

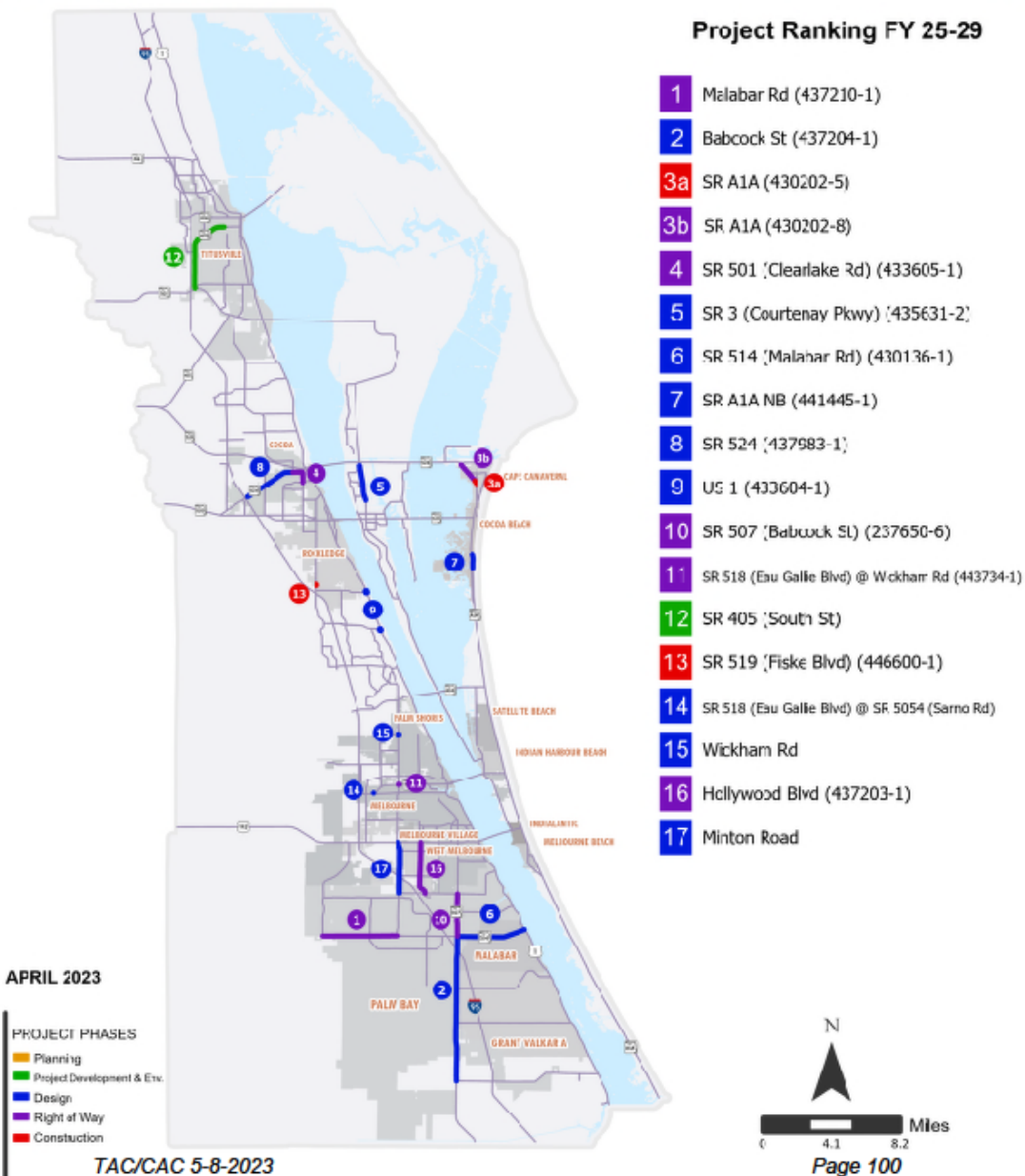
Public Works Infrastructures

An aerial photograph of a complex highway interchange. The interchange features multiple lanes with white directional arrows and dashed lane markings. Traffic lights are visible at the intersection points. The surrounding area includes green grass, palm trees, and several bodies of water, possibly retention ponds or canals. The overall scene depicts a well-maintained public infrastructure project.

BY: VALENTINO PEREZ, PUBLIC WORKS DIRECTOR
MAY 23, 2024

OVERVIEW

- Regional Roadway System
- Future Citywide North South and East West corridors
- Traffic Safety - Vision Zero and Crash Data
- Existing Infrastructure
 1. Roadway Capacity
 2. Intersection turn lanes and traffic signals
 3. Bridge Structures
 4. Intelligent Transportation System (ITS) projects
 5. Street Lighting
 6. Sidewalks and Trails
 7. Roadway Trees and Landscaping
 8. Traffic Calming Safety Enhancements
 9. Railroad Quiet Zones



Regional Roadway System Transportation Improvement Program (TIP)

- Babcock St 4 lanes from Malabar to Micco
- Malabar Rd 4 lanes PD&E study
- Malabar Rd 4 lanes widening design
- SJHP 4 lane widening design
- Minton Rd widening study
- I-95 at Malabar Interchange PD&E
- ITS Malabar/Emerson/San Filippo Construction

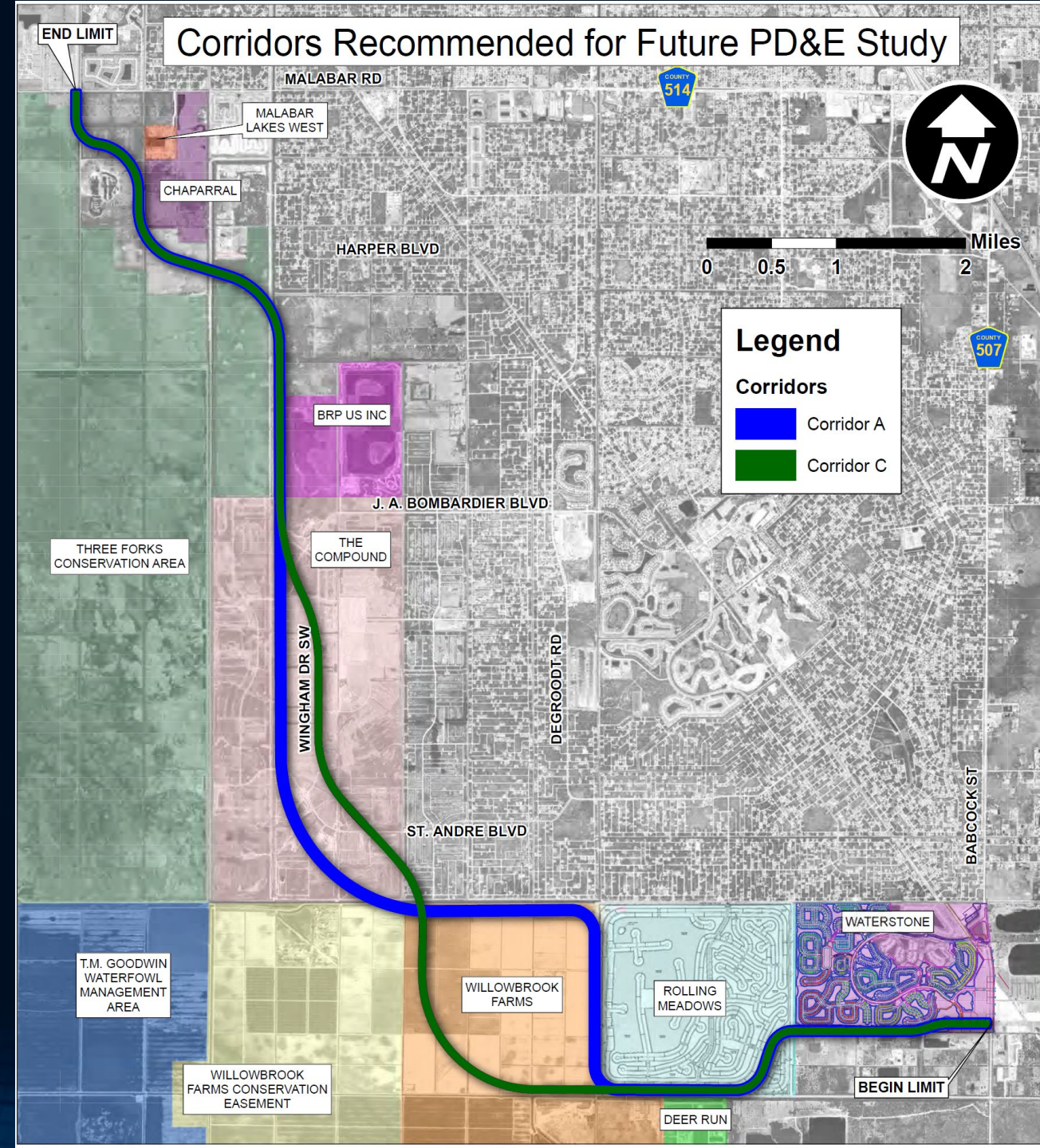
Future Regional North South & East West Corridors

North South Connections

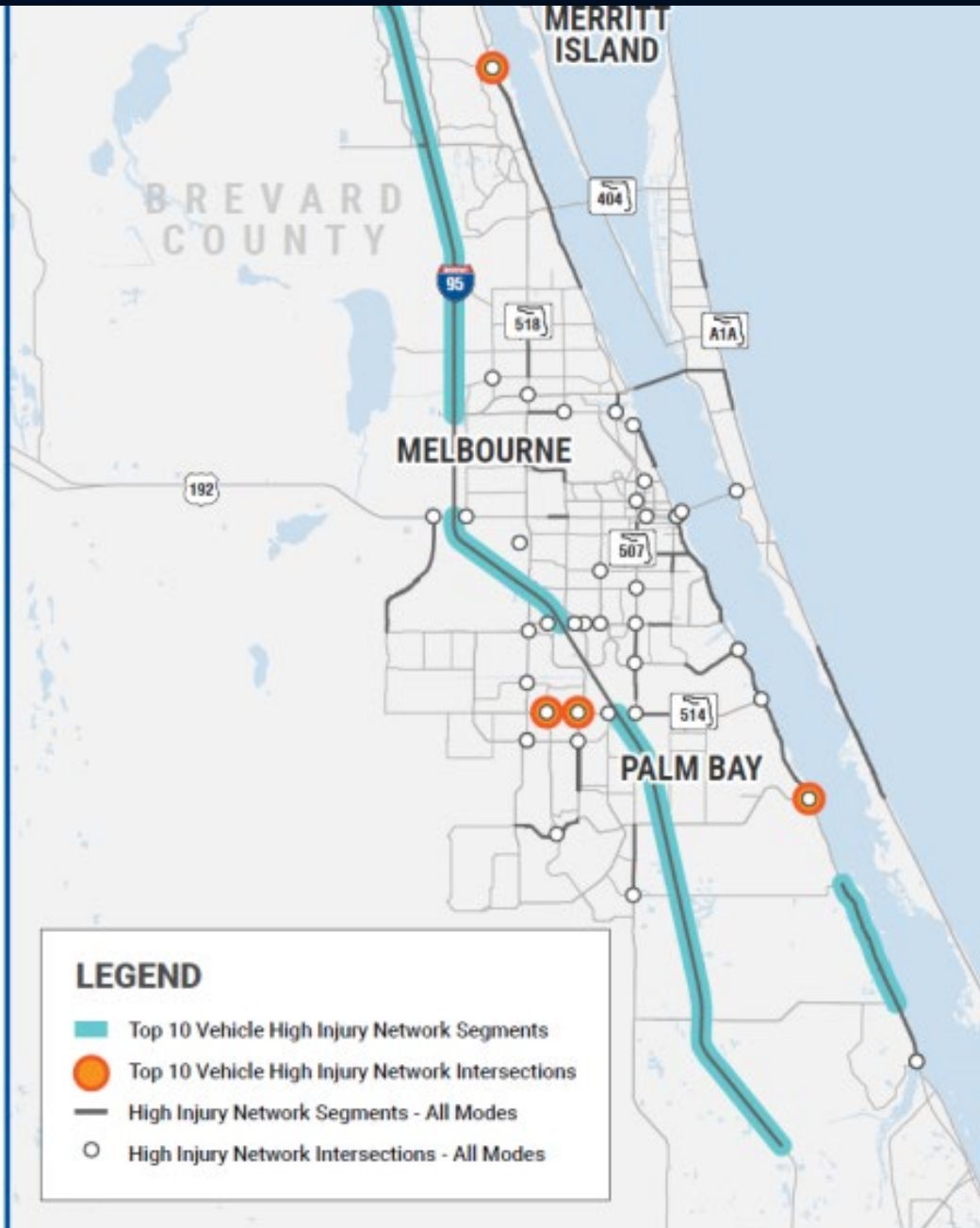
1. Babcock St Widening
2. SJHP Alternative Corridor Evaluation (ACE)
3. SJHP Design & Construction Phasing
4. Wingham Alignment (The Compound)
5. Minton Road Widening
6. Garvey Road Extension
7. Extension of Lowry Blvd

East West Connections

1. Malabar 4 lane widening
2. Emerson 4 lane widening
3. Osmosis Extension



TPO Brevard County 2023 Crashes



Top 10 Vehicle High Injury Network Segments

Rank	Corridor Roadway	From	To	Vehicle Crash Severity Score/Year
1	I-95	Palm Bay Rd.	US 192	1,963
2	I-95	Wickham Rd.	Fiske Blvd. (SR 519)	1,776
3	I-95	Indian River County Line	St. John's Heritage Pkwy.	1,708
4	I-95	Eau Gallie Blvd. (SR 518)	Wickham Rd.	1,426
5	SR 407	SR 528	I-95	1,335
6	US 1	SR 528	Canaveral Groves Blvd.	1,222
6	US 1	Micco Rd.	First St.	1,222
8	I-95	Fiske Blvd. (SR 519)	SR 520	1,081
9	SR 528	US 1	N Courtenay Pkwy. (SR 3)	736
9	I-95	St. John's Heritage Pkwy	Malabar Rd. (SR 514)	736

Top 10 Vehicle High Injury Network Intersections

Rank	Street 1	Street 2	Vehicle Crash Severity Score/Year
1	N. Courtenay Pkwy. (SR 3)	Merritt Ave.	831
2	US 1	Valkaria Rd.	554
3	SR 520	Clearlake Rd. (SR 501)	368
4	Malabar Rd.	Emerson Dr.	345
4	Eldron Blvd.	Malabar Rd	345
6	US 1 (SB Hopkins Ave.)	SR 406 (Garden St.)	322
6	US 1	Viera Blvd.	322
6	SR 405 (Columbia Blvd.)	Sisson Rd.	322

Note: There are six intersections tied for ninth place in the vehicle HIN list not shown in the map/table.

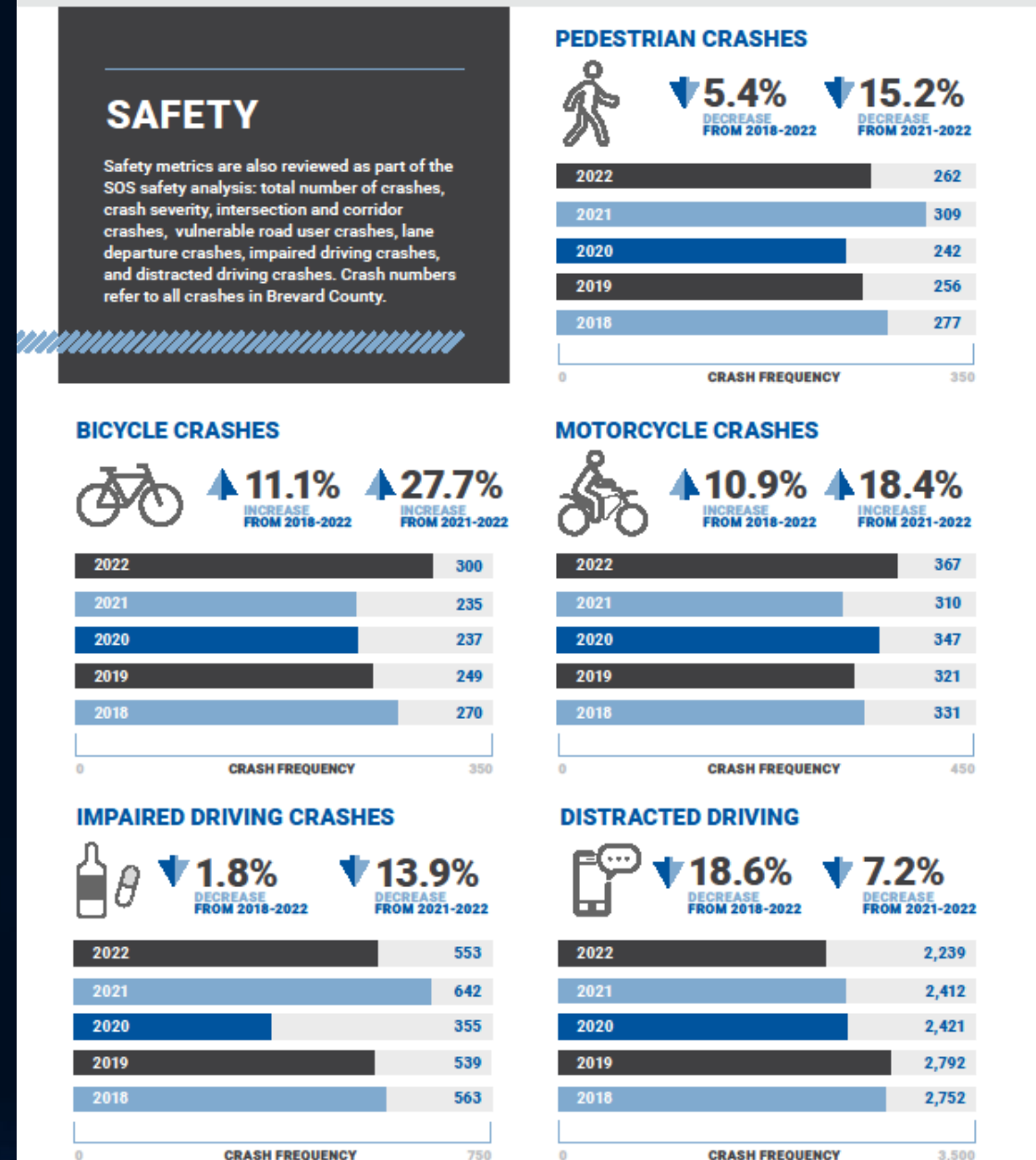
Traffic Safety - Vision Zero Crash Data 2022-23

Increases in Crashes 2022

- Motorcycle 18.4%
- Bicycles 27.7%

Decrease in Crashes 2022

- Pedestrians 15.2%
- Impaired Driving 13.9%



	Street	Segment	Average Annual Daily Traffic (AADT)	Maximum Allowable Volume (MAV)
1	Babcock St (ILA)	Malabar to Foundation Park	21,660	17,700
2	Babcock St (ILA)	Foundation Park to Waco	17,910	17,700
3	Babcock St	Waco to Wyoming	13,650	17,700
4	Babcock St	Wyoming to Grant	7,650	17,700
5	Emerson Dr	Minton to Jupiter	23,890	39,800
6	Emerson Dr	Jupiter to SJHP	12,640	17,700
7	Emerson Dr	Culver to Americana	10,370	17,700
8	Emerson Dr	Americana to Malabar	10,050	17,700
9	Emerson Dr	Malabar to Jupiter	16,290	39,800
10	Emerson Dr	Jupiter to Waco	17,390	39,800
11	Emerson Dr	Waco to Bayside Lakes	16,780	39,800
12	Jupiter Blvd	San Filippo to Emerson	11,790	15,600
13	Jupiter Blvd	Emerson to Eldron	11,170	17,700
14	Jupiter Blvd	Eldron to DeGroodt	13,530	17,700
15	Jupiter Blvd	DeGroodt to Malabar	8,020	17,700
14	Malabar Rd	SJHP to Jupiter	10,210	17,700
16	Malabar Rd (PD&E)	Jupiter to Minton	18,400	17,700
17	Malabar Rd	Minton to Emerson	24,240	39,800
18	Malabar Rd	Emerson to San Filippo	33,780	50,900
19	Malabar Rd (FDOT)	San Filippo to I 95	53,400	50,900
20	Malabar Rd	I-95 to Babcock	40,930	50,900
21	Minton Rd	Jupiter to Malabar	15,840	15,600
22	Minton Rd	Malabar to Americana	27,470	39,800
23	Minton Rd	Americana to Emerson	30,730	39,800
24	Minton Rd (County)	Emerson to Palm Bay	52,180	33,800
25	Port Malabar	Babcock to Clearmont	15,790	39,800
26	Port Malabar	Clearmont to US 1	11,990	39,800
27	RJ Conlan	Palm Bay to Commerce Park	10,400	39,800
28	RJ Conlan	Commerce Park to US 1	10,770	39,800
29	SJHP	Malabar to Pace	6,660	15,600
30	SJHP	Pace to Emerson	8,830	15,600
31	SJHP	Babcock to I-95	6,460	39,800
32	San Filippo	Jupiter to Malabar	24,240	39,800

Roadway Capacity Level of Service (LOS)

• Street over capacity

1. Babcock from Malabar to Foundation Park
2. Babcock from Foundation Park to Waco
3. Malabar Rd from Jupiter to Minton Rd
4. Malabar Rd from San Filippo to I-95 interchange
5. Minton Rd from Emerson Dr to Palm Bay Rd.
6. SJHP from Malabar Rd to north of Emerson Dr.

Intersections and Traffic Signals

- Traffic Signal Modification (Turn Lanes)

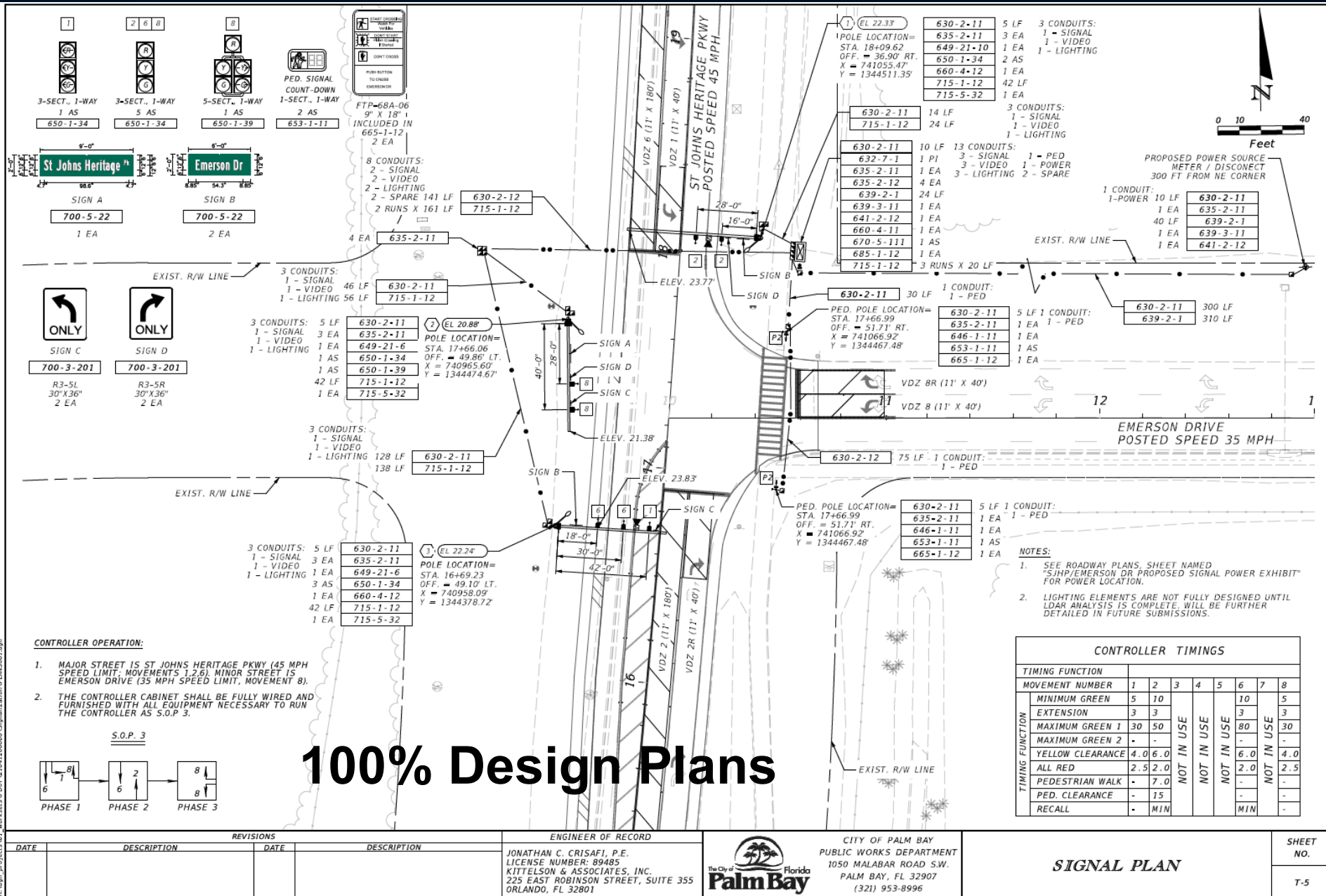
1. San Filippo at Jupiter
2. San Filippo at Wyoming
3. San Filippo at Cogan
4. Malabar Rd at Emerson

- New Traffic Signals with turn lanes

1. SJHP at Malabar Rd
2. SJHP at Emerson Dr
3. SJHP at Pace
4. Port Malabar at Riviera
5. Babcock St at Cogan
6. Jupiter at Garvey

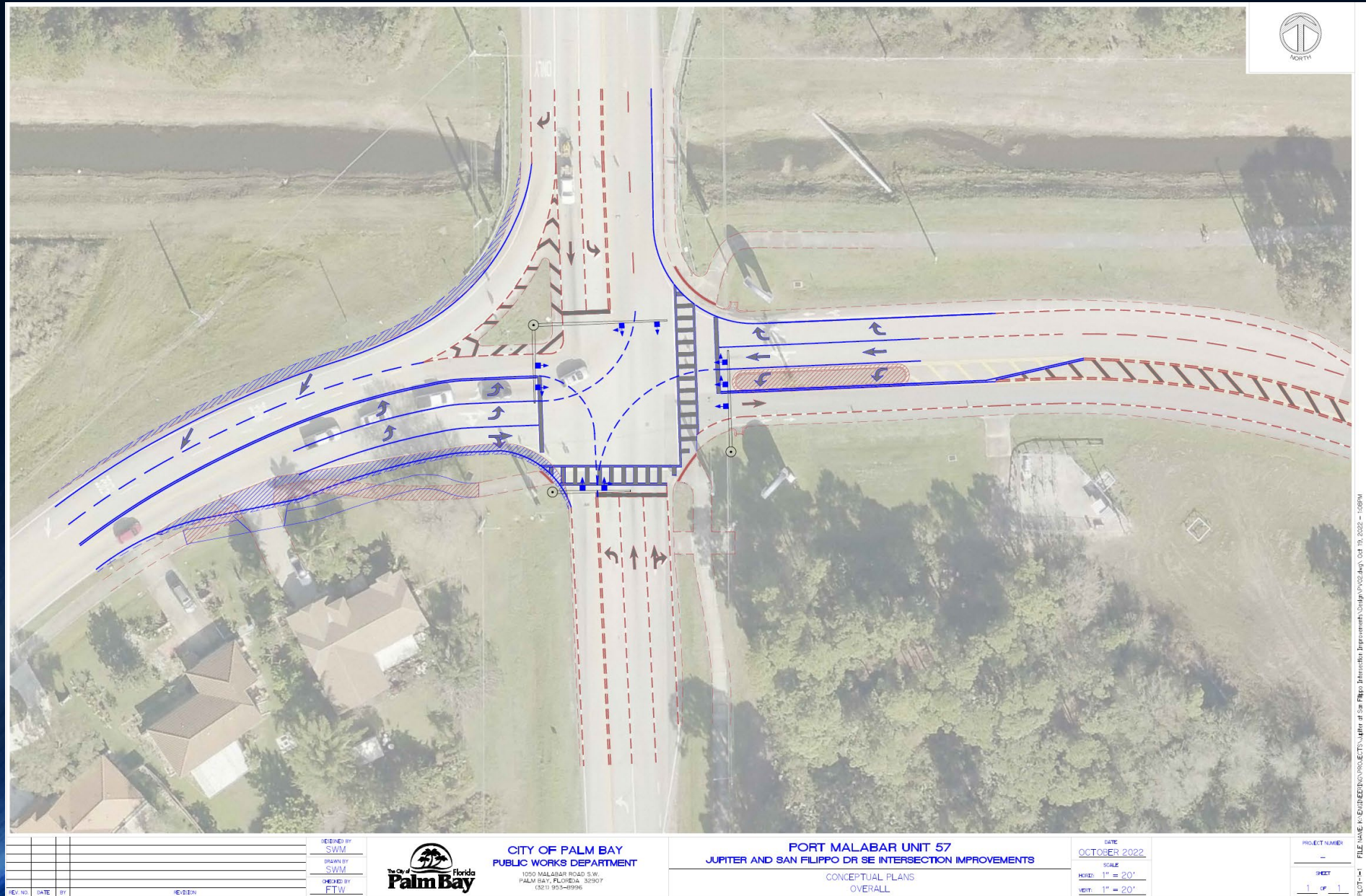



SJHP at Emerson Traffic Signal



100% Design Plans

San Filippo at Jupiter Improvement



			DESIGNED BY FTW	 <div style="text-align: center;">CITY OF PALM BAY PUBLIC WORKS DEPARTMENT 1050 MALABAR ROAD S.W. PALM BAY, FLORIDA 32907 (321) 953-0996</div>	EMERSON DRIVE NE ROAD WIDENING			DATE JAN 2021	PROJECT NUMBER 21-03
			DRAWN BY MH					SCALE HORIZ: 1" = 30'	FRANK T. WATANABE P.E. NO. 66730
			CHECKED BY FTW		MALABAR ROAD INTERSECTION PLAN VIEW - STA. 0+00 THRU STA. 8+00			VERT: N/A	SHEET 1 OF 1
REV. NO.	DATE	BY	REVISION					DATE	

Roadway Bridge Structures

Per FDOT Rating– Bridges are in good condition

	BRIDGE NO.	FACILITY CARRIED	LOCATION	LENGTH (Ft.)	POST REQ.	LAST INSP. DATE	INSP FREQ. (Mo.)	SUFF RATING	HEALTH INDEX
1	704150	Robt J Conla BI WB	1.35 mi North of SR-516	161.4	NO	2/13/2024	24	95.1	77.67
2	704151	Robt J Conla BI EB	1.35 Mi North of SR-516	161.4	NO	2/13/2024	24	94.7	70.87
3	705906	Emerson Drive	1 mi North of Malabar Rd	210.0	NO	3/18/2024	24	74.4	93.03
4	705907	Eldron Blvd	0.5 mi N of Malabar Road	74.0	NO	3/22/2024	24	65.5	97.91
5	705908	Aviation Ave.	0.5 mi N of Malabar Rd.	74.0	NO	3/22/2024	24	88.9	99.32
6	705909	Jupiter Blvd.	1 mi N of Malabar Road	126.3	NO	3/18/2024	24	77.3	97.55
7	705910	Port Malabar BI EB	1.6 miles East of SR-507	130.0	NO	3/19/2024	24	73.5	98.20
8	705913	Caballero Ave	0.2 mi S of Jupiter Blvd	72.0	NO	3/21/2024	24	80.8	97.63
9	705914	Eldron Blvd	1.0Mi. S of Malabar Rd NE	72.0	NO	3/21/2024	24	70.8	99.19
10	705915	Brittan Avenue	0.2 mi S of Cocoa Street	72.0	NO	3/21/2024	24	85.7	93.60
11	705916	Eldron Blvd	1.5 Mi S of Malabar Rd.	72.0	NO	3/21/2024	24	70.8	95.00
12	705917	Eldron Blvd.	2.0Mi. S of Malabar Rd NE	102.0	NO	3/21/2024	24	76.7	96.16
13	705918	Americana Blvd.	40 ft E of Minton Road	147.8	NO	3/18/2024	24	96.3	98.64
14	705919	Hurley Blvd	1 mi S of Malabar Rd	124.0	NO	3/18/2024	24	90.7	91.76
15	705920	Port Malabar BL WB	1.6 miles East of SR-507	130.0	NO	3/19/2024	24	97.3	99.81
16	705923	Jupiter Boulevard	At Minton Rd. Intersectn	128.0	NO	3/8/2023	24	97.6	97.47
17	705924	St Johns Hrtge Pky	0.26 Mi South of Pace Dr.	240.0	NO	12/7/2022	24	95.4	97.25
18	705925	Pace Drive	2 Mi West of Jupiter Blvd	25.0	NO	12/7/2022	24	99.2	97.59
19	705953	Malabar Rd	0.1 mi E of Minton Rd	141.2	NO	3/22/2024	24	84.0	98.54

Intelligent Transportation System (ITS)

What is ITS for Palm Bay?

- Synchronize signal timings
- Traveler Information
- Incident management
- Reduce delays and stops
- Improves travel time
- Improves safety & mobility
- Improves quality of driving

Stakeholder	Number of Signals	Number of Interconnected Signals	Number of Adaptive Signals	Number of Coordinated Signals
Brevard County	351	219	112	unavailable
City of Melbourne	67	67	0	56
City of Palm Bay	43	0	0	11
City of Titusville	42	4	4	0

Malabar/Emerson/San Filippo ITS Design by FDOT

Street	Miles	Cost
Malabar ITS	6.4	\$ 3,584,056.70
San Filippo ITS	2.3	\$ 1,288,020.38
Emerson ITS	3.0	\$ 1,680,026.58

- IT-1

IT-2

IT-3

IT-4

IT-5 - IT-7

IT-8 - IT-30

IT-31 - IT-33

IT-34

IT-35
- KEY SHEET

GENERAL NOTES

LEGEND

DEVICE DATA TABLE

PLAN LAYOUT

ITS PLAN SHEET

SPLICE DIAGRAM

WIRING DIAGRAM

DEVICE MOUNTING DETAIL

Project Limit
Malabar Road
From SJHP to I-95

GOVERNING STANDARD PLANS:
FLORIDA DEPARTMENT OF TRANSPORTATION, FY 2022-23 STANDARD PLANS FOR ROAD AND BRIDGE CONSTRUCTION AND APPLICABLE INTERIM REVISIONS (IRS).
STANDARD PLANS FOR ROAD CONSTRUCTION AND ASSOCIATED IRS ARE AVAILABLE AT THE FOLLOWING WEBSITE: <http://www.fdot.gov/design/standardplans>

GOVERNING STANDARD SPECIFICATIONS:
FLORIDA DEPARTMENT OF TRANSPORTATION, JULY 2022 TO JUNE 2023 STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION AT THE FOLLOWING WEBSITE: <http://www.fdot.gov/programmanagement/implemented/specbooks>

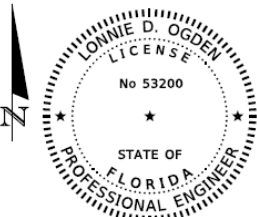
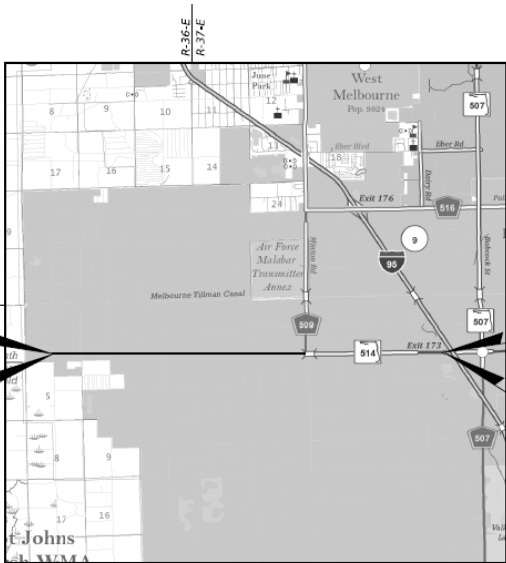
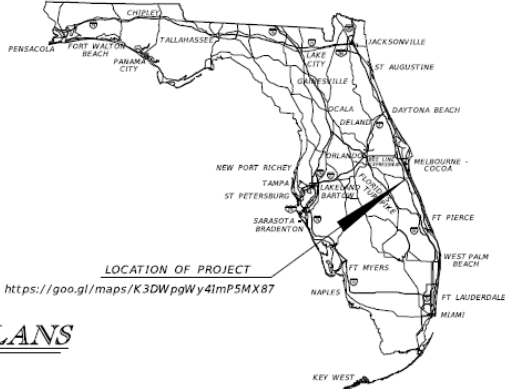
STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

CONTRACT PLANS

FINANCIAL PROJECT ID 443731-1-52-01

BREVARD COUNTY (70180000)
STATE ROAD NO. SR 514 /MALABAR ROAD

INTELLIGENT TRANSPORTATION SYSTEMS PLANS



THIS ITEM HAS BEEN DIGITALLY
SIGNED AND SEALED BY

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.

INTELLIGENT TRANSPORTATION
SYSTEMS PLANS
ENGINEER OF RECORD:

LONNIE D. OGDEN
P.E. LICENSE NUMBER: 53200
LTG, INC.
12574 FLAGLER CENTER BLVD. SUITE 101
JACKSONVILLE, FL 32258
CONTRACT NO.: CAF47
VENDOR NO.: F030424608005

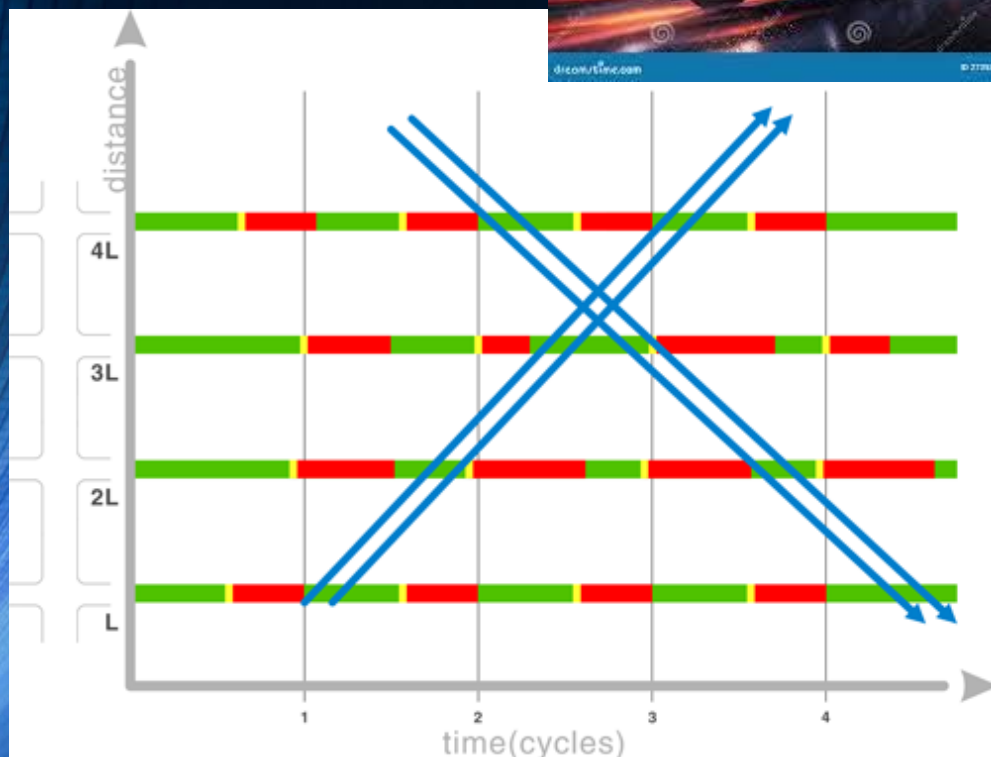
FDOT PROJECT MANAGER:
HEIDI TRIVETT

100% Design Plans

CONSTRUCTION CONTRACT NO.	FISCAL YEAR	SHEET NO.
	2023	IT-1

ITS Signal Priority Emergency Vehicle Preemption (EVP)

- In 2021, 198 people died in the US due to crashes with emergency vehicles
- In 2020 there were an estimated 15,675 fire truck collisions



- Per FHWA - Reduce intersection crash rates by up to 70%
- Improve response times by up to 25%.

2024 USDOE Grant - Interim Malabar ITS



- Grant \$160K for ITS
- Wireless communication
- Central master controller
- Signal synchronization



Street Lights



Safety Benefits:

Lighting can reduce crashes up to:

42%

for nighttime injury pedestrian crashes at intersections.¹

33-38%

for nighttime crashes at rural and urban intersections.^{2,1}

28%

for nighttime injury crashes on rural and urban highways.¹



1. Need a lighting master plan
2. Replace US 1 light poles
3. Research solar lights
4. Working with FPL on 61 locations for new street lights.

Street leaf Solar Streetlights Cost vs. FPL Streetlights Comparison Lease Option

STREET LEAF 30-40-WATT LED SOLAR STREETLIGHTS MONTHLY MAINTENANCE COST

- Model RS40L-40W_3000k_D
\$50.00 per month
- Model RS30L-30W_4000k_S
\$50.00 per month

FLORIDA POWER AND LIGHT 30-40- WATT LED STREETLIGHTS MONTHLY MAINTENANCE COST

- Model C700603 28/30 watts
\$7.87 per month
- Model C861204 39/40 watts
\$8.07 per month

Street leaf Solar Streetlights Purchase Cost vs. FPL Streetlights Comparison

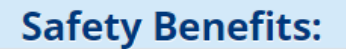
STREET LEAF 30–40-WATT LED SOLAR STREETLIGHTS MONTHLY MAINTENANCE COST

- Model RS40L-40W_3000k_D
\$5,175.00 each
\$10.00 per month
- Model RS30L-30W_4000k_S
\$5,175.00 each
\$10.00 per month

FLORIDA POWER AND LIGHT 30–40- WATT LED STREETLIGHTS MONTHLY MAINTENANCE COST

- Model C700603 28/30 watts
Lease Option Only
\$7.87 per month
- Model C861204 39/40 watts
Lease Option Only
\$8.07 per month

- Malabar C-20 Sidewalk Path
- Boundary Canal Trail
- Cross City Trail
- New sidewalks for Eldron and Wichita
- Consider Asphalt vs concrete sidewalks



65-89%

Paved Shoulders

71%

reduction in crashes involving
pedestrians walking along
roadways.³



Sidewalks Program

1. Eldron Blvd SE (from Diane to San Filippo Dr. SE)
2. Wichita Blvd SE. (From Babcock St SE to San Filippo Dr. SE)
3. San Filippo Dr SE. (From Wichita Blvd SE. to Eldron Blvd.)
4. San Filippo Dr. SE. (From Eldron Blvd SE. to Quintin Ave. SE.)
5. San Filippo Dr. SE (From Jaslo St. SE. to south of Treeland Blvd SE.)
6. Eldron Blvd. SE. (From San Filippo Dr. SE. to Ray Rd. SE.)
7. Cross City Trail in FPL easement (From Walpole Rd. SW to Gerlitz Rd. SW.) FPL consent agreement required.
8. Garvey road SW. (From Jupiter Blvd SW to Bryan Rd. SW.)
9. Hurley Blvd. SW. (From Seabold Rd. SW to Seafury Ave SW.)
10. Harper Blvd. (From Hurley Blvd. To Gerry Rd. SW.)
11. Babcock St. NE. (East side From Auto zone to Sun Lake Road excluding Dynamic Muffler site) FDOT right of way.
12. Malabar road SE. (North side Racetrack to Villa Nueva ALF)

Roadway Trees and Landscaping



- Low Maintenance
- Zero Landscape
- Stamp concrete
- Native Plants

Traffic Calming Safety Enhancements



- Asphalt or rubber
- Slows vehicles
- Impact to emergency response time
- Increase in travel time
- Divert traffic to use a parallel collector street

1 Speed bump
Used mostly in private residential developments and shopping centers.

4 to 6 inches

Not Allowed

Speed bump

1 to 3 feet

2 Speed hump
Used mostly on residential streets with speed limits up to 25 mph.

3 to 4 inches

Speed hump

10 to 12 feet

3 Speed table
Used on more traveled residential streets with speed limits up to 30 mph.

3 to 4 inches

Speed table

22 feet

Note: Drawings not to scale

The diagram illustrates three types of speed control measures: Speed bump, Speed hump, and Speed table. Each measure is shown with a green car and a cross-section of the road. The Speed bump is a small, narrow bump, labeled 'Not Allowed'. The Speed hump is a larger, wider bump. The Speed table is a flat, wide surface. The diagram also includes a 'Not Allowed' label for the Speed bump.

Note: Drawings not to scale

Railroad Quiet Zones

- A segment of a railroad corridor where the train operator has the option to not sound its horn.
- Three Railroad Crossings: Hessey, Palm Bay Rd and Port Malabar
- Working with Federal Rail Adm on the notice of intent

Questions?