

Annual Report FY 2020–2021

# LESSONS LEARNED



FLORIDA DEPARTMENT OF TRANSPORTATION, DISTRICT SIX  
Transportation Systems Management and Operations



# A MESSAGE FROM THE DISTRICT SIX SECRETARY



**Stacy Miller, P.E.**

District Six Secretary  
Florida Department  
of Transportation

This fiscal year continued treading into new territory as transportation trends and activity navigated through the ongoing pandemic. Safety measures at the SunGuide Transportation Management Center (STMC) stayed in place; telework schedules were refined. This new transportation landscape gave an excellent opportunity for the STMC and the Florida Department of Transportation (FDOT) District Six Transportation Systems Management and Operations (TSM&O) office to adapt and learn from these experiences. It is these lessons learned that help the TSM&O office provide the necessary transportation initiatives for its partners and the motoring public. The TSM&O office embraced the FDOT's Vital Few to inspire innovation, improve safety, and enhance mobility while continuing the FDOT's mission to *provide a safe transportation system that ensures the mobility of people and goods, enhances economic prosperity, and preserves the quality of our environment and communities.*

One area of innovation has been with connected and autonomous vehicles (CAV) concepts. The TSM&O office led the way with two initiatives in its incident management and arterial operations area. The Incident Response Vehicle (IRV) fleet was equipped with devices that send a signal to navigation applications when they are active at a crash event. This signal is relayed to application users as a hazard alert and advises them to move over or slow down. This vehicle-to-infrastructure (V2I) project shows promise for contributing to the increased safety of the incident management staff.

At the beginning of the fiscal year, the TSM&O office assumed responsibility for the operations and maintenance (O&M) of the traffic signals in the City of Key West. The City had opted out of its maintenance agreement with the State. The TSM&O office took the lessons learned from the initial O&M responsibilities from the first set of traffic signals spanning Stock Island to Key Largo and applied them to this effort. The Monroe County Traffic Signal System (MCTSS) expanded from 17 to 34 traffic signals. The MCTSS also includes other traffic control devices such as school zone beacons, emergency signals, and High Intensity Activated Crosswalk (HAWK) pedestrian signals. The TSM&O office prepared for this responsibility by improving the traffic signal infrastructure with upgrades to uniform advanced traffic controllers and installing uninterruptible power supplies (UPS).

The Keys Connecting Overseas to Advance Safe Travel (Keys COAST) project continued to move forward this fiscal year. This project uses the advanced traffic signal controllers installed along US 1 in Monroe County to provide signal phase and timing (SPaT) and automated traffic signal performance measures (ATSPM). This design-build project was awarded and is currently in the design phase. This will be the first CAV project in the district.

Incident management resources continued to provide safe service during the ongoing pandemic. Road Rangers and IRV provided excellent service to the motoring public, clearing traffic incidents quickly to minimize disruption to the normal traffic flow. Our roadway incident clearance time this fiscal year averaged 25.3 minutes, representing a 49.5% reduction over the 2005 baseline of 50 minutes. Road Rangers responded to over 57,500 activations.

The community outreach staff assisted incident management by producing three videos for National Traffic Incident Response Awareness Week. The videos were testimonials from a Road Ranger, an IRV operator, and the two together. The videos attempted to put a personal touch on why it is important to be safe when incident management personnel are assisting a traffic incident. These videos also support FDOT and Florida Highway Patrol's (FHP's) Move Over Law initiative requiring motorists to move over a lane or slow down to 20 MPH below the speed limit when emergency or incident management vehicles are on scene.

There was a significant increase in Rapid Scene Incident Clearance (RISC) events. The RISC contractors responded to 41 events—an increase of 46% over the previous fiscal year. RISC is an incentive-based program for participating vendors to clear large-scale events (such as an overturned tractor trailer with spilled load) as soon as possible.

In the coming year, we are expecting to hopefully begin getting back to a normal pre-pandemic operation and assisting the transportation region as traffic volumes are expected to increase.

I invite everyone to learn about the TSM&O office and the valuable lessons learned that keep this important program moving forward.

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Foundation for the signature bridge under construction near downtown Miami (Project I-395 / SR 836 / I-95)



A large construction site at sunset. In the foreground, a red truck is partially visible. A body of water is in the middle ground, with a concrete barrier and a sign that says "45 MPH". Several concrete trucks are parked near the water. In the background, there are cranes and a building with a glass facade. The sky is orange and cloudy.

# INTRODUCTION

THE THEME FOR THIS YEAR'S ANNUAL REPORT IS "LESSONS LEARNED." THE DISTRICT SIX TRANSPORTATION SYSTEMS MANAGEMENT AND OPERATIONS (TSM&O) AND ITS SUNGUIDE TRANSPORTATION MANAGEMENT CENTER (STMC) HAD ANOTHER CHALLENGING FISCAL YEAR COVERING JULY 2020 THROUGH JUNE 2021.

***Lessons Learned*** is a consistent mindset at the STMC. The STMC continues to draw on its experience for solving issues such as handling significant traffic volumes due to extended social events, expanding traffic signal systems, making continued improvements to the managed lane network, and providing incident management services during a pandemic. Some of the key challenges experienced during FY 2020–2021 were expanding the Monroe County Traffic Signal System (MCTSS) into the City of Key West, the ongoing impact of the pandemic on regional traffic needs, special event traffic during March and April 2021, and an active hurricane season.

The STMC took lessons learned and applied them to other facets of the operation. For example, all traffic events entered in the SunGuide system software are graded for operator accuracy. This is a very labor intensive process. The Operations Task Manager (OTM) software includes the Operator Quality Control (OpQC)



module, which assists in flagging events to be graded. The STMC has entered over 50,000 events each year for the past 6 years. This equates to over 135 events per day. Operations and software support staff collaborated to develop a random sample algorithm to reduce the number of events graded yet still maintain the expected quality. The OpQC module was also updated to provide additional intelligence to help with this effort. This successful endeavor has helped reduce the manpower needed to grade events and refocus that effort on training staff. It is important to note that OTM has been distributed to all districts, so any improvement made to a module is shared statewide.

Experience with high-traffic-volume social events helped the STMC coordinate with its regional partner, the City of Miami Beach, during the college spring break season. This season was unique as pandemic protocols were relaxed, creating an inviting tourist area. Traffic volumes into the City became unmanageable along the two major causeways that access Miami Beach. District Six worked with the City to develop a traffic mitigation plan. The STMC facilitated nightly virtual meetings during which regional closed-circuit television (CCTV) cameras could be viewed by FDOT Central Office, District Six Executive Management, and others to ascertain the traffic situation in real time.

The STMC has almost constant communication with the Florida Highway Patrol (FHP) Miami Regional Communication Center (MRCC). The MRCC is co-located with the FHP within the control room mezzanine. To enhance this coordination, the STMC moved its ramp signal operator to the MRCC dispatch area to serve a dual purpose: handle ramp signals along I-95 and be an FHP liaison to the control room operators. STMC operations staff are now able to communicate with its liaison without disrupting MRCC dispatching services.

#### **Dynamic message sign along US 1 in Florida City, Florida**

This fiscal year, several public-facing dashboards were created and posted on our program website, [sunguide.info](http://sunguide.info). The first dashboard provides the “TMC-at-a-Glance” on our homepage. Some of the key performance measures can be seen for the entire year or filtered by month and roadway.



The second dashboard was produced for the Traffic Incident Management team. This dashboard summarizes some of the performance measures used by the Incident Management program and is consistent with those used by the Federal Highway Administration.





The TSM&O office was proud to have the inaugural Intelligent Transportation Society (ITS) Florida awards for Road Ranger of the Year, Yoel Banobre (left), and TMC Operator of the Year, Bryan Salcedo (right), be given to staff in District Six.



Several other significant initiatives were accomplished:

- Tested advanced traffic controller for future ramp signals along SR 826.
- Began northbound improvement project for Palmetto Express.
- District Six Road Ranger and Operations staff selected for inaugural annual ITS Florida awards.

Coordination with regional partners continued to be important during this fiscal year. It is beneficial to have multiple agencies and municipalities communicating with each other to share initiatives and updates. Partner agencies include:

- Intra- and inter-FDOT Districts
- Florida's Turnpike Enterprise
- Miami-Dade County
- City of Miami Beach
- Monroe County
- Local Expressway Authority
- Florida Highway Patrol
- Port Miami Tunnel



FLORIDA DEPARTMENT  
OF TRANSPORTATION

# TSM&O

## Our Mission:

Identify, prioritize, develop, implement, operate, maintain, and update TSM&O strategies and measure their effectiveness for improved safety and mobility.

## Our Vision:

TSM&O will increase the delivery rate of fatality-free and congestion-free transportation systems supporting the FDOT vision and Florida Transportation Plan goals.

This FDOT District Six TSM&O Annual Report covers the fiscal year from July 1, 2020, to June 30, 2021 (FY 2020–2021) and aligns with the program's five primary functional areas listed below.



**Intelligent Transportation Systems (ITS) Deployments.** ITS field devices provide the necessary data for STMC operations. The TSM&O office manages planning, design, and procurement of ITS equipment, including cameras, dynamic message signs (DMS), vehicle detectors, arterial systems, and communications.



## SunGuide Transportation Management Center (STMC) Operations.

The STMC is the central location and clearinghouse for data collection and dissemination—the command center for managing traffic incidents. It provides proactive operations through express lanes, ramp signaling, arterial operations, and other active traffic management strategies.



**Incident Management.** This functional area dispatches Road Rangers and other incident management resources to safely and quickly clear lane-blocking events and also assists motorists. An important part of the program is coordination with first responders to identify, develop, and implement solutions to improve incident management.



**Information Technology (IT)/ITS Maintenance.** This functional area handles the critical tasks of maintaining the indoor STMC IT system and outdoor ITS devices, as well as providing software support to ensure system availability and stability.



**Traveler Information.** This functional area provides real-time traveler information services through various sources such as internet, smartphone applications, and social media.

This is the sixteenth edition of District Six's TSM&O Annual Report. The report contains informative details about the TSM&O program. We welcome you to join District Six as we continue to learn from our experience and apply it to the southeast Florida multimodal transportation systems.

# ITS DEPLOYMENTS

The TSM&O office has deployed ITS devices and equipment since the middle 1990s. There have definitely been lessons learned along the way due to expansion of the system, and changes in technology and traffic needs.

Improvements in communication technology and hardened equipment have extended the life of initial deployments, but the TSM&O office realized that they need to plan for periodic replacements. Several projects this fiscal year enhanced the ITS devices and equipment by upgrading fiber optic cable along I-95 and replacing end-of-life ITS equipment. A summary of FDOT District Six TSM&O projects in progress or completed during FY 2020–2021 follows.

**I-395/SR 836/I-95 Design-Build Project.** The I-395/SR 836/I-95 design-build project continued moving forward during fiscal year 2020–2021. This project began in January 2019 and is expected to be completed in summer 2026. This project completely reconstructs the existing interchange and creates a signature bridge that will span 1,025 feet over NE 2nd Avenue and SR 5/Biscayne Boulevard. Additional roadway capacity will be provided leading to improved mobility in this area. There will be significant pedestrian improvements, community access, and ITS solutions as well. The signature bridge will transform the area beneath I-395 into 55 acres of open communal spaces for nearby communities and visitors. The project will add capacity to I-395 with three through-lanes in each direction and provide separate connector ramps for traffic to and from I-95. The limits on I-395 are from the SR 836/I-95/I-395 Interchange to the MacArthur Causeway, approximately 1.4 miles long. The project also includes work on SR 836 from NW 17th Avenue to the SR 836/ I-95/I-395 Interchange. The improvements on SR 836 include the construction of an elevated bridge that begins just east of the toll gantry at NW 17th Avenue, rising over the center of SR 836 and allowing drivers to bypass the I 95 Interchange, touching down at I-395 east of I-95.

**Districtwide ITS Replacement Project (Miami-Dade and Monroe Counties).**

ITS replacement projects were active this year. One of the replacement projects that began in July 2019 was completed this fiscal year in May 2021. This project replaced 11 arterial DMS along US 1 in south Miami-Dade County and in Monroe County. This project also improved network communications along I-95 from SR 112 to the Golden





**I-395 segmented bridge construction**



**Fiber optic cable installation**

Glades Interchange by integrating newly installed, 144-count fiber optic cable; replacing 12-count fiber optic cable laterals; and replacing ITS cabinet equipment such as field ethernet switches, fiber optic patch panels, fiber optic connectors and jumpers, and uninterruptible power supplies and batteries.

Another replacement project that began in July 2019 is replacing four arterial DMS, two microwave vehicle detectors, several CCTV cameras, and field hub equipment. Several hub buildings positioned around the district house critical network equipment to keep the system running. The hub buildings must be environmentally controlled to regulate heat generated by the equipment. The air conditioning units at two hub buildings were replaced. The arterial DMS were replaced along Arthur Godfrey Road, Alton Road, and US 1. This project is expected to finish in December 2021.

The following table illustrates the increase in deployed ITS devices from 2005 to 2021.

**Increases in deployed ITS devices:**

ITS DEVICE	2005	2021
CCTV Cameras	69	424
DMS	22	202
Detectors	205	520
Ramp Signals	0	41*
ASCT Cameras	0	106
ASCT Intersections	0	30

ASCT = Adaptive Signal Control Technology

\*19 ramp signals along SR 826 are not yet operational



# STMC OPERATIONS

Lessons learned are a big part of STMC Operations. The STMC serves as a hub of information, coordination, and dissemination. Operators at the STMC need to have the supportive procedures to help complete tasks at hand. The experience that we gain affects our procedures and standard operating guidelines (SOGs). The SOGs are updated annually to adjust to new traffic needs and new policies. The pandemic continued to shape how we conduct business in a new environment. This fiscal year built upon the experience received from the last year's initial impact of the pandemic.

The STMC improved how data is collected and distributed. Utilizing information from our vast historical data, multiple other sources, and data analytics has transformed how we use data. Several of our standard reports were improved based on data analytic capabilities.

The STMC operates 24 hours a day, 7 days a week. Fortunately, we were able to continue providing this level of service while still keeping staff safe and productive in a changing work environment. The Pandemic Response Action Plan (PRAP) developed last year at the onset of the pandemic was updated and modified as pandemic protocols changed. The STMC serves as the command and control center for traffic management (including express lanes, ramp signaling, and arterial operations) as well as its core functions of incident, work zone, emergency, and special event management. The STMC coordinates with emergency responders, Road Rangers, and other incident management resources to clear incidents as quickly and safely as possible from South Florida's roadways. This coordination is enhanced by the co-location of the partner agencies including the Local Expressway Authority TMC Operations staff, and the Florida Highway Patrol (FHP) dispatch.

## ARTERIAL OPERATIONS

**Monroe County Traffic Signal System.** Valuable experience was gained from establishing the Monroe County Traffic Signal System (MCTSS) 3 years ago along US 1 from Stock Island to Key Largo. Arterial Operations started the fiscal year by expanding the MCTSS to state roads in the City of Key West. The City had opted out of its maintenance agreement with FDOT, and the TSM&O office assumed operations





**City of Key West traffic signal maintenance**

and maintenance responsibilities on behalf of FDOT. Our previous experience was helpful in making a smooth transition for traffic signal operations in the City. The MCTSS expansion added 17 signalized intersections, five High-Intensity Activated Crosswalks (HAWKs), two school zone beacons, and two traffic warning beacons. The TSM&O office worked to upgrade the traffic signal controllers and components, and added uninterruptible power supplies and batteries for improved power reliability. Accomplishing this makes the equipment more resilient and the overall system more reliable. The MCTSS now includes 34 signalized intersections, eight emergency signals, two drawbridge signals, and multiple flashing beacons.

Our community outreach and arterial operations staff handle complaints from the motoring public. Having the advanced traffic management software (ATMS) in place for the MCTSS allows for quick assessment and resolution of these concerns. Feedback from local law enforcement and the community has been positive.

The MCTSS geographic coverage area of 105 miles does provide a challenge to our maintenance services. Our ITS maintenance contractor has staff that reside in the Florida Keys, which cuts down on response time. Arterial Operations staff work closely with the ITS maintenance contractor to give as much detail as possible to minimize troubleshooting and repair time.

The TSM&O office's partnership with the Monroe County Sheriff's Office and the City of Key West Police Department (KWPD) assists with confirming and initial troubleshooting of these problems. The TSM&O office trained the KWPD in basic traffic signal troubleshooting prior to FDOT assuming operations and maintenance responsibilities. The STMC works with schools in the Florida Keys to program the eight flashing beacons. Arterial Operations started a project to add an alarm system for the school zone flashing beacons. The system will provide automatic alerts by text and email alerts for problems such as power outages, malfunctions, and knock downs.



**STMC operator at an  
arterial work station**

The results of the effort and coordination for the MCTSS can be demonstrated in the continued reliability of the system. During FY 2020–2021, the traffic signals in the MCTSS were available 99.8% of the time, traffic signal controllers were available 100% of the time, and traffic detection was available 100% of the time.



In the coming fiscal year, the MCTSS will be preparing for the Keys COAST project. Keys COAST is a connected vehicle project that will be deployed along US 1 in the Florida Keys implementing applications such as freight signal priority, emergency vehicle preemption, transit signal priority, vehicle-to-vehicle basic safety, and pedestrian/cyclist safety. There is another project that will be upgrading seven emergency signals along the corridor. The work includes new cabinets, traffic signal controllers, new confirmation CCTV cameras, and migration to the State's microwave wireless backbone.

**SW 8th Street ASCT.** The STMC continued operations of the ASCT system along SW 8th Street. This project is a continuing lessons learned exercise as the Arterial Operations staff get more adept and proficient at managing the ASCT system. This system includes 30 signalized intersections from SW 142nd Avenue to SW 67th Avenue. This corridor is unique, as it intersects two highways: Florida's Turnpike and the Palmetto Expressway. There are multiple traffic generators throughout the corridor including Florida International University (FIU). The ASCT system optimizes the signal timing patterns of individual signalized intersections, based on real-time data, while improving the traffic flow throughout the corridor.

This was initially a 2-year pilot project but has become a permanent operation completing its fourth year of operations. STMC arterial operators monitor the ASCT system, record motorist comments, track equipment availability, and coordinate signal timing changes with Miami-Dade County. Arterial Operations staff continue to collaborate with FIU for operational assessment of the system.

The FIU assessment showed the ASCT system provided a benefit across many performance measures. The study confirmed that along SW 8th Street, travel times improved in the range of 4.9% to 8.6%, total delay was reduced by 10.9%, vehicle throughput increased by 1.5%, and crash frequency was reduced by 17.2%. On the cross streets, total delay was reduced in the range of 9.8% to 23.5%. The study also concluded that the project yielded a benefit to cost ratio of 4.2 as a result of the travel time improvements.

## MANAGED LANES OPERATIONS

The STMC continued to operate and maintain three managed lane corridors.

**95 Express.** The STMC continued operations of 95 Express for 21 miles from SR 112 to I-595. The project completed its 12th full fiscal year in operation. 95 Express has been impacted by construction projects to the south and north of the system. The I-395/SR 836/I-95 design-build project has caused the segment 1 northbound ingress and southbound egress to be shifted north. The original ingress and egress points will return at the end of the design-build project. Phase 3 construction of 95 Express at the north end continues from the Miami-Dade/Broward County line. The adjacent portion of that project, Phase 3C, is expected to be completed in late 2024.

**Palmetto Express and 75 Express.** In July 2020, District Six began an interim improvement project for the northbound Palmetto Express. The main goal of this project was to improve capacity for the northbound non-tolled general purpose lanes. This was accomplished by reducing the Palmetto Express segment from two lanes to one lane, removing the ingress at NW 36th Street and removing the egress to NW 154th Street. This project was quickly completed in December 2020. The results after project completion have been favorable. Overall traffic throughput increased 13.5%, general purpose lane average speed increased by 29.4%, and express lane average speed increased by 3.7%. The overall corridor limits are SR 826 from Coral Way to I-75 and then continuing along I-75 from SR 826 to I-595 in Broward County. The overall project length of 75 Express and Palmetto Express within District Six is approximately 15 miles.

## RAMP SIGNALING OPERATIONS

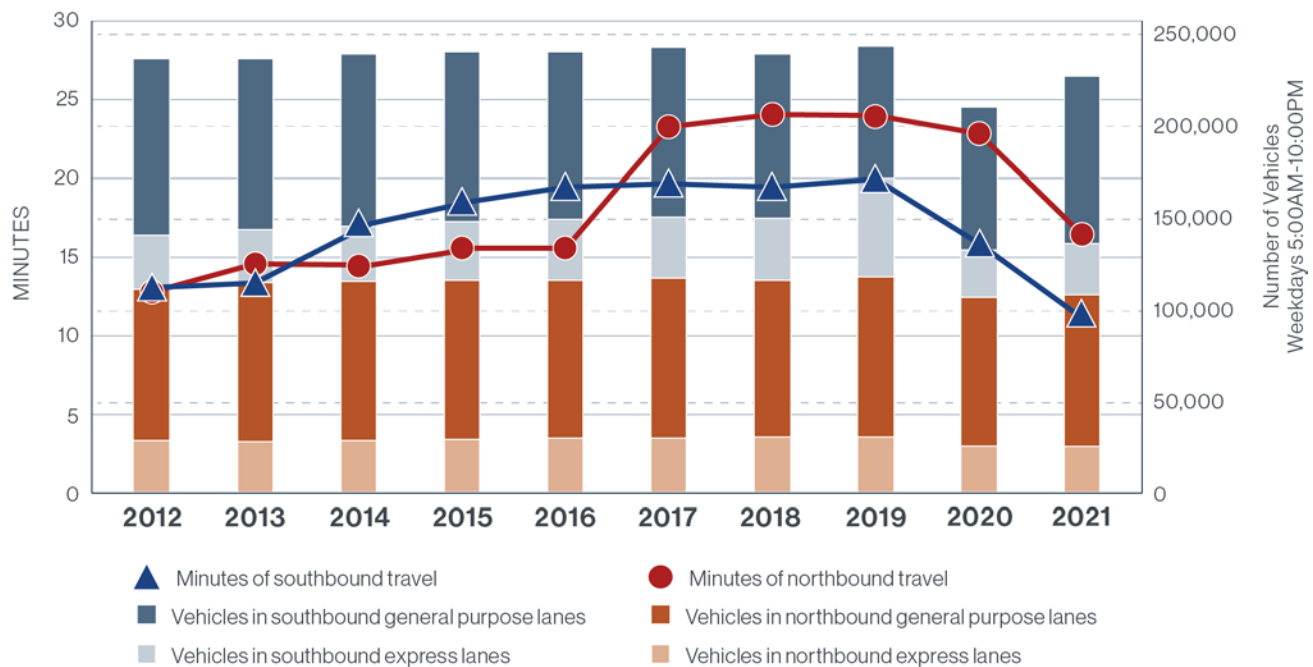
Ramp signals along I-95 entered the 11th full year of operation. This continues to be an important tool for managing traffic along this corridor. There are 22 ramp signals along both directions of I-95 from NW 62nd Street to Ives Dairy Road. The system improves operations along I-95 by regulating the flow of vehicles entering the roadway during peak periods of travel. STMC operators can also activate the ramp signaling system in the case of congestion during non-peak periods or to assist during an incident or special event. The STMC began co-locating ramp signal operators with the FHP Miami Regional Communication Center (MRCC) on the second floor of the control room. This new FHP liaison position helps increase efficiency of communications and coordination between TMC operators and the MRCC dispatchers.

SR 826 has 19 ramp signals at on-ramps from NW 25th Street to NW 154th Street that were installed as part of the Palmetto Express project. These ramp signals are not yet operational. They are planned to be activated after the SR 826/Palmetto Expressway Capacity Project is completed in 2024.

Ramp signals are controlled remotely by the STMC, but much like a signalized intersection, ramp signals need a traffic signal controller to work at the on-ramp. The ramp signals are operated locally by Model 170 traffic signal controllers. However, the Model 170s are no longer supported, and consequently the STMC staff began testing advanced traffic signal controllers that will replace the equipment along I-95 and SR 826.

As traffic volumes recover from pandemic levels, demand along the freeways will continue to increase, and ramp signaling will continue to be one of the tools helping District Six continue to be proactive in managing congestion. The following graph shows the average travel times along I-95 from before the ramp signaling system's

**Average Travel Times on I-95** from NW 62 Street to Ives Dairy Road





implementation in 2008. The graph does show the effect of the pandemic on travel time and traffic volume.

## CONSTRUCTION AND SPECIAL EVENT COORDINATION

The experience the STMC gained during the beginning of the pandemic carried over into this fiscal year. An increasing challenge for STMC Operations is coordinating with multiple agencies to ensure all planned and unplanned lane blockage events are dealt with in the most efficient manner possible. During FY 2020–2021, coordination between the STMC Operations staff and these various agencies increased as several construction projects continued to affect District Six roadways.

**Construction Coordination.** Large projects along I-95, SR 826, SR 836, and I-395 created different traffic patterns and dynamics during the overnight/early morning hours. The STMC Construction Coordinator checked in with the project leads of several construction projects to create pre-event information plans that would advise the motoring public of upcoming construction-related closures. The STMC Operations staff developed these plans for Palmetto Express and 75 Express, MacArthur Causeway bridge construction, and I-395/SR 836/I-95 Interchange reconstruction, among others. STMC staff also provided traffic management and monitoring support for projects such as the Golden Glades Multimodal Transportation Facility and the Cow Key Channel Bridges project in Key West.

**Special Event Coordination.** STMC Operations staff coordinated on several special events during FY 2020–2021. During the 2020 election year, the STMC was contacted several times by the United States Secret Service as high-profile politicians visited the region for debates and other functions. Coordination for COVID-19 testing and food distribution sites continued into this fiscal year. Many of the testing sites were converted into vaccination sites. As pandemic protocols relaxed at the beginning of 2021, college spring break in Miami Beach became a popular attraction. The STMC assisted the City of Miami Beach with its curfew plan along I-195/Julia Tuttle Causeway and I-395/MacArthur Causeway. STMC staff hosted nightly virtual traffic monitoring viewing sessions so FDOT Executive Management could see traffic impacts in real time.

## SOFTWARE ENHANCEMENTS

During FY 2020–2021, STMC Operations software development continued to focus on the Operator Quality Control (OpQC) module of the Operations Task Manager (OTM) suite of software. OpQC is used to help evaluate and grade SunGuide traffic events, ensuring that operators are meeting performance measures. Grading an average of 4,340 events per month can be labor intensive. A methodology was developed in OpQC to statistically select a random sample of events for grading. This helped reduce work-hours spent grading and increased time spent training and supporting STMC Operators. Additional flexibility continued to be enhanced with OpQC so that it could be adapted to support other districts' operations.

District Six continued to be active with the Statewide Express Lane Software (SELS) change management team (CMT). The CMT is composed of representatives from all districts and the Central Office. The group tracks the progress of other express lanes projects, coordinates software changes to meet project schedules, and manages by consensus any proposed changes to SELS. FDOT Central Office will lead and support the next generation of SELS.

Enhancement of the Responder's Site continued this fiscal year. The Responder's Site allows approved users to view up to four STMC cameras at a time. The site also allows users to see active traffic events. Each event includes a button for the user to select an image from the nearest camera. Picture quality was improved, and the user interface was enhanced. This fiscal year also saw the implementation of the Data Integration and Video Aggregation System (DIVAS) by FDOT Central Office. DIVAS gives approved users viewing access to all cameras in the state. This allows Central Office Leadership and District Executive Management the ability to view multiple streaming cameras.

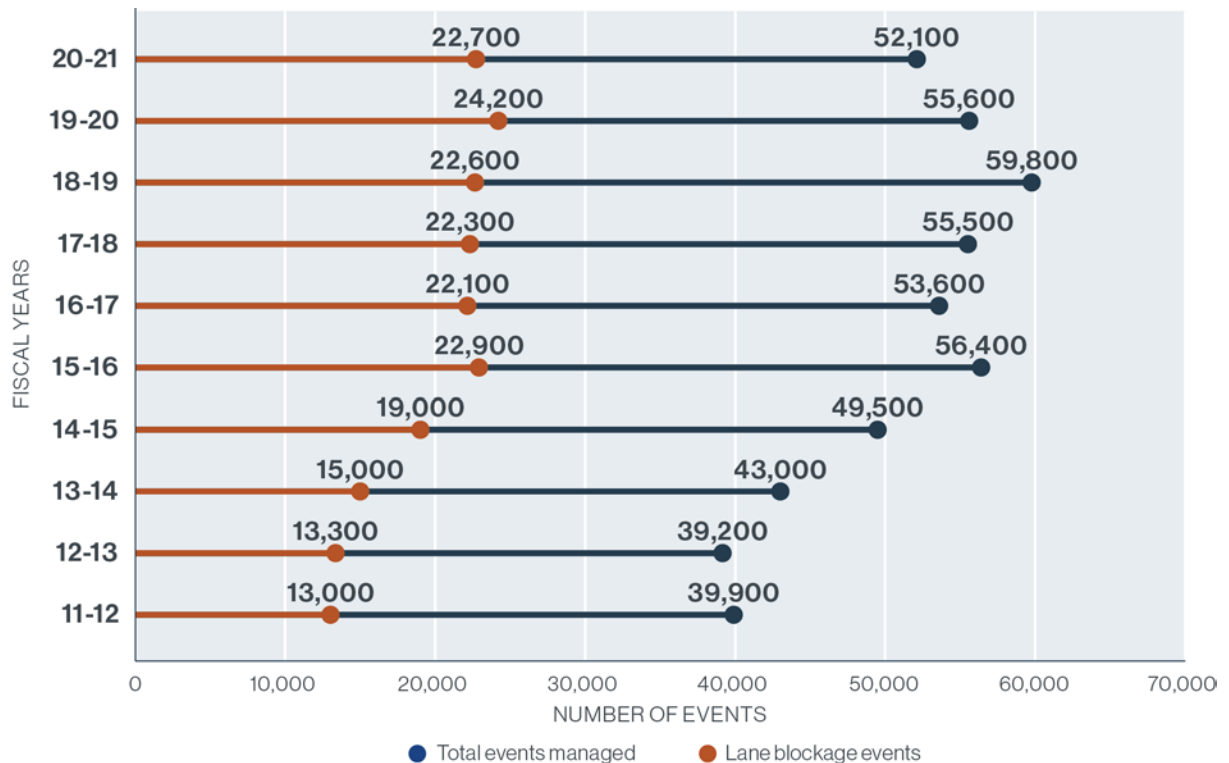
STMC software development staff assumed maintenance and enhancement of the Road Ranger Driver Information System (RRDIS). RRDIS allows the incident management team to track all Road Ranger and IRV personnel, vehicle inspections, position requirements, and other information.

## PERFORMANCE MEASURES

In December 2007, District Six set targets for key operational performance measures that have the greatest impact on the public. During FY 2020–2021, STMC Operations staff continued to exceed those targets, thanks to quality control procedures and dedicated staff who provide continual guidance and training to operators with assistance from OTM. Overall events and lane blockage events each decreased by 6%. The lower number of events could be attributed to lower traffic volumes due to the pandemic.

The graph below shows the number of events compared to previous years. The effect of pandemic traffic can be seen in this graph. The table on the following page shows the performance measures' average results and targets. STMC operators managed 52,100 total events and 22,700 lane-blocking events during FY 2020–2021.

**FDOT District Six Events Managed**





## FDOT District Six Events Managed

PERFORMANCE MEASURES	FY 11-12	FY 12-13	FY 13-14	FY 14-15	FY 15-16	FY 16-17	FY 17-18	FY 18-19	FY 19-20	FY 20-21	TARGET
DMS Efficiency (GPL)	99.77%	99.87%	99.78%	99.74%	99.77%	99.86%	99.90%	99.82%	99.85%	99.89%	≥95%
DMS Efficiency (EL)						100%	100%	100%	100%	100%	100%
Operator Error/Event (GPL) (LB)	0.10	0.12	0.13	0.15	0.15	0.14	0.17	0.17	0.15	0.14	≤0.20
Operator Error/Event (EL) (LB)						0.06	0.06	0.07	0.08	0.06	≤0.10
Operator Error/Event (GPL) (NLB)	0.10	0.12	0.13	0.15	0.15	0.08	0.10	0.07	0.04	0.06	≤0.20
Operator Error/Event (EL) (NLB)						0.06	0.08	0.07	0.06	0.05	≤0.10
Dispatch Road Rangers (GPL)	00:00:44	00:00:44	00:00:44	00:00:45	00:00:46	00:00:38	00:00:29	00:00:28	00:00:33	00:00:29	≤00:02:00
Dispatch Road Rangers (EL)						00:00:21	00:00:18	00:00:20	00:00:25	00:00:24	≤00:00:60
Time to Confirm an Event (GPL)	00:01:42	00:01:40	00:01:48	00:01:11	00:00:57	00:00:26	00:01:16	00:01:26	00:01:14	00:01:02	≤00:02:00
Time to Confirm an Event (EL)						00:00:05	00:00:09	00:00:13	00:00:28	00:00:17	≤00:01:00
Time to Post DMS (GPL)	00:02:27	00:02:16	00:02:28	00:02:16	00:02:07	00:01:47	00:01:39	00:01:40	00:01:39	00:01:37	≤00:03:00
Time to Post DMS (EL)						00:01:00	00:00:55	00:00:56	00:01:06	00:01:02	≤00:01:30
Notify Other Agencies (GPL)	00:01:11	00:01:30	00:01:42	00:02:18	00:02:28	00:02:11	00:01:46	00:01:33	00:01:45	00:01:41	≤00:07:00
Notify Other Agencies (EL)						00:01:30	00:01:12	00:01:10	00:01:30	00:01:14	≤00:04:00

DMS = Dynamic Message Sign; EL = Express Lane; GPL = General Purpose Lane; LB = Lane-Blocking; NLB = Non-Lane-Blocking

# INCIDENT MANAGEMENT

The incident management team continued to build on lessons learned from multiple areas this fiscal year. Changes such as pandemic protocols, increase in electric vehicle use, and construction travel lane modifications factor into how incident management staff responds to and handles incidents. The changes due to the SR 826 Northbound Improvement project provided new challenges.

Interaction with motorists and other first responders continued to be challenging this fiscal year. Keeping social distance and wearing masks make it difficult to communicate with motorists with background highway traffic noise. Road Rangers and IRVs try to get vehicles relocated to a safe location out of travel lanes as soon as possible. Typically, this means towing a vehicle to the outside shoulder, an emergency stopping site, or a designated incident recovery area such as at the Golden Glades Park-and-Ride.

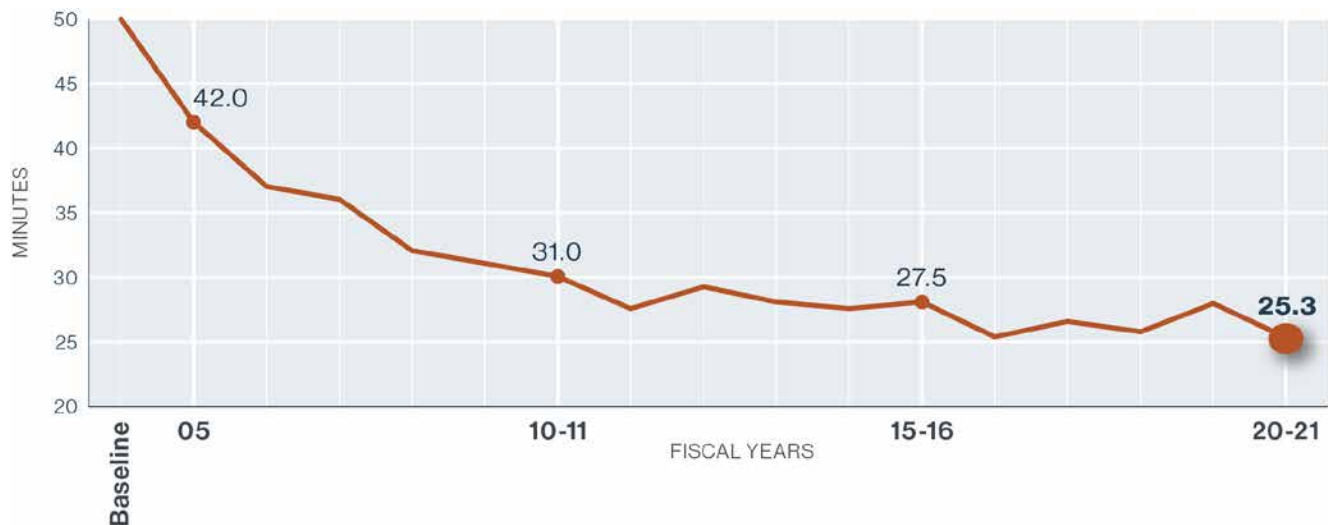


SW 8<sup>th</sup> Street  
Road Ranger  
staging area

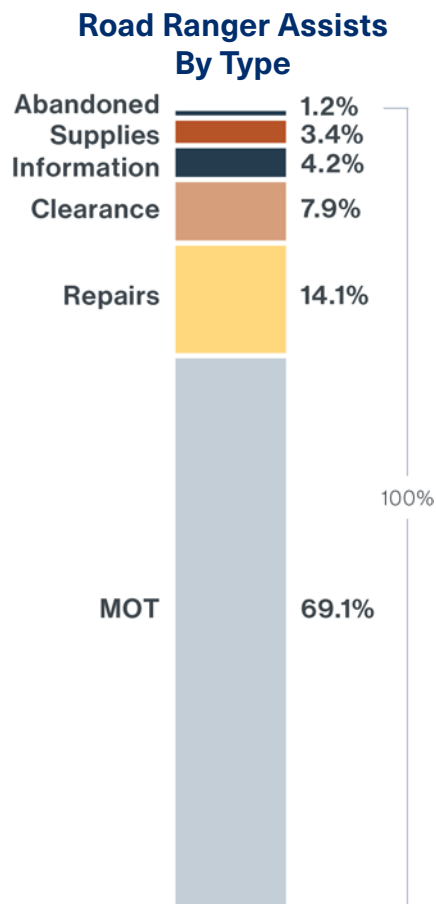
Despite the challenges of the pandemic, District Six remained active with the Traffic Incident Management (TIM) team. The TIM team allows partner agencies to collaborate and share information and lessons learned for improved response and recovery scenarios. The primary goal, other than being focused on safety, is to support the Open Roads Policy by clearing travel lanes of incidents as quickly and safely as possible. This is shown in our average roadway clearance time of 25.3 minutes (see graph that follows). This is a 49.4% reduction since the benchmark of 50 minutes in 2005.

**TIM.** TIM team meetings continued this fiscal year in a virtual setting. The TIM team applied lessons learned on how to make the TIM meetings more interactive while being virtual. A software application was implemented allowing attendees to answer questions that appear on the screen, and all attendees could see the results in real time. This helped to “gamify” the meetings and added an entertaining element. We continued to see an increase in attendees since virtual meetings are more convenient rather than traveling to attend in person. TIM meetings are important to increase awareness of participating agencies on construction and special events, trends in incident management procedures, and lessons learned from incident management event clearance. Meetings were arranged with agencies within the TIM team, including FHP, Road Ranger contractors, roadway maintenance contractors, transit agencies, and fire rescue representatives.

**Average Annual Roadway Clearance Duration**







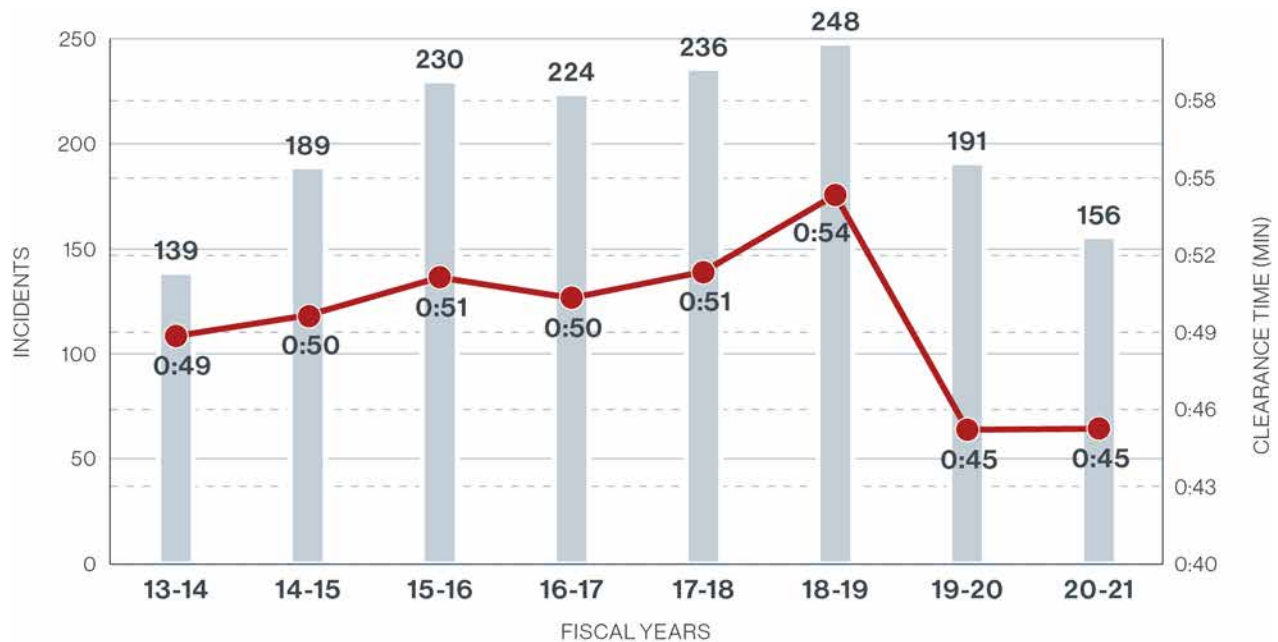
The District Six TSM&O office maintained its schedule of meetings established last year: two joint regional meetings, two meetings in Monroe County, a 95 Corridor meeting, and a Palmetto corridor meeting. The 95 Corridor TIM meeting covers the east half of the county including I-95, I-395, I-195, and US 1. The Palmetto Corridor meeting covers the west half of the county including SR 826, I-75, US 27, and Krome Avenue. The intent is to create a forum style meeting that will focus on the unique traffic concerns along these corridors.

**Road Rangers.** Road Rangers faced many lessons learned during this fiscal year. Dealing with pandemic protocols, providing staffing, and increased awareness to safety played a role in shaping this fiscal year. There was an increase in Road Ranger vehicles being involved in crashes after they had stopped, set up their Maintenance of Traffic (MOT) equipment, and were clearing an incident. District Six focused on promoting the Move Over Law, which requires vehicles to either move over one lane or slow down to 20 MPH below the posted speed limit. Additional consideration was given to having Road Rangers provide backup MOT at active incidents.

Road Rangers provide incident response and motorist assistance along I-95, I-75, SR 826, I-195, I-395, the MacArthur Causeway, and all express corridors. The STMC is the control center for dispatching and coordinating field operations for the Road Ranger Program. The chart on this page shows that more than 90% of Road Ranger assists are for MOT, repair, or clearance services (includes tows, car pushes, and motorist transports).

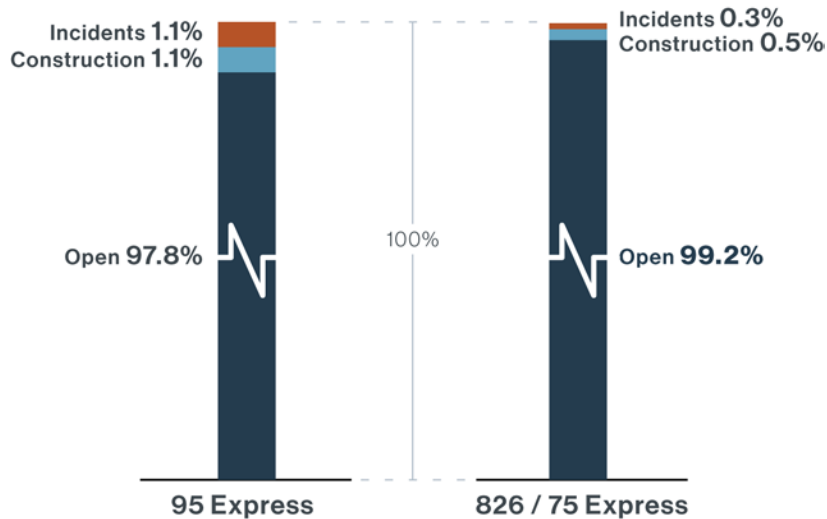
In 2013, the TSM&O office added a heavy-duty wrecker to the Road Ranger program to help with relocating heavy vehicles such as buses, transit vehicles, and box trucks. The heavy-duty wrecker continues to provide a benefit to the program. The graph on the following page shows the impact on clearance times of the heavy-duty wrecker. It is important to note that the values reported for this fiscal year were affected by the pandemic.

### Incidents Responded To By Heavy-Duty Wrecker



**Incident Response Vehicle (IRV).** District Six's IRV program continued operation with seven active IRV trucks covering 95 Express, Palmetto Express, and 75 Express. IRV operators responded to 2,889 events during FY 2020–2021. IRV operators, along with the FHP, Road Rangers, and other responders, all contributed to keeping 95 Express open and available for use 97.8% of the time and Palmetto Express/75 Express open for use 99.2% of the time during the fiscal year. The following chart shows how often each express corridor was open or closed (for construction or incidents). The average travel lane blockage duration for 95 Express was 26.1 minutes in the northbound direction and 31.7 minutes in the southbound direction. The average travel lane blockage duration for Palmetto Express and 75 Express was 26.4 minutes in the northbound direction and 22.9 minutes in the southbound direction. IRVs mainly cover the express lanes, but they also assist motorists in the non-tolled general purpose lanes as needed.

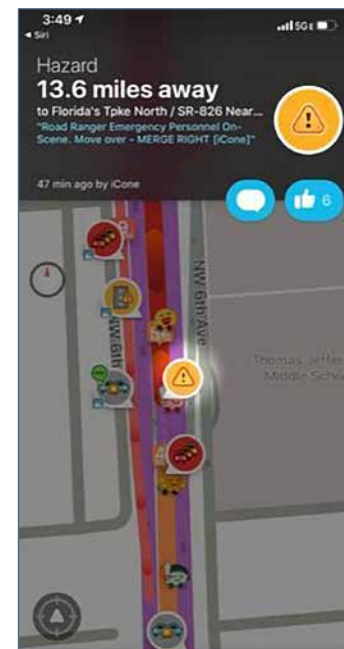
## Express Lane Facility Availability



IRV operator

District Six continued coordination between its IRV Operations staff and the District Four incident management team. This coordination is needed because of the overlapping limits for the 95 Express and 75 Express expansions into Broward County.

The TSM&O office implemented a Vehicle-to-Infrastructure (V2I) pilot project for the IRV trucks. The arrow boards on the IRV trucks were equipped with commercial off-the-shelf equipment. When the arrow board is raised, a signal is sent that is received by navigation applications such as Waze. The signal is received as a vehicle warning alert giving upstream motorists an alert to move over. This project supports the Move Over Law. FIU will conduct an evaluation study to determine the benefits of this V2I concept. This project was featured by the National Operations Center of Excellence in its [weekly publication](#).



V2I hazard alert sent to the Waze app



**Rapid Incident Scene Clearance (RISC) Updates.** RISC is an incentive-based program for the rapid removal of the more complex incidents that occur along District Six roadways. These incidents would normally require additional time for clearance. RISC supports Florida’s Open Roads Policy. RISC contractors must respond with all required vehicles within 60 minutes and clear the travel lanes within 90 minutes to receive the incentive.

The RISC coverage area includes all major freeways, Krome Avenue, and Okeechobee Road. The coverage also includes US 1/Overseas Highway from Stock Island in Monroe County to Florida City in Miami-Dade County. During FY 2020–2021, the average RISC response time was 59 minutes, while the average RISC travel lane clearance time was 71 minutes. In total, STMC Operations staff summoned RISC resources 41 times during the fiscal year, a significant increase over previous years. The RISC program has responded to 215 events since its inception in 2009. The following table summarizes historical RISC response times by fiscal year.

## RISC Performance

FISCAL YEARS	RISC PERFORMANCE (MINUTES)				
	ACTIVATION TIME	RESPONSE TIME	TRAVEL LANE CLEARANCE TIME	TOTAL INCIDENT CLEARANCE TIME	TOTAL RISC EVENTS
2011–2012	10 m	39 m	88 m	161 m	9
2012–013	28 m	46 m	85 m	225 m	7
2013–2014	23 m	45 m	68 m	161 m	19
2014–2015	28 m	43 m	57 m	141 m	18
2015–2016	28 m	47 m	63 m	146 m	15
2016–2017	16 m	50 m	60 m	132 m	19
2017–2018	17 m	49 m	61 m	148 m	17
2018–2019	19 m	49 m	60 m	141 m	20
2019–2020	27 m	57 m	55 m	158 m	28
2020–2021	20 m	59 m	71 m	162 m	41
TARGET	—	60 m	90 m	—	—

# IT / ITS MAINTENANCE



**IT technician  
troubleshooting  
the video wall  
system**

The IT/ITS Maintenance program prides itself on using lessons learned to improve, secure, and optimize the computer systems and communication network.

Communication failures such as fiber optic cable cuts, damaged infrastructure, and wireless issues can lead to many ITS devices being not available for use by operations. IT staff worked on providing communication redundancy as protection from communication failures. Providing communication redundancy requires changes to the network and its configuration.

IT staff embarked on improvements to the Layer 3 communications network by migrating to new switches. This required significant coordination between IT staff and the ITS maintenance contractor. The ITS maintenance contractor ensured that all servers on the Layer 2 network were configured identically to support communication throughout the new network. Migration to the new Layer 3 servers is expected to be completed next fiscal year.

IT staff continued to provide reliable remote access for teleworking employees. The virtual private network (VPN) that supports remote access rarely failed and allowed staff to function efficiently away from the STMC.

The field equipment still needed to be serviced as trouble tickets were received by the system. Systems such as express lanes, ramp signals, and arterial traffic signals rely on equipment that works consistently in the field. During FY 2020–2021, the ITS Maintenance team managed more than 3,175 critical trouble tickets and more than 5,900 tickets overall, which includes field equipment maintenance by contractors on active construction projects.

The IT team continued to support video functionality for the Department. They worked with the Central Office to ensure the District Six video stream data were maintained on DIVAS. A new video sharing agreement was in place for a social media site

providing local traffic information. District Six video is shared with several local news media and social media providers.

IT staff continued to support data analytics and aggregation. New interactive dashboards were developed by IT staff. These dashboards are published on our project website [sunguide.info](http://sunguide.info). The reports can be filtered multiple ways such as by date and roadway.

The following table shows the availability of key system components during FY 2020–2021 compared to previous fiscal years.

## Annual Average System Availability

FISCAL YEAR	SUBSYSTEMS					
	CCTV	DMS	VEHICLE DETECTORS	VIDEO WALL	SUNGUIDE	OTM
2012–2013	95.5%	93.8%	94.9%	97.5%	97.9%	99.8%
2013–2014	97.6%	96.7%	96.1%	97.4%	99.9%	99.9%
2014–2015	94.7%	96.2%	95.0%	98.9%	98.9%	99.7%
2015–2016	92.7%	98.3%	87.4%	99.9%	97.9%	99.9%
2016–2017	92.4%	96.7%	87.5%	99.4%	96.9%	99.9%
2017–2018	86.7%	87.0%	77.7%	98.9%	95.2%	99.6%
2018–2019	93.5%	96.3%	89.9%	99.7%	98.5%	99.9%
2019–2020	83.7%	96.8%	84.5%	99.9%	98.4%	97.5%
2020–2021	96.2%	97.8%	95.6%	99.8%	100%	99.8%

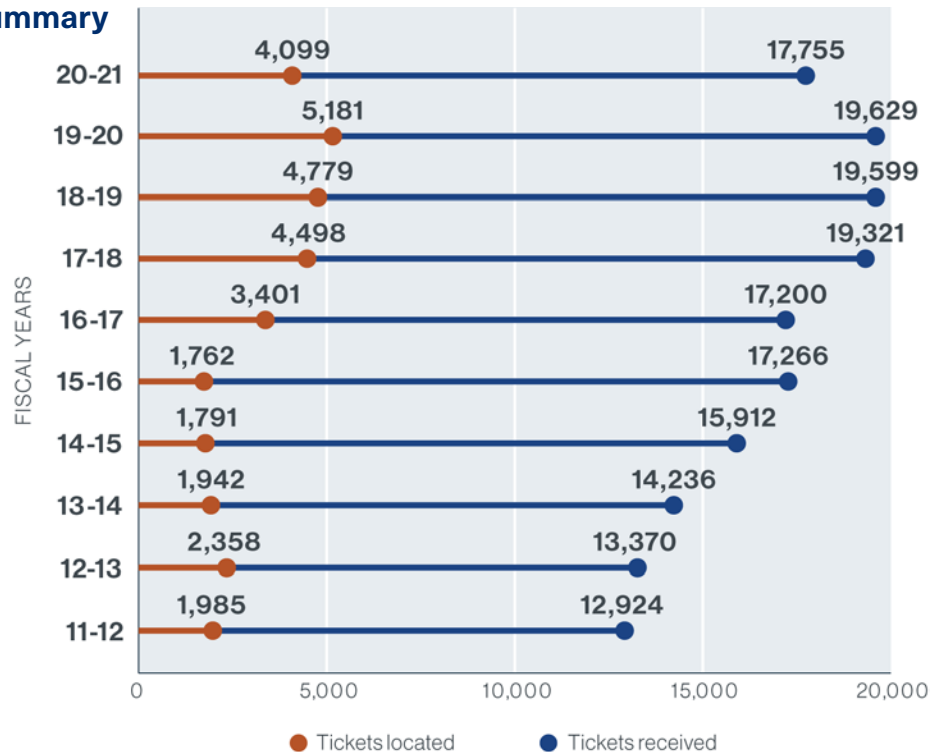
**Utility Infrastructure Location Services.** The IT team took lessons learned with potential conflicts with active construction projects and developed a best practices document. This document provides a description of what the utility locate staff does, how locates are provided through the Sunshine 811 system, and the expectation for contractors that call in locate tickets. The utility locates staff also adopted the practice of using a video recording of the located area as proof of what was marked and when. Utility locators provide a critical service for the District Six underground fiber optic cable and electric conductors. Locating and marking the underground infrastructure before digging or construction begins aids in preventing damage by third parties. Notifications are received from Sunshine 811 about upcoming activity that may conflict with underground utilities. The tickets are reviewed and, when necessary,



the ground is physically marked showing the location of the ITS underground infrastructure. During this fiscal year, 17,755 Sunshine 811 tickets were received, and 4,099 Sunshine tickets were located. The graph below shows the number of locates during FY 2020-2021 compared to previous fiscal years.

**Network Security.** Another area that has required increased attention is cybersecurity. During FY 2020–2021, the IT/ITS Maintenance staff continued to work on measures making the overall network secure. Internal and external security penetration tests were conducted to identify potential vulnerabilities and weaknesses in the network. Public-facing data is kept off network as much as possible and is stored on cloud-hosted services to prevent security breaches from outside the internal network. The IT/ITS Maintenance staff continue to work with the FDOT’s Office of Information Technology to identify and minimize potential security risks. The IT/ITS Maintenance staff is anticipating the installation of cyber locks on field cabinets beginning next fiscal year.

## Locate Ticket Summary



# TRAVELER INFORMATION

**T**raveler information efforts at the beginning of FY 2020–2021 continued focusing on disseminating information related to the pandemic. The STMC utilized its roadway DMS to post new types of messages about public health and traffic congestion related to testing and vaccination sites.

Providing motorists with traffic information and, in some cases, regional safety alerts allows them to make knowledgeable decisions. These decisions include alternate travel routes, modes, and schedules when confronted with congestion, traffic events, or construction. Notifications from TMCs around the state are compiled and distributed in the statewide Florida Advanced Traveler Information System (FLATIS). Commonly known as FL511, the service publishes real-time traffic information to the public through the internet on the FL511.com website and a smartphone application. FL511 also gathers traffic event information, camera images, and DMS messaging from all FDOT districts. District Six's TSM&O website, [sunguide.info](https://www.sunguide.info), provides the same interface to allow motorists to view live feeds of the TSM&O office's CCTV cameras in Miami-Dade and Monroe Counties.

The STMC continues to utilize Waze as an additional resource for identifying traffic events, and also uses the Regional Integrated Transportation Information System (RITIS) as an aggregator of vehicle detection data. RITIS receives traffic detector data from around the state as well as from other sources. RITIS is useful to the STMC for areas where ITS infrastructure does not yet have traffic detectors.

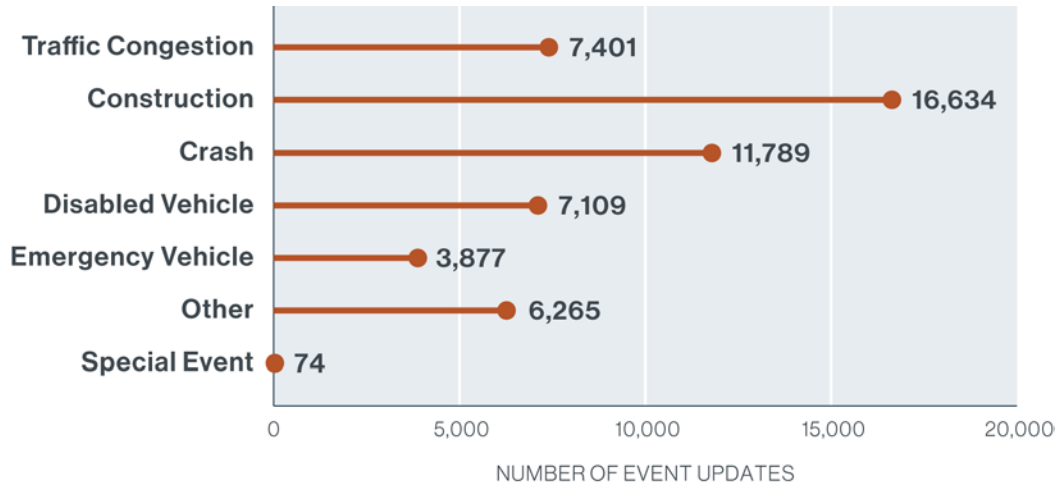
## FL511

During FY 2020–2021, the 511 service continued to receive calls statewide, and users from southeast Florida made up a sizable portion of those calls. District Six STMC operators published over 53,100 event updates of lane blockage and congestion events on roadways managed by the District Six STMC. The following graph (page 28) shows the different types of published events on the 511 service.

FL511 also changed how it presents camera information. Incorporating the State's DIVAS application, FL511 now offers streaming video. This has been a useful addition to the traveler information toolbox. The TSM&O office incorporated this by embedding the FL511 map on its project website. Motorists can now get streaming video from either FL511 or [sunguide.info](https://www.sunguide.info).

## FL511 Published Traffic Information by Event Type

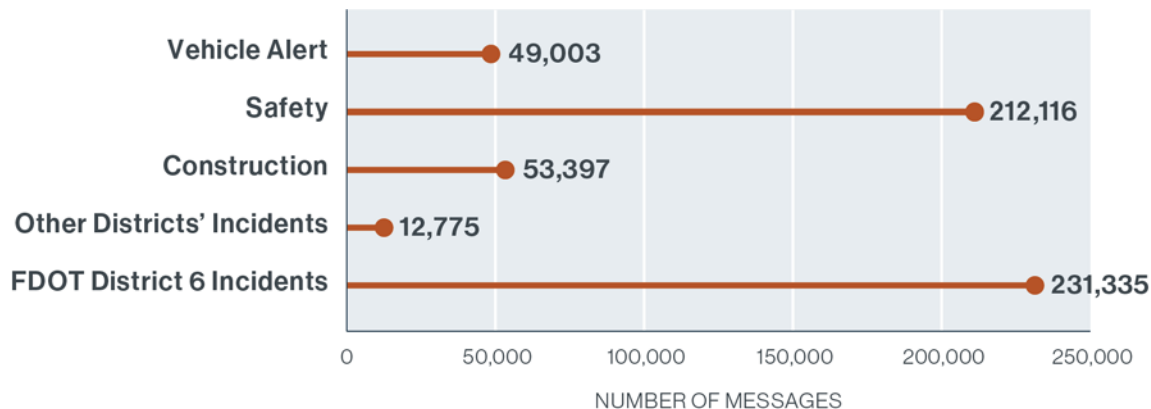
(53,149 published event updates)



## DMS MESSAGING

Regional DMS is a critical component for dissemination of traffic information. These signs display lane blockage information, travel times, pre-event messages, and congestion messages—all of which help motorists with their travel experience in both Miami-Dade and Monroe Counties. DMSs also display service announcements, such as child abduction alerts and silver alerts. During FY 2020–2021, more than 550,000 messages were displayed on District Six DMSs, with most messages for incidents and construction announcements. The following graph summarizes the types of DMS messages displayed this fiscal year.

## Posted DMS Messages by Type (558,626 total messages)





# PUBLIC OUTREACH



PI staff produced videos for National Traffic Incident Response Awareness Week (top and center) and V2I Technology on Incident Response Vehicles (bottom)

Despite the challenges of the pandemic, the Public Information (PI) staff continued to support the TSM&O office in several ways. With pandemic protocols in place, tours of the STMC and press conferences were put on hold, but customer service played a continual role during this year. PI staff worked remotely for much of the first half of the fiscal year but later returned to the STMC part time with staggered schedules, allowing staff to rotate on site.

PI staff continued to provide excellent service by responding to customer comments on express lanes, arterial operations, and other transportation issues. The expansion of the MCTSS into the City of Key West initially generated comments due the new system. Staff processed 175 comments on a variety of topics that included express lanes, cameras, tolling, transit, and data requests for academic and professional institutions. There were 35 comments on traffic signals along SW 8th Street and 38 comments on the MCTSS.

PI staff continued to monitor social media sources to detect changes to pandemic testing sites, locations of food distribution sites, and new vaccination sites. This information was helpful for STMC operations staff to strategize areas of focus and plan for potential staff changes.

The PI staff focused on improving the project website, [sunguide.info](https://sunguide.info). Several public-facing dynamic dashboards were developed summarizing data and performance in multiple ways. Web content was updated to make sure the most up-to-date information was displayed.

PI staff assisted with producing several videos to help convey certain areas of the TSM&O program. Three videos were produced for National Traffic Incident Response Awareness Week. The videos focused on putting a personal element to our Road Ranger and IRV team and increasing awareness on safety, as they also need to get home safely like the motoring public.

# BENEFITS TO THE PUBLIC

All of the lessons learned throughout the TSM&O office leads to overall benefits for the community. The STMC continued disseminating information related to the pandemic using the network of DMS. Other resources were used to keep traffic moving at congested vaccination sites. Information was provided to local law enforcement when the STMC detected congestion and queues related to testing sites, vaccination sites, and food distribution sites. This level of regionwide information is also applied to hurricane information, large traffic accidents, special events, construction impacts, and wrong way drivers.

The TSM&O office invests in its infrastructure and staff to keep the overall system and program operational. There are not many large new ITS deployments, but annual equipment replacement projects keep the system up-to-date by replacing infrastructure that has reached the end of its useful life. Scheduled preventive maintenance and quick response for repairs keep the system available, while maintaining a fleet of efficient Road Rangers and IRVs and coordinating with partnering agencies all contribute to positive gains.

The addition of arterial operations has resulted in a reliable system by adding backup power supplies and redundant communications resulting in lower traffic signal downtime. Advanced techniques such as the adaptive traffic control system operating along SW 8th Street provide an alternative to traditional signal operation methods. The expansion of the MCTSS continued providing a level of monitoring and connectivity that was not previously realized before the installation of the system. Significant operations and maintenance funds are needed to keep the systems working correctly and efficiently.

The critical benefit of the TSM&O office is keeping the roadways cleared of events so that traffic and freight operations can continue flowing. The effort spent keeping the roadways clear reduces incident duration and in turn reduces traffic delays.



**Incident management along I-95**

The FDOT District Six TSM&O office's budget for FY 2020–2021 included operating, maintenance, and capital improvement costs for its freeway and arterial operations. The costs displayed in the table below are considerably less than the normal capital costs associated with construction expansion of highways and facilities.

When the delays associated with incidents are reduced, motorists and commercial vehicle operations save time. The time savings can be directly translated to a monetary amount. In addition, user costs have increased. As user delay is reduced by the resources deployed by the TSM&O office, the savings has a significant impact. Another factor is that truck volume increased this fiscal year by 9%. As shown in the benefits table below, the Incident Management Program's contribution to the reduction in delay due to incidents translates into savings of \$4.3 billion. The incident clearance time of 25.3 minutes had a significant impact during FY 2020–2021 for the 22,700 events that blocked travel lanes.

### Fiscal Year 2020–2021 Costs

ITS Operations	\$	11,398,702
ITS Maintenance*	\$	7,603,379
Road Rangers	\$	9,661,410
RISC	\$	107,600
FDOT Cost Center Operating Budget	\$	2,682,263
Other (Consultants, FTE, FHP, FIU)**	\$	27,981,492
<b>Total Annual Operating Costs</b>	<b>\$</b>	<b>66,267,074</b>
<b>Total Annualized Capital Costs</b>	<b>\$</b>	<b>16,779,052</b>
<b>TOTAL ANNUAL COSTS</b>	<b>\$</b>	<b>83,046,126</b>

\* Includes Express Lanes ITS Maintenance and Express Lane Marker Repair

\*\* Includes Florida's Turnpike Enterprise operational costs for express lanes in Miami-Dade County (District Six)

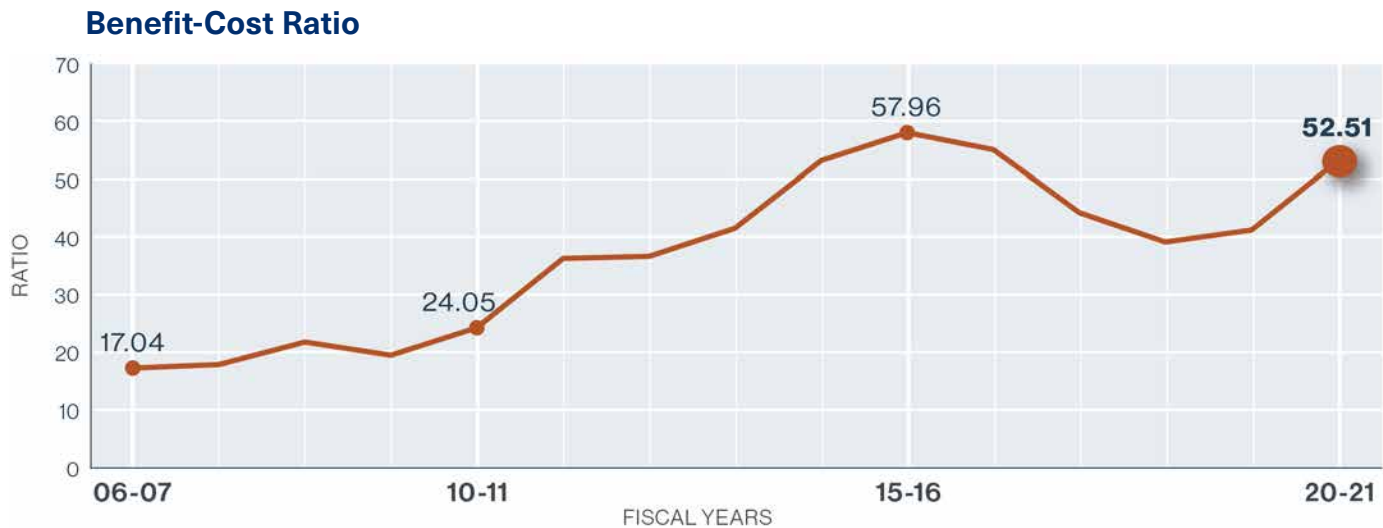
### Fiscal Year 2020–2021 Benefits

Incident Management	\$	4,317,290,242
Express Lanes / Ramp Signals	\$	43,459,334
<b>TOTAL BENEFITS</b>	<b>\$</b>	<b>4,360,749,576</b>

The managed lane corridors and the ramp signaling system also contributed to the reduction of delays during peak hours, translating into savings of \$43.5 million. This estimate was calculated using widely accepted statistical methods for estimating the cost implications of traffic delays. The estimate only includes time saved by motorists; it does not address road user cost savings.

When comparing the total estimated benefits of the TSM&O program during FY 2020–2021 to the total annual operating expenses and capital investments (annualized over 10 years at 7%), the TSM&O program yields \$52.51 in economic benefit for every dollar spent (benefit-cost ratio of 52.51:1).

The following graph shows the benefit-cost ratio for FY 2020–2021 and previous years. As mentioned above, user costs for both vehicles and trucks increased in 2021 translating into large costs savings for reducing delay.





# A LOOK AHEAD

Lessons learned over previous years help to shape and mold future transportation projects. With increased technology comes increased services to the motoring public. Efforts like the Keys COAST project demonstrate the TSM&O office's commitment to providing innovative projects for current and future transportation needs. Future projects will continue to push the transportation envelope forward, ensuring continued service to the region. One interesting result of the ongoing pandemic is that teleworking has proven to be a viable option for people to keep working. Until the pandemic, teleworking had been a much talked about but underutilized transportation demand management (TDM) technique. Reality has shown that it does reduce traffic volumes and improve traffic flow, and because of these and other benefits, teleworking will probably be utilized at some level once the pandemic is over. However, the infrastructure plan must move forward to accommodate long-range plans.

FY 2021–2022 will bring continued challenges. The following projects are in progress or planned for FY 2021–2022.

**Microwave Communication Conversion along US 1/Overseas Highway.** With the completion of the FDOT's microwave backbone along US 1/Overseas Highway in the Florida Keys, the TSM&O office will transfer the communications for the traffic control devices from cellular to wireless. This will save the district leased cellular costs and provide a reliable communication system. Wireless communication offers a good alternative as it is impractical to install fiber optic cable along the 105 miles of the Overseas Highway. The communication transfer is anticipated to be completed before the Keys COAST project is underway. This project is expected to be completed in FY 2021–2022.

**Express Lanes Projects.** Projects along the express lane corridors will focus on improvements to the existing system. Next fiscal year, the Department will begin a project to improve the southbound direction of Palmetto Express and SR 826. The ingress at NW 154th Street will be shifted south to the I-75/SR 826 Interchange. The first southbound ingress will be south of the I-75/SR 826 Interchange near NW 122nd Street. The southbound on-ramp flyover for NW 103rd Street will be modified to allow southbound



SR 826 to be widened. Currently, one of the flyover piers prevents any widening of SR 826. This widening will improve traffic flow south of NW 122nd Street.

Express lane construction will continue in Broward and Palm Beach Counties with Phase 3 of 95 Express, entering its fifth year of construction. These projects will significantly expand the 95 Express corridor. Completion of this project is expected in 2024.

**ITS Device Replacement Projects.** The ITS device replacement projects will continue in the next fiscal year with a project starting in July 2021. This project will replace 26 DMS throughout the district with new color LED full-matrix signs. Nine of those DMS will have new sign structures. The project will also install two DMS confirmation cameras, and a microwave vehicle detector. The anticipated completion is in 2023.

**Golden Glades Multimodal Transportation Facility.** This design-build project continued in FY 2020–2021 and is expected to be completed in winter 2022. This project is converting the existing Park-and-Ride lot in the Golden Glades Interchange, transforming it and the surrounding area into a multimodal transportation facility. This project takes advantage of the diverse modes of transportation available in this area



**Golden Glades Multimodal Transportation Facility concept**

(Tri-Rail, Miami-Dade Transit, Broward County Transit, Greyhound, freight, and direct connection to 95 Express) and provides a transit hub with retail accommodations. TSM&O concepts are evident in this project, showcasing transit by combining multiple modes of transportation at a facility that is more than just a bus station. A new incident management area will be available for Road Rangers to take vehicles for recovery.

**Keys COAST.** The Keys COAST project will continue into next fiscal year. The Keys COAST project will be implemented along US 1/Overseas Highway in the Florida Keys. This project will take advantage of existing traffic signal controller improvements to provide signal phasing and timing (SPaT) information and introduce automated traffic signal performance measures (ATSPM). Applications include pedestrian and cyclist safety, vehicle-to-vehicle communications (V2V), drawbridge management, emergency vehicle preemption, freight signal priority, transit signal priority, and freight vehicle weigh-in-motion.



Connected Vehicle Project concept





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