District Five TSM&O Partners with Environmental on SR 40 ITS Deployment

Orlando I-4 Traffic Crashes Reduced by 64 Percent Since 2019

CCTV Mobile Cameras Improve Monitoring Capabilities in District Six

The Future of Speed Monitoring
INSIDE THIS ISSUE

3  District Five TSM&O Partners with Environmental on SR 40 ITS Deployment

4  Orlando I-4 Traffic Crashes Reduced by 64 Percent Since 2019

5  Save the Date - ITS Transportation Showcase


8  CCTV Mobile Cameras Improve Monitoring Capabilities in District Six

9  FDOT District Three has appointed David Roark as their new Transportation Systems Management and Operations (TSM&O) Freeway Manager

10  The Future of Speed Monitoring

12  Out with the Old, In with the New!

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: teodisseminator@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 Blair Stone Rd.
Tallahassee, FL 32301

MAILING ADDRESS:
Burns Building
605 Suwannee Street, MS 90
Tallahassee, FL 32399
District Five TSM&O Partners with Environmental on SR 40 ITS Deployment

By Sheryl Bradley and Garrett Popovich, District Five I-75 ICM Team

SR 40 is an important east-west corridor that stretches between US 41 in Marion County to the west and A1A, just east of I-95, in Volusia County. It serves as an important rural freight route, rich with logging traffic, as it passes through the Ocala National Forest and rural Lake County. This approximate 40-mile stretch is also a commonly traveled, scenic route to and from the east coast, taking less than 2.5-hours of travel time if there are no incidents or delays. The roadway traverses key environmental spaces such as Silver Springs State Park, the Florida Greenway, the Florida National Scenic Trail, and the Ocala National Forest, which are vibrant with critically endangered animals such as the Florida Black Bear, Bald Eagles, and the Florida Panther.

Unfortunately, the mix of these endangered species and motor vehicle traffic can lead to major crashes that often leave animals and/or vehicle occupants with serious injuries. (See heat map of fatal crashes that occurred between 2018 and 2021. Source: Signal 4 Analytics). Additionally, FWC reported 128 calls for struck bears during the same timeframe. The wildlife safety issues are further compounded by the winding rural nature of the road and various sightline challenges, some of which are exacerbated by prescribed and unprescribed burns of heavily wooded areas.

The limited number of roadways available to divert motorists during a SR 40 closure increases the need for timely detection and advanced warning to ensure safe and reliable travel.

Solutions to the traffic challenges of SR 40 include the designation of a wildlife corridor and deployment of ITS technology that will enhance the District’s ability to efficiently detect incidents as well as wildlife; and alert motorists in order to enhance safety and opportunities for earlier re-routing. The deployment project incorporates the use of cellular modems and antennas to provide communications for the following features:

- AI cameras with pre-defined alerts for the presence of wildlife, smoke/fog, and other potential hazards
- Microwave Vehicle Detection Systems (MVDS)
- Wildlife crossing signs with flashing beacons.
- Arterial Dynamic Message Signs
- Connected vehicle devices like roadside units (RSUs)

These devices will not only enhance detection and alert motorists but provide critical information back to the RTMC.

The project, estimated at nearly $5 million, included input and coordination with the National Forestry Service, Florida Fish and Wildlife, and Florida Department of Environmental Protection. Because of the overall benefit to safety and wildlife preservation, the project received a 50% match by FDOT Environmental. The project is currently in design and is expected to be let for construction later this year.

For more information, please contact Sheryl Bradley at Sheryl.Bradley@dot.state.fl.us or Garrett Popovich at garrett.popovich@dot.state.fl.us.
Orlando I-4 Traffic Crashes Reduced by 64 Percent Since 2019

By Bryan Culbert, Technical Information Officer, Global-5

The now-completed I-4 Ultimate project has improved Orlando traffic significantly. Having reconstructed 21 miles of Interstate 4 (I-4) between Kirkman Road (State Road (S.R.) 435) and S.R. 434, along with 15 major interchanges and 140 bridges, the project added capacity and reduced congestion on the interstate. Arterial management strategies have also led to I-4 traffic improvements through the use of diversion routes.

In February 2022, I-4 traffic got a further boost in efficiency, travel time reliability and mobility with the opening of the I-4 Express Lanes, spanning 21 miles in the center of I-4. In addition to travel time reliability and efficiency improvements, safety on I-4 in Central Florida has greatly improved, with vehicle crashes significantly down and traffic injuries sharply reduced.

Traffic data gathered in the I-4 Ultimate corridor between July 2019 and December 2022 shows 75 percent fewer crashes on eastbound I-4 and 39 percent fewer crashes westbound. Overall, vehicle crashes on I-4 in Orlando have plummeted by 64 percent.

Beyond crashes, the data shows a 62 percent reduction in lane-blocking events in the general use lanes, which contributes to smoother traffic flow. With fewer crashes and lane-blocking events, injuries and property damage have also declined. Crash-related injuries are down 61 percent, and property damage from vehicle crashes has decreased 65 percent during the same time span.

“When you have fewer traffic conflict points and combine that with enhanced options for drivers to bypass congestion with express lanes, reduced crash potential is a clear positive outcome,” said Jeremy Dilmore, Transportation Systems Management and Operations (TSM&O) program engineer for the Florida Department of Transportation (FDOT) District Five.

Dilmore added that FDOT has seen the largest decrease in crashes during the morning peak travel period (6 to 9 a.m.) at 73 percent, with the evening peak period (3 to 6 p.m.) having a 61 percent reduction.

Since the opening of the express lanes, the average speed in the corridor has increased by 6 mph, a gain of more than 20 percent in both directions. Note that this increase in average speed reflects reduced congestion; it does not necessarily mean drivers are exceeding the speed limit.

Travel times on I-4 in Central Florida have also improved since the opening of the express lanes. The westbound travel time in the I-4 corridor was 18 minutes in 2022, down from 23 minutes in 2019. The eastbound travel time was 19 minutes in 2022, also down from 23 minutes in 2019.

I-4 Express has also positively affected the overall travel time index on I-4 since its opening. The travel time index is the ratio of the travel time during peak hours to the time required to make the same trip during off-peak hours when traffic flows more freely. The overall travel time index in the improved I-4 corridor dropped from 1.07 in 2019 to 0.85 in 2022, a 20 percent decrease.

Traffic management technologies have contributed to the declining crashes and improved safety in FDOT’s District Five. From FDOT’s District Five Regional Transportation Management Center, operators monitor I-4 with the help of closed-circuit television cameras and roadway sensors, communicating with law enforcement, first responders and Road Rangers on incident responses. Communication tools such as dynamic message signs and Florida 511 (www.fl511.com) have been instrumental to regional traffic management improvements.

For more information, please contact Bryan Culbert at bryanculbert@global-5.com.
Save The Date!
By Sandy Beck and Russell Allen, ITS Florida

The Florida Puerto Rico District of the Institute of Transportation Engineers, the Intelligent Transportation Society of Florida and the Florida Section of the International Municipal Signal Association are proudly joining together for the Florida I3 Transportation Showcase. Don’t miss the opportunity to attend this exciting conference. This transportation showcase will take place from July 31 - August 3, 2023 at the Hilton Orlando. This meeting will combine topics of interest for members of each organization.

Link to event registration: Home - I3 Transportation Showcase 2023 (cvent.com).

Link to hotel reservation: https://book.passkey.com/e/50528412/.

For more information, please contact Ms. Sandy Beck, Executive Director at ITSFlorida@ITSFlorida.org.

By Natacha Placide, Marketing/Public Outreach Coordinator, FDOT District Four RTMC

The Florida Department of Transportation (FDOT) District Four has released its highly anticipated interactive annual report, providing a comprehensive overview of its Transportation Systems Management and Operations (TSM&O) Program initiatives in 2022.

The Annual Report serves as a testament to the unwavering dedication of the TSM&O team, showcasing the remarkable progress that has been made in enhancing transportation systems and operations throughout the district. It encapsulates the successful implementation of various initiatives and programs that have significantly improved traffic flow, reduced congestion, and enhanced safety on our roads.

Enhancing Accessibility and Engagement:
By revolutionizing the way information is shared, the TSM&O 2022 interactive annual report brings accessibility and engagement to new heights. Its user-friendly interface and interactive features set a new standard for disseminating information. Navigating through the report’s different sections and exploring detailed data has never been easier, thanks to its intuitive design. This inclusive approach ensures that transportation professionals, policymakers, researchers, and the general public can effortlessly access the report and stay informed. Leveraging cutting-edge web technologies, the report incorporates a wide array of interactive elements, such as charts, maps, videos, and infographics. These elements work together to offer a comprehensive understanding of the achievements, obstacles, and strategies behind TSM&O programs. With just a few clicks, users can effortlessly explore various sections, delve into specific areas of interest, and receive updates.
Let us take a look at some of the exciting accomplishments featured in the report:

1. The report highlights the remarkable achievements of the Freeway and Arterial Management Programs, specifically emphasizing their successful management of an impressive 91,875 events. This serves as a testament to the strength and effectiveness of the Freeway and Arterial Management system. Furthermore, the report underscores the significance of visualizations in enabling swift comprehension of intricate information and assisting in data analysis.

2. Intelligent Transportation Systems (ITS) Deployment have made significant progress. The report explores the implementation of a state-of-the-art data analytics system. This technology helps identify areas with high incidents and uncovers the root causes of congestion, leading to more efficient traffic management. This technology improves traffic management and enhances safety with the operation of ramp signals and wrong-way detection systems on I-95. These remarkable deployments optimize our current infrastructure, resulting in enhanced security, safety, and reliability for our entire transportation system.

3. Traffic Incident Management (TIM) deals with unexpected events that cause road closures or disrupt traffic flow. The report highlights the accomplishments of different TIM teams, such as Road Rangers, Severe Incident Response Vehicles, and Rapid Incident Scene Clearance. The report showcases their contributions, including the number of assistance instances and incidents they responded to throughout the year. Behind-the-scenes footage showcases their dedicated work to ensure road safety.

4. Discover the critical role of Resource Management in ensuring the reliability and availability of advanced systems and technologies. Learn about the various accomplishments in information technology, ITS maintenance, and software upgrades. Additionally, get a glimpse of our plans for 2023. We invite you to delve into our exclusive behind-the-scenes video, offering you an immersive understanding of the tireless efforts and invaluable contributions of our IT team.

5. Lastly, the Traveler Information section emphasizes the significance of offering up-to-date traffic, roadway, weather, and other pertinent information to drivers. It showcases different approaches used to keep the public well-informed. Here, you'll find a collection of FL511 media events and past social media campaigns, all aimed to assist travelers in making informed decisions when planning their trips.

Looking Ahead: The Future of TSM&O:
In addition, the report outlines FDOT District Four’s TSM&O vision for the future of transportation. Recognizing the need to adapt to emerging trends and technologies, the district plans to enhance transportation infrastructure, expand intelligent transportation systems, and more. Make sure to check out the report today!

To access the TSM&O interactive Annual Report for Year 2022, visit the FDOT District Four website at www.fdotd4traffic.com or scan the QR code. The report aims to provide informative and engaging content, while showcasing the commitment to advancing the TSM&O Program in the coming years. FDOT District Four remains dedicated to keeping stakeholders informed about progress and achievements.

For more information on FDOT District Four’s 2022 TSM&O Interactive Annual Report, please contact Alexandra Lopez, at Alexandra.Lopez@dot.state.fl.us or by phone at (954) 777-4376.
CCTV Mobile Cameras Improve Monitoring Capabilities in District Six

By Javier Rodriguez, PE, TSM&O Engineer, District Six

The District Six Transportation Systems Management and Operations (TSM&O) Office utilizes closed circuit television (CCTV) cameras to monitor roadway conditions within Miami-Dade and Monroe Counties.

There are currently over 400 cameras deployed along various roadways within the District. The cameras are used by Transportation Management Center staff to detect incidents and convey site conditions to partner agencies and provide incident management on impacted areas. District Six uses its CCTV cameras in a proactive manner to provide the roadway system with a rapid response approach so travel lanes can be quickly cleared and restored back to safe and free-flow conditions.

In addition to the permanent CCTV cameras, the District has three mobile CCTV cameras that can be used when there is no available coverage. The mobile cameras are implemented on an as-needed basis. They are used during special circumstances or events such as monitoring signal operations at a particular intersection, evaluating traffic congestion due to lane closures associated with emergency repairs, or helping with traffic management after a hurricane.

Recently, the District deployed all three cameras in support of an emergency bridge repair. This was a Florida’s Turnpike bridge that spanned SR 826/Palmetto Expressway within the Golden Glades Interchange in Miami. An oversized vehicle struck the bridge causing extensive damage. Several concrete beams had to be replaced. District Six was able to assist the Turnpike by deploying these mobile cameras to show bridge repair progress and the impact on surrounding traffic. The cameras were available for viewing through FDOT’s Data Integration and Video Aggregation System (DIVAS).

The cameras are mounted on portable trailers which are outfitted with microwave vehicle detectors for collecting traffic volume and speed. The mobile cameras can operate on solar, generator, or commercial power and utilize a wireless communication signal. Each camera has been integrated into the Intelligent Transportation Systems (ITS) software, SunGuide, like any other permanent camera.

These portable ITS devices allow District Six to remain responsive to the changing needs of our regional roadway network. They have been an excellent addition to the toolbox of traffic management resources and will be used for many other scenarios in the future.

For more information, please contact Javier Rodriguez at (305) 640-7307 or Javier.Rodriguez2@dot.state.fl.us.
FDOT District Three has appointed David Roark as their new Transportation Systems Management and Operations (TSM&O) Freeway Manager

By Amy DiRusso, PE, TSM&O Engineer, District Three

FDOT District Three has appointed David Roark as their new Transportation Systems Management and Operations (TSM&O) Freeway Manager. In this position, David will be managing the district-wide freeway system, including I-10 and I-110, which now have fully mature field networks. To manage these systems, David will be looking at areas to upgrade aging infrastructure, continue performing gap analyses and filling in those gaps, and overall maintenance.

David has been with the Department for nearly three years, having most recently filled the role of Arterial Manager for the District Three Traffic Operations Office. While in that role, he was instrumental in establishing interconnectivity to over 250 isolated signals previously without communications in District Three. David also helped guide the District’s TSM&O Master Plan and was instrumental in establishing new district-wide general notes for signalization, including a standardized signal cabinet plan for generator hookups. He also managed signal performance measures and inspections throughout the District and worked with local officials while championing the District’s TSM&O Program and creating strategic partnerships.

Prior to working for the Department, he served for over five years as the Lead Supervisor with an in-house consultant in the District Three Regional Transportation Management Center (RTMC), and he has over 15 years of experience in various public safety roles with several local/state law enforcement and emergency service agencies. David brings extensive experience in emergency management, operations, communications, public safety response, and personnel management. He has played a vital role in the implementation and development of the District Three RTMC, since its opening in 2015, as one of the original on-site members of management.

In his new position, David will provide direction and support to all aspects of the TSM&O Program pertaining to the RTMC, Freeway Operations, Traffic Incident Management, ITS Construction, and Infrastructure Management. District Three’s freeway system, now fully built out, is entering an exciting phase of enhancing the existing infrastructure. This includes integrated corridor management (ICM), coordinating TSM&O advancements with the installation of new interchanges, Wrong Way Driving Systems, preparing the freeway system for connected vehicles, and more. David’s operations and emergency management background will be critical and valuable to moving these new District Three projects forward in the coming years.

In his free time, David enjoys spending time with his wife and kids, especially outdoors.

For more information, please contact David Roark at David.Roark@dot.state.fl.us.
The Future of Speed Monitoring

By Mauricio Micota, TSM&O Freeways Engineer

Speeding remains a significant safety concern on our roads, especially on our highways. Drivers who considerably exceed the posted speed limits along interstate freeways have become a major concern for transportation agencies, cities, and communities. These drivers, whether intentionally or not, place themselves and others in danger as well as reduce the overall quality of life for the traveling public. In the year 2022, speeding and aggressive driving were the reasons of over 21,000 crashes, with 1,237 serious injuries and 485 fatalities in the State of Florida.

Engineers have had a limited toolbox when it comes to improving speed limit conformance, and law enforcement agencies are limited by their resources and workforce capacity.

One of the outcomes of Transportation Systems Management and Operations (TSM&O) is the development of practical tools through the implementation of Intelligent Transportation System (ITS) technologies to enable traffic/operation engineers to manage speed more effectively on their roadway system. Recently, the TSM&O Office at District Four has been developing such a tool; a dashboard that monitors and reports speeding conditions along all the freeways managed by the district. The dashboard utilizes the speed data from the existing Microwave Vehicle Detection System (MVDS) units installed along interstate freeways. Named “D4 Freeway Speed Monitoring Dashboard”, it was developed in Tableau, a data analytics application.

Fig 1. Speed Map – Districtwide Speed Map for 85 MPH Threshold on I-95

This dashboard uses data from SunGuide with the highest possible granularity of the aggregated speed (20 seconds) coming directly from the aforementioned MVDS units. Along with this information, corresponding device geolocation tables were extracted and correlated inside the Tableau application. The average speed data was displayed on a map where the user can select roadway segments, direction of travel, time-of-day, and day-of-week. The dashboard in its current stage allows visualizing dynamic reports and exporting static and dynamic reports.

1 Signal Four Analytics https://signal4analytics.com/
In addition, the dashboard allows assessing freeway operational conditions from the previous seven days of data.

Fig. 2 Line Graph Chart - Multiple Day Comparative Speed Data Map
The static reports are being distributed daily along with a weekly summary by the application itself via email. Dynamic files can also be shared, and all users with a free Tableau reader license can visualize different outputs by modifying the filters. Reports could also be exported in many formats such as, image, pdf, ppt, CSV, excel, and as interactive Tableau worksheets.

Additionally, the application is expected to self-generate reports containing speed enforcement recommendations by cross-referencing weekly data and critical inputs. Law enforcement agencies can be alerted by the application via email to quickly identify the freeway segments at specific days and times that may be exhibiting excessive speeding.

Dashboard bridges this gap. The ease of generating maps and data files will greatly benefit the TSM&O professionals and first responders in readily identifying operational issues on the freeways, thereby aiding in developing appropriate strategies required to address the concerns.

For more information on FDOT District Four’s Speed Monitoring, please contact Mauricio Micolta, at Mauricio.Micolta@dot.state.fl.us or by phone at (954) 847-2689.
Out with the Old, In with the New!

District Three Upgrades Their TMC Video Wall and More!

By Amy DiRusso, PE, TSM&O Engineer, District Three, FDOT, Demetrius Lewis, Metric and Russell Allen, Atkins

The Florida Department of Transportation (FDOT) District Three Transportation Systems Management and Operations (TSM&O) manages and monitors Interstate 10, Interstate 110 and the arterial roadways. For incident management and monitoring purposes, FDOT District 3 has deployed several roadway sensors such as Closed-Circuit Television (CCTV) cameras, Microwave Vehicle Detection System (MVDS) units and plans to deploy Connected Vehicle (CV) technology along these roadways.

The Regional Transportation Management Center (RTMC) for FDOT District Three, like other Districts, is a central hub and control facility for TSM&O incident management and monitoring. At inception in 2015, the RTMC was equipped with a state-of-the-art video wall to monitor ITS CCTV feeds for the Northwest Florida Region; however, the technology has now gone beyond its useful life and the network and coverage area has expanded.

FDOT District Three has been engaged in a new project over the past few months to replace the legacy video wall technology and install a brand-new video wall to meet the growing demands and requirements of the RTMC today and future traffic operations. While evaluating the need for a new video wall, it was also determined that additional operator consoles were essential to accommodate operations personnel to better serve the public. The District had three goals in mind when seeking a new video wall:

1. Replace the aging system and components which were approaching end-of-life with newer technology;
2. Provide additional viewing space with more capacity and capability to support multiple/concurrent incident management events (e.g., larger split screen viewability for multiple cameras per display panel); and
3. Enhance the system’s features along with the needed support for maintenance and warranties.

While the project is still underway, the District is now able to take advantage of the new video wall solution which is comprised of sixteen (16) 24-hour 75" Samsung Direct View LED-lit LCD Flat Panel displays in a 2X8 video wall array, accompanied by a new Data Path video wall software system to control the video wall in the RTMC, District EOC and the displays around the headquarters Admin building.

The project also includes an upgrade to the RTMC UPS system for power management at the RTMC, Crestron above ceiling speakers for the PA system and wireless tablets for video wall control of the RTMC and executive suite display monitors. With the added features and upgraded technology, the FDOT District Three RTMC new video wall solution will aid the operations staff in monitoring the roadways more efficiently and providing exceptional service to the traveling public. The project is scheduled to be completed by the fall of 2023.

For more information, please contact Amy DiRusso at (850) 330-1241 or by email at Amy.DiRusso@dot.state.fl.us.
Travel on roadways can be disrupted before and after a hurricane or tropical storm. The Florida Department of Transportation encourages all motorists to check FL511 before a motor trip for this essential information:

- **Alerts** for hurricane evacuees
- **Road and bridge closures, toll suspensions** and evacuation routes
- **Downed powerlines** and flooded roads
- **Crashes, stalled cars** and congestion
- Much more **live 24/7 traffic information** provided by the FDOT
- Website available in **Spanish**
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 32428-9900
(850) 638-0250

DISTRICT 4
Jonathan Overton, DTOE
Alexandra Lopez
FDOT District 4 Traffic Operations
3400 W. Commercial Blvd.
Ft. Lauderdale, FL 33309
(954) 777-4350

DISTRICT 5
Jim Wood, 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 11th 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
(954) 975-4855

CENTRAL OFFICE
Rudy Powell, Jr., Director
Traffic Engineering and Operations Office
(850) 410-5419

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

Vacant
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

Chris Lewis
State Traffic Services Program Engineer
(850) 410-5416