FLORIDA DEPARTMENT OF TRANSPORTATION

TSM&O DISSEMINATOR

TRANSPORTATION SYSTEMS MANAGEMENT & OPERATIONS
November-December 2021

District Six TSM&O Staff Wins CUTR's "New Voice in Transportation Award"

Turnpike Doubles Automated Incident Detection Efforts

FDOT Central Office Announces SunGuide® Software Version Release 8.1

FLORIDA DEPARTMENT OF TRANSPORTATION'S
TRAFFIC ENGINEERING AND OPERATIONS PUBLICATION

FDOT TSM&O
Transportation Systems Management & Operations

INSIDE THIS ISSUE
Contents

FDOT TRAFFIC ENGINEERING AND OPERATIONS MISSION AND VISION STATEMENTS

MISSION

Provide leadership and serve as a catalyst in becoming the national leader in mobility.

VISION

Provide support and expertise in the application of Traffic Engineering principles and practices to improve safety and mobility.

Looking to be a Contributor for the Next Issue of the TSM&O Disseminator?

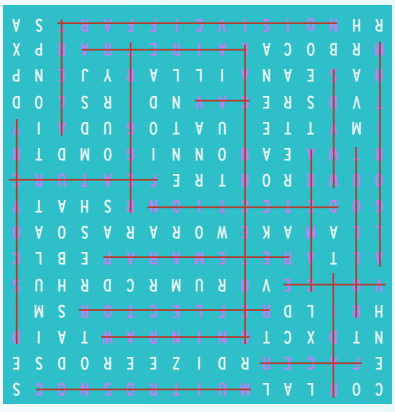
Email Lauren Bamford (Lauren.Bamford@dot.state.fl.us) with your story subject and title.

We would love to have your contribution be a part of the next edition.

Photo credits: FDOT

PHYSICAL ADDRESS:
Barry Building
3185 South Blairstone Rd.
Tallahassee, FL 32301

MAILING ADDRESS:
Burns Building
605 Suwannee Street, MS 90
Tallahassee, FL 32399



District Six TSM&O Staff Wins CUTR's "New Voice in Transportation Award"

By Javier Rodriguez, District Six TSM&O Program Engineer, FDOT

The Center for Urban Transportation Research (CUTR) recently awarded the 2021 "New Voice in Transportation Award" to a member of the Florida Department of Transportation (FDOT) District Six Transportation Systems Management and Operations (TSM&O) Office.

The statewide award was established in 2018 in partnership with the Women's Transportation Seminar (WTS), Central Florida Chapter of Conference of Minority Transportation Officials (COMTO) and Institute of Transportation Engineers (ITE). The award is open to transportation professionals, under 40 years old, who have shown tremendous leadership in their field and a significant potential for making an impact in Florida's transportation industry.

Alejandro Motta was selected for his numerous contributions to the industry, playing a major role in many of the transportation projects we see today. He has had a successful trajectory in FDOT since he began his career as an intern in 2008. He ascended through various positions until he was named TSM&O Engineer for freeways in 2016. In this capacity, he is responsible for managing all aspects of highway operations including incident management, express lanes, ramp signals, and Intelligent Transportation Systems (ITS) maintenance for Miami-Dade and Monroe Counties. He manages eight major contracts worth $30 million per year and is responsible for overseeing more than 100 employees and consultants. In addition to his contributions to FDOT, he has significantly invested into the future professionals of the industry with his role as adjunct professor at Florida International University's College of Engineering. Mr. Motta has been teaching for the past nine years in the subjects of surveying, engineering drawing, engineering economy, and geotechnical engineering.

Mr. Motta has been at the forefront of this industry since he began at FDOT. He is the type of leader who understands that system efficiency is key to a successful operation. He brings this thinking to every aspect of his job and instills it in his team, providing outstanding results. As demonstrated by improving contract management procedures, managing express lane operations, and developing cutting edge software for the District, he is known for improving existing systems to maximize their results.

This is just a glimpse of Alejandro Motta's many contributions to the transportation community. Mr. Motta often goes beyond what most people do and is rarely satisfied with the status quo. In addition to his proven accomplishments, he is also known for rolling up his sleeves and working beside his team to bring every project to fruition. This combination of vision, discipline, and humility has kept him as a vanguard of the industry and is why he was chosen for the "New Voice in Transportation Award."

For more information, please contact Javier Rodriguez at (305) 640-7307 or at Javier.Rodriguez2@dot.state.fl.us.

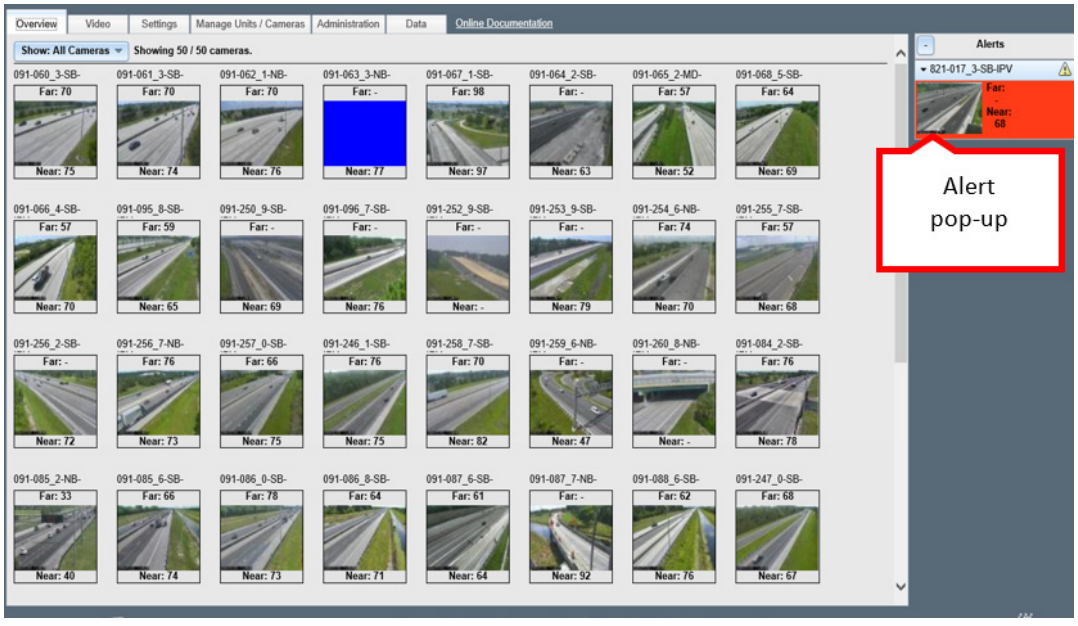
Turnpike Doubles Automated Incident Detection Efforts

By Mary Lou Veroline, TSM&O Technical Writer, Florida's Turnpike Enterprise

Video stream embedded within alerts generated by TrafficVision's automated incident detection application allows TMC Operators to validate the event prior to initiating a response. In this example, traffic prior to the crash was free flowing as evidenced by the green "feathering".

In July of 2020, Florida's Turnpike Enterprise (FTE) embarked on a one-year pilot project to evaluate a platform for automated incident detection via CCTV video with an initial test group of 50 cameras. Algorithms and thresholds were developed within the TrafficVision application for recognition of, and alerting to, numerous scenarios including stopped vehicles, debris on the roadway, pedestrians and congestion events in real-time.

When a roadway event occurred that fell within identified thresholds, Traffic Management Center (TMC) staff heard an audible alarm and received a pop-up alert within the TrafficVision online portal (see examples). Within minutes of verification using the video stream that accompanied the alert, the TMC was able to quickly notify incident response agencies, initiate a SunGuide event and activate DMS message boards in the area.



It did not take long for the TMC and the TrafficVision application to begin logging success stories. In one such case, the application alerted of a stopped vehicle at 4:08 p.m.

continued on page 5

Turnpike Doubles Automated Incident Detection Efforts,

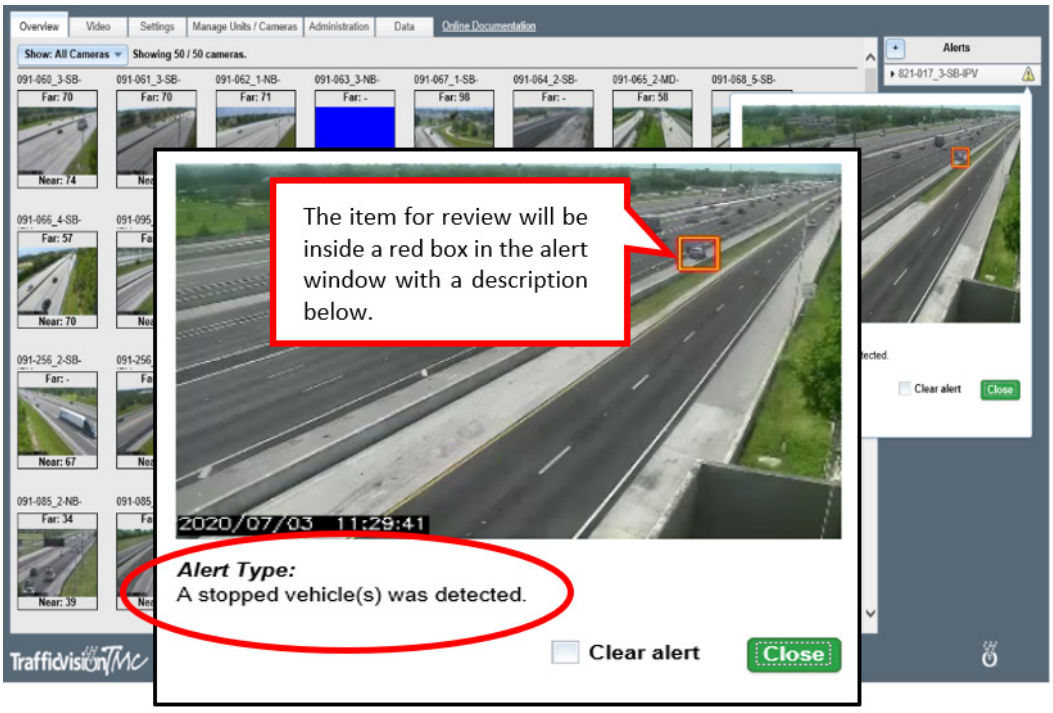
continued from page 4

The TMC Operator assigned to portal monitoring verified that a crash had just occurred and started a SunGuide entry within minutes, at 4:11 p.m. Prior to automated incident detection, there may have been several minutes delay between the event occurring and a call being placed to 9-1-1 or *FHP, putting the vehicle's occupants at risk for serious injury in a secondary crash.

During the evaluation period, 500-plus events were entered into SunGuide as a direct result of the application, demonstrating significant potential toward motorist safety. Turnpike leadership wasted no time in authorizing additional rollouts in late summer of 2021 and the first expansion of the program took place in September with an additional 50 cameras coming online, doubling the count to 100.

By mid-November, the program has alerted to more than 600 real-time events, with disabled vehicles accounting for more than 80 percent of the SunGuide entries. The minutes gained in response time by this technological advance could potentially save a life…many times over.

Future rollouts of the incident detection technology on the Turnpike system are planned for 2022 along with the application's integration into the SunGuide Incident Detection System.



In this alert example, further action was not needed as the "stopped" vehicle in question was validated as being a maintenance contractor.

For more information, please contact John Easterling at (954) 934-1620 or John.Easterling@dot.state.fl.us.

District Five Installs New WWVDS on I-4

By Jeremy Dilmore, District Five TSM&O Program Engineer, FDOT

The Florida Department of Transportation (FDOT) District Five has completed the implementation of 17 Wrong Way Vehicle Detection Systems (WWVDS) at select Interstate 4 (I-4) exit ramps in Orange, Seminole, and Volusia counties.

Wrong-way driving crashes occur when a driver has not observed posted traffic signs and proceeds in a lane going the wrong direction, increasing the risk of a head-on collision. To reduce wrong-way driving incidents, these new WWVDS will alert drivers entering the interstate in the wrong direction.

"Ensuring the safety of the traveling public is our top priority," FDOT District Five Secretary Jared Perdue, P.E., said. "The Wrong-Way Vehicle Detection Systems on I-4 are a big part of our efforts to reduce wrong-way driving incidents, but they're not a cure-all. We must all do our part to stay alert and never drive distracted."

In September 2020, FDOT began constructing new wrong-way signage, roadway reflectors and pavement markings on select I-4 ramps in Central Florida. Each sign is equipped with various technologies to detect vehicles traveling the wrong way. Once triggered, red lights on the signs flash to notify the driver they are traveling in the wrong direction, and a bright white light shines in the driver's eyes to get the driver's attention. If the motorist continues in the wrong way, radar detection sends alerts to FDOT traffic managers at the District Five Regional Transportation Management Center, and to law enforcement. The FDOT systems also broadcast a wrong-way driver alert on dynamic message signs along the interstate to warn other motorists.

FDOT installed signs at eastbound and westbound exit ramps at the following I-4 interchanges:

- Central Florida Parkway
- Sand Lake Road (S.R. 482)
- Lake Mary Boulevard
- County Road 46A
- S.R. 46
- Orange Boulevard/U.S. 17-92
- Dirksen Drive
- Saxon Boulevard

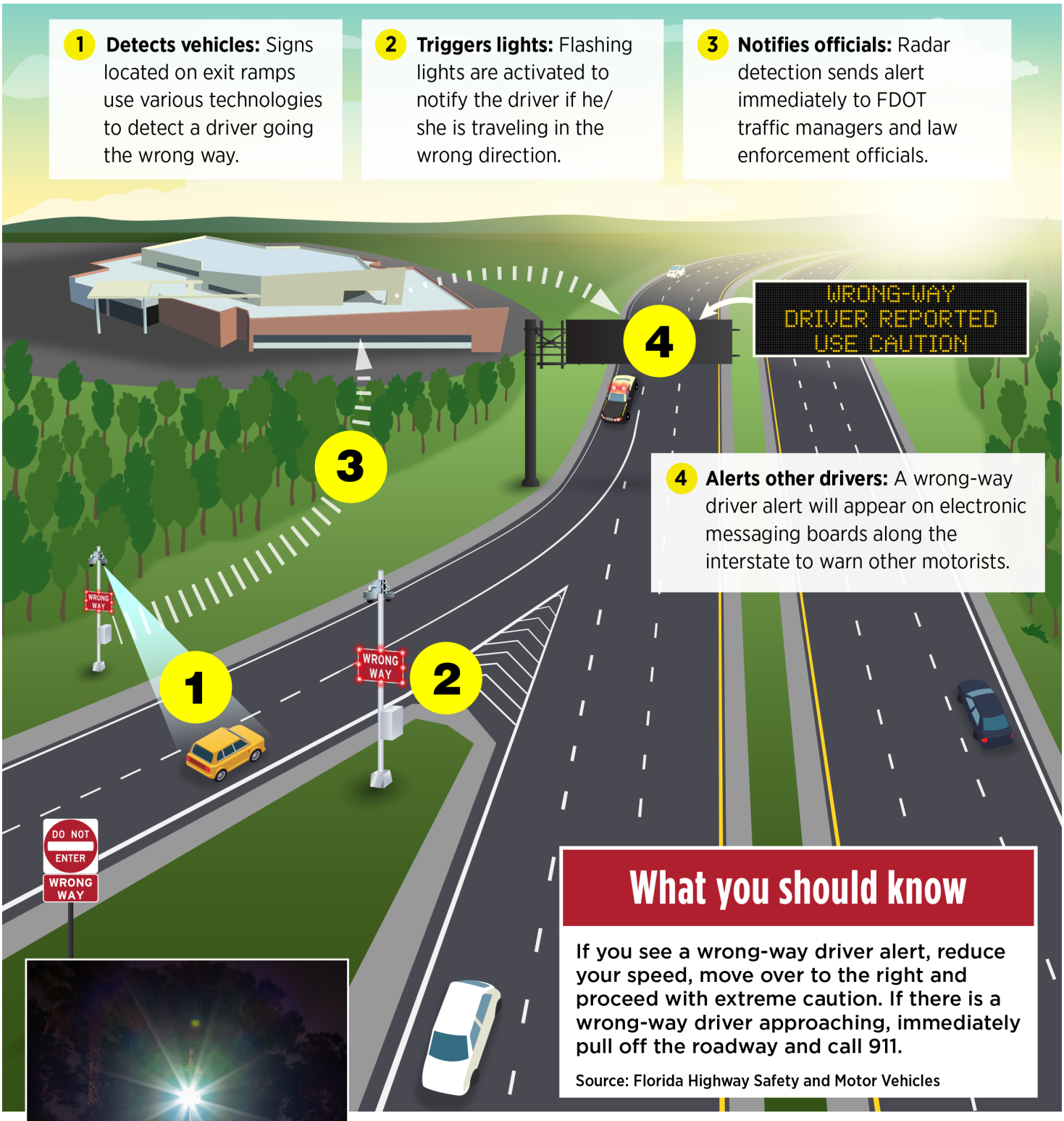
continued on page 7

District Five Installs New WWVDS on I-4, continued from page 6

1 **Detects vehicles:** Signs located on exit ramps use various technologies to detect a driver going the wrong way.

2 **Triggers lights:** Flashing lights are activated to notify the driver if he/she is traveling in the wrong direction.

3 **Notifies officials:** Radar detection sends alert immediately to FDOT traffic managers and law enforcement officials.



4 **Alerts other drivers:** A wrong-way driver alert will appear on electronic messaging boards along the interstate to warn other motorists.

What you should know

If you see a wrong-way driver alert, reduce your speed, move over to the right and proceed with extreme caution. If there is a wrong-way driver approaching, immediately pull off the roadway and call 911.

Source: Florida Highway Safety and Motor Vehicles

District Five plans to install additional WWVDS signs within the 21 miles of the I-4 Ultimate project once construction is complete.

For more information on District Five's WWVDS and how they improve roadway safety visit I4Beyond.com/WrongWay *or contact Jeremy Dilmore at* jeremy.dilmore@dot.state.fl.us.

I-4 FRAME: Improving Safety and Mobility Using Emerging Technologies

By Michelle Arnold, Central Office CAV GEC, HNTB

Interstate 4 (I-4) connects Florida's west and east coasts, from Hillsborough County to Volusia County (132 centerline miles long). In 2019, about 131 million people visited Florida[1]. A significant number of the visitors likely used I-4 to access beaches as well as theme parks and major attractions in Orlando. Out of the 21.5 million people that call Florida home, 3.2 million live in Tampa-St. Petersburg-Clearwater[2] and 2.6 million live in Orlando-Kissimmee-Sanford[3].

The annual average daily traffic on I-4 from Tampa to Orlando ranges from 79,500 to 174,500[4]. In 2018, this segment of I-4 had 2,515 crashes that resulted in 727 injuries and 17 fatalities[5]. When incidents occur on I-4 blocking lanes or closing one direction of travel, arterial roadways are flooded with cars and trucks trying to find a way around the delay.

Using Emerging Technologies

Engineering, enforcement, education, and emergency response (the 4 *E*'s of road safety), provide safety and mobility benefits, but more can be done by applying emerging technologies. Based on statistics from the United States Department of Transportation's (USDOT) National Highway Traffic Safety Administration, the critical reason for automobile crashes can be attributed to human driver behavior in approximately 94 percent of crashes. Many of the I-4 crashes and injuries have the potential to benefit from technology deployments.

I-4 Florida's Regional Advanced Mobility Elements Project

The I-4 Florida's Regional Advanced Mobility Elements (FRAME) project will deploy technology-based integrated corridor management, vehicle-to-infrastructure, and real-time information systems to improve safety and mobility. This project spans

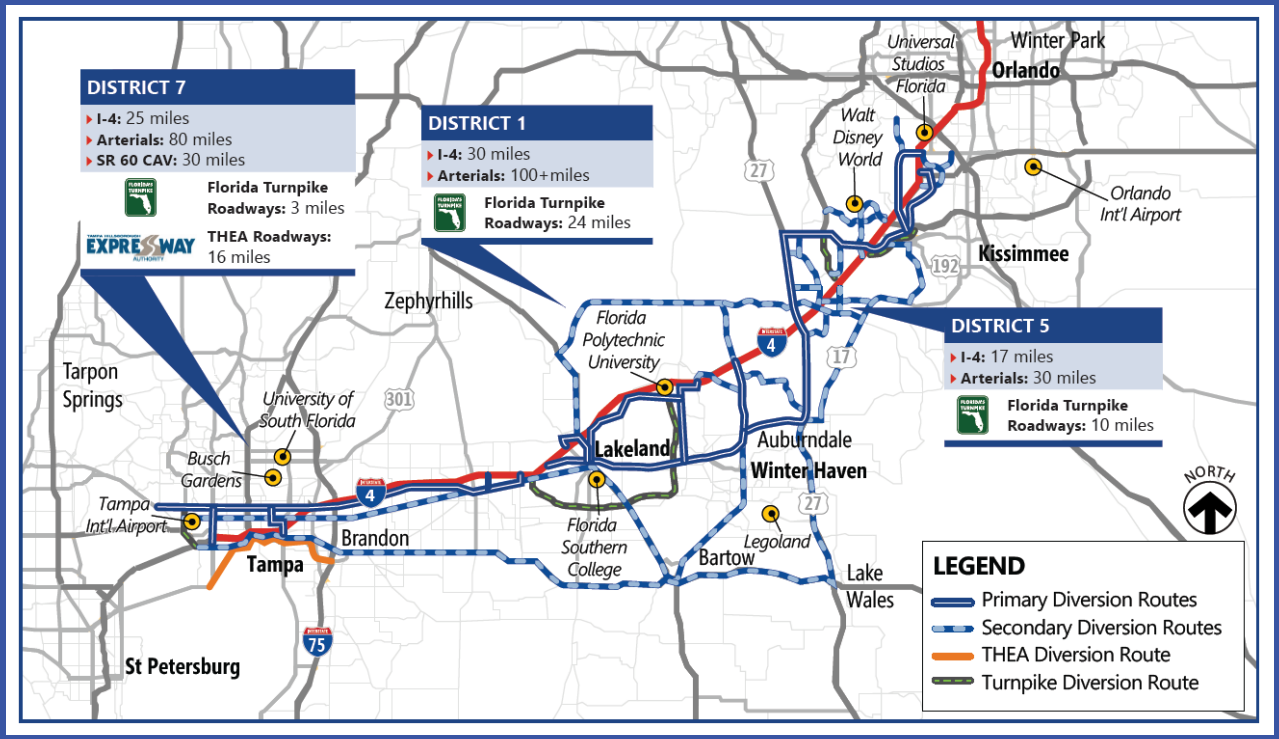


Figure 1: I-4 FRAME Project Location

I-4 FRAME: Improving Safety and Mobility Using Emerging Technologies, continued from page 8

the FDOT Districts One, Five, Seven, and Florida's Turnpike Enterprise (FTE) as shown in Figure 1.

The connected vehicle (CV) applications being considered for the freeway include traffic incident management, dynamic roadway warning, speed warning, dynamic route guidance, queue warning, incident scene safety monitoring, reduced speed zone warning/lane closure, work zone management, in-vehicle signage, advanced railroad grade crossing, and road weather motorists alert warning. The CV applications being considered for arterials include CV traffic signal system, freight and transit signal priority, emergency vehicle preemption, pedestrian-cyclist safety, and intersection safety warning and collision avoidance.

The FDOT is using a systems manager to plan, facilitate stakeholder coordination meetings through a bimonthly consortium, gather user needs, prepare the systems engineering documents, and examine technologies and devices.

Grant Recognition

Recognizing the importance and technologies of the I-4 FRAME project, the USDOT awarded the FDOT the Advanced Transportation and Congestion Management Technologies Deployment grant in the amount of $10,071,600 in 2020[6].

The University of South Florida – Center for Urban Transportation Research, Florida Polytechnic University, the University of Central Florida, and the University of Florida are playing a pivotal role by assisting in the before-and-after evaluations.

I-4 FRAME project is expected to be deployed in 2023 to improve safety and mobility with its CV applications and other technologies.

For more information, please contact Raj Ponnaluri at Raj.Ponnaluri@dot.state.fl.us.

Endnotes

1 Florida Transportation Fast Facts - 2019
2 https://censusreporter.org/profiles/31000US45300-tampa-st-petersburg-clearwater-fl-metro-area/
3 https://censusreporter.org/profiles/31000US36740-orlando-kissimmee-sanford-fl-metro-area/
4 Florida Traffic Online SR 400/I-4, northeast of Old Combee Road Overpass and east of SR 45/Nebraska Ave
5 I-4 FRAME Advanced Transportation and Congestion Management Technologies Deployment Grant Application
6 FY 2019 Advanced Transportation and Congestion Management Technologies Deployment Projects

Break Time

C O R L A L M U I T R O S N O C S
E F A C E R R D I Z E E R O D S E
N T D X C T G N I N R A W T A I D
H R I L D R E F L E C T O R S M I
V O I C E V O R U M R C D R H U S
A L T A R E T E M A R A P E B L C
L L A M A K E W O R A R A S O A O
G O D E T E C T I O N R S H A T V
O U W R R O H T R E F E A T U R E
R T W A E A N O N N I G O M D T R
I M V T T E I U A T O G U D A I Y
T V D S R E C A V N D I R S L O D
H A S E A N A I L L A R Y J E N P
M R B O C A L A I R E T R A R P X
R H N O I S I V C I F F A R T S A

VOICE
GEOTECHNICAL
DETECTION
ROLLOUT
CAMERA
ALGORITHM
WWVDS
TRIGGER
ALERT
REFLECTOR
CONSORTIUM
RADII
PARAMETER
FACER
CAV
DISCOVERY
ARTERIAL
FEATURE
WARNING
TRAFFICVISION

Announcements

District One TSM&O Program Engineer – Steven Davis

Traffic Operations is pleased to announce the appointment of Steven Davis to the position of TSM&O Program Engineer, effective October 20, 2021. This position was previously held by Mark Mathes.

Steven graduated from the University of South Florida (Go Bulls!) in 2010 with a bachelor's degree in Civil Engineering. After serving as a pilot and Captain in the Florida Army National Guard, Steven began his FDOT career in the P.E. Trainee program in 2014. After graduating from the program, he served with the FDOT In-house Roadway Design group and the last two years in Traffic Services. As TSM&O Program Engineer, he will be leading the District's FMS/AMS and ITS teams.

On a personal note, Steven is a native Floridian; born and raised in Lakeland. He now resides in Bartow with his bride Emily, their son Fletcher and daughter Charleigh. Steven and his family are very active at Lakes Church in Lakeland and his hobbies include sports, reading, and hiking.

Please join us in congratulating Steven on his exciting new position. Steven can be reached at (863) 519-2507, Mail Station 1-8.

District Four TSM&O Program Engineer – Alexandra Lopez graduates from Leadership ITE 2021

LeadershipITE (Leadership Institute of Transportation Engineers) is a program dedicated to growing and empowering leaders within the transportation industry so that they are well prepared for greater roles within their professional capacity as well as within ITE and other associations. This program provided an opportunity to learn and grow alongside a diverse and talented group of transportation professionals.

The program lasted approximately six months and a virtual graduation was held in July 2021. Alexandra learned how to better collaborate and communicate with others by understanding their various personality types, communication styles, etc. Some of her favorite topics included effective and memorable presentations, managing triggers, and learning how to deal with difficult people.

As part of the program, the class was tasked with completing group projects including how to attract and retain transportation technology professionals to ITE. The class was fully virtual, yet all sessions were interactive, engaging, educational and entertaining. Participating in LeadershipITE has taught Alexandra invaluable principles that she will carry forward over the course of her career.

Alexandra would like to thank the Florida Puerto Rico ITE District for providing scholarship opportunities for this great program. Without this support, she would not have been able to take advantage of this highly coveted course. If you are interested in joining Leadership ITE, do not think about it any longer and send your application!

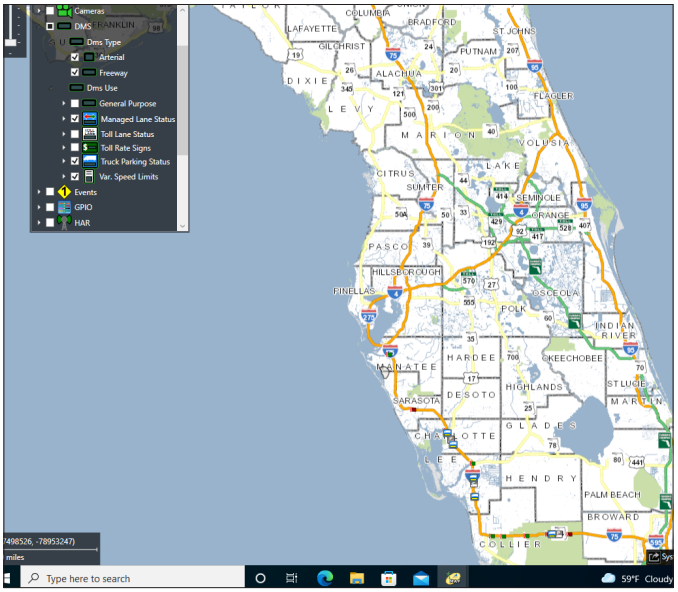
FDOT Central Office Announces SunGuide® Software Version Release 8.1

By Christine Shafik, State TSM&O Software Engineer, FDOT & Carla W. Holmes, Software Project Manager, Gresham Smith

FDOT Central Office released SunGuide® Software Version Release 8.1 to the Districts in November of 2021. Since development of SunGuide® Software began in 2003, FDOT Central Office has continued to introduce new features and functionality that make the software more user-friendly and allow it to keep pace with the innovative technologies, projects, and programs FDOT employs to provide a safe and efficient transportation system.

Some of the enhancements included in SunGuide® Software Version Release 8.1 are:

- Features for more efficient handling of Executive Notifications at the RTMC.
- Alerts when travel times are higher than normal, facilitating faster incident detection and response, and timelier traveler information.
- Improved display of information that make response plan modifications easier.
- Configurable search radii for different event types that facilitate the identification of the most appropriate devices to use in response plans.
- The ability to enter a road closure over a roadway segment, allowing for ease of entry by operators and more comprehensive traveler information provided through FL511 and Waze.
- Event reports that can now be generated using Road Ranger vehicles and beats as filter parameters.
- Select detectors can be deleted from the operating system, but data from those items will now remain in the database to be retrieved for reporting purposes.
- The ability to create icon groups to display only select devices, allowing for a more focused Operator Map presentation.



- The addition of new arterial DMS icons, as well as functionality for DMSs to be grouped by type and by use.
- Floodgate Messages can now be scheduled, allowing RTMC personnel to create them in advance at a time most convenient for them.
- Blank Out Signs can be incorporated into response plans, enabling them to become even greater assets in traffic and incident management and traveler information dissemination.
- Truck Parking Occupancy Alert emails that are sent when a truck parking space is occupied for a long period of time, prompting a welfare check if warranted.
- Integration of new Wrong Way Driver Detection and Over Height Vehicle Detection devices that promote faster detection and response, and increased safety for motorists and protection of infrastructure.
- Use of Single Sign-on Authentication and Active Directory that will make access to SunGuide® Software more secure.
- Several behind-the-scenes enhancements that will benefit administrators supporting SunGuide® Software servers and databases.

To learn more about SunGuide® Software, visit http://www.sunguidesoftware.com/. For questions, additional information, or suggestions for enhancements to SunGuide® Software, please contact Christine Shafik at Christine.Shafik@dot.state.fl.us.

Fall FACERS Meeting hosted in District Three, Central Office presents Arterial / CAV overview

By David Roark, District Three Arterial Operations Manager, FDOT

The fall meeting of the Florida Association of County Engineers and Road Superintendents (FACERS) was held November 17th, 2021 at beautiful Sandestin Resort's Hotel Effie, located in Walton County. The meeting's 3-day agenda included topics such as Asset Management, Budget & Capitol Plans, Asphalt and Pavement, Stormwater Systems and a message from Florida's Secretary of Transportation Kevin Thibault.

FDOT's Traffic Engineering and Operations Office was on hand to talk about FDOT's Connected and Automated Vehicle (CAV) Program. State CAV and Arterial Management Engineer Raj Ponnaluri provided background and discussed a wide range of arterial roadway management, operations and maintenance, setting the stage for providing FDOT's recent, ongoing and upcoming CAV efforts. Mr. Ponnaluri spoke to approximately 30 attendees for a little over an hour providing overviews of Traffic Signal Timing, Automated Traffic Signal Performance Measures (ATSPMs), Adaptive Signal Control Technologies (ASCT), Passive Pedestrian Detection (PPD), Traffic Signal Training Resources and the CAV Program. Several interactive question and discussion periods took place throughout the presentation, providing collaborative feedback and technology / methodology discovery of understandings.

The State Traffic Operations Engineer Trey Tillander, FDOT District Three TSM&O Program Engineer Amy DiRusso along with District Three Arterial Operations Manager David Roark were in attendance.

For more information regarding FDOT's CAV efforts and programs, please contact Raj Ponnaluri at Raj.Ponnaluri@dot.state.fl.us.

CONTACTS

DISTRICT 1
Mark Mathes, DTOE
Steven Davis
FDOT District 1 Traffic Operations
801 N. Broadway Avenue
Bartow, FL 33830
(863) 519-2490

DISTRICT 2
Jim Hannigan, DTOE
Peter Vega
FDOT District 2 Traffic Operations
2198 Edison Avenue
Jacksonville, FL 32204
(904) 360-5630

DISTRICT 3
Kimberly Toole, DTOE
Amy DiRusso
FDOT District 3 Traffic Operations
1074 Highway 90 East
Chipley, FL 32428-0607
(850) 638-0250

DISTRICT 4
Mark Plass, DTOE
Alexandra Lopez
FDOT District 4 Traffic Operations
2300 W. Commercial Blvd.
Ft. Lauderdale, FL 33309
(954) 777-4350

DISTRICT 5
Jim Stroz, DTOE
Jeremy Dilmore
FDOT District 5 Traffic Operations
719 S. Woodland Blvd., MS 3-562
DeLand, FL 32720-6834
(386) 943-5310

DISTRICT 6
Omar Meitin, DTOE
Javier Rodriguez
FDOT District 6 Traffic Operations
1000 NW 111th Avenue, MS 6203
Miami, FL 33172
(305) 470-5312

DISTRICT 7
Ron Chin, DTOE
Megan Arasteh
FDOT District 7 Traffic Operations
11201 N. McKinley Dr.
Tampa, FL 33612
(813) 615-8600

FLORIDA'S TURNPIKE ENTERPRISE
John Easterling, DTOE
Eric Gordin
Florida's Turnpike Enterprise
PO Box 9828
Ft. Lauderdale, FL 33310-9828
(813) 975-4216

CENTRAL OFFICE
Trey Tillander, Director
Traffic Engineering and Operations Office
(850) 410-5419

Fred Heery
State TSM&O Program Engineer
(850) 410-5606

Raj Ponnaluri
Connected Vehicles, Arterial Management, Managed Lanes
(850) 410-5616

Jeff Frost
State TIM/CVO Program Manager
(850) 410-5607

Derek Vollmer
Traffic Engineering Research Lab Manager
(850) 921-7361

Alan El-Urfali
State Traffic Services Program Engineer
(850) 410-5416