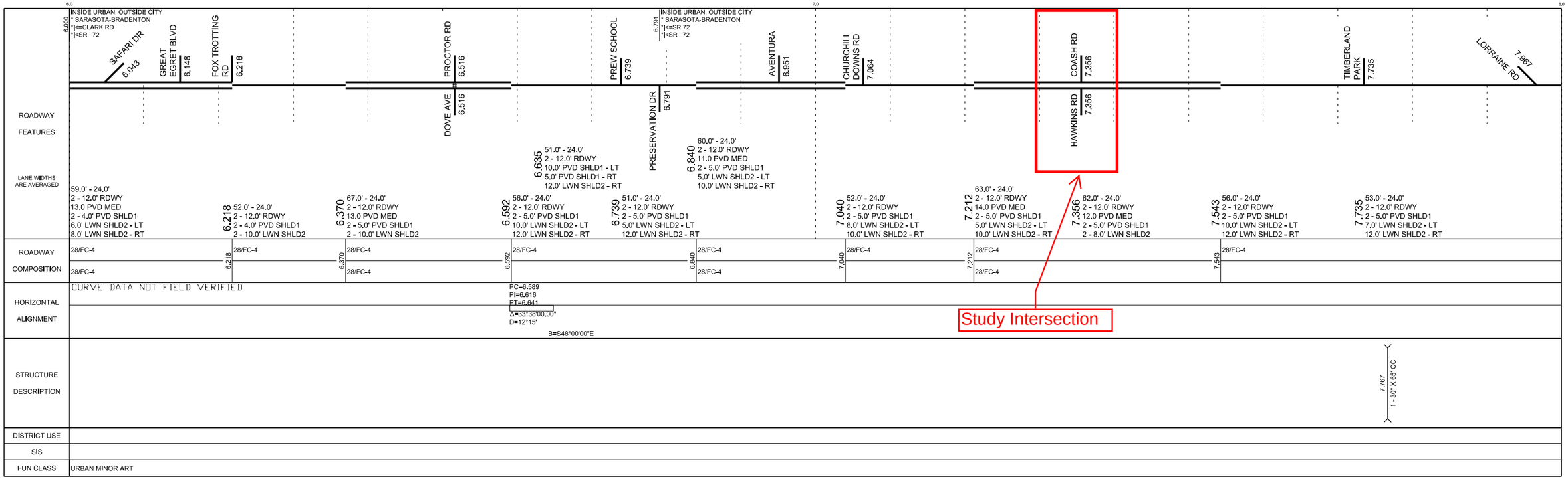
STRAIGHT-LINE DIAGRAM

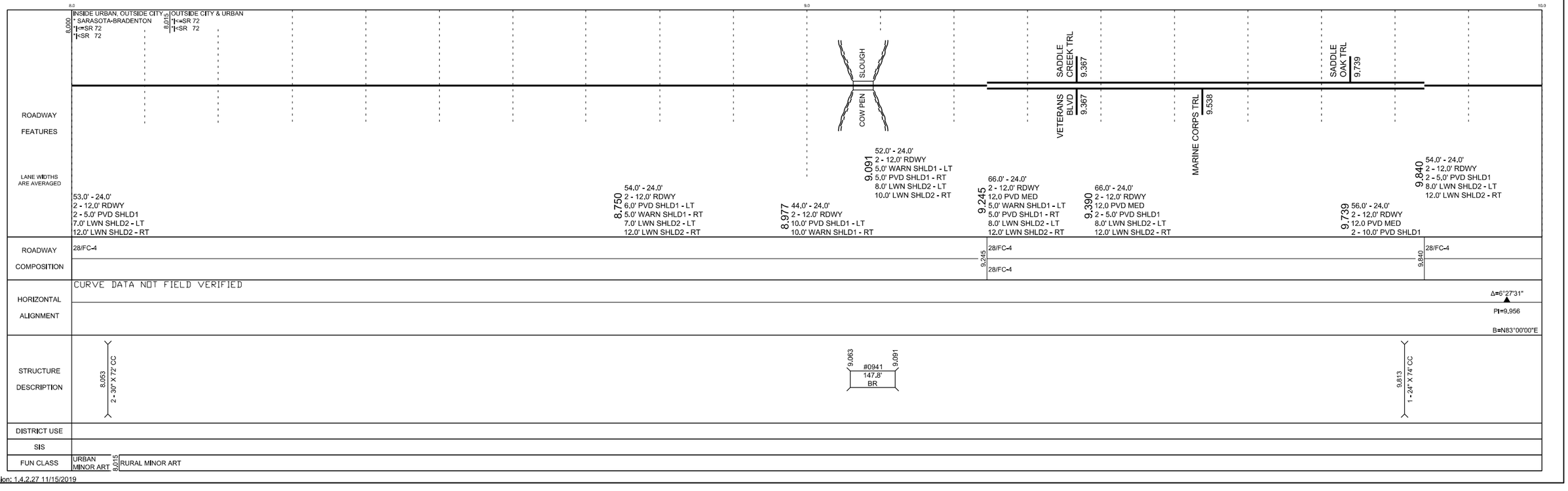
	5 YR INV	SLD REV	BMP	EMP	INV	SLD REV
DATE	01/11/2018	02/05/2018	00.000	30.591		12/27/18-CDRAINS
BY	FTE	FTE	06.370	7.040	11/05/2019	11/15/19(433412-1-52-01)
			00.000	30.591		6/3&6/26/20(F241)

FLORIDA DEPARTMENT OF TRANSPORTATION

STRAIGHT LINE DIAGRAM OF ROAD INVENTORY

SECTION STATUS	INT. or US ROUTE NO.	STATE ROAD NO.	COUNTY	DISTRICT	ROADWAY ID	SHEET NO.
02		SR 72	SARASOTA	01	17070000	3 OF 7





Version: 1.4.2.27 11/15/2019

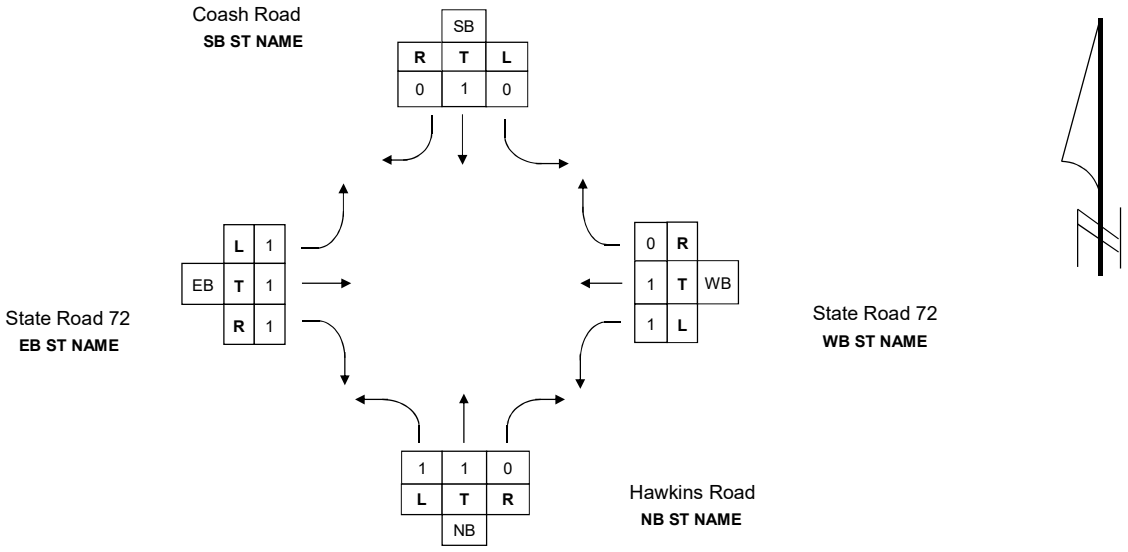
TRAFFIC VOLUMES

FLORIDA DEPARTMENT OF TRANSPORTATION

SUMMARY OF VEHICLE MOVEMENTS

SECTION	17070-000	**CITY**	Sarasota	**COUNTY**	Sarasota
STATE ROUTE	State Road 72	**INTERSECTING ROUTE**	Hawkins Road / Coash Road		
OBSERVER	TEDS	**DATE**	1/27/2022	**MILEPOST**	7.356
WEATHER	Sunny	**ROAD CONDITION**	Good		
REMARKS					

FORM COMPLETED BY **DATE** 02/21/22



TIME	NORTHBOUND					SOUTHBOUND					TOTAL	EASTBOUND					WESTBOUND					TOTAL
BEGIN/END	**L**	**T**	**R**	**U**	**TOT**	**L**	**T**	**R**	**U**	**TOT**	**N/S**	**L**	**T**	**R**	**U**	**TOT**	**L**	**T**	**R**	**U**	**TOT**	**E/W**
7:00 - 8:00	36	0	19	0	**55**	1	3	43	0	**47**	**102**	12	295	77	0	**384**	48	415	1	0	**464**	**848**
8:00 - 9:00	83	7	96	0	**186**	1	5	56	0	**62**	**248**	23	346	116	0	**485**	125	389	1	0	**515**	**1,000**
9:00 - 10:00	40	4	13	0	**57**	7	1	54	0	**62**	**119**	35	360	5	0	**400**	8	313	2	0	**323**	**723**
3:00 - 4:00	85	11	104	0	**200**	4	5	34	0	**43**	**243**	62	412	91	0	**565**	46	439	3	0	**488**	**1,053**
4:00 - 5:00	24	5	26	0	**55**	0	1	44	0	**45**	**100**	70	528	33	0	**631**	20	389	3	0	**412**	**1,043**
5:00 - 6:00	32	3	21	0	**56**	0	9	40	0	**49**	**105**	48	503	71	0	**622**	39	387	1	2	**429**	**1,051**
6:00 - 7:00	42	2	21	1	**66**	0	2	26	0	**28**	**94**	45	301	32	0	**378**	18	236	1	0	**255**	**633**
7:00 - 8:00	53	3	19	0	**75**	0	0	18	0	**18**	**93**	32	179	7	0	**218**	3	126	2	0	**131**	**349**
TOTAL	**395**	**35**	**319**	**1**	**750**	**13**	**26**	**315**	**0**	**354**	**1,104**	**327**	**2,924**	**432**	**0**	**3,683**	**307**	**2,694**	**14**	**2**	**3,017**	**6,700**
Percentage	53%	5%	43%	0%		4%	7%	89%	0%			9%	79%	12%	0%		10%	90%	0%	0%		
Average	49	4	40	0	94	2	3	39	0	44		41	366	54	0	460	38	337	2	0	377	
Maximum	85	11	104	1		7	9	56	0			70	528	116	0		125	439	3	2		
Minimum	24	0	13	0		0	0	18	0			12	179	5	0		3	126	1	0		

FLORIDA DEPARTMENT OF TRANSPORTATION

PEDESTRIAN MOVEMENT SUMMARY

SECTION 17070-000 **CITY** Sarasota **COUNTY** Sarasota
STATE ROUTE State Road 72 **INTERSECTING ROUTE** Hawkins Road / Coash Road
OBSERVER TEDS **DATE** 1/27/2022

REMARKS

FORM COMPLETED BY 0 **DATE** 02/21/22

HOURS	West side of Hawkins Road			East side of Hawkins Road			North side of State Road 72			South side of State Road 72			GRAND TOTAL
	NB	SB	TOTAL	NB	SB	TOTAL	EB	WB	TOTAL	EB	WB	TOTAL	
7:00 - 8:00	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	**0**
8:00 - 9:00	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	**0**
9:00 - 10:00	0	0	**0**	1	1	**2**	0	0	**0**	0	0	**0**	**2**
3:00 - 4:00	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	**0**
4:00 - 5:00	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	**0**
5:00 - 6:00	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	**0**
6:00 - 7:00	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	**0**
7:00 - 8:00	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	**0**
TOTAL	**0**	**0**	**0**	**1**	**1**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**2**

FLORIDA DEPARTMENT OF TRANSPORTATION

BICYCLE MOVEMENT SUMMARY

SECTION 17070-000 **CITY** Sarasota **COUNTY** Sarasota
STATE ROUTE State Road 72 **INTERSECTING ROUTE** Hawkins Road / Coash Road
OBSERVER TEDS **DATE** 1/27/2022

REMARKS _____

FORM COMPLETED BY 0 **DATE** 02/21/22

HOURS	West side of Hawkins Road			East side of Hawkins Road			North side of State Road 72			South side of State Road 72			GRAND TOTAL
	NB	SB	TOTAL	NB	SB	TOTAL	EB	WB	TOTAL	EB	WB	TOTAL	
7:00 - 8:00	0	0	**0**	1	0	**1**	0	0	**0**	0	0	**0**	**1**
8:00 - 9:00	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	**0**
9:00 - 10:00	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	**0**
3:00 - 4:00	0	z	**0**	0	0	**0**	0	0	**0**	1	0	**1**	**1**
4:00 - 5:00	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	**0**
5:00 - 6:00	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	**0**
6:00 - 7:00	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	**0**
7:00 - 8:00	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	**0**
TOTAL	**0**	**0**	**0**	**1**	**0**	**1**	**0**	**0**	**0**	**1**	**0**	**1**	**2**

Traffic Engineering Data Solutions Inc.

File Name : SR 72 at Hawkins Rd TMC (8-hr)
Site Code : 00000000
Start Date : 1/27/2022
Page No : 1

Groups Printed- Passenger Vehicles - Heavy Trucks

	HAWKINS ROAD Northbound					COASH ROAD Southbound					STATE ROAD 72 Eastbound					STATE ROAD 72 Westbound					
Start Time	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Int. Total
07:00 AM	2	0	6	0	8	1	1	13	0	15	0	51	9	0	60	5	92	0	0	97	180
07:15 AM	9	0	3	0	12	0	0	6	0	6	2	80	15	0	97	8	110	0	0	118	233
07:30 AM	22	0	5	0	27	0	2	12	0	14	7	80	26	0	113	18	93	1	0	112	266
07:45 AM	3	0	5	0	8	0	0	12	0	12	3	84	27	0	114	17	120	0	0	137	271
Total	36	0	19	0	55	1	3	43	0	47	12	295	77	0	384	48	415	1	0	464	950
08:00 AM	35	5	40	0	80	0	1	12	0	13	9	82	46	0	137	62	107	0	0	169	399
08:15 AM	39	1	44	0	84	1	2	16	0	19	2	78	56	0	136	47	87	0	0	134	373
08:30 AM	9	0	6	0	15	0	2	11	0	13	5	94	11	0	110	11	91	1	0	103	241
08:45 AM	0	1	6	0	7	0	0	17	0	17	7	92	3	0	102	5	104	0	0	109	235
Total	83	7	96	0	186	1	5	56	0	62	23	346	116	0	485	125	389	1	0	515	1248
09:00 AM	6	0	3	0	9	3	0	19	0	22	10	86	4	0	100	2	73	1	0	76	207
09:15 AM	31	3	7	0	41	0	0	11	0	11	8	112	0	0	120	2	69	0	0	71	243
09:30 AM	2	1	1	0	4	3	1	13	0	17	7	76	1	0	84	2	84	0	0	86	191
09:45 AM	1	0	2	0	3	1	0	11	0	12	10	86	0	0	96	2	87	1	0	90	201
Total	40	4	13	0	57	7	1	54	0	62	35	360	5	0	400	8	313	2	0	323	842
*** BREAK ***																					
03:00 PM	7	2	31	0	40	1	2	9	0	12	17	119	37	0	173	18	85	1	0	104	329
03:15 PM	42	6	39	0	87	2	0	5	0	7	10	109	34	0	153	16	115	0	0	131	378
03:30 PM	26	2	29	0	57	1	3	11	0	15	17	91	11	0	119	10	133	1	0	144	335
03:45 PM	10	1	5	0	16	0	0	9	0	9	18	93	9	0	120	2	106	1	0	109	254
Total	85	11	104	0	200	4	5	34	0	43	62	412	91	0	565	46	439	3	0	488	1296
04:00 PM	10	1	8	0	19	0	0	11	0	11	18	117	7	0	142	4	92	1	0	97	269
04:15 PM	4	0	9	0	13	0	0	13	0	13	17	120	6	0	143	4	99	2	0	105	274
04:30 PM	5	1	3	0	9	0	0	9	0	9	21	147	6	0	174	8	97	0	0	105	297
04:45 PM	5	3	6	0	14	0	1	11	0	12	14	144	14	0	172	4	101	0	0	105	303
Total	24	5	26	0	55	0	1	44	0	45	70	528	33	0	631	20	389	3	0	412	1143
05:00 PM	7	0	8	0	15	0	6	11	0	17	9	125	18	0	152	12	105	1	1	119	303
05:15 PM	11	2	4	0	17	0	3	10	0	13	11	127	24	0	162	8	96	0	1	105	297
05:30 PM	7	1	5	0	13	0	0	15	0	15	9	135	17	0	161	13	101	0	0	114	303
05:45 PM	7	0	4	0	11	0	0	4	0	4	19	116	12	0	147	6	85	0	0	91	253
Total	32	3	21	0	56	0	9	40	0	49	48	503	71	0	622	39	387	1	2	429	1156
06:00 PM	7	0	3	0	10	0	0	7	0	7	12	82	14	0	108	7	80	0	0	87	212
06:15 PM	11	0	10	0	21	0	0	8	0	8	12	78	5	0	95	6	68	1	0	75	199
06:30 PM	11	1	4	1	17	0	0	7	0	7	11	66	9	0	86	2	61	0	0	63	173
06:45 PM	13	1	4	0	18	0	2	4	0	6	10	75	4	0	89	3	27	0	0	30	143
Total	42	2	21	1	66	0	2	26	0	28	45	301	32	0	378	18	236	1	0	255	727
07:00 PM	19	2	9	0	30	0	0	8	0	8	13	62	5	0	80	1	39	0	0	40	158
07:15 PM	18	0	3	0	21	0	0	2	0	2	6	49	2	0	57	1	35	1	0	37	117
07:30 PM	6	1	1	0	8	0	0	3	0	3	9	40	0	0	49	1	27	1	0	29	89
07:45 PM	10	0	6	0	16	0	0	5	0	5	4	28	0	0	32	0	25	0	0	25	78
Total	53	3	19	0	75	0	0	18	0	18	32	179	7	0	218	3	126	2	0	131	442
Grand Total	395	35	319	1	750	13	26	315	0	354	327	2924	432	0	3683	307	2694	14	2	3017	7804
Apprch %	52.7	4.7	42.5	0.1		3.7	7.3	89	0		8.9	79.4	11.7	0		10.2	89.3	0.5	0.1		
Total %	5.1	0.4	4.1	0	9.6	0.2	0.3	4	0	4.5	4.2	37.5	5.5	0	47.2	3.9	34.5	0.2	0	38.7	
Passenger Vehicles	392	35	316	1	744	13	26	311	0	350	327	2790	432	0	3549	305	2535	13	2	2855	7498
% Passenger Vehicles	99.2	100	99.1	100	99.2	100	100	98.7	0	98.9	100	95.4	100	0	96.4	99.3	94.1	92.9	100	94.6	96.1
Heavy Trucks	3	0	3	0	6	0	0	4	0	4	0	134	0	0	134	2	159	1	0	162	306
% Heavy Trucks	0.8	0	0.9	0	0.8	0	0	1.3	0	1.1	0	4.6	0	0	3.6	0.7	5.9	7.1	0	5.4	3.9

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	HAWKINS ROAD Northbound					COASH ROAD Southbound					STATE ROAD 72 Eastbound					STATE ROAD 72 Westbound					
Start Time	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 09:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	22	0	5	0	27	0	**2**	12	0	14	7	80	26	0	113	18	93	**1**	0	112	266
07:45 AM	3	0	5	0	8	0	0	12	0	12	3	**84**	27	0	114	17	**120**	0	0	137	271
08:00 AM	35	**5**	40	0	80	0	1	12	0	13	**9**	82	46	0	**137**	**62**	107	0	0	**169**	**399**
08:15 AM	**39**	1	**44**	0	**84**	**1**	2	**16**	0	**19**	2	78	**56**	0	136	47	87	0	0	134	373
Total Volume	99	6	94	0	199	1	5	52	0	58	21	324	155	0	500	144	407	1	0	552	1309
% App. Total	49.7	3	47.2	0		1.7	8.6	89.7	0		4.2	64.8	31	0		26.1	73.7	0.2	0		
PHF	.635	.300	.534	.000	.592	.250	.625	.813	.000	.763	.583	.964	.692	.000	.912	.581	.848	.250	.000	.817	.820
Passenger Vehicles	98	6	93	0	197	1	5	51	0	57	21	302	155	0	478	144	367	1	0	512	1244
% Passenger Vehicles	99.0	100	98.9	0	99.0	100	100	98.1	0	98.3	100	93.2	100	0	95.6	100	90.2	100	0	92.8	95.0
Heavy Trucks	1	0	1	0	2	0	0	1	0	1	0	22	0	0	22	0	40	0	0	40	65
% Heavy Trucks	1.0	0	1.1	0	1.0	0	0	1.9	0	1.7	0	6.8	0	0	4.4	0	9.8	0	0	7.2	5.0

Peak Hour Analysis From 07:00 AM to 09:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:30 AM					08:15 AM					07:30 AM					07:30 AM					
+0 mins.	22	0	5	0	27	1	**2**	16	0	19	7	80	26	0	113	18	93	**1**	0	112	
+15 mins.	3	0	5	0	8	0	2	11	0	13	3	**84**	27	0	114	17	**120**	0	0	137	
+30 mins.	35	**5**	40	0	80	0	0	17	0	17	**9**	82	46	0	**137**	**62**	107	0	0	**169**	
+45 mins.	**39**	1	**44**	0	**84**	**3**	0	**19**	0	**22**	2	78	**56**	0	136	47	87	0	0	134	
Total Volume	99	6	94	0	199	4	4	63	0	71	21	324	155	0	500	144	407	1	0	552	
% App. Total	49.7	3	47.2	0		5.6	5.6	88.7	0		4.2	64.8	31	0		26.1	73.7	0.2	0		
PHF	.635	.300	.534	.000	.592	.333	.500	.829	.000	.807	.583	.964	.692	.000	.912	.581	.848	.250	.000	.817	
Passenger Vehicles	98	6	93	0	197	4	4	63	0	71	21	302	155	0	478	144	367	1	0	512	
% Passenger Vehicles	99	100	98.9	0	99	100	100	100	0	100	100	93.2	100	0	95.6	100	90.2	100	0	92.8	
Heavy Trucks	1	0	1	0	2	0	0	0	0	0	0	22	0	0	22	0	40	0	0	40	
% Heavy Trucks	1	0	1.1	0	1	0	0	0	0	0	0	6.8	0	0	4.4	0	9.8	0	0	7.2	

Peak Hour Analysis From 03:00 PM to 07:45 PM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 03:00 PM

03:00 PM	7	2	31	0	40	1	2	9	0	12	17	**119**	**37**	0	**173**	**18**	85	**1**	0	104	329
03:15 PM	**42**	**6**	**39**	0	**87**	**2**	0	5	0	7	10	109	34	0	153	16	115	0	0	131	**378**
03:30 PM	26	2	29	0	57	1	**3**	**11**	0	**15**	17	91	11	0	119	10	**133**	1	0	**144**	335
03:45 PM	10	1	5	0	16	0	0	9	0	9	**18**	93	9	0	120	2	106	1	0	109	254
Total Volume	85	11	104	0	200	4	5	34	0	43	62	412	91	0	565	46	439	3	0	488	1296
% App. Total	42.5	5.5	52	0		9.3	11.6	79.1	0		11	72.9	16.1	0		9.4	90	0.6	0		
PHF	.506	.458	.667	.000	.575	.500	.417	.773	.000	.717	.861	.866	.615	.000	.816	.639	.825	.750	.000	.847	.857
Passenger Vehicles	85	11	103	0	199	4	5	33	0	42	62	395	91	0	548	46	415	3	0	464	1253
% Passenger Vehicles	100	100	99.0	0	99.5	100	100	97.1	0	97.7	100	95.9	100	0	97.0	100	94.5	100	0	95.1	96.7
Heavy Trucks	0	0	1	0	1	0	0	1	0	1	0	17	0	0	17	0	24	0	0	24	43
% Heavy Trucks	0	0	1.0	0	0.5	0	0	2.9	0	2.3	0	4.1	0	0	3.0	0	5.5	0	0	4.9	3.3

Peak Hour Analysis From 03:00 PM to 07:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	03:00 PM					04:45 PM					04:30 PM					03:00 PM					
+0 mins.	7	2	31	0	40	0	1	11	0	12	**21**	**147**	6	0	**174**	**18**	85	**1**	0	104	
+15 mins.	**42**	**6**	**39**	0	**87**	0	**6**	11	0	**17**	14	144	14	0	172	16	115	0	0	131	
+30 mins.	26	2	29	0	57	0	3	10	0	13	9	125	18	0	152	10	**133**	1	0	**144**	
+45 mins.	10	1	5	0	16	0	0	**15**	0	15	11	127	**24**	0	162	2	106	1	0	109	
Total Volume	85	11	104	0	200	0	10	47	0	57	55	543	62	0	660	46	439	3	0	488	
% App. Total	42.5	5.5	52	0		0	17.5	82.5	0		8.3	82.3	9.4	0		9.4	90	0.6	0		
PHF	.506	.458	.667	.000	.575	.000	.417	.783	.000	.838	.655	.923	.646	.000	.948	.639	.825	.750	.000	.847	
Passenger Vehicles	85	11	103	0	199	0	10	46	0	56	55	533	62	0	650	46	415	3	0	464	
% Passenger Vehicles	100	100	99	0	99.5	0	100	97.9	0	98.2	100	98.2	100	0	98.5	100	94.5	100	0	95.1	
Heavy Trucks	0	0	1	0	1	0	0	1	0	1	0	10	0	0	10	0	24	0	0	24	
% Heavy Trucks	0	0	1	0	0.5	0	0	2.1	0	1.8	0	1.8	0	0	1.5	0	5.5	0	0	4.9	

Traffic Engineering Data Solutions Inc.

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Groups Printed- Heavy Trucks

	HAWKINS ROAD Northbound					COASH ROAD Southbound					STATE ROAD 72 Eastbound					STATE ROAD 72 Westbound					
Start Time	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	7	0	0	7	0	0	0	0	0	7
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	11	0	0	11	0	13	0	0	13	24
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	7	0	0	7	0	8	0	0	8	15
07:45 AM	0	0	0	0	0	0	0	1	0	1	0	4	0	0	4	0	14	0	0	14	19
Total	0	0	0	0	0	0	0	1	0	1	0	29	0	0	29	0	35	0	0	35	65
08:00 AM	1	0	1	0	2	0	0	0	0	0	0	2	0	0	2	0	12	0	0	12	16
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	9	0	0	9	0	6	0	0	6	15
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	9	0	0	9	0	5	1	0	6	15
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	9	0	0	9	1	12	0	0	13	22
Total	1	0	1	0	2	0	0	0	0	0	0	29	0	0	29	1	35	1	0	37	68
09:00 AM	0	0	0	0	0	0	0	0	0	0	0	8	0	0	8	0	9	0	0	9	17
09:15 AM	1	0	0	0	1	0	0	0	0	0	0	17	0	0	17	1	8	0	0	9	27
09:30 AM	1	0	0	0	1	0	0	0	0	0	0	2	0	0	2	0	11	0	0	11	14
09:45 AM	0	0	0	0	0	0	0	1	0	1	0	8	0	0	8	0	15	0	0	15	24
Total	2	0	0	0	2	0	0	1	0	1	0	35	0	0	35	1	43	0	0	44	82
*** BREAK ***																					
03:00 PM	0	0	0	0	0	0	0	0	0	0	0	7	0	0	7	0	4	0	0	4	11
03:15 PM	0	0	1	0	1	0	0	0	0	0	0	8	0	0	8	0	6	0	0	6	15
03:30 PM	0	0	0	0	0	0	0	1	0	1	0	1	0	0	1	0	8	0	0	8	10
03:45 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	6	0	0	6	7
Total	0	0	1	0	1	0	0	1	0	1	0	17	0	0	17	0	24	0	0	24	43
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	5	0	0	5	0	4	0	0	4	9
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	0	1	0	0	1	4
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	6	0	0	6	0	3	0	0	3	9
04:45 PM	0	0	1	0	1	0	0	0	0	0	0	1	0	0	1	0	2	0	0	2	4
Total	0	0	1	0	1	0	0	0	0	0	0	15	0	0	15	0	10	0	0	10	26
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	3	0	0	3	5
05:15 PM	0	0	0	0	0	0	0	1	0	1	0	1	0	0	1	0	2	0	0	2	4
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	3
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	3
Total	0	0	0	0	0	0	0	1	0	1	0	6	0	0	6	0	8	0	0	8	15
06:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
*** BREAK ***																					
06:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	2
06:45 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
Total	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	3	0	0	3	4
07:00 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
*** BREAK ***																					
07:30 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
07:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
Total	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	1	0	0	1	3
Grand Total	3	0	3	0	6	0	0	4	0	4	0	134	0	0	134	2	159	1	0	162	306
Apprch %	50	0	50	0		0	0	100	0		0	100	0	0		1.2	98.1	0.6	0		
Total %	1	0	1	0	2	0	0	1.3	0	1.3	0	43.8	0	0	43.8	0.7	52	0.3	0	52.9	

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	HAWKINS ROAD Northbound					COASH ROAD Southbound					STATE ROAD 72 Eastbound					STATE ROAD 72 Westbound					
Start Time	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 09:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 09:00 AM																					
09:00 AM	0	0	0	0	0	0	0	0	0	0	0	8	0	0	8	0	9	0	0	9	17
09:15 AM	**1**	0	0	0	**1**	0	0	0	0	0	0	**17**	0	0	**17**	**1**	8	0	0	9	**27**
09:30 AM	1	0	0	0	1	0	0	0	0	0	0	2	0	0	2	0	11	0	0	11	14
09:45 AM	0	0	0	0	0	0	0	**1**	0	**1**	0	8	0	0	8	0	**15**	0	0	**15**	24
Total Volume	2	0	0	0	2	0	0	1	0	1	0	35	0	0	35	1	43	0	0	44	82
% App. Total	100	0	0	0		0	0	100	0		0	100	0	0		2.3	97.7	0	0		
PHF	.500	.000	.000	.000	.500	.000	.000	.250	.000	.250	.000	.515	.000	.000	.515	.250	.717	.000	.000	.733	.759

Peak Hour Analysis From 07:00 AM to 09:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:15 AM					07:00 AM					08:30 AM					07:15 AM					
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	9	0	0	9	0	13	0	0	13	
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	9	0	0	9	0	8	0	0	8	
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	8	0	0	8	0	**14**	0	0	**14**	
+45 mins.	**1**	0	**1**	0	**2**	0	0	**1**	0	**1**	0	**17**	0	0	**17**	0	12	0	0	12	
Total Volume	1	0	1	0	2	0	0	1	0	1	0	43	0	0	43	0	47	0	0	47	
% App. Total	50	0	50	0		0	0	100	0		0	100	0	0		0	100	0	0		
PHF	.250	.000	.250	.000	.250	.000	.000	.250	.000	.250	.000	.632	.000	.000	.632	.000	.839	.000	.000	.839	

Peak Hour Analysis From 03:00 PM to 07:45 PM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 03:00 PM

03:00 PM	0	0	0	0	0	0	0	0	0	0	0	7	0	0	7	0	4	0	0	4	11
03:15 PM	0	0	**1**	0	**1**	0	0	0	0	0	0	**8**	0	0	**8**	0	6	0	0	6	**15**
03:30 PM	0	0	0	0	0	0	0	**1**	0	**1**	0	1	0	0	1	0	**8**	0	0	**8**	10
03:45 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	6	0	0	6	7
Total Volume	0	0	1	0	1	0	0	1	0	1	0	17	0	0	17	0	24	0	0	24	43
% App. Total	0	0	100	0		0	0	100	0		0	100	0	0		0	100	0	0		
PHF	.000	.000	.250	.000	.250	.000	.000	.250	.000	.250	.000	.531	.000	.000	.531	.000	.750	.000	.000	.750	.717

Peak Hour Analysis From 03:00 PM to 07:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	03:00 PM					03:00 PM					03:00 PM					03:00 PM					
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	7	0	0	7	0	4	0	0	4	
+15 mins.	0	0	**1**	0	**1**	0	0	0	0	0	0	**8**	0	0	**8**	0	6	0	0	6	
+30 mins.	0	0	0	0	0	0	0	**1**	0	**1**	0	1	0	0	1	0	**8**	0	0	**8**	
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	6	0	0	6	
Total Volume	0	0	1	0	1	0	0	1	0	1	0	17	0	0	17	0	24	0	0	24	
% App. Total	0	0	100	0		0	0	100	0		0	100	0	0		0	100	0	0		
PHF	.000	.000	.250	.000	.250	.000	.000	.250	.000	.250	.000	.531	.000	.000	.531	.000	.750	.000	.000	.750	

COLLISION SUMMARIES

FLORIDA DEPARTMENT OF TRANSPORTATION

COLLISION SUMMARY

Section: 17070-000 **State Road:** S.R. 72 **County:** Sarasota

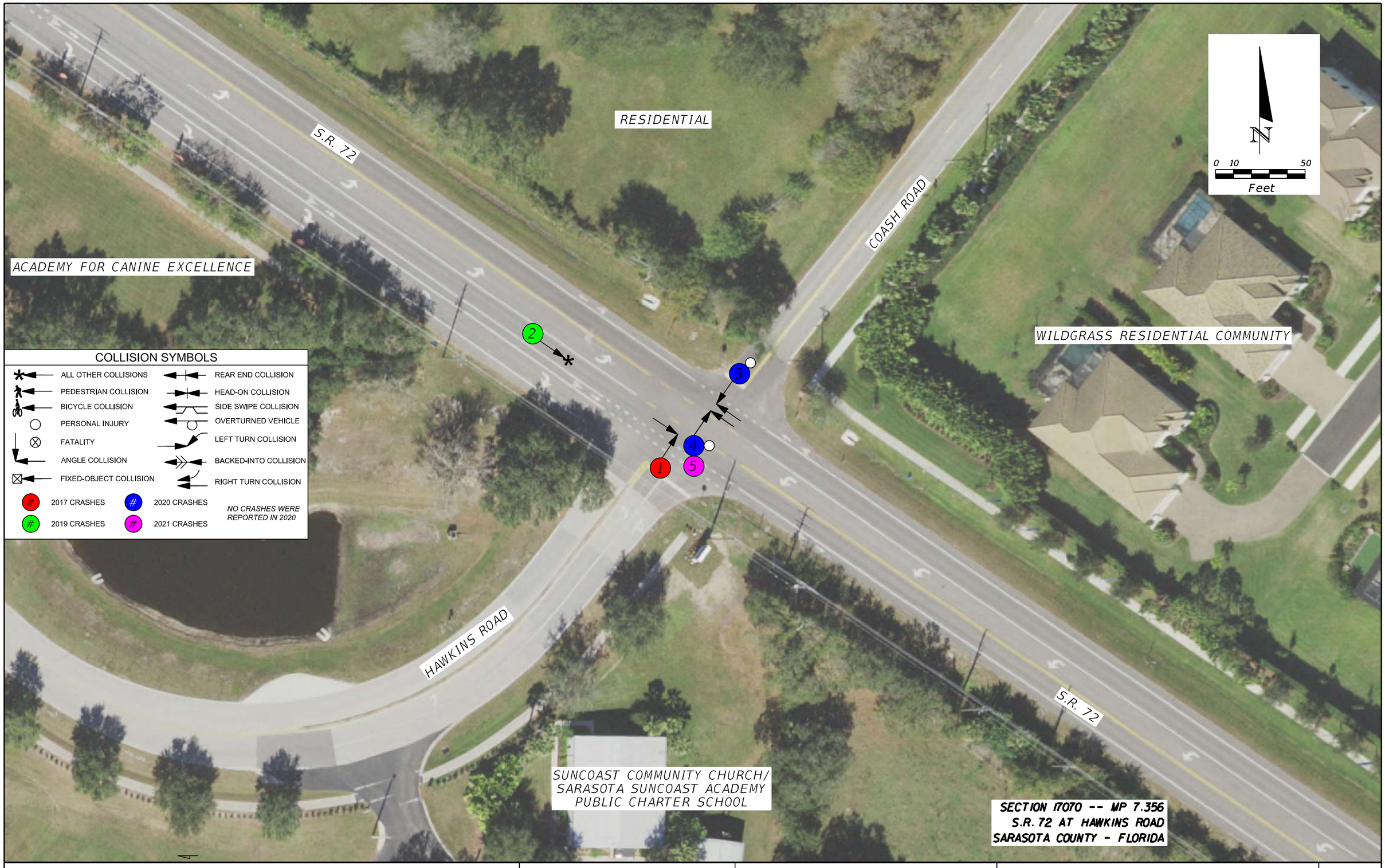
Intersecting route: Hawkins Road/Coash Road **Milepost:** 7.356 **Data by:** BA

Study period: 1/1/2017 to 12/31/2021 **Date:** 1/19/2021

NO.	DATE	DAY	TIME	FATAL	INJURY	INJURY SEVERITY	PROPERTY DAMAGE	HARMFUL EVENT	FORM LENGTH	DUI	DAY / NIGHT	WET / DRY	CONTRIBUTING CAUSE
1	09/21/17	Thursday	8:25	0	0	1-No Injury	$10,000	Angle	Long	No	Day	Dry	FTYROW
2	11/14/19	Thursday	17:55	0	0	1-No Injury	$1,000	Animal	Short	No	Day	Dry	No Contributing Action
3	11/15/20	Sunday	17:42	0	1	4-Incapacitating Injury	$17,000	Angle	Long	No	Day	Dry	FTYROW
4	12/01/20	Tuesday	14:20	0	2	3-Non-Incapacitating Injury	$12,500	Angle	Long	No	Day	Dry	FTYROW
5	11/26/21	Friday	12:28	0	0	1-No Injury	$7,000	Angle	Long	No	Day	Dry	
TOTAL				**0**	**3**		**$47,500**						

TOTAL NO.	Injury Severity												
	Property Damage Only		Injury	Fatality		Angle	Animal						
5	3		2	0	0	4	1	0	0	0	0	0	0	0
Percent	60%		40%	0%	0%	80%	20%	0%	0%	0%	0%	0%	0%	0%

CONTRIB-CAUSE	Time of Day		Pavement Cond.											
	Day	Night	Dry	Wet		No Contributing Action	FTYROW							
Total	5	0	5	0	0	1	3	0	0	0	0	0	0	0
Percent	100%	0%	100%	0%	0%	20%	60%	0%	0%	0%	0%	0%	0%	0%



COLLISION SYMBOLS

- ALL OTHER COLLISIONS
- PEDESTRIAN COLLISION
- BICYCLE COLLISION
- PERSONAL INJURY
- FATALITY
- ANGLE COLLISION
- FIXED-OBJECT COLLISION
- REAR END COLLISION
- HEAD-ON COLLISION
- SIDE SWIPE COLLISION
- OVERTURNED VEHICLE
- LEFT TURN COLLISION
- BACKED-INTO COLLISION
- RIGHT TURN COLLISION

2017 CRASHES
2020 CRASHES
2019 CRASHES
2021 CRASHES

NO CRASHES WERE REPORTED IN 2020

SECTION 17070 -- MP 7.356
S.R. 72 AT HAWKINS ROAD
SARASOTA COUNTY - FLORIDA

Symbols:

- Utility Pole
- Traffic Sign
- Luminaire
- Traffic Controller Cabinet
- Ditch Bottom Inlet
- Signal Pole
- Pedestrian Signal Pole
- Mitered End Section

Traffic Engineering Data Solutions, Inc.
80 Spring Vista Drive
DeBary, FL 32713
Phone: 386.753.0558
Fax: 386.753.0778

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

COLLISION DIAGRAM
(1/1/2017 TO 12/31/2021)

PAGE NO.

DELAY STUDY

Traffic Engineering Data Solutions Inc.

File Name : SR 72 at Hawkins Road NB Left-Turn & SB Delay 730-830 am
Site Code : 00000000
Start Date : 1/27/2022
Page No : 1

Ln.	No.	Joined Queue	Released From Queue	Delay
1	1	7:32:11 AM	7:32:48 AM	37
1	2	7:32:17 AM	7:32:50 AM	33
1	3	7:32:35 AM	7:32:53 AM	18
1	4	7:34:33 AM	7:34:42 AM	9
1	5	7:35:57 AM	7:36:31 AM	34
1	6	7:36:28 AM	7:36:36 AM	8
1	7	7:36:40 AM	7:36:54 AM	14
1	8	7:36:41 AM	7:37:02 AM	21
1	9	7:36:42 AM	7:37:08 AM	26
1	10	7:36:45 AM	7:37:11 AM	26
1	11	7:38:04 AM	7:38:09 AM	5
1	12	7:38:07 AM	7:38:20 AM	13
1	13	7:38:15 AM	7:38:23 AM	8
1	14	7:38:28 AM	7:38:35 AM	7
1	15	7:38:37 AM	7:38:42 AM	5
1	16	7:38:40 AM	7:38:45 AM	5
1	17	7:40:11 AM	7:40:46 AM	35
1	18	7:40:20 AM	7:40:49 AM	29
1	19	7:40:36 AM	7:40:55 AM	19
1	20	7:40:54 AM	7:41:08 AM	14
1	21	7:41:40 AM	7:41:45 AM	5
1	22	7:43:31 AM	7:43:34 AM	3
1	23	7:44:25 AM	7:44:50 AM	25
1	24	7:44:54 AM	7:45:00 AM	6
1	25	7:56:27 AM	7:56:32 AM	5
1	26	8:00:49 AM	8:00:58 AM	9
1	27	8:01:06 AM	8:01:10 AM	4
1	28	8:01:16 AM	8:01:20 AM	4
1	29	8:01:17 AM	8:01:24 AM	7
1	30	8:01:45 AM	8:02:47 AM	62
1	31	8:02:09 AM	8:03:18 AM	69
1	32	8:02:16 AM	8:03:21 AM	65
1	33	8:02:19 AM	8:03:24 AM	65
1	34	8:02:26 AM	8:03:57 AM	91
1	35	8:03:28 AM	8:04:03 AM	35
1	36	8:03:30 AM	8:04:09 AM	39
1	37	8:03:52 AM	8:04:29 AM	37
1	38	8:04:15 AM	8:04:59 AM	44
1	39	8:04:22 AM	8:05:05 AM	43
1	40	8:05:07 AM	8:06:00 AM	53
1	41	8:05:24 AM	8:06:11 AM	47
1	42	8:05:48 AM	8:06:18 AM	30
1	43	8:06:13 AM	8:06:22 AM	9
1	44	8:06:19 AM	8:06:25 AM	6
1	45	8:06:23 AM	8:06:59 AM	36
1	46	8:06:40 AM	8:07:44 AM	64
1	47	8:06:46 AM	8:07:47 AM	61
1	48	8:07:26 AM	8:07:51 AM	25
1	49	8:07:28 AM	8:08:16 AM	48
1	50	8:07:37 AM	8:09:29 AM	112
1	51	8:08:11 AM	8:09:38 AM	87
1	52	8:08:25 AM	8:10:28 AM	123
1	53	8:09:13 AM	8:11:29 AM	136
1	54	8:09:30 AM	8:12:05 AM	155
1	55	8:09:36 AM	8:12:09 AM	153
1	56	8:09:44 AM	8:12:11 AM	147
1	57	8:10:29 AM	8:12:14 AM	105
1	58	8:11:14 AM	8:12:23 AM	69
1	59	8:11:23 AM	8:12:26 AM	63
1	60	8:11:45 AM	8:12:29 AM	44
1	61	8:12:47 AM	8:12:52 AM	5
1	62	8:13:29 AM	8:14:17 AM	48

File Name : SR 72 at Hawkins Road NB Left-Turn & SB Delay 730-830 am
Site Code : 00000000
Start Date : 1/27/2022

Ln.	No.	Joined Queue	Released From Queue	Delay
1	63	8:14:23 AM	8:14:59 AM	36
1	64	8:14:47 AM	8:15:02 AM	15
1	65	8:14:55 AM	8:15:34 AM	39
1	66	8:15:14 AM	8:15:46 AM	32
1	67	8:15:19 AM	8:15:52 AM	33
1	68	8:15:23 AM	8:16:09 AM	46
1	69	8:16:21 AM	8:16:49 AM	28
1	70	8:16:25 AM	8:16:52 AM	27
1	71	8:16:29 AM	8:17:59 AM	90
1	72	8:17:06 AM	8:18:43 AM	97
1	73	8:17:17 AM	8:18:46 AM	89
1	74	8:18:02 AM	8:18:51 AM	49
1	75	8:19:01 AM	8:20:11 AM	70
1	76	8:19:24 AM	8:20:28 AM	64
1	77	8:19:33 AM	8:20:31 AM	58
1	78	8:19:35 AM	8:20:35 AM	60
1	79	8:20:26 AM	8:20:54 AM	28
1	80	8:20:48 AM	8:21:11 AM	23
1	81	8:21:13 AM	8:21:18 AM	5
1	82	8:21:44 AM	8:21:54 AM	10
1	83	8:21:47 AM	8:22:05 AM	18
1	84	8:22:47 AM	8:23:06 AM	19
1	85	8:22:56 AM	8:23:50 AM	54
1	86	8:23:00 AM	8:23:55 AM	55
1	87	8:23:12 AM	8:24:00 AM	48
1	88	8:23:23 AM	8:24:49 AM	86
1	89	8:23:28 AM	8:24:59 AM	91
1	90	8:23:29 AM	8:25:00 AM	91
1	91	8:23:56 AM	8:25:06 AM	70
1	92	8:23:57 AM	8:25:10 AM	73
1	93	8:24:13 AM	8:25:20 AM	67
1	94	8:24:17 AM	8:26:22 AM	125
1	95	8:24:26 AM	8:26:33 AM	127
1	96	8:25:11 AM	8:26:34 AM	83
1	97	8:25:15 AM	8:26:38 AM	83
1	98	8:25:29 AM	8:27:00 AM	91
1	99	8:25:49 AM	8:27:13 AM	84
1	100	8:26:05 AM	8:27:24 AM	79
1	101	8:26:38 AM	8:28:36 AM	118
1	102	8:27:19 AM	8:29:09 AM	110
1	103	8:27:36 AM	8:29:10 AM	94
2	1	7:30:01 AM	7:30:05 AM	4
2	2	7:31:35 AM	7:31:55 AM	20
2	3	7:33:27 AM	7:33:42 AM	15
2	4	7:33:29 AM	7:33:47 AM	18
2	5	7:34:32 AM	7:34:39 AM	7
2	6	7:34:57 AM	7:35:03 AM	6
2	7	7:35:01 AM	7:35:07 AM	6
2	8	7:35:07 AM	7:35:11 AM	4
2	9	7:36:05 AM	7:36:22 AM	17
2	10	7:36:57 AM	7:36:59 AM	2
2	11	7:37:02 AM	7:37:05 AM	3
2	12	7:38:50 AM	7:38:58 AM	8
2	13	7:43:09 AM	7:43:12 AM	3
2	14	7:43:46 AM	7:43:57 AM	11
2	15	7:47:50 AM	7:47:54 AM	4
2	16	7:48:17 AM	7:48:34 AM	17
2	17	7:49:54 AM	7:50:00 AM	6
2	18	7:50:30 AM	7:50:44 AM	14
2	19	7:50:47 AM	7:50:50 AM	3
2	20	7:52:59 AM	7:53:14 AM	15
2	21	7:54:05 AM	7:54:12 AM	7
2	22	7:54:38 AM	7:54:41 AM	3
2	23	7:55:45 AM	7:55:50 AM	5

File Name : SR 72 at Hawkins Road NB Left-Turn & SB Delay 730-830 am
Site Code : 00000000
Start Date : 1/27/2022

Ln.	No.	Joined Queue	Released From Queue	Delay
2	24	7:57:36 AM	7:57:43 AM	7
2	25	7:58:19 AM	7:58:25 AM	6
2	26	7:58:43 AM	7:58:47 AM	4
2	27	7:58:58 AM	7:59:11 AM	13
2	28	7:59:29 AM	7:59:39 AM	10
2	29	7:59:49 AM	7:59:57 AM	8
2	30	7:59:55 AM	8:00:05 AM	10
2	31	8:00:22 AM	8:00:26 AM	4
2	32	8:05:19 AM	8:05:28 AM	9
2	33	8:05:30 AM	8:05:35 AM	5
2	34	8:08:01 AM	8:08:08 AM	7
2	35	8:10:01 AM	8:10:05 AM	4
2	36	8:10:09 AM	8:10:16 AM	7
2	37	8:11:12 AM	8:11:20 AM	8
2	38	8:13:07 AM	8:13:13 AM	6
2	39	8:13:25 AM	8:13:30 AM	5
2	40	8:15:01 AM	8:15:11 AM	10
2	41	8:15:04 AM	8:15:17 AM	13
2	42	8:15:32 AM	8:15:37 AM	5
2	43	8:17:59 AM	8:18:01 AM	2
2	44	8:19:40 AM	8:19:44 AM	4
2	45	8:19:55 AM	8:19:59 AM	4
2	46	8:20:02 AM	8:20:18 AM	16
2	47	8:20:07 AM	8:20:22 AM	15
2	48	8:22:21 AM	8:22:42 AM	21
2	49	8:22:30 AM	8:22:55 AM	25
2	50	8:23:17 AM	8:23:33 AM	16
2	51	8:24:01 AM	8:24:07 AM	6
2	52	8:24:54 AM	8:24:58 AM	4
2	53	8:25:36 AM	8:26:14 AM	38
2	54	8:25:56 AM	8:26:18 AM	22
2	55	8:27:00 AM	8:27:17 AM	17
2	56	8:27:28 AM	8:27:38 AM	10
2	57	8:27:34 AM	8:27:50 AM	16
2	58	8:28:04 AM	8:28:08 AM	4

Summary Information:

7:30:00 AM - 8:30:00 AM	Northbound Left-Turn	Southbound Approach
Total Vehicle Count:	103	58
Delayed Vehicle Count:	103	58
Through Vehicle Count:	0	0
Average Stopped Time:	50.24	9.638
Maximum Stopped Time:	155	38
Min. Secs. for Delay:	0	0
Average Queue:	1.51	0.160
Queue Density:	2.93	1.141
Maximum Queue:	8	2
Delay in Vehicle Hour:	1.51	0.16
Total Delay:	5175	559

Traffic Engineering Data Solutions Inc.

File Name : SR 72 at Hawkins Road NB Left-Turn & SB Delay 3-4 pm
Site Code : 00000000
Start Date : 1/27/2022

Ln.	No.	Joined Queue	Released From Queue	Delay
1	1	3:00:01 PM	3:00:08 PM	7
1	2	3:01:39 PM	3:01:56 PM	17
1	3	3:07:55 PM	3:08:53 PM	58
1	4	3:13:06 PM	3:13:25 PM	19
1	5	3:13:09 PM	3:13:29 PM	20
1	6	3:13:22 PM	3:13:35 PM	13
1	7	3:13:26 PM	3:14:12 PM	46
1	8	3:13:43 PM	3:15:56 PM	133
1	9	3:14:19 PM	3:16:05 PM	106
1	10	3:14:20 PM	3:16:13 PM	113
1	11	3:14:28 PM	3:16:15 PM	107
1	12	3:14:29 PM	3:18:29 PM	240
1	13	3:14:51 PM	3:18:47 PM	236
1	14	3:15:34 PM	3:18:50 PM	196
1	15	3:15:48 PM	3:19:00 PM	192
1	16	3:16:16 PM	3:19:09 PM	173
1	17	3:16:21 PM	3:19:13 PM	172
1	18	3:16:27 PM	3:19:31 PM	184
1	19	3:16:44 PM	3:19:43 PM	179
1	20	3:16:57 PM	3:20:08 PM	191
1	21	3:18:34 PM	3:20:13 PM	99
1	22	3:19:06 PM	3:20:16 PM	70
1	23	3:19:34 PM	3:20:27 PM	53
1	24	3:20:09 PM	3:20:49 PM	40
1	25	3:20:11 PM	3:20:53 PM	42
1	26	3:20:16 PM	3:21:09 PM	53
1	27	3:20:19 PM	3:21:19 PM	60
1	28	3:20:57 PM	3:22:07 PM	70
1	29	3:21:22 PM	3:22:32 PM	70
1	30	3:21:28 PM	3:22:34 PM	66
1	31	3:21:31 PM	3:22:43 PM	72
1	32	3:21:40 PM	3:22:59 PM	79
1	33	3:22:03 PM	3:23:05 PM	62
1	34	3:22:21 PM	3:24:16 PM	115
1	35	3:23:08 PM	3:24:26 PM	78
1	36	3:23:38 PM	3:24:30 PM	52
1	37	3:24:33 PM	3:24:46 PM	13
1	38	3:24:49 PM	3:24:55 PM	6
1	39	3:25:07 PM	3:25:17 PM	10
1	40	3:25:20 PM	3:25:50 PM	30
1	41	3:25:32 PM	3:25:56 PM	24
1	42	3:25:45 PM	3:25:58 PM	13
1	43	3:25:52 PM	3:26:10 PM	18
1	44	3:25:59 PM	3:26:15 PM	16
1	45	3:26:03 PM	3:26:22 PM	19
1	46	3:26:44 PM	3:27:14 PM	30
1	47	3:27:50 PM	3:28:07 PM	17
1	48	3:27:54 PM	3:28:49 PM	55
1	49	3:27:55 PM	3:28:54 PM	59
1	50	3:28:01 PM	3:29:16 PM	75
1	51	3:28:08 PM	3:29:25 PM	77
1	52	3:28:15 PM	3:29:28 PM	73
1	53	3:28:16 PM	3:29:32 PM	76
1	54	3:28:33 PM	3:29:59 PM	86
1	55	3:28:45 PM	3:30:02 PM	77
1	56	3:30:04 PM	3:30:14 PM	10
1	57	3:30:21 PM	3:30:28 PM	7
1	58	3:31:00 PM	3:31:15 PM	15
1	59	3:31:08 PM	3:31:28 PM	20
1	60	3:31:52 PM	3:32:20 PM	28
1	61	3:32:30 PM	3:32:56 PM	26
1	62	3:32:37 PM	3:33:02 PM	25

File Name : SR 72 at Hawkins Road NB Left-Turn & SB Delay 3-4 pm
Site Code : 00000000
Start Date : 1/27/2022

Ln.	No.	Joined Queue	Released From Queue	Delay
1	63	3:32:42 PM	3:33:34 PM	52
1	64	3:32:42 PM	3:33:43 PM	61
1	65	3:32:57 PM	3:33:53 PM	56
1	66	3:33:30 PM	3:34:00 PM	30
1	67	3:33:51 PM	3:34:05 PM	14
1	68	3:34:18 PM	3:34:23 PM	5
1	69	3:34:27 PM	3:34:31 PM	4
1	70	3:34:40 PM	3:35:42 PM	62
1	71	3:35:57 PM	3:36:22 PM	25
1	72	3:35:58 PM	3:36:31 PM	33
1	73	3:36:01 PM	3:36:41 PM	40
1	74	3:36:47 PM	3:37:26 PM	39
1	75	3:37:21 PM	3:38:22 PM	61
1	76	3:38:15 PM	3:38:29 PM	14
1	77	3:38:17 PM	3:38:53 PM	36
1	78	3:38:45 PM	3:39:00 PM	15
1	79	3:39:29 PM	3:39:40 PM	11
1	80	3:45:56 PM	3:46:01 PM	5
1	81	3:47:11 PM	3:48:10 PM	59
1	82	3:47:50 PM	3:48:16 PM	26
1	83	3:51:16 PM	3:51:46 PM	30
1	84	3:51:18 PM	3:51:50 PM	32
1	85	3:52:19 PM	3:52:59 PM	40
1	86	3:53:58 PM	3:54:18 PM	20
1	87	3:54:26 PM	3:54:51 PM	25
1	88	3:56:45 PM	3:56:53 PM	8
1	89	3:58:39 PM	3:58:51 PM	12
1	90	3:59:25 PM	3:59:33 PM	8
2	1	3:01:20 PM	3:01:28 PM	8
2	2	3:02:18 PM	3:02:20 PM	2
2	3	3:02:49 PM	3:02:53 PM	4
2	4	3:03:31 PM	3:03:41 PM	10
2	5	3:05:36 PM	3:05:42 PM	6
2	6	3:05:49 PM	3:06:01 PM	12
2	7	3:05:58 PM	3:06:06 PM	8
2	8	3:05:59 PM	3:06:09 PM	10
2	9	3:06:26 PM	3:06:28 PM	2
2	10	3:10:53 PM	3:10:59 PM	6
2	11	3:11:19 PM	3:11:49 PM	30
2	12	3:12:23 PM	3:12:33 PM	10
2	13	3:14:19 PM	3:15:55 PM	96
2	14	3:16:56 PM	3:17:29 PM	33
2	15	3:23:25 PM	3:24:26 PM	61
2	16	3:23:43 PM	3:24:32 PM	49
2	17	3:26:32 PM	3:26:36 PM	4
2	18	3:27:17 PM	3:27:21 PM	4
2	19	3:28:44 PM	3:28:50 PM	6
2	20	3:30:38 PM	3:31:07 PM	29
2	21	3:30:51 PM	3:31:11 PM	20
2	22	3:32:33 PM	3:32:41 PM	8
2	23	3:32:39 PM	3:32:52 PM	13
2	24	3:35:20 PM	3:35:26 PM	6
2	25	3:36:55 PM	3:37:01 PM	6
2	26	3:36:56 PM	3:37:04 PM	8
2	27	3:38:20 PM	3:38:24 PM	4
2	28	3:39:01 PM	3:39:23 PM	22
2	29	3:40:47 PM	3:41:01 PM	14
2	30	3:41:05 PM	3:41:28 PM	23
2	31	3:42:15 PM	3:42:18 PM	3
2	32	3:42:40 PM	3:42:49 PM	9
2	33	3:43:26 PM	3:44:15 PM	49
2	34	3:43:31 PM	3:44:26 PM	55
2	35	3:45:16 PM	3:45:33 PM	17
2	36	3:46:27 PM	3:46:46 PM	19

File Name : SR 72 at Hawkins Road NB Left-Turn & SB Delay 3-4 pm
Site Code : 00000000
Start Date : 1/27/2022

Ln.	No.	Joined Queue	Released From Queue	Delay
2	37	3:50:19 PM	3:50:34 PM	15
2	38	3:51:04 PM	3:51:14 PM	10
2	39	3:53:59 PM	3:54:17 PM	18
2	40	3:54:00 PM	3:54:36 PM	36
2	41	3:55:42 PM	3:55:53 PM	11
2	42	3:55:57 PM	3:56:05 PM	8
2	43	3:57:53 PM	3:57:57 PM	4

Summary Information:

3:00:00 PM - 4:00:00 PM	Northbound Left-Turn	Southbound Approach
Total Vehicle Count:	90	43
Delayed Vehicle Count:	90	43
Through Vehicle Count:	0	0
Average Stopped Time:	57.90	17.860
Maximum Stopped Time:	240	96
Min. Secs. for Delay:	0	0
Average Queue:	1.46	0.226
Queue Density:	3.13	1.217
Maximum Queue:	9	3
Delay in Vehicle Hour:	1.46	0.23
Total Delay:	5211	768

SIGNAL WARRANT ANALYSIS WORKSHEET

TRAFFIC SIGNAL WARRANT SUMMARY

City: _____ Engineer: **BA**
County: **Sarasota** Date: **March 3, 2022**

Major Street: **S.R. 72** Lanes: **1** Critical Approach Speed: **55**
Minor Street: **Hawkins Road/Coash Road** Lanes: **1**

Volume Level Criteria

1. Is the critical speed of major street traffic > 70 km/h (40 mph) ? ■ Yes ☐ No
2. Is the intersection in a built-up area of isolated community of <10,000 population? ■ Yes ☐ No

If Question 1 or 2 above is answered "Yes", then use "70%" volume level ■ 70% ☐ 100%

WARRANT 1 - EIGHT-HOUR VEHICULAR VOLUME

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

Warrant 1 is satisfied if Condition A or Condition B is "100%" satisfied.
Warrant is also satisfied if both Condition A and Condition B are "80% / 56%" satisfied.

Condition A - Minimum Vehicular Volume

100% Satisfied: ☐ Yes ■ No
80% / 56% Satisfied: ☐ Yes ■ No

(volumes in veh/hr)	Minimum Requirements (80% Shown in Brackets) (56% Shown in Brackets)*				Eight Highest Hours							
Approach Lanes	1		2 or more		700	800	900	1500	1600	1700	1800	1900
Volume Level	100%	70%	100%	70%								
Both Approaches on Major Street	500 (400)	350 (280)*	600 (480)	420 (336)*	848	1,000	723	1,053	1,043	1,051	633	349
Highest Approach on Minor Street	150 (120)	105 (84)*	200 (160)	140 (112)*	36	90	44	96	29	35	44	56

Record 8 highest hours and the corresponding volumes in boxes provided. Condition is 100% satisfied if the minimum volumes are met for eight hours. Condition is (80%) / (56%) satisfied if parenthetical volumes are met for eight hours.*

Condition B - Interruption of Continuous Traffic

Condition B is intended for application where the traffic volume is so heavy that traffic on the minor street suffers excessive delay or conflict.

Applicable: ☐ Yes ■ No
Excessive Delay/Conflict: ☐ Yes ■ No
100% Satisfied: ☐ Yes ■ No
80% / 56% Satisfied: ☐ Yes ■ No

(volumes in veh/hr)	Minimum Requirements (80% Shown in Brackets) (56% Shown in Brackets)*				Eight Highest Hours							
Approach Lanes	1		2 or more		700	800	900	1500	1600	1700	1800	1900
Volume Level	100%	70%	100%	70%								
Both Approaches on Major Street	750 (600)	525 (420)*	900 (720)	630 (504)*	848	1,000	723	1,053	1,043	1,051	633	349
Highest Approach on Minor Street	75 (60)	53 (42)*	100 (80)	70 (56)*	36	90	44	96	29	35	44	56

Record 8 highest hours and the corresponding volumes in boxes provided. Condition is 100% satisfied if the minimum volumes are met for eight hours. Condition is (80%) / (56%) satisfied if parenthetical volumes are met for eight hours.*

Source: Revised from NCHRP Report 457

TRAFFIC SIGNAL WARRANT SUMMARY

City: _____ Engineer: **BA**
County: **Sarasota** Date: **March 3, 2022**

Major Street: **S.R. 72** Lanes: **1** Critical Approach Speed: **55**
Minor Street: **Hawkins Road/Coash Road** Lanes: **1**

Volume Level Criteria

1. Is the critical speed of major street traffic > 70 km/h (40 mph) ? ■ Yes ☐ No
2. Is the intersection in a built-up area of isolated community of <10,000 population? ■ Yes ☐ No

If Question 1 or 2 above is answered "Yes", then use "70%" volume level ■ 70% ☐ 100%

WARRANT 2 - FOUR-HOUR VEHICULAR VOLUME

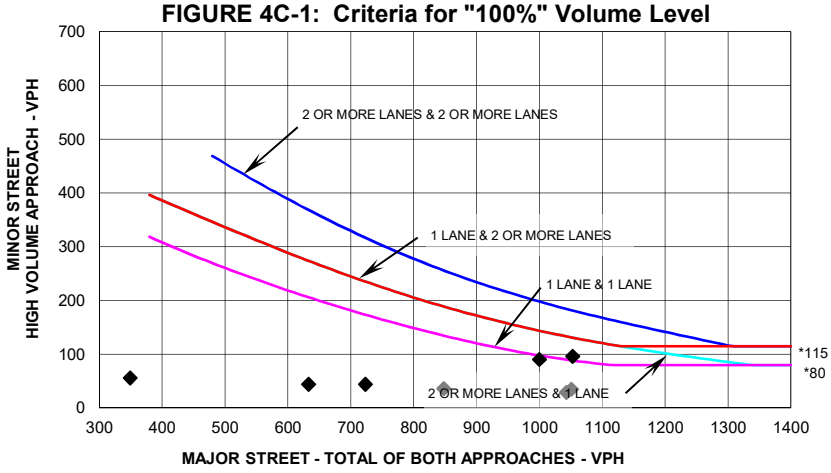
If any four points lie above the appropriate line, then the warrant is satisfied.

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

Plot four volume combinations on the applicable figure below.

Warranting Volumes			Met	
Hour	Major Street	Minor Street	100%	70%
700	848	36		
800	1,000	90		■
900	723	44		
1500	1,053	96	■	■
1600	1,043	29		
1700	1,051	35		
1800	633	44		
1900	349	56		

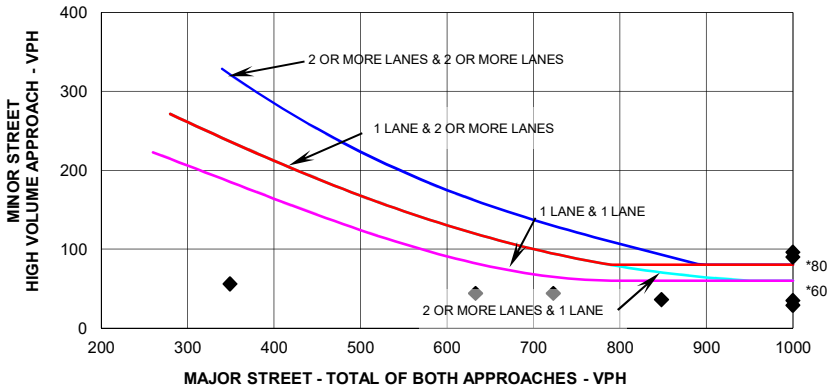
FIGURE 4C-1: Criteria for "100%" Volume Level



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

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

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



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

Source: Revised from NCHRP Report 457

TRAFFIC SIGNAL WARRANT SUMMARY

City: _____ Engineer: **BA**
County: **Sarasota** Date: **March 3, 2022**

Major Street: **S.R. 72** Lanes: **1** Critical Approach Speed: **55**
Minor Street: **Hawkins Road/Coash Road** Lanes: **1**

Volume Level Criteria

1. Is the critical speed of major street traffic > 70 km/h (40 mph) ? ■ Yes ☐ No
2. Is the intersection in a built-up area of isolated community of <10,000 population? ■ Yes ☐ No

If Question 1 or 2 above is answered "Yes", then use "70%" volume level ■ 70% ☐ 100%

WARRANT 3 - PEAK HOUR

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

If all three criteria are fullfilled or any of the plotted points lie above the appropriate line, then the warrant is satisfed.

Unusual condition justifying use of warrant:

School

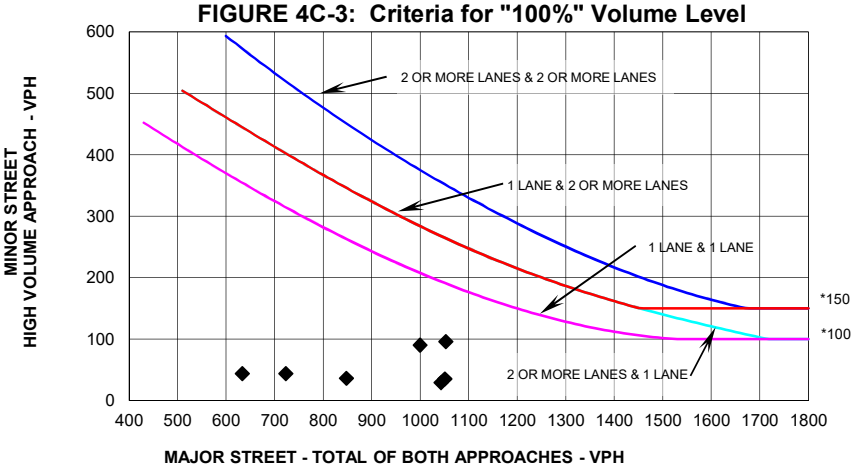
Record hour when criteria are fulfilled and the corresponding delay or volume in boxes provided.

Warranting Volumes			100%	70%
700	848	36		
800	1,000	90		■
900	723	44		
1500	1,053	96		■
1600	1,043	29		
1700	1,051	35		
1800	633	44		
1900	349	56		

1. Delay on Minor Approach *(vehicle-hours)		
Approach Lanes	1	2
Delay Criteria*	4.0	5.0
Delay*	1.5	0.0
Fulfilled?: ☐ Yes	■ No	
2. Volume on Minor Approach *(vehicles per hour)		
Approach Lanes	1	2
Volume Criteria*	100	150
Volume*	103	0
Fulfilled?: ■ Yes	☐ No	
3. Total Entering Volume *(vehicles per hour)		
No. of Approaches	3	4
Volume Criteria*	650	800
Volume*	0	1,309
Fulfilled?: ■ Yes	☐ No	

Plot volume combination on the applicable figure below.

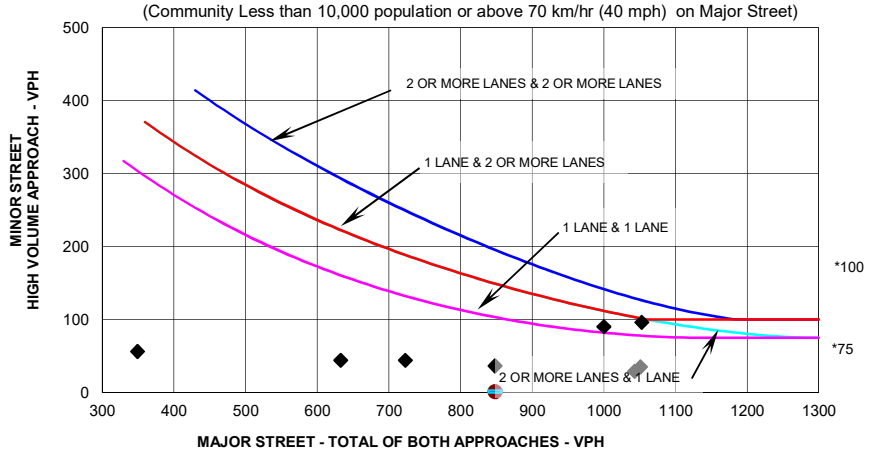
FIGURE 4C-3: Criteria for "100%" Volume Level



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

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

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



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

Source: Revised from NCHRP Report 457

TRAFFIC SIGNAL WARRANT SUMMARY

City: _____ Engineer: **BA**
County: **Sarasota** Date: **March 3, 2022**

Major Street: **S.R. 72** Lanes: **1** Critical Approach Speed: **55**
Minor Street: **Hawkins Road/Coash Road** Lanes: **1**

WARRANT 4 - PEDESTRIAN VOLUME

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

Record hours where criteria are fulfilled and the corresponding volume or gap frequency in the boxes provided. The warrant is satisfied if condition 1 or 2 is fulfilled and condition 3 is fulfilled.

Criteria	Hour	Pedestrian Volume	Pedestrian Gaps	Fulfilled? Yes	Fulfilled? No
1. Pedestrian volume crossing the major street is 100 ped/hr or more for each of any four hours and there are less than 60 gaps per hour in the major street traffic stream of adequate length.	700	0			■
	800	0			
	1600	2			
	1700	0			
2. Pedestrian volume crossing the major street is 190 ped/hr or more for any one hour and there are less than 60 gaps per hour in the major street traffic stream of adequate length.	1600	2			■
3. The nearest traffic signal along the major street is located more than 90 m (300 ft) away, or the nearest signal is within 90 m (300 ft) but the proposed traffic signal will not restrict the progressive movement of traffic.				■	

WARRANT 5 - SCHOOL CROSSING

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

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.

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

WARRANT 6 - COORDINATED SIGNAL SYSTEM

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

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).

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

Source: Revised from NCHRP Report 457

TRAFFIC SIGNAL WARRANT SUMMARY

City: _____ Engineer: **BA**
County: **Sarasota** Date: **March 3, 2022**

Major Street: **S.R. 72** Lanes: **1** Critical Approach Speed: **55**
Minor Street: **Hawkins Road/Coash Road** Lanes: **1**

WARRANT 7 - CRASH EXPERIENCE

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

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.

Criteria		Hour	Volume	Met? Yes	Met? No	Fulfilled? Yes	Fulfilled? No
1. One of the warrants to the right is met.	Warrant 1, Condition A (80% satisfied)				■		
	Warrant 1, Condition B (80% satisfied)				■		
	Warrant 4, Pedestrian Volume at 80% of volume requirements: 80 ped/hr for four (4) hours or 152 ped/hr for one (1) hour	700	0				■
		800	0		■		
		1600	2				
		1700	0				
2. Adequate trial of other remedial measure has failed to reduce crash frequency.		Measure tried:	None				■
3. Five or more reported crashes, of types susceptible to correction by signal, have occurred within a 12-mo. period.		Number of crashes per 12 months:	3				■

WARRANT 8 - ROADWAY NETWORK

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

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 characteristics listed.

Criteria							Met? Yes	Met? No	Fulfilled? Yes	Fulfilled? No
1. Both of the criteria to the right are met.	a. Total entering volume of at least 1,000 veh/hr during a typical weekday peak hour.			Entering Volume: 1,109			■		■	
	b. Five-year projected volumes that satisfy one or more of Warrants 1, 2, or 3.		Warrant:	1	2	3	■			
			Satisfied?:	NO	NO	YES				
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.)	N/A	N/A	N/A	N/A	N/A	← Hour				■
	N/A	N/A	N/A	N/A	N/A	← Volume				

Characteristics of Major Routes		Met? Yes	Met? No	Fulfilled? Yes	Fulfilled? No
1. Part of the street or highway system that serves as the principal roadway network for through traffic flow.	Major Street:	■			
	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:		■		

CONCLUSIONS

Warrants Satisfied: 3

Remarks: Warrant 3B is satisfied.

Source: Revised from NCHRP Report 457

TRAFFIC SIGNAL WARRANT SUMMARY

City: _____ Engineer: **BA**
County: **Sarasota** Date: **March 3, 2022**

Major Street: **S.R. 72**
Minor Street: **Hawkins Road/Coash Road**

Number of Minor Street Approach Lanes: **0**
Crossing RXR Tracks: _____
Clear Storage Distance (D) feet: **0**

Applicability Criteria

Is there a railroad grade crossing in the proximity of the intersection? ☐ Yes ■ No

None of the conditions described in the other eight traffic signal warrants are met. ☐ Yes ■ No

Adequate consideration has been given to other alternatives or a trial of an alternative has failed to alleviate the safety concerns associated with the grade crossing. Among the alternatives that were considered or tried are: ☐ Yes ■ No

A. Providing additional pavement that would enable vehicles to clear the track or that would provide space for an evasive maneuver, or

B. Reassigning the stop controls at the intersection to make the approach across the track a non-stopping approach.

Warrant Applicable: ☐ Yes ■ No

WARRANT 9 - INTERSECTION NEAR A GRADE CROSSING

If there is a railroad grade crossing on an approach controlled by a STOP or YIELD sign and the center of the track nearest the intersection is within 140 feet of the stop line or yield line on the approach, and any point lies above the appropriate line, then the warrant is satisfied.

Warrant Satisfied: ☐ Yes ■ No

Warranting Volumes			Met	
Hour	Major Street	Minor St. Equiv.	1 LN	2 LN
700	848	12		
800	1,000	30		
900	723	15		
1100	1,053	32		
1400	1,043	10		
1500	1,051	12		
1600	633	15		
1700	349	19		
		Satisfied		

Adjustment Factor for Daily Frequency of Rail Traffic	0.67
Adjustment Factor for Percentage of High Occupancy Buses	1.00
Adjustment Factor for Percentage of Tractor-Trailer Trucks	0.50

Figure 4C-9. Warrant 9 Intersection Near a Grade Crossing (One Approach Lane at the Track Crossing)

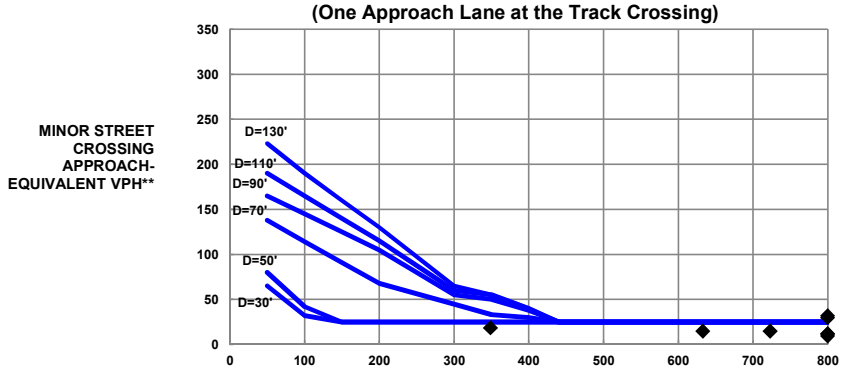
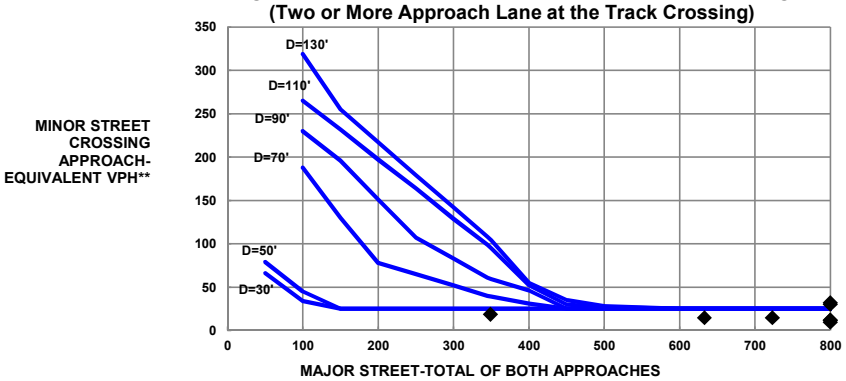


Figure 4C-10. Warrant 9 Intersection Near a Grade Crossing (Two or More Approach Lane at the Track Crossing)



Source: 2009 MUTCD

Appendix C

Opening Year and Design Year Traffic Volumes

FIGURE 3-4: OPENING YEAR (2030) AADT VOLUMES - BUILD ALTERNATIVE

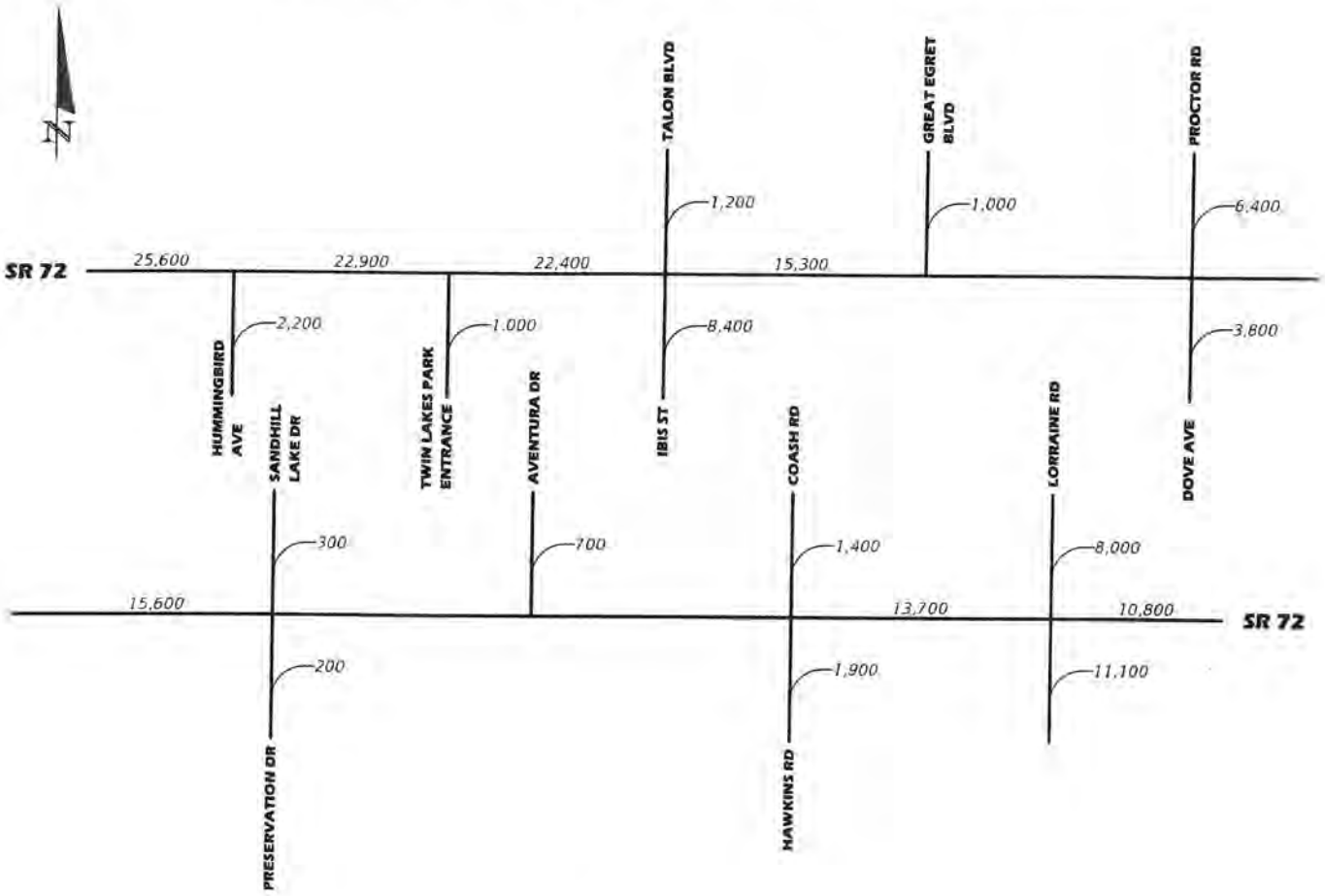


FIGURE 3-2: DESIGN YEAR (2050) AADT VOLUMES - BUILD ALTERNATIVE

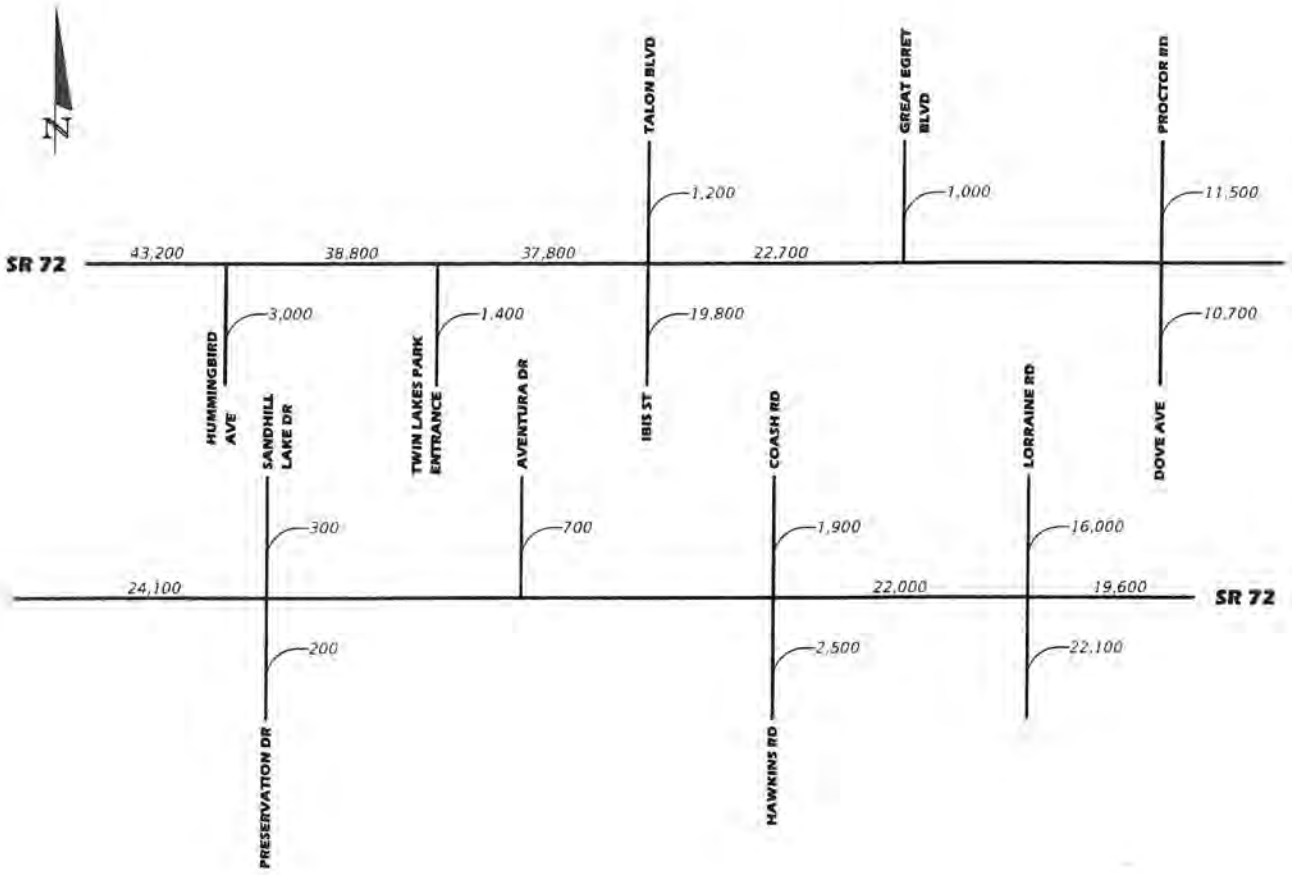


FIGURE 3-7: DESIGN YEAR (2050) AM PEAK HOUR VOLUMES - BUILD ALTERNATIVE

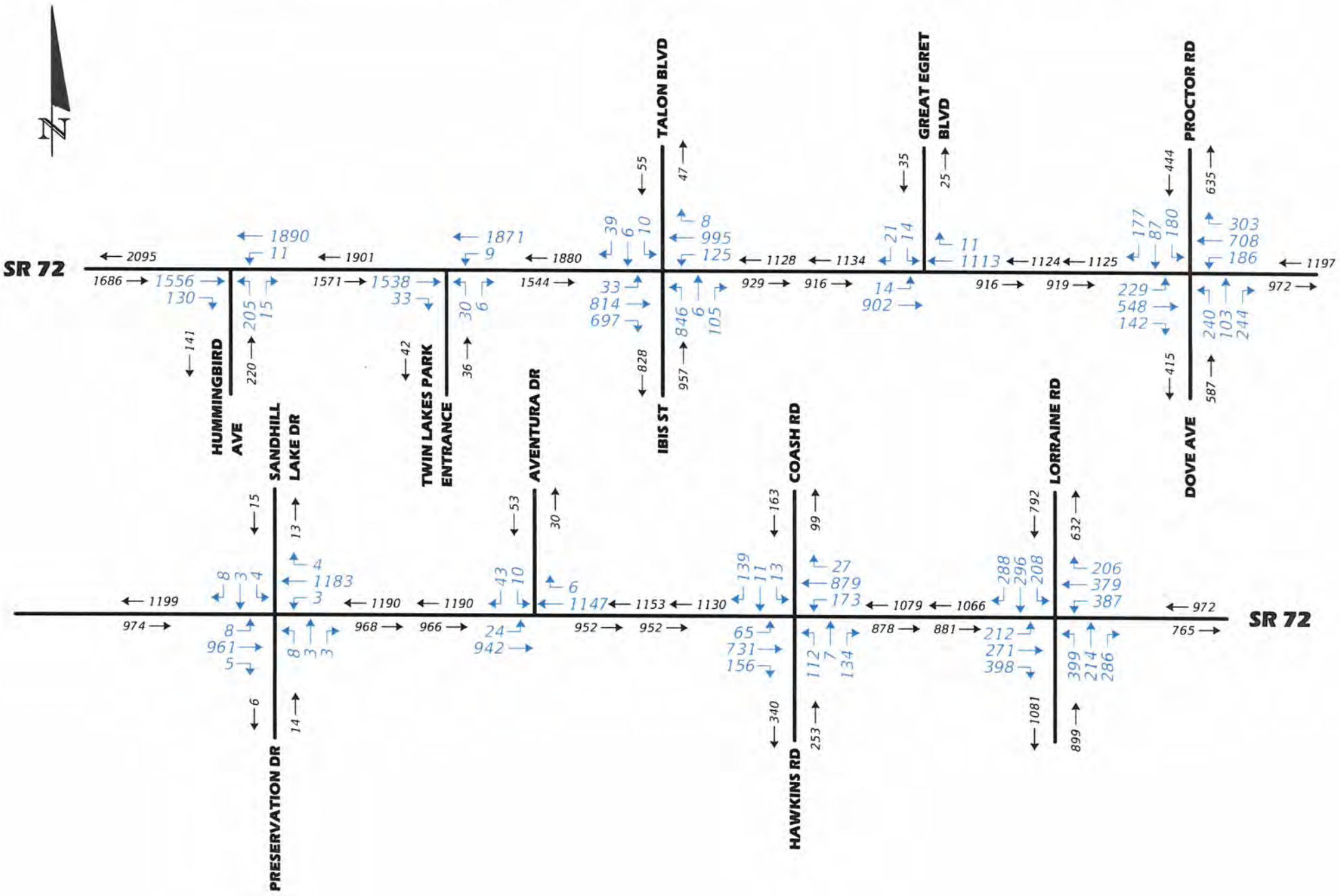
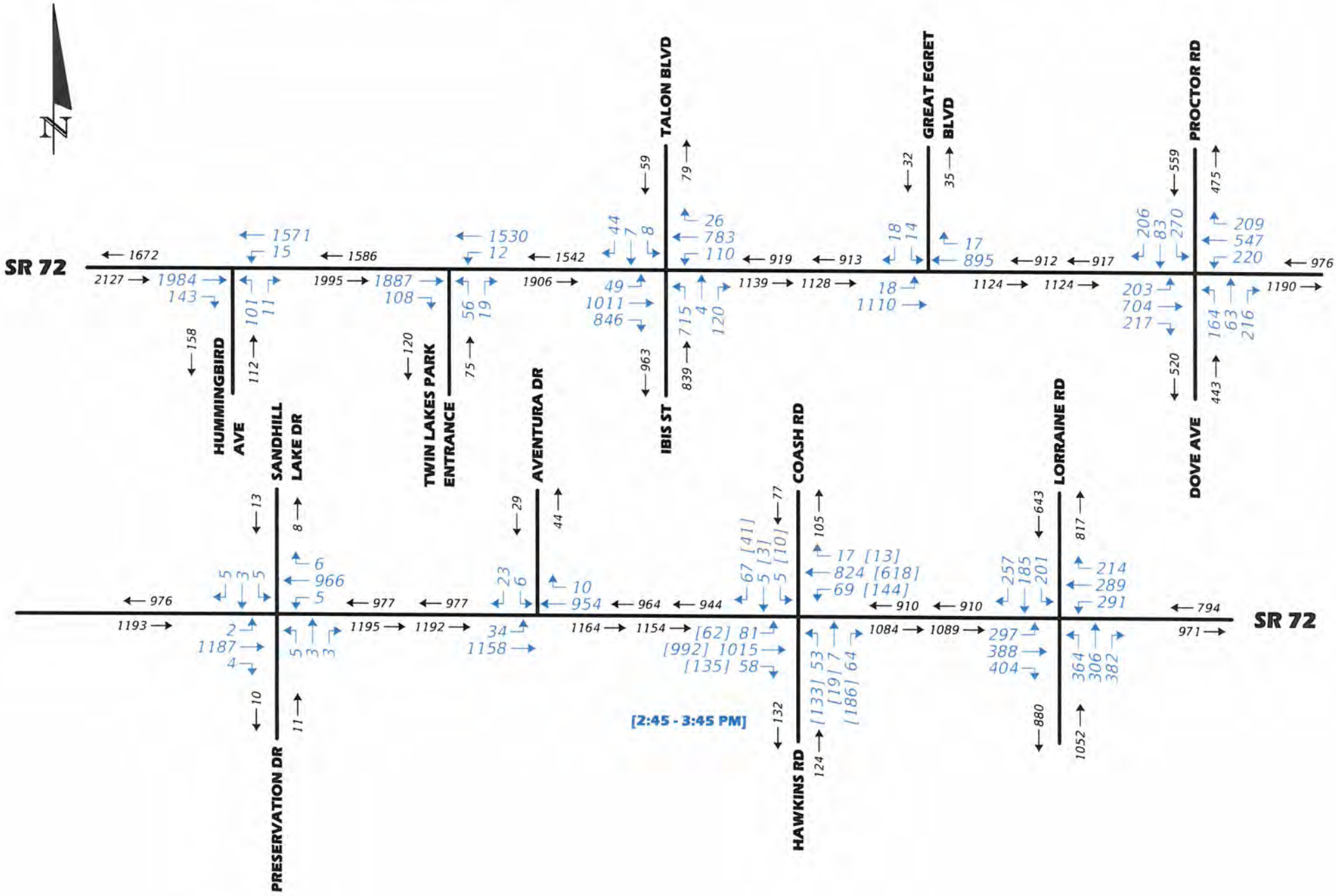


FIGURE 3-8: DESIGN YEAR (2050) PM PEAK HOUR VOLUMES - BUILD ALTERNATIVE



COASH ROAD/HAWKINS ROAD INTERSECTION

DESIGN YEAR (2050) PEAK HOUR APPROACH TRUCK PERCENTAGES

AM PEAK HOUR								
EB LT		EB TH		EB RT		EB APPROACH		
Vol.	Truck %	Vol.	Truck %	Vol.	Truck %	Vol.	Truck Vol.	Truck %
65	0.00	731	0.06	156	0.01	952	45	4.8%
WB LT		WB TH		WB RT		WB APPROACH		
Vol.	Truck %	Vol.	Truck %	Vol.	Truck %	Vol.	Truck Vol.	Truck %
173	0.01	879	0.05	27	0.00	1079	46	4.2%
NB LT		NB TH		NB RT		NB APPROACH		
Vol.	Truck %	Vol.	Truck %	Vol.	Truck %	Vol.	Truck Vol.	Truck %
112	0.00	7	0.00	134	0.02	253	3	1.1%
SB LT		SB TH		SB RT		SB APPROACH		
Vol.	Truck %	Vol.	Truck %	Vol.	Truck %	Vol.	Truck Vol.	Truck %
13	0.00	11	0.00	139	0.03	163	4	2.6%
MID-DAY PEAK HOUR								
EB LT		EB TH		EB RT		EB APPROACH		
Vol.	Truck %	Vol.	Truck %	Vol.	Truck %	Vol.	Truck Vol.	Truck %
62	0.03	992	0.07	135	0.00	1189	71	6.0%
WB LT		WB TH		WB RT		WB APPROACH		
Vol.	Truck %	Vol.	Truck %	Vol.	Truck %	Vol.	Truck Vol.	Truck %
144	0.04	618	0.11	13	0.00	775	74	9.5%
NB LT		NB TH		NB RT		NB APPROACH		
Vol.	Truck %	Vol.	Truck %	Vol.	Truck %	Vol.	Truck Vol.	Truck %
133	0.01	19	0.00	186	0.02	338	5	1.5%
SB LT		SB TH		SB RT		SB APPROACH		
Vol.	Truck %	Vol.	Truck %	Vol.	Truck %	Vol.	Truck Vol.	Truck %
10	0.50	3	0.00	41	0.02	54	6	10.8%
PM PEAK HOUR								
EB LT		EB TH		EB RT		EB APPROACH		
Vol.	Truck %	Vol.	Truck %	Vol.	Truck %	Vol.	Truck Vol.	Truck %
81	0.00	1015	0.01	58	0.00	1154	10	0.9%
WB LT		WB TH		WB RT		WB APPROACH		
Vol.	Truck %	Vol.	Truck %	Vol.	Truck %	Vol.	Truck Vol.	Truck %
69	0.03	824	0.04	17	0.25	910	39	4.3%
NB LT		NB TH		NB RT		NB APPROACH		
Vol.	Truck %	Vol.	Truck %	Vol.	Truck %	Vol.	Truck Vol.	Truck %
53	0.00	7	0.00	64	0.02	124	1	1.0%
SB LT		SB TH		SB RT		SB APPROACH		
Vol.	Truck %	Vol.	Truck %	Vol.	Truck %	Vol.	Truck Vol.	Truck %
5	0.00	5	0.00	67	0.04	77	3	3.5%

Appendix D

CAP-X and SPICE Analysis Summary Sheets

Capacity Analysis for Planning of Junctions

Detailed Report - Page 1 of 4

Project Name:	SR 72 PD&E Study from East of I-75 to Lorraine Road
Project Number:	FPID No. 444634-1-22-01
Location:	SR 72 at Coash Road/Hawkins Road
Date:	Design Year (2050) AM Peak Hour
Number of Intersection Legs:	4
Major Street Direction:	East-West

Traffic Volume Demand

	Volume (Veh/hr)				Percent (%)	
	U-Turn	Left	Thru	Right	Heavy Vehicles	Volume Growth
Eastbound	0	65	731	156	4.80%	0.00%
Westbound	0	173	879	27	4.20%	0.00%
Southbound	0	13	11	139	2.60%	0.00%
Northbound	0	112	7	134	1.10%	0.00%
Adjustment Factor	0.80	0.95		0.85		
Suggested	**0.80**	**0.95**		**0.85**		

Truck to PCE Factor	**Suggested = 2.00**	2.00
FDOT Context Zone	**C3R-Suburban Residential**	
E-W / Crossing East-West Legs	**Low**	**Low**	**Low**
N-S / Crossing North-South Legs	**Low**	**Low**	**Low**
Critical Lane Volume Threshold — 2-phase signal	**Suggested = 1800**	**1800**
Critical Lane Volume Threshold — 3-phase signal	**Suggested = 1750**	**1750**
Critical Lane Volume Threshold — 4-phase signal	**Suggested = 1700**	**1700**

Capacity Analysis for Planning of Junctions

Detailed Report - Page 2 of 4

Number of Lanes for Non-roundabout Intersections

TYPE OF INTERSECTION	Sheet	Northbound				Southbound				Eastbound				Westbound			
		U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Traffic Signal	FULL		1	1	0		0	1	0		1	2	1		1	2	0
Two-Way Stop Control	E-W		1	1	0		0	1	0		1	2	1		1	2	0
Signalized Restricted Crossing U-Turn	E-W				2				1	1	1	2	1	1	1	2	0
Unsignalized Restricted Crossing U-Turn	E-W				1				1	1	1	2	1	1	1	2	0
Median U-Turn	E-W			1	1			1	0	1		2	1	1		2	0
Signalized ThruCut	E-W		1		1		1		0		1	2	1		1	2	0
Unsignalized ThruCut	E-W		1		1		1		0		1	2	1		1	2	0

Number of Lanes for Interchanges

TYPE OF INTERCHANGE	Sheet	Northbound				Southbound				Eastbound				Westbound			
		U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R

Capacity Analysis for Planning of Junctions

Detailed Report - Page 3 of 4

Results for Non-roundabout Intersections

TYPE OF INTERSECTION	Sheet	Zone 1 (North)		Zone 2 (South)		Zone 3 (East)		Zone 4 (West)		Zone 5 (Center)		Overall v/c Ratio	Ped Accommodations	Bicycle Accommodations
		CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C			
Traffic Signal	FULL									865	0.51	0.51	4.94	4.79
Two-Way Stop Control	E-W									--	>10	>10	2.50	4.04
Signalized Restricted Crossing U-Turn	E-W	711	*0.39*	579	*0.32*	712	*0.40*	529	*0.29*			0.40	2.91	4.41
Unsignalized Restricted Crossing U-Turn	E-W	1047	*0.75*	779	*0.75*	1124	*0.24*	997	*0.04*			0.75	2.70	3.72
Median U-Turn	E-W					788	*0.44*	740	*0.41*	854	0.47	0.47	3.07	4.79
Signalized ThruCut	E-W									748	0.43	0.43	3.72	4.79
Unsignalized ThruCut	E-W									--	12.89	12.89	3.51	4.45

Capacity Analysis for Planning of Junctions

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Results for Roundabouts

TYPE OF ROUNDABOUT	Zone 1 (North)			Zone 3 (East)			Zone 2 (South)			Zone 4 (West)			Overall v/c Ratio	Ped Accommodations	Bicycle Accommodations
	Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3			
1NS X 2EW	*0.35*			*0.44*	*0.47*		*0.39*			*0.49*	*0.52*		0.52	5.01	4.67
2 X 2	*0.06*	*0.30*		*0.49*	*0.52*		*0.20*	0.21		*0.44*	*0.47*		0.52	4.72	4.58

Results for Interchanges

TYPE OF INTERCHANGE	Sheet	Zone 1 (Rt Mrg)		Zone 2 (Lt Mrg)		Zone 3 (Ctr. 1)		Zone 4 (Ctr. 2)		Zone 5 (Lt Mrg)		Zone 6 (Rt Mrg)		Overall v/c Ratio	Ped Accommodations	Bicycle Accommodations
		CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C			

Capacity Analysis for Planning of Junctions

Project Name:	SR 72 PD&E Study from East of I-75 to Lorraine Road
Project Number:	FPID No. 444634-1-22-01
Location:	SR 72 at Coash Road/Hawkins Road
Date:	Design Year (2050) AM Peak Hour
Number of Intersection Legs:	4
Major Street Direction:	North-South

Traffic Volume Demand

	Volume (Veh/hr)				Percent (%)	
	U-Turn	Left	Thru	Right	Heavy Vehicles	Volume Growth
Eastbound	0	65	731	156	4.80%	0.00%
Westbound	0	173	879	27	4.20%	0.00%
Southbound	0	13	11	139	2.60%	0.00%
Northbound	0	112	7	134	1.10%	0.00%
Adjustment Factor	0.80	0.95		0.85		
Suggested	**0.80**	**0.95**		**0.85**		

Truck to PCE Factor	**Suggested = 2.00**	2.00
FDOT Context Zone	**C3R-Suburban Residential**	
E-W / Crossing East-West Legs	**Low**	**Low**	**Low**
N-S / Crossing North-South Legs	**Low**	**Low**	**Low**
Critical Lane Volume Threshold — 2-phase signal	**Suggested = 1800**	**1800**
Critical Lane Volume Threshold — 3-phase signal	**Suggested = 1750**	**1750**
Critical Lane Volume Threshold — 4-phase signal	**Suggested = 1700**	**1700**

Capacity Analysis for Planning of Junctions

Number of Lanes for Non-roundabout Intersections

TYPE OF INTERSECTION	Sheet	Northbound				Southbound				Eastbound				Westbound			
		U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Traffic Signal	FULL		1	1	0		0	1	0		1	2	1		1	2	0
Partial Median U-Turn	N-S	1		1	1	1		1	0		1	2	1		1	2	0
Bowtie	N-S			1	1			1	0			2	1			2	1

Number of Lanes for Interchanges

TYPE OF INTERCHANGE	Sheet	Northbound				Southbound				Eastbound				Westbound			
		U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R

Capacity Analysis for Planning of Junctions

Results for Non-roundabout Intersections

TYPE OF INTERSECTION	Sheet	Zone 1 (North)		Zone 2 (South)		Zone 3 (East)		Zone 4 (West)		Zone 5 (Center)		Overall v/c Ratio	Ped Accommodations	Bicycle Accommodations
		CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C			
Traffic Signal	FULL									865	0.51	0.51	4.94	4.57
Partial Median U-Turn	N-S	308	*0.17*	271	*0.15*					739	0.42	0.42	3.04	4.57
Bowtie	N-S	571	*0.40*	708	*0.50*	638	*0.53*	546	*0.46*	897	0.50	0.53	4.85	4.57

Capacity Analysis for Planning of Junctions

Results for Roundabouts

TYPE OF ROUNDABOUT	Zone 1 (North)			Zone 3 (East)			Zone 2 (South)			Zone 4 (West)			Overall v/c Ratio	Ped Accommodations	Bicycle Accommodations
	Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3			

Results for Interchanges

TYPE OF INTERCHANGE	Sheet	Zone 1 (Rt Mrg)		Zone 2 (Lt Mrg)		Zone 3 (Ctr. 1)		Zone 4 (Ctr. 2)		Zone 5 (Lt Mrg)		Zone 6 (Rt Mrg)		Overall v/c Ratio	Ped Accommodations	Bicycle Accommodations
		CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C			

Capacity Analysis for Planning of Junctions

Detailed Report - Page 1 of 4

Project Name:	SR 72 PD&E Study from East of I-75 to Lorraine Road
Project Number:	FPID No. 444634-1-22-01
Location:	SR 72 at Coash Road/Hawkins Road
Date:	Design Year (2050) Mid-Day Peak Hour
Number of Intersection Legs:	4
Major Street Direction:	East-West

Traffic Volume Demand

	Volume (Veh/hr)				Percent (%)	
	U-Turn	Left	Thru	Right	Heavy Vehicles	Volume Growth
Eastbound	0	62	992	135	6.00%	0.00%
Westbound	0	144	618	13	9.50%	0.00%
Southbound	0	10	3	41	10.80%	0.00%
Northbound	0	133	19	186	1.50%	0.00%
Adjustment Factor	0.80	0.95		0.85		
Suggested	**0.80**	**0.95**		**0.85**		

Truck to PCE Factor	**Suggested = 2.00**	2.00
FDOT Context Zone	**C3R-Suburban Residential**	
E-W / Crossing East-West Legs	**Low**	**Low**	**Low**
N-S / Crossing North-South Legs	**Low**	**Low**	**Low**
Critical Lane Volume Threshold — 2-phase signal	**Suggested = 1800**	**1800**
Critical Lane Volume Threshold — 3-phase signal	**Suggested = 1750**	**1750**
Critical Lane Volume Threshold — 4-phase signal	**Suggested = 1700**	**1700**

Capacity Analysis for Planning of Junctions

Detailed Report - Page 2 of 4

Number of Lanes for Non-roundabout Intersections

TYPE OF INTERSECTION	Sheet	Northbound				Southbound				Eastbound				Westbound			
		U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Traffic Signal	FULL		1	1	0		0	1	0		1	2	1		1	2	0
Two-Way Stop Control	E-W		1	1	0		0	1	0		1	2	1		1	2	0
Signalized Restricted Crossing U-Turn	E-W				2				1	1	1	2	1	1	1	2	0
Unsignalized Restricted Crossing U-Turn	E-W				1				1	1	1	2	1	1	1	2	0
Median U-Turn	E-W			1	1			1	0	1		2	1	1		2	0
Signalized ThruCut	E-W		1		1		1		0		1	2	1		1	2	0
Unsignalized ThruCut	E-W		1		1		1		0		1	2	1		1	2	0

Number of Lanes for Interchanges

TYPE OF INTERCHANGE	Sheet	Northbound				Southbound				Eastbound				Westbound			
		U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R

Capacity Analysis for Planning of Junctions

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Results for Non-roundabout Intersections

TYPE OF INTERSECTION	Sheet	Zone 1 (North)		Zone 2 (South)		Zone 3 (East)		Zone 4 (West)		Zone 5 (Center)		Overall v/c Ratio	Ped Accommodations	Bicycle Accommodations
		CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C			
Traffic Signal	FULL									901	0.53	0.53	4.94	4.71
Two-Way Stop Control	E-W									--	>10	>10	2.55	3.95
Signalized Restricted Crossing U-Turn	E-W	475	*0.26*	733	*0.41*	617	*0.34*	648	*0.36*			0.41	2.91	4.32
Unsignalized Restricted Crossing U-Turn	E-W	829	*0.20*	1063	1.56	849	*0.25*	1261	*0.03*			1.56	2.70	3.62
Median U-Turn	E-W					676	*0.38*	842	*0.47*	940	0.52	0.52	3.07	4.71
Signalized ThruCut	E-W									844	0.48	0.48	3.72	4.79
Unsignalized ThruCut	E-W									--	11.39	11.39	3.51	4.45

Capacity Analysis for Planning of Junctions

Detailed Report - Page 4 of 4

Results for Roundabouts

TYPE OF ROUNDABOUT	Zone 1 (North)			Zone 3 (East)			Zone 2 (South)			Zone 4 (West)			Overall v/c Ratio	Ped Accommodations	Bicycle Accommodations
	Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3			
1NS X 2EW	*0.10*			*0.54*	*0.57*		*0.66*			*0.38*	*0.40*		0.66	5.01	4.62
2 X 2	*0.03*	*0.08*		*0.38*	*0.40*		*0.34*	0.37		*0.54*	*0.57*		0.57	4.72	4.54

Results for Interchanges

TYPE OF INTERCHANGE	Sheet	Zone 1 (Rt Mrg)		Zone 2 (Lt Mrg)		Zone 3 (Ctr. 1)		Zone 4 (Ctr. 2)		Zone 5 (Lt Mrg)		Zone 6 (Rt Mrg)		Overall v/c Ratio	Ped Accommodations	Bicycle Accommodations
		CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C			

Capacity Analysis for Planning of Junctions

Project Name:	SR 72 PD&E Study from East of I-75 to Lorraine Road
Project Number:	FPID No. 444634-1-22-01
Location:	SR 72 at Coash Road/Hawkins Road
Date:	Design Year (2050) Mid-Day Peak Hour
Number of Intersection Legs:	4
Major Street Direction:	North-South

Traffic Volume Demand

	Volume (Veh/hr)				Percent (%)	
	U-Turn	Left	Thru	Right	Heavy Vehicles	Volume Growth
Eastbound	0	62	992	135	6.00%	0.00%
Westbound	0	144	618	13	9.50%	0.00%
Southbound	0	10	3	41	10.80%	0.00%
Northbound	0	133	19	186	1.50%	0.00%
Adjustment Factor	0.80	0.95		0.85		
Suggested	**0.80**	**0.95**		**0.85**		

Truck to PCE Factor	**Suggested = 2.00**	2.00
FDOT Context Zone	**C3R-Suburban Residential**	
E-W / Crossing East-West Legs	**Low**	**Low**	**Low**
N-S / Crossing North-South Legs	**Low**	**Low**	**Low**
Critical Lane Volume Threshold — 2-phase signal	**Suggested = 1800**	**1800**
Critical Lane Volume Threshold — 3-phase signal	**Suggested = 1750**	**1750**
Critical Lane Volume Threshold — 4-phase signal	**Suggested = 1700**	**1700**

Capacity Analysis for Planning of Junctions

Number of Lanes for Non-roundabout Intersections

TYPE OF INTERSECTION	Sheet	Northbound				Southbound				Eastbound				Westbound			
		U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Traffic Signal	FULL		1	1	0		0	1	0		1	2	1		1	2	0
Partial Median U-Turn	N-S	1		1	1	1		1	0		1	2	1		1	2	0
Bowtie	N-S			1	1			1	0			2	1			2	1

Number of Lanes for Interchanges

TYPE OF INTERCHANGE	Sheet	Northbound				Southbound				Eastbound				Westbound			
		U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R

Capacity Analysis for Planning of Junctions

Results for Non-roundabout Intersections

TYPE OF INTERSECTION	Sheet	Zone 1 (North)		Zone 2 (South)		Zone 3 (East)		Zone 4 (West)		Zone 5 (Center)		Overall v/c Ratio	Ped Accommodations	Bicycle Accommodations
		CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C			
Traffic Signal	FULL									901	0.53	0.53	4.94	4.57
Partial Median U-Turn	N-S	228	*0.13*	357	*0.20*					846	0.48	0.48	3.06	4.57
Bowtie	N-S	733	*0.52*	575	*0.40*	497	*0.42*	669	*0.55*	946	0.53	0.55	4.85	4.57

Capacity Analysis for Planning of Junctions

Results for Roundabouts

TYPE OF ROUNDABOUT	Zone 1 (North)			Zone 3 (East)			Zone 2 (South)			Zone 4 (West)			Overall v/c Ratio	Ped Accommodations	Bicycle Accommodations
	Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3			

Results for Interchanges

TYPE OF INTERCHANGE	Sheet	Zone 1 (Rt Mrg)		Zone 2 (Lt Mrg)		Zone 3 (Ctr. 1)		Zone 4 (Ctr. 2)		Zone 5 (Lt Mrg)		Zone 6 (Rt Mrg)		Overall v/c Ratio	Ped Accommodations	Bicycle Accommodations
		CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C			

Capacity Analysis for Planning of Junctions

Detailed Report - Page 1 of 4

Project Name:	SR 72 PD&E Study from East of I-75 to Lorraine Road
Project Number:	FPID No. 444634-1-22-01
Location:	SR 72 at Coash Road/Hawkins Road
Date:	Design Year (2050) PM Peak Hour
Number of Intersection Legs:	4
Major Street Direction:	East-West

Traffic Volume Demand

	Volume (Veh/hr)				Percent (%)	
	U-Turn	Left	Thru	Right	Heavy Vehicles	Volume Growth
Eastbound	0	81	1015	58	1.00%	0.00%
Westbound	0	69	824	17	4.30%	0.00%
Southbound	0	5	5	67	3.50%	0.00%
Northbound	0	53	7	64	1.00%	0.00%
Adjustment Factor	0.80	0.95		0.85		
Suggested	**0.80**	**0.95**		**0.85**		

Truck to PCE Factor	**Suggested = 2.00**	2.00
FDOT Context Zone	**C3R-Suburban Residential**	
E-W / Crossing East-West Legs	**Low**	**Low**	**Low**
N-S / Crossing North-South Legs	**Low**	**Low**	**Low**
Critical Lane Volume Threshold – 2-phase signal	**Suggested = 1800**	**1800**
Critical Lane Volume Threshold – 3-phase signal	**Suggested = 1750**	**1750**
Critical Lane Volume Threshold – 4-phase signal	**Suggested = 1700**	**1700**

Capacity Analysis for Planning of Junctions

Detailed Report - Page 2 of 4

Number of Lanes for Non-roundabout Intersections

TYPE OF INTERSECTION	Sheet	Northbound				Southbound				Eastbound				Westbound			
		U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Traffic Signal	FULL		1	1	0		0	1	0		1	2	1		1	2	0
Two-Way Stop Control	E-W		1	1	0		0	1	0		1	2	1		1	2	0
Signalized Restricted Crossing U-Turn	E-W				2				1	1	1	2	1	1	1	2	0
Unsignalized Restricted Crossing U-Turn	E-W				1				1	1	1	2	1	1	1	2	0
Median U-Turn	E-W			1	1			1	0	1		2	1	1		2	0
Signalized ThruCut	E-W		1		1		1		0		1	2	1		1	2	0
Unsignalized ThruCut	E-W		1		1		1		0		1	2	1		1	2	0

Number of Lanes for Interchanges

TYPE OF INTERCHANGE	Sheet	Northbound				Southbound				Eastbound				Westbound			
		U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R

Capacity Analysis for Planning of Junctions

Detailed Report - Page 3 of 4

Results for Non-roundabout Intersections

TYPE OF INTERSECTION	Sheet	Zone 1 (North)		Zone 2 (South)		Zone 3 (East)		Zone 4 (West)		Zone 5 (Center)		Overall v/c Ratio	Ped Accommodations	Bicycle Accommodations
		CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C			
Traffic Signal	FULL									727	0.43	0.43	4.94	4.83
Two-Way Stop Control	E-W									--	>10	>10	2.60	4.08
Signalized Restricted Crossing U-Turn	E-W	549	*0.31*	591	*0.33*	551	*0.31*	596	*0.33*			0.33	2.91	4.45
Unsignalized Restricted Crossing U-Turn	E-W	926	*0.29*	1030	*0.54*	949	*0.10*	1166	*0.02*			0.54	2.72	3.77
Median U-Turn	E-W					645	*0.36*	679	*0.38*	694	0.39	0.39	3.11	4.83
Signalized ThruCut	E-W									676	0.39	0.39	3.72	4.83
Unsignalized ThruCut	E-W									--	3.84	3.84	3.53	4.49

Capacity Analysis for Planning of Junctions

Detailed Report - Page 4 of 4

Results for Roundabouts

TYPE OF ROUNDABOUT	Zone 1 (North)			Zone 3 (East)			Zone 2 (South)			Zone 4 (West)			Overall v/c Ratio	Ped Accommodations	Bicycle Accommodations
	Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3			
1NS X 2EW	*0.14*			*0.46*	*0.49*		*0.24*			*0.40*	*0.42*		0.49	5.08	4.75
2 X 2	*0.02*	*0.12*		*0.40*	*0.42*		*0.13*	0.13		*0.46*	*0.49*		0.49	4.79	4.67

Results for Interchanges

TYPE OF INTERCHANGE	Sheet	Zone 1 (Rt Mrg)		Zone 2 (Lt Mrg)		Zone 3 (Ctr. 1)		Zone 4 (Ctr. 2)		Zone 5 (Lt Mrg)		Zone 6 (Rt Mrg)		Overall v/c Ratio	Ped Accommodations	Bicycle Accommodations
		CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C			

Capacity Analysis for Planning of Junctions

Project Name:	SR 72 PD&E Study from East of I-75 to Lorraine Road
Project Number:	FPID No. 444634-1-22-01
Location:	SR 72 at Coash Road/Hawkins Road
Date:	Design Year (2050) PM Peak Hour
Number of Intersection Legs:	4
Major Street Direction:	North-South

Traffic Volume Demand

	Volume (Veh/hr)				Percent (%)	
	U-Turn	Left	Thru	Right	Heavy Vehicles	Volume Growth
Eastbound	0	81	1015	58	1.00%	0.00%
Westbound	0	69	824	17	4.30%	0.00%
Southbound	0	5	5	67	3.50%	0.00%
Northbound	0	53	7	64	1.00%	0.00%
Adjustment Factor	0.80	0.95		0.85		
Suggested	**0.80**	**0.95**		**0.85**		

Truck to PCE Factor	**Suggested = 2.00**	2.00
FDOT Context Zone	**C3R-Suburban Residential**	
E-W / Crossing East-West Legs	**Low**	**Low**	**Low**
N-S / Crossing North-South Legs	**Low**	**Low**	**Low**
Critical Lane Volume Threshold — 2-phase signal	**Suggested = 1800**	**1800**
Critical Lane Volume Threshold — 3-phase signal	**Suggested = 1750**	**1750**
Critical Lane Volume Threshold — 4-phase signal	**Suggested = 1700**	**1700**

Capacity Analysis for Planning of Junctions

Number of Lanes for Non-roundabout Intersections

TYPE OF INTERSECTION	Sheet	Northbound				Southbound				Eastbound				Westbound			
		U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Traffic Signal	FULL		1	1	0		0	1	0		1	2	1		1	2	0
Partial Median U-Turn	N-S	1		1	1	1		1	0		1	2	1		1	2	0
Bowtie	N-S			1	1			1	0			2	1			2	1

Number of Lanes for Interchanges

TYPE OF INTERCHANGE	Sheet	Northbound				Southbound				Eastbound				Westbound			
		U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R

Capacity Analysis for Planning of Junctions

Results for Non-roundabout Intersections

TYPE OF INTERSECTION	Sheet	Zone 1 (North)		Zone 2 (South)		Zone 3 (East)		Zone 4 (West)		Zone 5 (Center)		Overall v/c Ratio	Ped Accommodations	Bicycle Accommodations
		CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C			
Traffic Signal	FULL									727	0.43	0.43	4.94	4.57
Partial Median U-Turn	N-S	147	*0.08*	132	*0.07*					667	0.38	0.38	3.06	4.57
Bowtie	N-S	651	*0.46*	534	*0.38*	502	*0.40*	572	*0.43*	696	0.39	0.46	4.85	4.57

Capacity Analysis for Planning of Junctions

Results for Roundabouts

TYPE OF ROUNDABOUT	Zone 1 (North)			Zone 3 (East)			Zone 2 (South)			Zone 4 (West)			Overall v/c Ratio	Ped Accommodations	Bicycle Accommodations
	Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3			

Results for Interchanges

TYPE OF INTERCHANGE	Sheet	Zone 1 (Rt Mrg)		Zone 2 (Lt Mrg)		Zone 3 (Ctr. 1)		Zone 4 (Ctr. 2)		Zone 5 (Lt Mrg)		Zone 6 (Rt Mrg)		Overall v/c Ratio	Ped Accommodations	Bicycle Accommodations
		CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C			

Florida Department of Transportation
Safety Performance for Intersection Control Evaluation Tool

Results

Summary of crash prediction results for each alternative

Project Information

Project Name:	SR 72 PD&E Study from East of I-75 to Lorraine Road	**Intersection Type**	At-Grade Intersection
Intersection:	Coash Road/Hawkins Road	**Opening Year**	2030
Agency:	FDOT District One	**Design Year**	2050
Project Reference:	FPID No.: 444634-1-22-01	**Facility Type**	On Urban and Suburban Arterial
City:	Sarasota County	**Number of Legs**	4-leg
State:	Florida	**1-Way/2-Way**	2-way Intersecting 2-way
Date:	2/26/2024	**# of Major Street Lanes (both directions)**	5 or fewer
Analyst:	AIM Engineering & Surveying, Inc.	**Major Street Approach Speed**	Less than 50 mph

Legend	
	AADT >= 75%
	AADT >= 50%
	AADT >= 25%
	AADT >= 10%
	AADT > 0%

Crash Prediction Summary

Control Strategy	Crash Type	Opening Year	Design Year	Total Project Life Cycle	Crash Prediction Rank	AADT Within SPF Prediction Range? (Open Year)	AADT Within SPF Prediction Range? (Design Year)	Source of Prediction	SSI Score: Opening Year	SSI Score: Design Year	SSI Score: Rank
Traffic Signal	Total	3.83	6.69	109.88	5	Yes	Yes	Calibrated SPF	97	92	7
	Fatal & Injury	1.29	2.32	37.69							
Minor Road Stop	Total	1.96	3.02	52.22	2	Yes	Yes	Calibrated SPF	95	90	9
	Fatal & Injury	0.77	1.25	21.19							
2-lane Roundabout	Total	4.70	7.96	132.51	3	Yes	Yes	Uncalibrated SPF	99	99	1
	Fatal & Injury	0.80	1.43	23.27							
Median U-Turn (MUT)	Total	2.41	4.21	69.22	4	N/A	N/A	CMF	98	97	2
	Fatal & Injury	0.98	1.77	28.65							
Signalized RCUT	Total	2.08	3.98	62.93	1	Yes	Yes	Uncalibrated SPF	98	95	3
	Fatal & Injury	0.39	0.77	12.09							
Unsignalized RCUT	Total	No SPF	No SPF	No SPF	--	Yes	Yes	Uncalibrated SPF	96	92	6
	Fatal & Injury	No SPF	No SPF	No SPF							
Signalized Thru-Cut	Total	No SPF	No SPF	No SPF	--	N/A	N/A	N/A	97	94	4
	Fatal & Injury	No SPF	No SPF	No SPF							
Unsignalized Thru-Cut	Total	No SPF	No SPF	No SPF	--	N/A	N/A	N/A	96	92	8
	Fatal & Injury	No SPF	No SPF	No SPF							
Bowtie	Total	No SPF	No SPF	No SPF	--	N/A	N/A	N/A	97	94	5
	Fatal & Injury	No SPF	No SPF	No SPF							
			--	--							
			--	--							

Appendix E

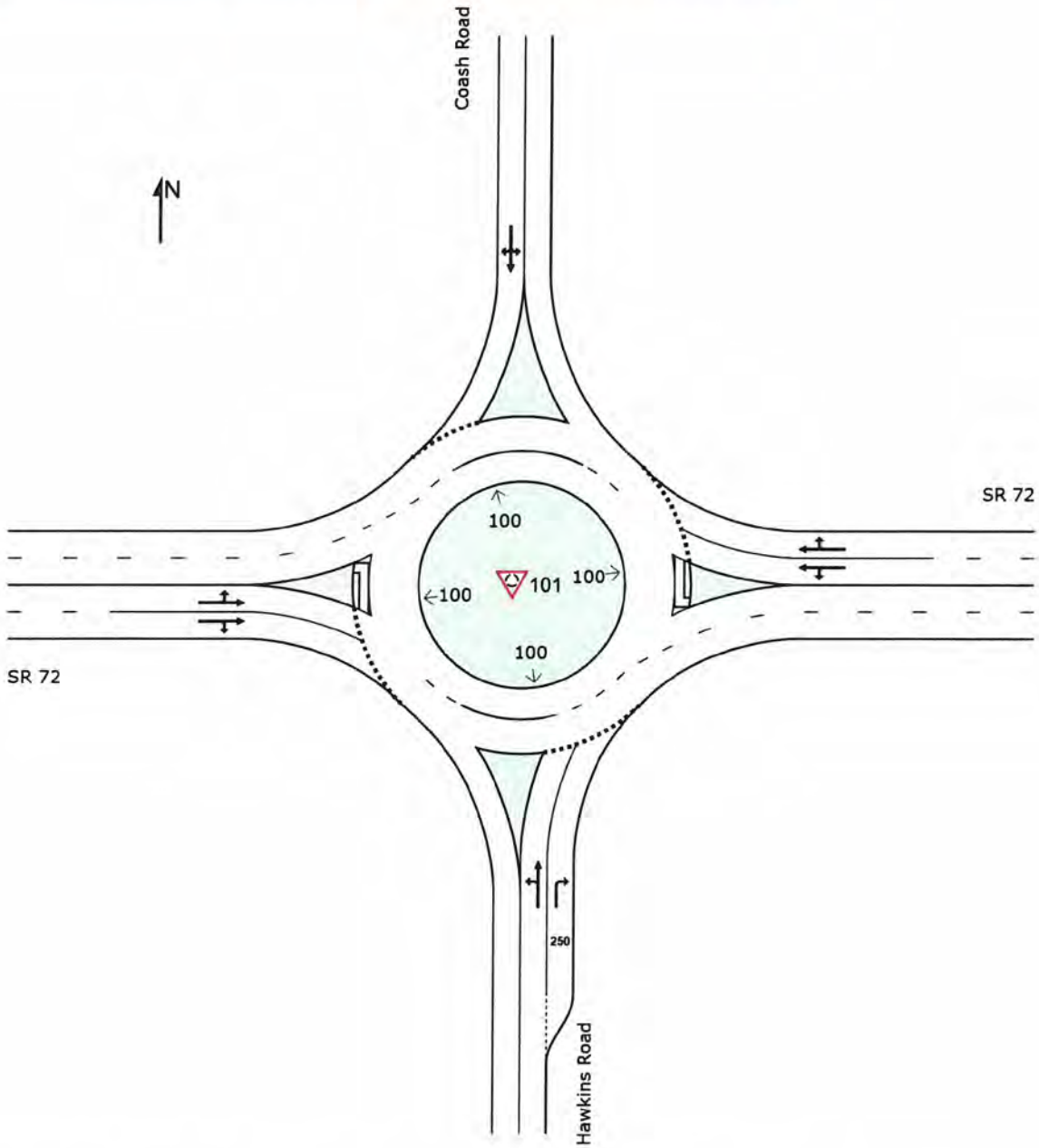
Design Year SIDRA Analysis Summary Sheets

SITE LAYOUT

Site: 101 [Coash Road/Hawkins Road (Site Folder: General)]

Design Year (2050) Build Alternative 2 - AM Peak Hour
Site Category: (None)
Roundabout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



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Project: T:\PROJECTS\2 - DISTRICT 1\D1_SR 72_PD&E\Traffic\Roundabout Analysis\Design Year\Updated Analyses\Coash_Hawkins_2050_Build Alt 2_AM Pk Hr.sip9

MOVEMENT SUMMARY

Site: 101 [Coash Road/Hawkins Road (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.1.200

Design Year (2050) Build Alternative 2 - AM Peak Hour
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] ft	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed mph
South: Hawkins Road															
3	L2	All MCs	135	0.0	135	0.0	0.273	10.7	LOS B	1.0	25.7	0.68	0.69	0.71	28.9
8	T1	All MCs	8	0.0	8	0.0	0.273	10.7	LOS B	1.0	25.7	0.68	0.69	0.71	29.3
18	R2	All MCs	161	2.0	161	2.0	0.288	10.4	LOS B	1.1	26.7	0.67	0.68	0.73	31.0
Approach			305	1.1	305	1.1	0.288	10.6	LOS B	1.1	26.7	0.67	0.69	0.72	29.9
East: SR 72															
1	L2	All MCs	208	1.0	208	1.0	0.590	10.2	LOS B	4.8	124.2	0.60	0.39	0.66	30.1
6	T1	All MCs	1059	5.0	1059	5.0	0.590	10.7	LOS B	4.9	126.0	0.60	0.39	0.66	31.0
16	R2	All MCs	33	0.0	33	0.0	0.590	10.1	LOS B	4.9	126.0	0.60	0.39	0.67	31.1
Approach			1300	4.2	1300	4.2	0.590	10.6	LOS B	4.9	126.0	0.60	0.39	0.66	30.8
North: Coash Road															
7	L2	All MCs	16	0.0	16	0.0	0.530	20.5	LOS C	2.1	54.1	0.84	0.95	1.24	26.3
4	T1	All MCs	13	0.0	13	0.0	0.530	20.5	LOS C	2.1	54.1	0.84	0.95	1.24	26.7
14	R2	All MCs	167	3.0	167	3.0	0.530	23.0	LOS C	2.1	54.1	0.84	0.95	1.24	26.5
Approach			196	2.6	196	2.6	0.530	22.6	LOS C	2.1	54.1	0.84	0.95	1.24	26.5
West: SR 72															
5	L2	All MCs	78	0.0	78	0.0	0.533	9.1	LOS A	3.4	87.3	0.56	0.35	0.57	30.9
2	T1	All MCs	881	6.0	881	6.0	0.533	9.7	LOS A	3.4	87.3	0.56	0.35	0.57	31.5
12	R2	All MCs	188	1.0	188	1.0	0.533	9.2	LOS A	3.3	86.2	0.56	0.34	0.56	31.5
Approach			1147	4.8	1147	4.8	0.533	9.6	LOS A	3.4	87.3	0.56	0.35	0.57	31.5
All Vehicles			2948	4.0	2948	4.0	0.590	11.0	LOS B	4.9	126.0	0.61	0.44	0.67	30.6

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

LANE SUMMARY

Site: 101 [Coash Road/Hawkins Road (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.1.200

Design Year (2050) Build Alternative 2 - AM Peak Hour
Site Category: (None)
Roundabout

Lane Use and Performance

	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh	Dist] ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: Hawkins Road															
Lane 1	143	0.0	143	0.0	525	0.273	100	10.7	LOS B	1.0	25.7	Full	1600	0.0	0.0
Lane 2[d]	161	2.0	161	2.0	560	0.288	100	10.4	LOS B	1.1	26.7	Short	250	0.0	NA
Approach	305	1.1	305	1.1		0.288		10.6	LOS B	1.1	26.7				
East: SR 72															
Lane 1[d]	654	3.7	654	3.7	1108	0.590	100	10.5	LOS B	4.8	124.2	Full	1600	0.0	0.0
Lane 2	646	4.7	646	4.7	1095	0.590	100	10.6	LOS B	4.9	126.0	Full	1600	0.0	0.0
Approach	1300	4.2	1300	4.2		0.590		10.6	LOS B	4.9	126.0				
North: Coash Road															
Lane 1[d]	196	2.6	196	2.6	371	0.530	100	22.6	LOS C	2.1	54.1	Full	1600	0.0	0.0
Approach	196	2.6	196	2.6		0.530		22.6	LOS C	2.1	54.1				
West: SR 72															
Lane 1	571	5.2	571	5.2	1071	0.533	100	9.6	LOS A	3.4	87.3	Full	1600	0.0	0.0
Lane 2[d]	576	4.4	576	4.4	1081	0.533	100	9.6	LOS A	3.3	86.2	Full	1600	0.0	0.0
Approach	1147	4.8	1147	4.8		0.533		9.6	LOS A	3.4	87.3				
All Vehicles	2948	4.0	2948	4.0		0.590		11.0	LOS B	4.9	126.0				

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Sign Control.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

d Dominant lane on roundabout approach

Approach Lane Flows (veh/h)

South: Hawkins Road

Mov. From S To Exit:	L2 W	T1 N	R2 E	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	135	8	-	143	0.0	525	0.273	100	NA	NA
Lane 2	-	-	161	161	2.0	560	0.288	100	0.0	1

Approach	135	8	161	305	1.1		0.288			

East: SR 72

Mov. From E To Exit:	L2 S	T1 W	R2 N	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	208	446	-	654	3.7	1108	0.590	100	NA	NA
Lane 2	-	613	33	646	4.7	1095	0.590	100	NA	NA
Approach	208	1059	33	1300	4.2		0.590			

North: Coash Road

Mov. From N To Exit:	L2 E	T1 S	R2 W	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	16	13	167	196	2.6	371	0.530	100	NA	NA
Approach	16	13	167	196	2.6		0.530			

West: SR 72

Mov. From W To Exit:	L2 N	T1 E	R2 S	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	78	492	-	571	5.2	1071	0.533	100	NA	NA
Lane 2	-	388	188	576	4.4	1081	0.533	100	NA	NA
Approach	78	881	188	1147	4.8		0.533			

	Total	%HV	Deg.Satn (v/c)
All Vehicles	2948	4.0	0.590

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Merge Analysis

	Exit Lane Number	Short Lane Length ft	Percent Opng in Lane %	Opposing Flow Rate veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec

There are no Exit Short Lanes for Merge Analysis at this Site.

Variable Demand Analysis

	Initial Queued Demand veh	Residual Queued Demand veh	Time for Residual Demand to Clear sec	Duration of Oversatn sec
South: Hawkins Road				
Lane 1	0.0	0.0	0.0	0.0
Lane 2	0.0	0.0	0.0	0.0
East: SR 72				
Lane 1	0.0	0.0	0.0	0.0
Lane 2	0.0	0.0	0.0	0.0
North: Coash Road				
Lane 1	0.0	0.0	0.0	0.0
West: SR 72				
Lane 1	0.0	0.0	0.0	0.0

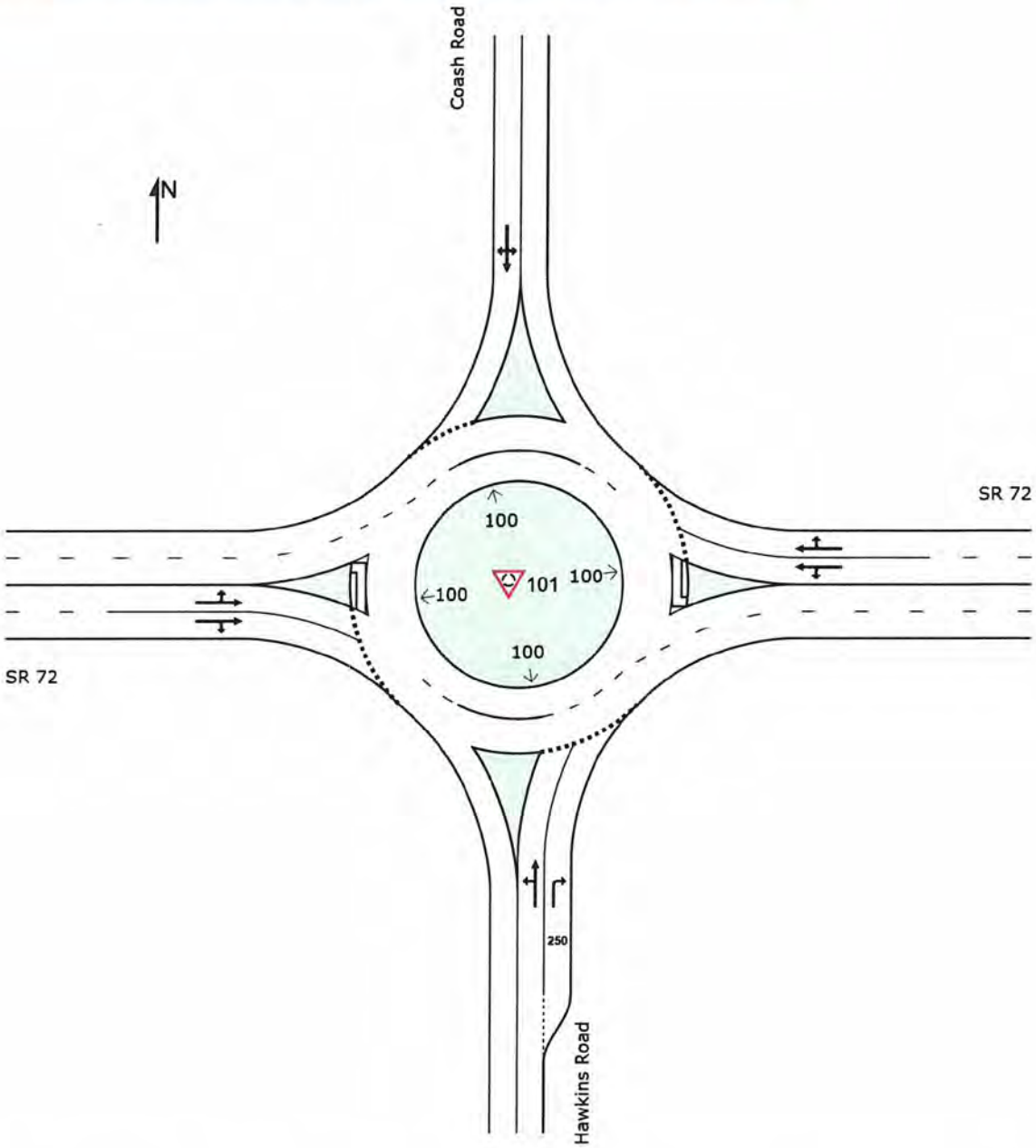
Lane 2	0.0	0.0	0.0	0.0

SITE LAYOUT

Site: 101 [Coash Road/Hawkins Road (Site Folder: General)]

Design Year (2050) Build Alternative 2 - MID_DAY Peak Hour
Site Category: (None)
Roundabout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



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Project: T:\PROJECTS\2 - DISTRICT 1\D1_SR 72_PD&E\Traffic\Roundabout Analysis\Design Year\Updated Analyses\Build Alternative \Coash_Hawkins_2050_Build Alt 2_Mid Day Pk Hr.sip9

MOVEMENT SUMMARY

Site: 101 [Coash Road/Hawkins Road (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.1.200

Design Year (2050) Build Alternative 2 - MID_DAY Peak Hour
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg Satn v/c	Aver Delay sec	Level of Service	95% Back Of Queue [Veh veh	Dist] ft	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed mph
South: Hawkins Road															
3	L2	All MCs	155	1.0	155	1.0	0.456	19.0	LOS C	1.9	47.4	0.81	0.89	1.11	26.3
8	T1	All MCs	22	0.0	22	0.0	0.456	18.4	LOS C	1.9	47.4	0.81	0.89	1.11	26.7
18	R2	All MCs	216	2.0	216	2.0	0.506	19.1	LOS C	2.1	54.3	0.81	0.91	1.17	27.6
Approach			393	1.5	393	1.5	0.506	19.1	LOS C	2.1	54.3	0.81	0.90	1.14	27.0
East: SR 72															
1	L2	All MCs	167	4.0	167	4.0	0.449	8.1	LOS A	2.4	62.9	0.51	0.32	0.51	30.7
6	T1	All MCs	719	11.0	719	11.0	0.449	8.8	LOS A	2.4	62.9	0.51	0.32	0.51	31.7
16	R2	All MCs	15	0.0	15	0.0	0.449	7.6	LOS A	2.3	62.3	0.51	0.32	0.51	31.9
Approach			901	9.5	901	9.5	0.449	8.6	LOS A	2.4	62.9	0.51	0.32	0.51	31.5
North: Coash Road															
7	L2	All MCs	12	50.0	12	50.0	0.156	36.7	LOS E	0.4	10.8	0.66	0.66	0.66	29.0
4	T1	All MCs	3	0.0	3	0.0	0.156	7.1	LOS A	0.4	10.8	0.66	0.66	0.66	30.7
14	R2	All MCs	48	2.0	48	2.0	0.156	7.8	LOS A	0.4	10.8	0.66	0.66	0.66	30.5
Approach			63	10.8	63	10.8	0.156	11.3	LOS B	0.4	10.8	0.66	0.66	0.66	30.2
West: SR 72															
5	L2	All MCs	72	3.0	72	3.0	0.624	11.0	LOS B	5.6	147.1	0.60	0.38	0.68	30.2
2	T1	All MCs	1153	7.0	1153	7.0	0.624	11.4	LOS B	5.6	147.1	0.60	0.38	0.67	30.8
12	R2	All MCs	157	0.0	157	0.0	0.624	10.7	LOS B	5.5	144.3	0.60	0.38	0.67	30.8
Approach			1383	6.0	1383	6.0	0.624	11.3	LOS B	5.6	147.1	0.60	0.38	0.67	30.8
All Vehicles			2740	6.6	2740	6.6	0.624	11.6	LOS B	5.6	147.1	0.61	0.44	0.69	30.4

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

LANE SUMMARY

Site: 101 [Coash Road/Hawkins Road (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.1.200

Design Year (2050) Build Alternative 2 - MID_DAY Peak Hour
Site Category: (None)
Roundabout

Lane Use and Performance

	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh	Dist] ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: Hawkins Road															
Lane 1	177	0.9	177	0.9	388	0.456	100	19.0	LOS C	1.9	47.4	Full	1600	0.0	0.0
Lane 2[d]	216	2.0	216	2.0	427	0.506	100	19.1	LOS C	2.1	54.3	Short	250	0.0	NA
Approach	393	1.5	393	1.5		0.506		19.1	LOS C	2.1	54.3				
East: SR 72															
Lane 1[d]	456	8.4	456	8.4	1017	0.449	100	8.5	LOS A	2.4	62.9	Full	1600	0.0	0.0
Lane 2	445	10.6	445	10.6	991	0.449	100	8.7	LOS A	2.3	62.3	Full	1600	0.0	0.0
Approach	901	9.5	901	9.5		0.449		8.6	LOS A	2.4	62.9				
North: Coash Road															
Lane 1[d]	63	10.8	63	10.8	404	0.156	100	11.3	LOS B	0.4	10.8	Full	1600	0.0	0.0
Approach	63	10.8	63	10.8		0.156		11.3	LOS B	0.4	10.8				
West: SR 72															
Lane 1	687	6.6	687	6.6	1100	0.624	100	11.4	LOS B	5.6	147.1	Full	1600	0.0	0.0
Lane 2[d]	696	5.4	696	5.4	1115	0.624	100	11.3	LOS B	5.5	144.3	Full	1600	0.0	0.0
Approach	1383	6.0	1383	6.0		0.624		11.3	LOS B	5.6	147.1				
All Vehicles	2740	6.6	2740	6.6		0.624		11.6	LOS B	5.6	147.1				

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Sign Control.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

d Dominant lane on roundabout approach

Approach Lane Flows (veh/h)

South: Hawkins Road

Mov. From S To Exit:	L2 W	T1 N	R2 E	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	155	22	-	177	0.9	388	0.456	100	NA	NA
Lane 2	-	-	216	216	2.0	427	0.506	100	0.0	1

Approach	155	22	216	393	1.5		0.506			

East: SR 72

Mov. From E To Exit:	L2 S	T1 W	R2 N	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	167	289	-	456	8.4	1017	0.449	100	NA	NA
Lane 2	-	430	15	445	10.6	991	0.449	100	NA	NA
Approach	167	719	15	901	9.5		0.449			

North: Coash Road

Mov. From N To Exit:	L2 E	T1 S	R2 W	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	12	3	48	63	10.8	404	0.156	100	NA	NA
Approach	12	3	48	63	10.8		0.156			

West: SR 72

Mov. From W To Exit:	L2 N	T1 E	R2 S	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	72	615	-	687	6.6	1100	0.624	100	NA	NA
Lane 2	-	539	157	696	5.4	1115	0.624	100	NA	NA
Approach	72	1153	157	1383	6.0		0.624			

	Total	%HV	Deg.Satn (v/c)
All Vehicles	2740	6.6	0.624

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Merge Analysis

	Exit Lane Number	Short Lane Length ft	Percent Opng in Lane %	Opposing Flow Rate veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec

There are no Exit Short Lanes for Merge Analysis at this Site.

Variable Demand Analysis

	Initial Queued Demand veh	Residual Queued Demand veh	Time for Residual Demand to Clear sec	Duration of Oversatn sec
South: Hawkins Road				
Lane 1	0.0	0.0	0.0	0.0
Lane 2	0.0	0.0	0.0	0.0
East: SR 72				
Lane 1	0.0	0.0	0.0	0.0
Lane 2	0.0	0.0	0.0	0.0
North: Coash Road				
Lane 1	0.0	0.0	0.0	0.0
West: SR 72				
Lane 1	0.0	0.0	0.0	0.0

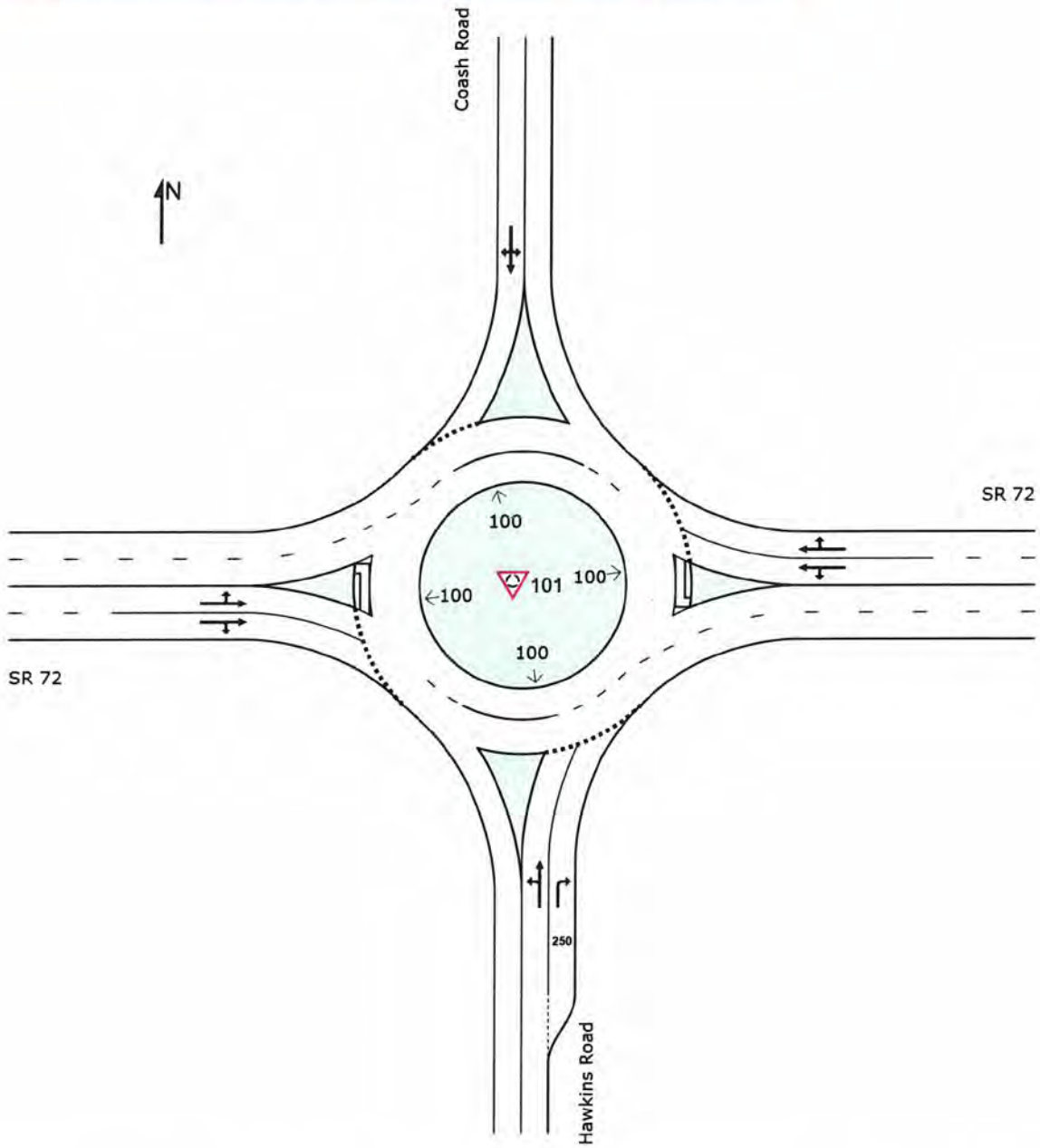
Lane 2	0.0	0.0	0.0	0.0

SITE LAYOUT

Site: 101 [Coash Road/Hawkins Road (Site Folder: General)]

Design Year (2050) Build Alternative 2 - PM Peak Hour
Site Category: (None)
Roundabout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



MOVEMENT SUMMARY

Site: 101 [Coash Road/Hawkins Road (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.1.200

Design Year (2050) Build Alternative 2 - PM Peak Hour
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] ft	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed mph
South: Hawkins Road															
3	L2	All MCs	57	0.0	57	0.0	0.143	10.0	LOS B	0.5	12.2	0.70	0.70	0.70	29.2
8	T1	All MCs	8	0.0	8	0.0	0.143	10.0	LOS B	0.5	12.2	0.70	0.70	0.70	29.7
18	R2	All MCs	69	2.0	69	2.0	0.143	9.4	LOS A	0.5	11.5	0.67	0.67	0.67	31.4
Approach			133	1.0	133	1.0	0.143	9.7	LOS A	0.5	12.2	0.69	0.69	0.69	30.3
East: SR 72															
1	L2	All MCs	74	3.0	74	3.0	0.415	7.1	LOS A	2.4	60.9	0.39	0.20	0.39	31.9
6	T1	All MCs	886	4.0	886	4.0	0.415	7.1	LOS A	2.4	60.9	0.39	0.20	0.39	32.7
16	R2	All MCs	18	25.0	18	25.0	0.415	9.2	LOS A	2.3	60.7	0.39	0.20	0.39	32.1
Approach			978	4.3	978	4.3	0.415	7.2	LOS A	2.4	60.9	0.39	0.20	0.39	32.6
North: Coash Road															
7	L2	All MCs	5	0.0	5	0.0	0.158	7.6	LOS A	0.5	12.8	0.63	0.63	0.63	31.3
4	T1	All MCs	5	0.0	5	0.0	0.158	7.6	LOS A	0.5	12.8	0.63	0.63	0.63	31.9
14	R2	All MCs	72	4.0	72	4.0	0.158	9.1	LOS A	0.5	12.8	0.63	0.63	0.63	31.6
Approach			83	3.5	83	3.5	0.158	8.9	LOS A	0.5	12.8	0.63	0.63	0.63	31.6
West: SR 72															
5	L2	All MCs	87	0.0	87	0.0	0.477	7.3	LOS A	3.2	81.4	0.33	0.14	0.33	31.9
2	T1	All MCs	1091	1.0	1091	1.0	0.477	7.4	LOS A	3.2	81.4	0.33	0.14	0.33	32.6
12	R2	All MCs	62	0.0	62	0.0	0.477	7.3	LOS A	3.2	81.4	0.33	0.14	0.33	32.5
Approach			1241	0.9	1241	0.9	0.477	7.4	LOS A	3.2	81.4	0.33	0.14	0.33	32.6
All Vehicles			2435	2.4	2435	2.4	0.477	7.5	LOS A	3.2	81.4	0.38	0.21	0.38	32.4

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab)
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

LANE SUMMARY

Site: 101 [Coash Road/Hawkins Road (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.1.200

Design Year (2050) Build Alternative 2 - PM Peak Hour
Site Category: (None)
Roundabout

Lane Use and Performance

	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh	Dist] ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: Hawkins Road															
Lane 1	65	0.0	65	0.0	450	0.143	100	10.0	LOS B	0.5	12.2	Full	1600	0.0	0.0
Lane 2[d]	69	2.0	69	2.0	481	0.143	100	9.4	LOS A	0.5	11.5	Short	250	0.0	NA
Approach	133	1.0	133	1.0		0.143		9.7	LOS A	0.5	12.2				
East: SR 72															
Lane 1[d]	492	3.8	492	3.8	1184	0.415	100	7.1	LOS A	2.4	60.9	Full	1600	0.0	0.0
Lane 2	487	4.8	487	4.8	1172	0.415	100	7.2	LOS A	2.3	60.7	Full	1600	0.0	0.0
Approach	978	4.3	978	4.3		0.415		7.2	LOS A	2.4	60.9				
North: Coash Road															
Lane 1[d]	83	3.5	83	3.5	524	0.158	100	8.9	LOS A	0.5	12.8	Full	1600	0.0	0.0
Approach	83	3.5	83	3.5		0.158		8.9	LOS A	0.5	12.8				
West: SR 72															
Lane 1	621	0.9	621	0.9	1300	0.477	100	7.4	LOS A	3.2	81.4	Full	1600	0.0	0.0
Lane 2[d]	620	0.9	620	0.9	1299	0.477	100	7.4	LOS A	3.2	81.4	Full	1600	0.0	0.0
Approach	1241	0.9	1241	0.9		0.477		7.4	LOS A	3.2	81.4				
All Vehicles	2435	2.4	2435	2.4		0.477		7.5	LOS A	3.2	81.4				

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Sign Control.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

d Dominant lane on roundabout approach

Approach Lane Flows (veh/h)

South: Hawkins Road

Mov. From S To Exit:	L2 W	T1 N	R2 E	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	57	8	-	65	0.0	450	0.143	100	NA	NA
Lane 2	-	-	69	69	2.0	481	0.143	100	0.0	1

Approach	57	8	69	133	1.0		0.143				

East: SR 72

Mov. From E To Exit:	L2 S	T1 W	R2 N	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	74	418	-	492	3.8	1184	0.415	100	NA	NA
Lane 2	-	468	18	487	4.8	1172	0.415	100	NA	NA
Approach	74	886	18	978	4.3		0.415			

North: Coash Road

Mov. From N To Exit:	L2 E	T1 S	R2 W	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	5	5	72	83	3.5	524	0.158	100	NA	NA
Approach	5	5	72	83	3.5		0.158			

West: SR 72

Mov. From W To Exit:	L2 N	T1 E	R2 S	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	87	533	-	621	0.9	1300	0.477	100	NA	NA
Lane 2	-	558	62	620	0.9	1299	0.477	100	NA	NA
Approach	87	1091	62	1241	0.9		0.477			

	Total	%HV	Deg.Satn (v/c)
All Vehicles	2435	2.4	0.477

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Merge Analysis

	Exit Lane Number	Short Lane Length ft	Percent Opng in Lane %	Opposing Flow Rate veh/h	Critical Gap pcu/h	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec

There are no Exit Short Lanes for Merge Analysis at this Site.

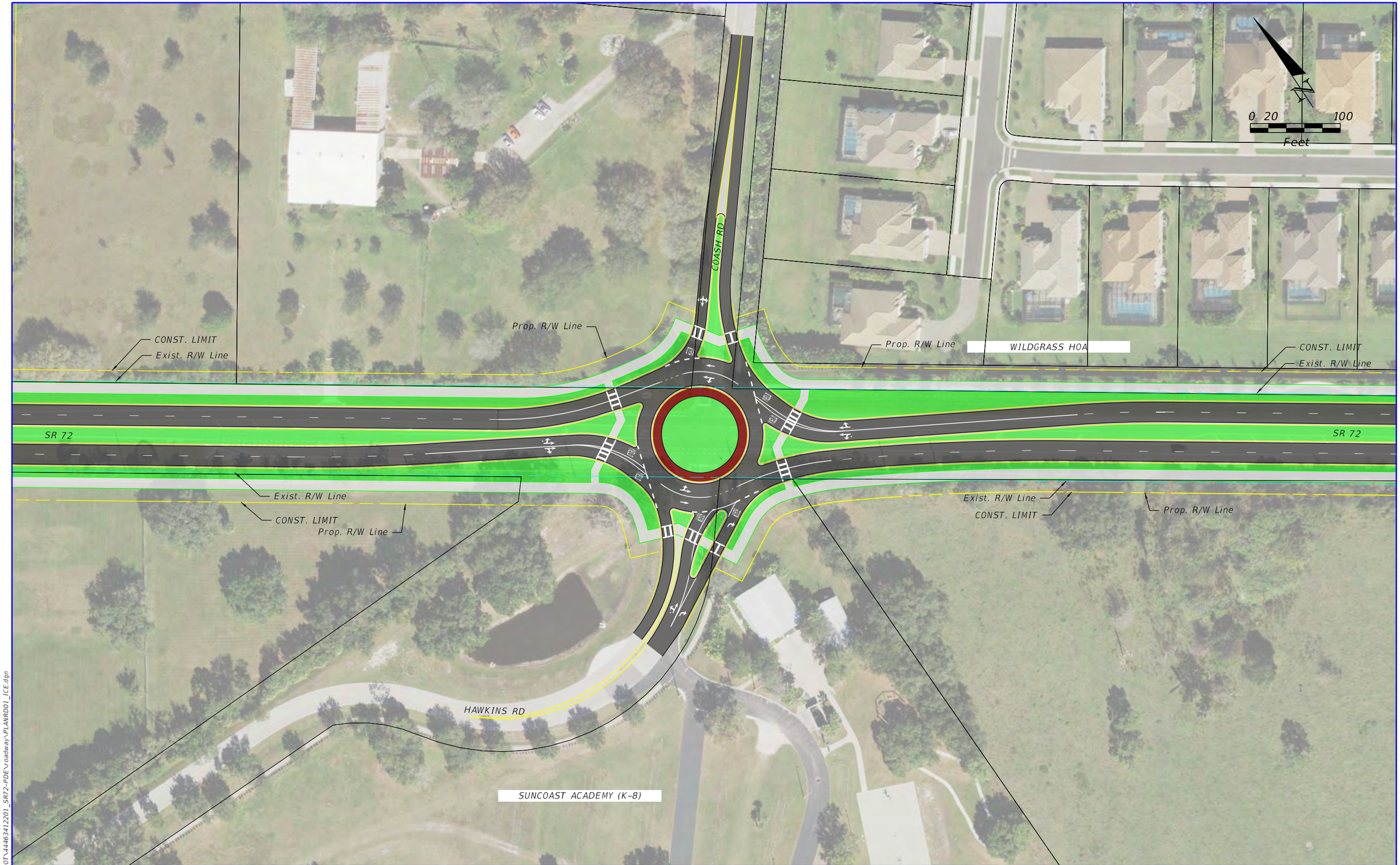
Variable Demand Analysis

	Initial Queued Demand veh	Residual Queued Demand veh	Time for Residual Demand to Clear sec	Duration of Oversatn sec
South: Hawkins Road				
Lane 1	0.0	0.0	0.0	0.0
Lane 2	0.0	0.0	0.0	0.0
East: SR 72				
Lane 1	0.0	0.0	0.0	0.0
Lane 2	0.0	0.0	0.0	0.0
North: Coash Road				
Lane 1	0.0	0.0	0.0	0.0
West: SR 72				
Lane 1	0.0	0.0	0.0	0.0

Lane 2	0.0	0.0	0.0	0.0

Appendix F

Preliminary Roundabout Concept and Performance Checks



REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

DRAFT
SEPTEMBER 7 2023

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
72	SARASOTA	444634-1

CONCEPT PLAN
HAWKINS ROAD INTERSECTION

SHEET NO.

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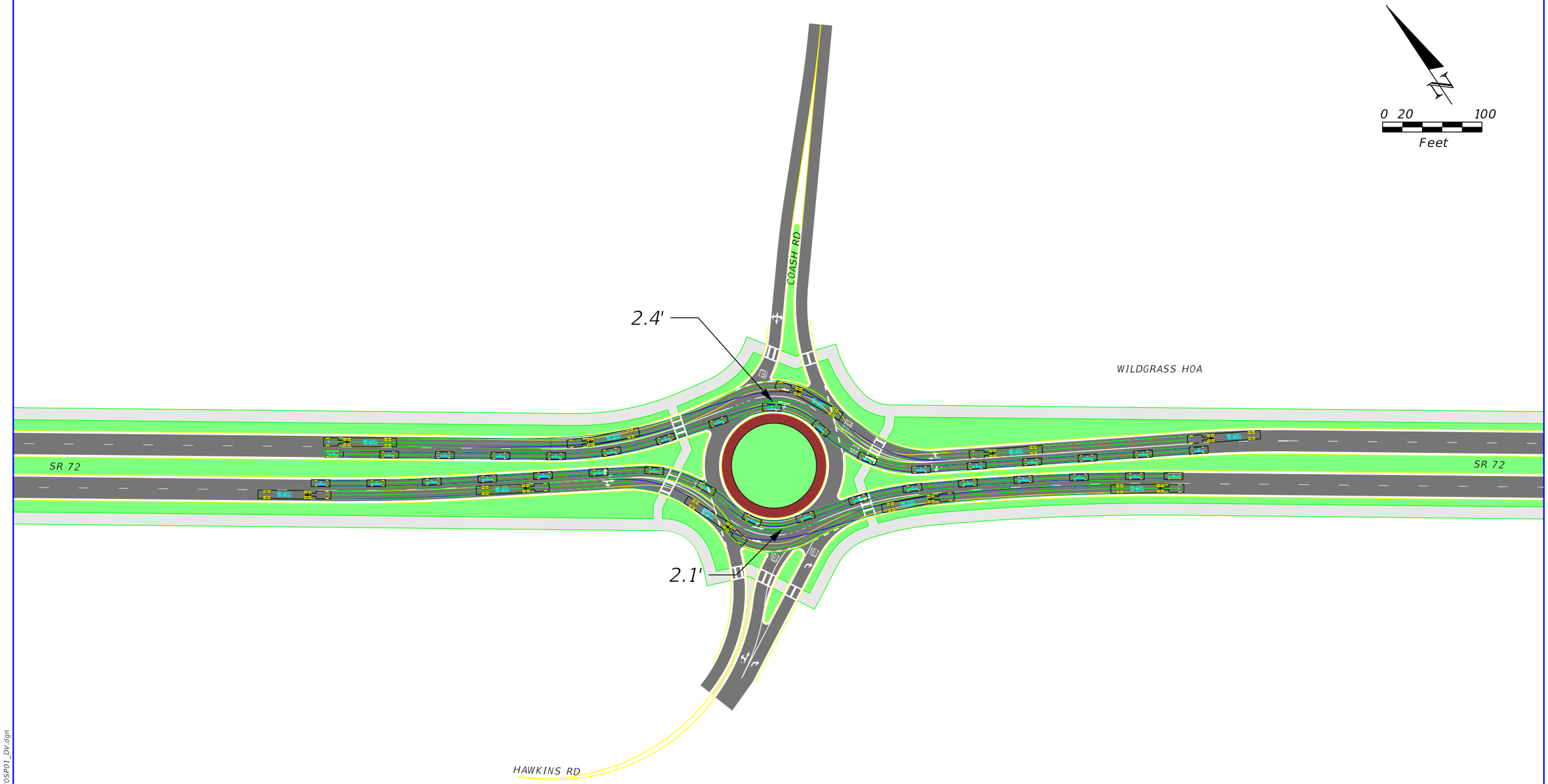

PASSENGER VEHICLE INSIDE
WB-62FL OUTSIDE

REVISIONS				DRAFT SEPTEMBER 7, 2023	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			CONTROL VEHICLE EXHIBIT HAWKINS ROAD INTERSECTION	SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
					.	SARASOTA	444634-1		.

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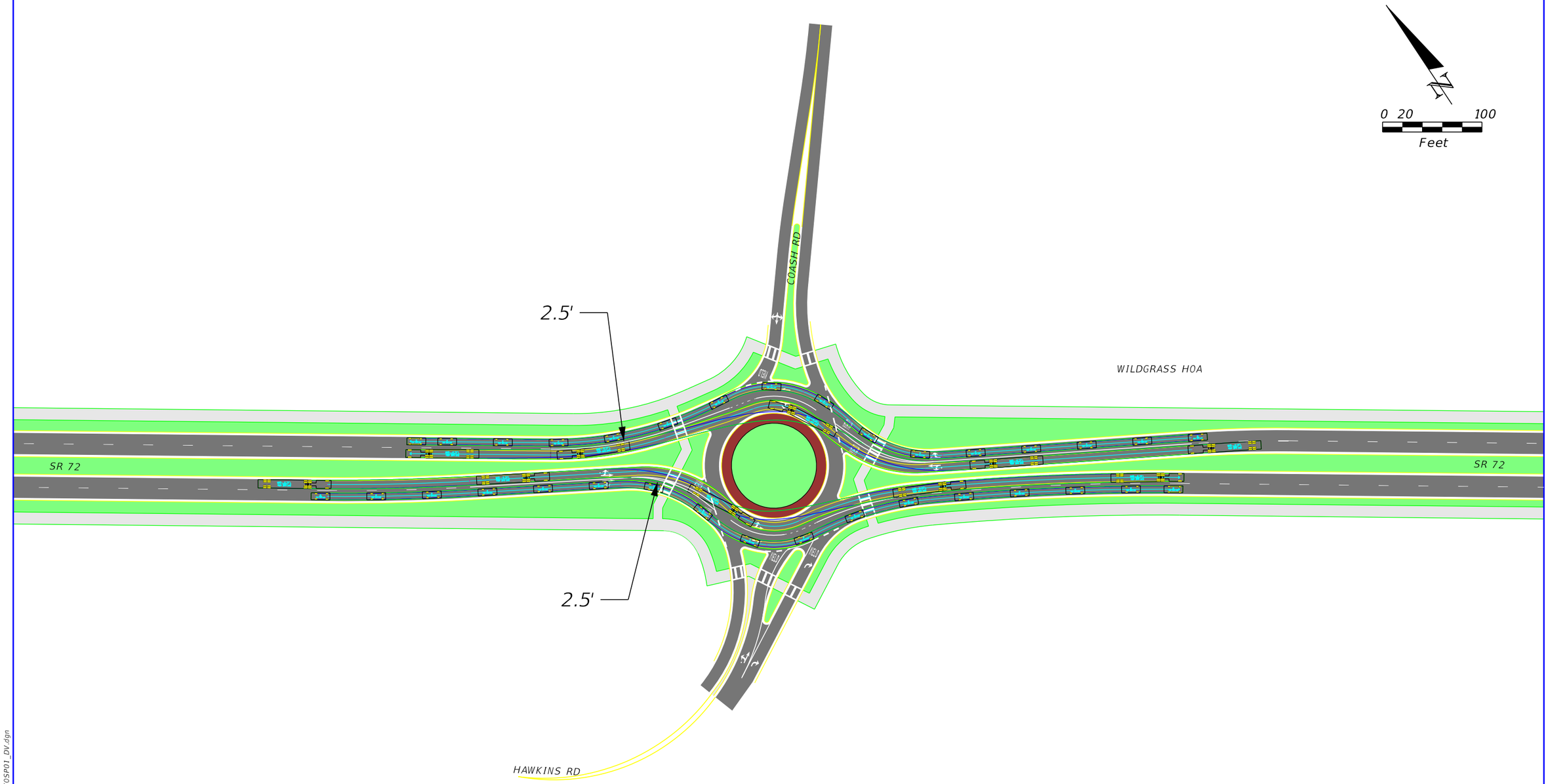

WB-62FL INSIDE
PASSENGER VEHICLE OUTSIDE

REVISIONS				DRAFT SEPTEMBER 7, 2023	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			CONTROL VEHICLE EXHIBIT HAWKINS ROAD INTERSECTION	SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
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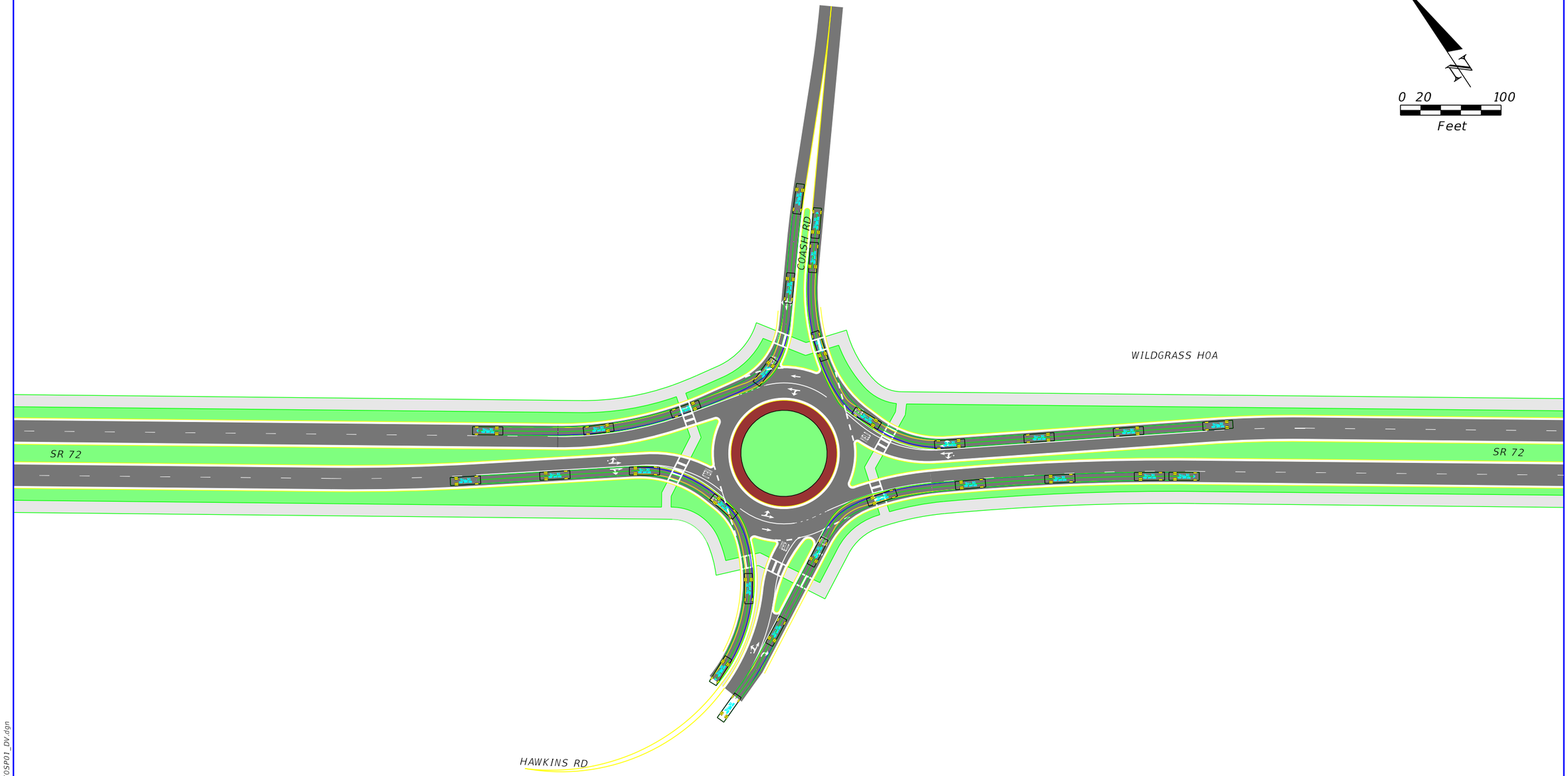

SU-30 DESIGN VEHICLE RIGHT-TURNS

REVISIONS				DRAFT SEPTEMBER 7, 2023	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			CONTROL VEHICLE EXHIBIT HAWKINS ROAD INTERSECTION	SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
					.	SARASOTA	444634-1		.

9/11/2023 8:42:53 AM Eric.Benson
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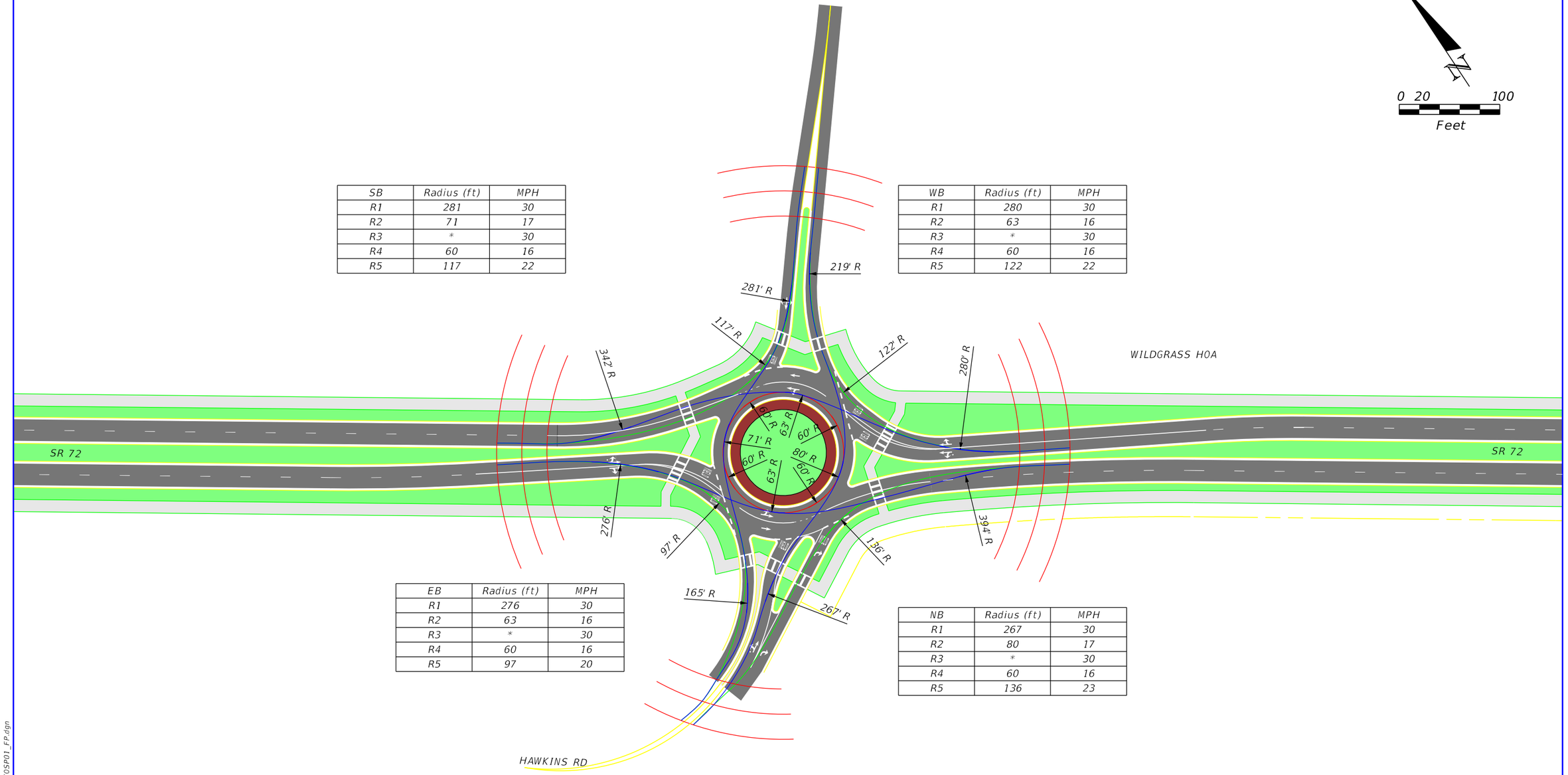
SB	Radius (ft)	MPH
R1	281	30
R2	71	17
R3	*	30
R4	60	16
R5	117	22

WB	Radius (ft)	MPH
R1	280	30
R2	63	16
R3	*	30
R4	60	16
R5	122	22

EB	Radius (ft)	MPH
R1	276	30
R2	63	16
R3	*	30
R4	60	16
R5	97	20

NB	Radius (ft)	MPH
R1	267	30
R2	80	17
R3	*	30
R4	60	16
R5	136	23



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DATE	DESCRIPTION	DATE	DESCRIPTION

DRAFT
SEPTEMBER 7, 2023

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
72	SARASOTA	444634-1

FASTEST PATH EXHIBIT
HAWKINS ROAD INTERSECTION

SHEET NO.