

READY FOR TOMORROW





A MESSAGE FROM **THE DISTRICT SECRETARY**

The Florida Department of Transportation (FDOT) District Six Intelligent Transportation Systems (ITS) Program’s number one goal is keeping South Florida moving safely by enhancing and optimizing the operations of the area’s roadways.

To reach that goal, District Six must focus on managing the current roadway system in today’s condition for optimal efficiency and on preparing for and planning operational strategies for future conditions. Managing both for today and for what tomorrow will bring requires effective data collection, analysis and problem-solving, continuous assessment and improvement, awareness of state-of-the-art technology and future trends, and ability and willingness to respond quickly and affect change.

The team of professionals – consultants and staff – leading the District’s ITS Program is helping deliver safe mobility today and is also preparing for the needs and demands of tomorrow. They know that today’s success is no guarantee for tomorrow’s. It requires unwavering commitment, and a process for continuous review, adaptation, optimization and improvement. Equipment and software is maintained, enhanced and upgraded to maximize its utility and effectiveness. The services offered by the program are constantly studied and scrutinized for how they can be offered better, faster and at a lower cost.

South Florida’s economic vitality and quality of life for its citizens and visitors depends on a safe, efficient, well-connected, balanced and cost-effective transportation

network. Because safe mobility is not just a weekday concern or a peak period concern, the SunGuide Transportation Management Center (TMC) is operational 24 hours per day, 7 days a week, 365 days a year. The team is constantly challenged to meet the safe mobility needs of a region where population and traffic volumes are expected to maintain high levels of growth. I remain confident that the ITS Program will continue through the hard work and dedication of the entire team to be Bold, Innovative and Inspirational in addressing the region’s traffic congestion problems.



I am proud to have an opportunity to share the District Six ITS Program’s success with you. In this Fiscal Year 2011-2012 ITS Annual Report, you will see how the team has met the challenges of today, and how they have prepared to meet the safe mobility needs of the future.

Gus Pego, P.E.
District Six Secretary of the
Florida Department of Transportation

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INTRODUCTION

The Florida Department of Transportation (FDOT) District Six Intelligent Transportation Systems (ITS) Program is constantly evolving, enhancing and optimizing its services in order to be ready for tomorrow.

The program, which serves to support and manage South Florida's transportation infrastructure through the applied use of integrated technologies, continues to be a viable alternative and/or supplement to traditional roadway enhancement projects. FDOT District Six is committed to enhancing system capacity and improving regional mobility for its customers. Fiscal Year (FY) 2011-2012, encompassing July 1, 2011 to June 30, 2012, exemplified that commitment.

The ITS Program is comprised of the five areas listed below.

- **ITS Deployments** – Providing planning, design and procurement of ITS equipment, such as Closed Circuit Television (CCTV) cameras, Dynamic Message Signs (DMS), vehicle detectors and communications.
- **TMC Operations** – Providing a central location for data collection and dissemination. The SunGuide Transportation Management Center (TMC) in Miami-Dade County is the command center for managing traffic and incidents.
- **Incident Management** – Providing the Road Rangers – Florida's version of a safety service patrol – and additional incident management resources. Coordinating multi-agency meetings to identify issues and develop solutions to improve incident management.
- **IT/ITS Maintenance** – Managing the maintenance of ITS field and TMC equipment to ensure system availability and stability, as well as software support.
- **Traveler Information** – Providing real-time traveler information services through various media, such as the telephone, Internet – and now, smartphone applications and social media.

This marks the seventh edition of District Six's ITS Annual Report. In this report, we highlight how the District Six ITS office focused its efforts on providing congestion-free travel on FDOT roadways for its customers by enhancing operational strategies, software and coordination efforts. We hope you find the report informative and welcome you to join District Six as we continue to lead South Florida toward a safer, more efficient future.

ITS MISSION:

Enhance the safety, security, and efficiency of Florida's transportation system through the implementation of interoperable ITS technology in support of local, regional, and statewide mobility.

ITS VISION:

Be the national leader in ITS by promoting multijurisdictional coordination for the provision of an efficient, secure, reliable, and safe transportation system.

ITS DEPLOYMENTS

Technology plays an integral role in the ITS Program's operations. FDOT District Six will always be dedicated to the continuous enhancement of the ITS infrastructure. Throughout FY 2011-2012, several projects commenced, while others reached completion, all with the goal of further strengthening the ITS Program's reach and effectiveness.

A summary of FDOT District Six ITS projects completed during FY 2011-2012 can be found below.

- SR 826 Section II** – This major roadway improvement along the Palmetto Expressway (or SR 826) included installing a fiber optic backbone to replace the previous wireless communications for existing CCTV cameras on SR 826, between SW 24 Street (Coral Way) and US-1. It also added a DMS in the northbound direction of SR 826, between SW 88 Street and SW 72 Street, and eight arterial DMS with confirmation CCTV cameras along SW 72 Street, SW 56 Street, SW 40 Street, and SW 24 Street. The arterial DMS were added to alert users of traffic conditions before getting on the expressway. The project began in November 2008 and was completed in March 2012.
- Fiber Optic Cable Communications Redundancy** – In partnership with the Florida's Turnpike Enterprise (FTE) and the Miami-Dade Expressway Authority (MDX), District Six completed its communications redundancy rings by connecting its US-1 fiber optic cable backbone with FTE's SR 821/Homestead Extension of Florida's Turnpike (HEFT) fiber optic cable backbone. Fiber was also connected to MDX at the Don Shula Expressway (SR 874) and along the Dolphin Expressway (SR 836). This provides a redundant communications path for District Six's ITS devices deployed along US-1 to the SunGuide TMC via the FTE and MDX fiber optic cable. Work on this project began in October 2011 and was completed in March 2012.
- District One to District Six ITS Wide Area Network (ITS WAN) Fiber Connection** – In collaboration with FDOT Central Office, FTE and the Miami-Dade Expressway Authority (MDX), District Six completed all necessary ITS fiber optic cable

allocations and splicing in South Florida to help connect the SunGuide TMC with FDOT District One's Regional TMC via Central Office's ITS WAN. The ITS WAN will provide an operational network that allows Florida's Regional Transportation Management Centers to share device control, video and traffic information. Work on this project began in February 2012 and was completed on District Six's end in April 2012.

- 800 MHz Radio Installation** – In February 2012, District Six began installing the 800 MHz radio system equipment that will allow the ITS office to communicate on the Statewide Law Enforcement Radio System (SLERS). This is described further on page 11 in the *Incident Management* section. Installation was completed in June 2012.

Other projects that were ongoing and/or planned during FY 2011-2012 and will continue construction during FY 2012-2013 included:

- Palmetto Expressway (SR 826)/Dolphin Expressway (SR 836) Interchange Reconstruction Section V** – Similar to Section II, this major interchange reconstruction project includes additional ITS elements, such as the relocation of current CCTV cameras and the addition of new cameras, new DMS along SR 826 between SW 24 Street and NW 36 Street, vehicle detectors and fiber optic cables. The addition of these devices will provide District Six with full coverage of the SR 826/SR 836 Interchange and completes the final fiber optic cable link



for SR 826. Arterial DMS will also be installed along SW 88 Street, SW 8 Street, Flagler Street, NW 25 Street, and NW 36 Street. Construction has been ongoing since FY 2010-2011 and is expected to be completed in 2015.

- **95 Express Phase II Miami-Dade Deployments** – This project, which began construction in November 2011, will extend the existing express lanes from the Golden Glades Interchange in Miami-Dade County to Broward Boulevard in Broward County. ITS devices such as CCTV cameras, DMS, vehicle detectors and other infrastructure support equipment will be installed to support 95 Express Phase II. This project is scheduled for completion at the end of 2014.
- **DMS Replacement and ITS Device Installation** – This design-build project will replace two DMS, install 21 CCTV cameras and up to eight vehicle detectors in Miami-Dade and Monroe counties. Construction began in June 2011 and is scheduled for completion in March 2013.
- **Addition of Auxiliary Lane on I-75 Eastbound to SR 826 Southbound** – The ITS components

of this project include the addition of two new microwave vehicle detectors and a fiber optic cable. Construction began in January 2012 and is scheduled for completion in March 2013.

- **SR 826 from NW 67 Avenue to NW 47 Avenue Westbound Auxiliary Ramp Improvements** – The ITS components of this project include installations of a new DMS and four microwave vehicle detectors on SR 826. Construction began in September 2011 and is scheduled for completion at the end of 2012.
- **I-195 Widening, Bridge Repair and Rehabilitation** – The ITS components of this project include the relocation of one DMS and four microwave vehicle detectors on I-195. Construction began in November 2010 and is scheduled for completion at the end of 2012.
- **I-95 at NW 62 Street Ramp Resurfacing** – With all four ramps to and from I-95 at NW 62 Street to be resurfaced, the entrance ramp detectors, which are used for ramp signaling, will be replaced. Construction of this project will begin in April 2013 and is scheduled for completion in July 2013.

FDOT District Six ITS Deployments

Roadway	CCTV Cameras*		DMS		Detectors**		Ramp Metering	
	D	UC	D	UC	D	UC	D	UC
I-95	30	3	10		94	2	22	
95 Express	67		40		54			
SR 826	35	2	13		88	10		
I-75	7	2	3		30			
I-195	6	2	3		21			
I-395	10		1		11			
US-1 (SW 17 Ave to SW 112 Ave)	22		5		6			
US-1 (South of Florida City)	44	7	11		2			
Card Sound Road	5							
SR 9	1		1					
US-441	2		2					
Florida's Turnpike Spur	1		1					
Other Arterials	8	16	20	8				
Total	238	32	110	8	306	12	22	0

D = Deployed

UC= Under Construction

* Includes static CCTV cameras for DMS verification

** I-95 loop detectors are reported as a detector station and not by individual loop

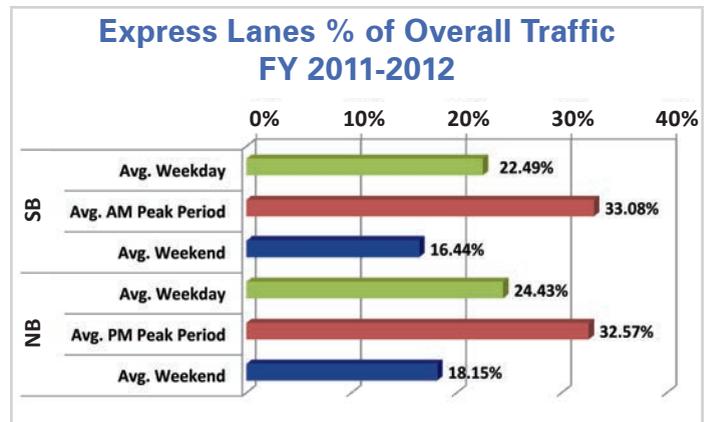


TMC OPERATIONS

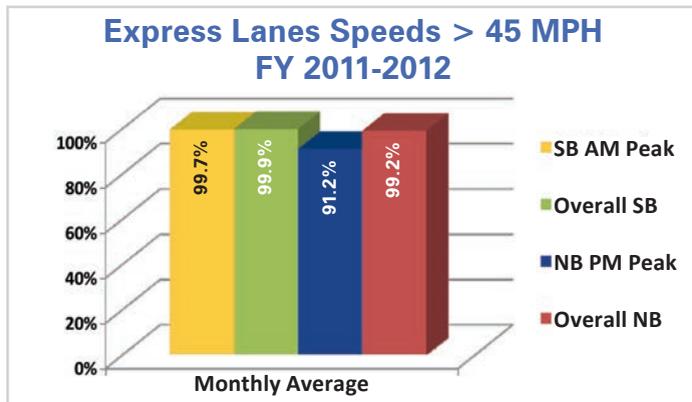
The FDOT District Six SunGuide TMC is ready for tomorrow. It houses operations staff, who monitor and manage traffic, disseminate travel information and dispatch incident management resources 24 hours per day, seven days per week. TMC operators coordinate with emergency responders, Road Rangers and other incident management resources to clear incidents from South Florida’s roadways as quickly and safely as possible. This coordination is enhanced by the co-location of the Miami-Dade Expressway Authority (MDX) TMC operations staff and the Florida Highway Patrol (FHP) Troop E dispatch within the TMC.

95 EXPRESS OPERATIONS

During FY 2011-2012, the FDOT’s High Occupancy Toll (HOT) lanes project, 95 Express, reached the 50-million-trip milestone. The project launched in December 2008 and has seen a steady increase in popularity in South Florida leading it to be considered one of the most successful and highly used express lanes facilities in the United States. Reaching this milestone is a testament to District Six’s ability to be ready for tomorrow by maintaining 95 Express’ reliability, despite steady increases in traffic demand. Average peak period speeds in the express lanes (EL) and local lanes (LL) are still well above the conditions before express lanes were implemented; 18 miles per hour (MPH) northbound and 20 MPH southbound.



As shown in the first graph, the average peak period speeds were all greater than 45 MPH for the project’s target goal of 90 percent of the time for FY 2011-2012. This was achieved despite increases in demand from a weekday average of 29,500 vehicles per day (VPD) to 31,000 VPD in the northbound direction – a five percent increase. In the southbound direction, average weekday demand increased from 29,600 VPD to 31,700 VPD – a seven percent increase. Non-peak period travel also continued to increase during FY 2011-2012. The graph above shows the average usage of the express lanes compared to the entire I-95 facility. While users may not realize a significant benefit during non-peak hours, a previous survey showed these customers found 95 Express to be a safer, more reliable option.

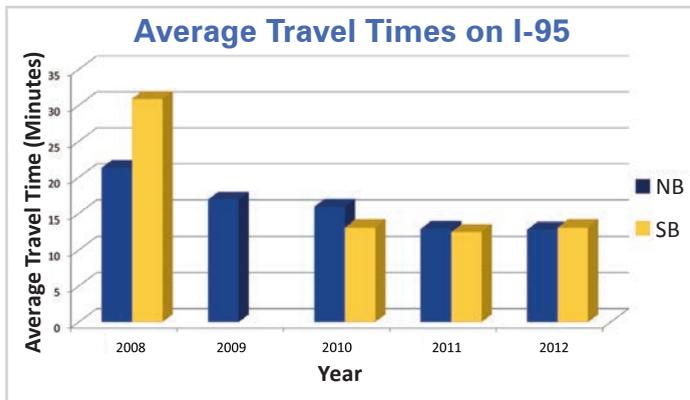


District Six has successfully managed increased demand along 95 Express by closely monitoring EL performance and optimizing the EL software module. Another major component in managing increased demand is 95 Express Bus ridership. This rapid transit service saw a 32 percent increase in total commuter boardings during FY 2011-2012, due much in part to the January 2011 launch of a 95 Express Bus stop at Miramar Town Center in Broward County.



RAMP SIGNALING OPERATIONS

Another component of 95 Express is the ramp signaling system, which entered its second full year of operation during FY 2011-2012. Consisting of 22 total ramp signals, the system helps keep traffic flowing on I-95 by regulating the flow of vehicles entering the roadway during peak periods of travel. TMC 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. As demand on the freeway increases in the future, ramp signaling will continue to be one of the tools to help District Six keep traffic moving. The graph below indicates the decrease in average travel times on I-95 from before the ramp signaling system's implementation (2008) to after its implementation (northbound in 2009 and southbound in 2010).



CONSTRUCTION AND SPECIAL EVENT COORDINATION

A crucial component of TMC operations is coordinating with several agencies to ensure all planned and unplanned lane blockage events are prepared for and dealt with in the most efficient manner possible. During FY 2011-2012, coordination between the TMC operations staff and these various agencies increased as several construction projects began or continued to affect District Six roadways.

- **Construction Coordination** – TMC operations staff coordinated with the project leads of several construction projects to create pre-event information

dissemination plans that would advise the motoring public of upcoming construction-related closures. The following is a list of projects that TMC operations staff developed these plans for: SR 826 Section II, SR 826 Section V, Port of Miami Tunnel, I-195/ SR 112 Project, I-75 Southbound Ramp to SR 826 Reconstruction Project, Florida's Turnpike/Hollywood Boulevard closures and 95 Express Phase II.

- **Special Event Coordination** – Aside from construction projects, numerous special events occur in South Florida that cause unusual traffic congestion on District Six roadways. TMC operations staff coordinates with representatives of these events to help ensure traffic can move as safely and efficiently as possible. Events like the annual holiday Toys in the Sun Run in Broward County, the grand opening of a new baseball stadium in the City of Miami, a major tennis tournament in Key Biscayne, basketball playoff games in Downtown Miami and all football-related events at the stadium in North Miami are just a few examples of events TMC operations staff handled.
- **Monroe County Coordination** – The TMC continued support for Monroe County by assisting with 476 events in FY 2011-2012. This is a 49 percent increase compared to 319 events in the previous year. Coordination between TMC staff and Monroe County representatives resulted in more travel information dissemination to motorists traveling to and from the Florida Keys as well. The TMC averaged nearly 400 Monroe County DMS message postings per month, a 41 percent increase from the last fiscal year.

SOFTWARE ENHANCEMENTS

During FY 2011-2012, already-existing TMC operations software was enhanced to streamline procedures, increase operational efficiency and provide optimized quality assurance and quality control of TMC operator data entry.

- **SunGuide 5.1** – The SunGuide software is the statewide advanced traffic management system software that allows FDOT to control and monitor

roadside ITS devices and vehicle resources. TMC staff tested, trained operations staff and deployed SunGuide version 5.1 which fixed several software bugs and improved the system's stability.

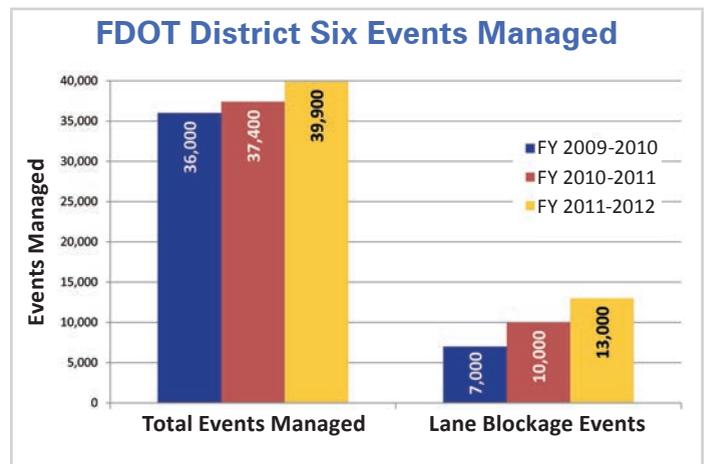
- Operations Task Manager (OTM)** – In 2010, OTM launched as a single piece of software that integrated all existing TMC applications into one. During FY 2011-2012, OTM was upgraded to version 1.3, which included several additions. First, the General Log, a module that allows for nearly paperless documentation of TMC daily operations, was added in July 2011. It allows TMC operators to document all phone calls and notifications within the module, and that information can then be quickly and easily checked for quality assurance and reporting purposes. It also serves as a way to document events during times the SunGuide software is not operational. In November 2011, OTM's Roadway Playlist feature launched. It is a feature in the Express Lanes (EL) module that allows speed graphs of District Six's roadways to be displayed on the TMC's video wall. This way, all operators can easily monitor performance of District Six roads. Version 1.3 of OTM also included an enhancement to the EL module that assisted TMC operators in handling increased demand in the 95 Express facility. Finally, OTM's Maintenance Module, which aims to improve operational efficiency and decrease device down time, also began development during FY 2011-2012 and will launch during FY 2012-2013.
- Operator Performance Quality Control (OPQC)** – The TMC's operational services are provided through a performance-based contract, in which operator performance is evaluated on 34 possible errors for each lane blocking event managed. This requires a detailed quality review of all travel lane blocking events. This is why OPQC was developed: to help management by automating most of their data evaluation efforts. In FY 2011-2012, TMC staff took OPQC's abilities even further, making the software capable of evaluating all events – not just lane blocking ones – which allows the TMC to build more operator consistency and provide the best quality data to its customers: the motoring public.

PERFORMANCE MEASURES

In December 2007, District Six set targets for key operational performance measures that have the greatest impact to the public. During FY 2011-2012, TMC operations staff once again exceeded those targets, thanks to quality control procedures that include daily reviews of all travel lane blocking events. The table below shows the performance measures average results and targets. These goals were still exceeded, despite operators managing approximately 2,500 more total events and 3,000 more total lane blocking events during FY 2011-2012 when compared to the previous fiscal year as shown in the below graph.

Performance Measures	FY 10-11 Average	FY 11-12 Average	Target
DMS Efficiency	99.82%	99.77%	>95%
TMC Operator Error Rate	0.32%	0.30%	<0.59%
Time to Dispatch Road Rangers*	00:00:56	00:00:44	<00:02:00
Time to Confirm an Event*	00:01:31	00:01:42	<00:02:00
Time to Post DMS*	00:02:47	00:02:27	<00:05:00
Time to Notify Other Agencies*	00:01:15	00:01:11	<00:07:00

*Time = Hours:Minutes:Seconds





INCIDENT MANAGEMENT

District Six’s incident management service helps maintain roadways free and clear of road blocking incidents for its customers. The multi-agency Traffic Incident Management (TIM) Team plays a big role in helping FDOT reach its goal: to reduce traffic congestion, as well as decrease the potential for secondary events caused by prolonged exposure to traffic incidents.

With the help of all its partners in the TIM Team, District Six’s average annual roadway clearance time was 27.5 minutes during FY 2011-2012.



TIM

As mentioned in the TMC Operations section, special event coordination was a major component of incident management efforts in FY 2011-2012. The interagency coordination done within the TIM Team made that possible. A Federal Highway Administration (FHWA) TIM workshop was held in January 2012 at FDOT District Six’s main office. The workshop assisted the TIM Team to create an action plan to address items that will help further enhance the TIM Program and capture smart practices, innovative strategies and effective policies.

- **TIM Coordination** – Thanks to the relationships built within the TIM Team, the TMC’s TIM representatives were able to assist District Six’s roadway design department. Meetings were

arranged with several agencies within the TIM Team such as FHP, Road Ranger contractors, roadway maintenance contractors and Fire Rescue representatives. The group discussed upcoming FDOT projects allowing incident responders to comment on what each project needs to facilitate quick and efficient incident response conditions. As they have done since the ITS Program’s inception, FHP Troop E and TMC operations staff continued to share information and resources to help detect and manage incidents on District Six roadways more efficiently. The relationships built in the TIM Team today will help District Six by creating more efficient interagency coordination during future incidents, again exemplifying a commitment to be ready for tomorrow.

ROAD RANGERS

The TMC serves as the control center for dispatching and coordinating field operations and one of the largest parts of District Six’s field operations are the Road Rangers. As the most visible component of District Six’s incident management services, Road Rangers provide incident response and motorist assistance on I-95, I-75, SR 826, I-195, I-395 and the MacArthur Causeway.

As seen on the pie chart on the following page, more than 90 percent of Road Ranger assists are for providing Maintenance of Traffic (MOT), repair or clearance services.

- **95 Express** – During FY 2011-2012, an additional Road Ranger service patrol unit was added to I-95’s north end to support 95 Express Phase II construction, further expanding the program’s effectiveness in that area. The additional Road Ranger patrols I-95 from 5 a.m. to 9 p.m., Monday through Friday from the Miami-Dade/Broward County line to NW 62 Street.
- **National Incident Management System (NIMS)** – NIMS is an emergency management doctrine that prepares all types of agencies on how to prevent, respond to and recover from all types of incidents.

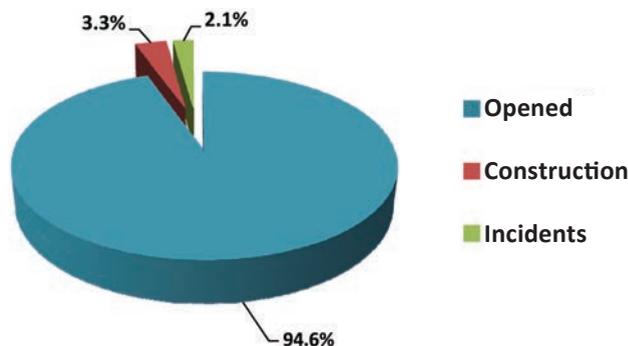
During FY 2011-2012, District Six offered all District Six Road Rangers the opportunity to become NIMS certified which will allow them to be more effective incident managers.

- Automatic Vehicle Locator (AVL) Contract** – A new AVL contract was procured during FY 2011-2012, and District Six conducted “Run and Ready” tests for the new vendor, ensuring the vendor’s software met all system requirements before awarding the contract. The AVL assists TMC operators keep track of the location of all Road Rangers on District Six’s roadways, facilitating their dispatching efforts and enhancing Road Ranger response times and efficiency.
- 800 MHz SLERS** – To be ready for tomorrow, District Six knew it was time to upgrade its radio communications system to improve its communication with field resources and the FHP. The Statewide Law Enforcement Radio System (SLERS) will be used by TMC operations staff not only to dispatch Road Rangers and Incident Response Vehicles (IRV), but also to improve communications with FHP, which can enhance incident detection and Road Ranger response times. Installation of the 800 MHz system at the TMC was completed in June 2012 and a complete transition is expected to occur in September 2012.

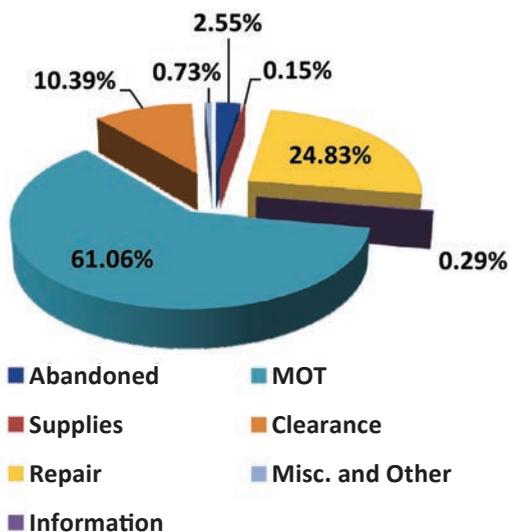
INCIDENT RESPONSE VEHICLES (IRV)

District Six’s IRV Program responded to nearly 1,200 events during FY 2011-2012. IRV operators, along with the Florida Highway Patrol (FHP), Road Rangers and other responders were instrumental in keeping the 95 Express facility open and available for use 94 percent of the time during the fiscal year with the facility remaining closed due to incidents two percent of the time. In addition, the average travel lane blockage duration in the express lanes was 14 minutes in the northbound direction and 13 minutes southbound. Even though IRV operators focus mostly on the 95 Express lanes, they also assist motorists on the regular lanes along I-95.

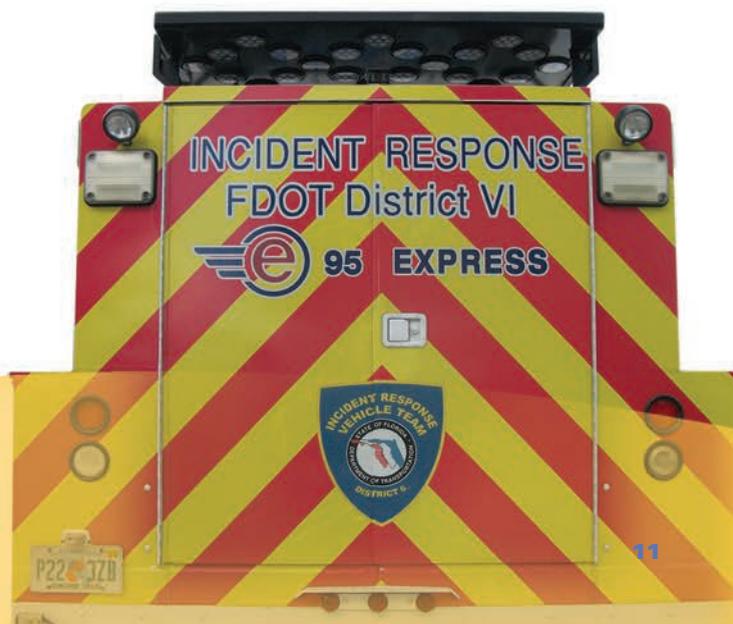
Express Lanes Facility Availability (FY 2011-2012 Monthly Avg.)



Road Ranger Assists by Type



- Training Program** – A new training program was developed for newly-hired IRV operators to acclimate them with the IRV procedures and responsibilities. The training program consists of classroom studies, field studies, on-the-job training, written tests, and in-field tests that IRV operators must pass before beginning regular IRV duties.



- Safety and SIRV Coordination** – Additional reflective markings were installed on all IRV units to increase visibility and safety during FY 2011-2012. District Six also saw a need for coordination between its IRV operations staff and the District Four TMC’s Severe Incident Response Vehicle (SIRV) Team due to the commencement of construction for 95 Express Phase II. The two teams met and discussed IRV/SIRV procedures and lessons learned and plan to continue having quarterly meetings in FY 2012-2013 and beyond.

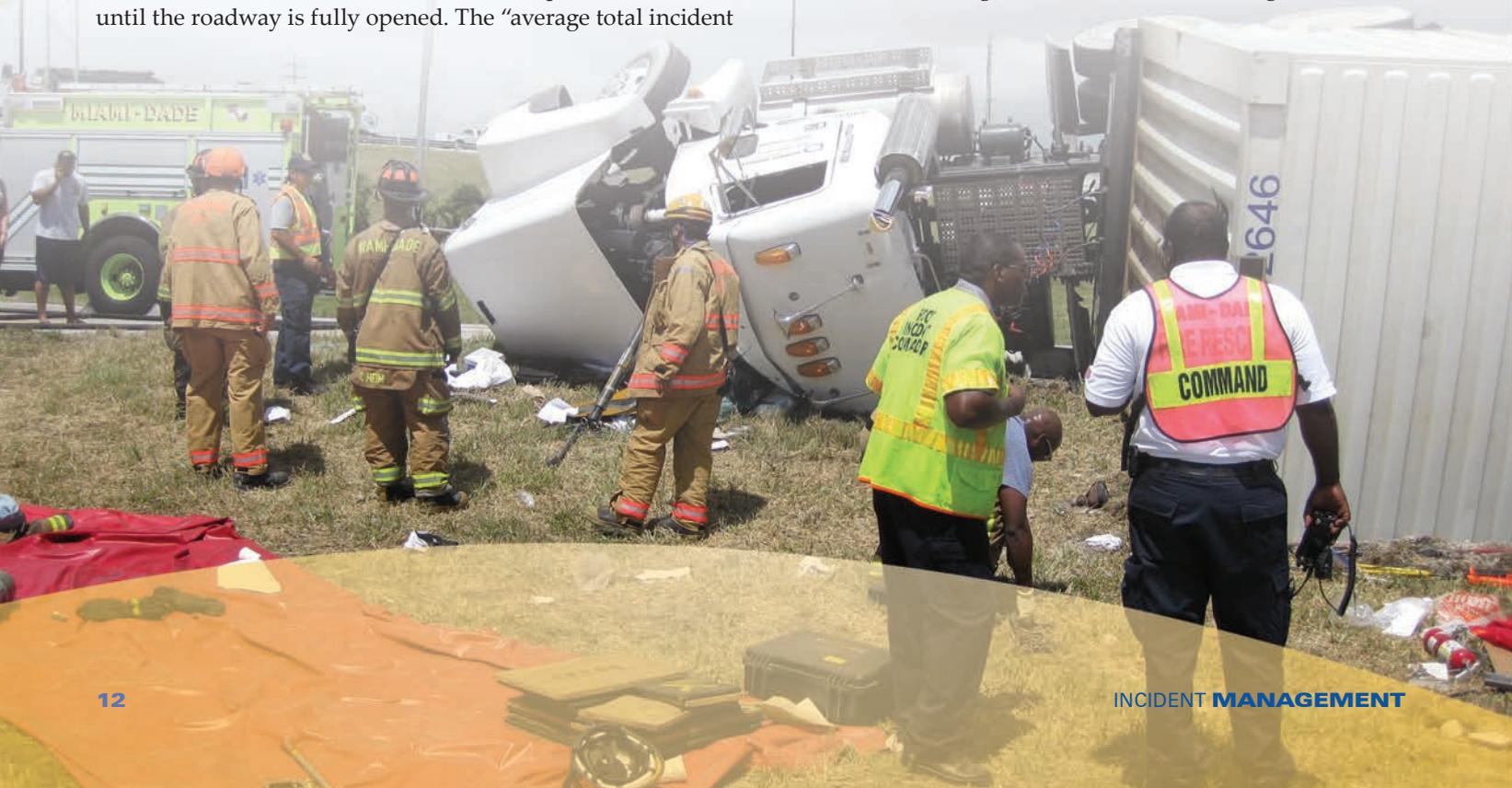
RAPID INCIDENT SCENE CLEARANCE (RISC) UPDATES

RISC supports Florida’s Open Roads Policy by being an incentive-based program for the rapid removal of the more complex incidents that occur on District Six roadways that would normally require additional time for clearance. RISC contractors are required to respond with all required vehicles within 60 minutes and clear the travel lanes within 90 minutes to receive the incentive. TMC operations staff use the RISC module in OTM to track RISC activations, resources, arrival times, and clearance times. During FY 2011-2012, the average RISC response time was 39 minutes while the average RISC travel lane clearance time was 88 minutes. TMC operations staff summoned RISC resources a total of nine times during FY 2011-2012. The table to the right shows the average RISC performance measures. The “average travel lane clearance time” is the duration from the time the RISC contractor receives notice-to-proceed on scene until the roadway is fully opened. The “average total incident

clearance time” is the duration from the time the TMC is notified of an event until the roadway is fully opened.

RISC Performance	FY 2011-2012 Average (minutes)	Target (minutes)
Average Activation Time	10	—
Average Arrival Time	39	60
Average Travel Lane Clearance Time	88	90
Average Total Incident Clearance Time	161	—
Total RISC Events	9	—

Also deployed during FY 2011-2012 was the RISC arterial pilot program, which launched in December 2011 and covers Krome Avenue (from Kendall Drive to US 27), US 27 (from SR 826 to the Miami-Dade/Broward County line), and the MacArthur Causeway. District Six took advantage of the pilot program’s deployment to launch additional training initiatives for RISC contractors, FHP and Miami-Dade Fire Rescue, as well as TMC staff such as IRV operators and TMC shift supervisors. A video was also produced in partnership with Miami-Dade Fire Rescue to showcase basic RISC procedures. The video was filmed at Fire Rescue’s headquarters in the City of Doral and can be viewed at the ITS Program’s website, SunGuide.org.





IT/ITS MAINTENANCE

District Six’s ITS Program is dependent on a complex computer network and state of the art technology. The TMC’s IT/ITS maintenance staff manage and maintain that technology – both in the TMC and out in the field. The entire network of equipment, including roadway detectors, CCTV cameras, DMS, communications infrastructure, servers, computers, software applications and the TMC’s video wall, must remain operational 24 hours per day, seven days per week. In turn, these systems call for an aggressive maintenance program that ensures ITS equipment is operating adequately.

To assist in meeting those goals, District Six deployed a database application that assists with detection, reporting, troubleshooting and, ultimately, the repair of IT and ITS equipment in the TMC and out in the field. The table below compares annual average system availability year over year. Continued expansion of the ITS spare parts inventory over the last year positively affected systems availability for ITS field equipment, as reflected in the table below.

Subsystem	Annual Average System Availability 2010/2011	Annual Average System Availability 2011/2012	Year over Year Difference
TMC Systems (critical)*	99.98%	99.98 %	0.00
Video Wall	97.92%	99.96 %	+2.04
SunGuide™ Software	98.98%	99.01 %	+0.03
CCTV	97.55%	97.48 %	-0.07
DMS	96.78%	96.10%	-0.77
Detectors	98.45%	98.73 %	+0.28
Workstations (non-critical)**	98.71%	98.47 %	-0.24

* Critical is defined as SunGuide Software related servers, operator workstations, fax machines, network servers, Cisco switches, SAN, firewall, and VPN.

** Non critical is defined as laptops, staff workstations, network printers, and other ancillary equipment.

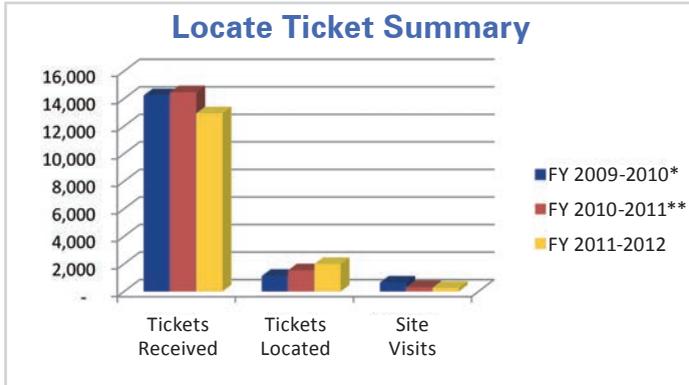
NEW ITS MAINTENANCE CONTRACT

During FY 2010-2011, the ITS Program procured a new ITS maintenance contract that completed its first full year of operation in FY 2011-2012. The contract provides preventive maintenance, diagnostics and repair services for all devices and equipment used by the ITS Program to maintain the SunGuide TMC functional 24 hours per day, seven days per week. The performance-based contract requires the vendor to be fully licensed to perform all electrical and engineering-related activities within the contract in both Miami-Dade and Monroe counties, to comply with Standard Operating Guidelines (SOG), and provide detailed reporting and documentation of all its work activities. This contract is another example of District Six being ready for tomorrow. It is a commitment to an aggressive maintenance plan, which can minimize device and equipment repair times and maximize the availability of the technology that is used daily to manage South Florida’s roadways.

ITS UTILITY INFRASTRUCTURE LOCATES

The ITS Program includes a large amount of underground fiber optic and electrical cables installed throughout Miami-Dade and Monroe counties. The ITS Program subscribes to the Sunshine 811 service to help protect underground ITS facilities from potential damage similar to any other utility with responsibility for locating its infrastructure. The TMC receives notification when contractors are planning to work within a Sunshine 811 grid where underground ITS facilities may exist. IT staff members sort through thousands of notifications each month and determine if field visits are necessary. A field visit involves confirming if there is a potential conflict

and if necessary physically identifying the underground ITS facility with paint. The graph below indicates the quantity of locate tickets received and the quantity of actual field locates since FY 2009-2010.



* July 2009: Monroe County Grids Added; September 2009: US-1 Grids from SW 16 Street to SW 212 Street Added.

** June 2011: SR-826 NW 25 Street to NW 122 Street & I-395 from I-95 to Alton Road Grids Added.

INFRASTRUCTURE IMPROVEMENTS

Coordination meetings were held with District Four to review engineering plans for the IT/ITS support of 95 Express Phase II which commenced construction during FY 2011-2012. SR 826 Section II devices, which included eight arterial DMS and one mainline DMS (all with confirmation CCTV cameras), were accepted and the fiber optic backbone connection successfully replaced the former wireless communications between SW 24 Street and US-1. Engineering reviews of all devices for the SR 826/SR 836 Section V project also continued during FY 2011-2012. Some other improvements made during FY 2011-2012 include:

- **US-1 in Monroe County Surge Arrestors** – District Six upgraded surge protection devices for the ITS infrastructure on US-1 in Monroe County to enhance system reliability. The addition of these protection devices occurred between May 2012 and June 2012.
- **Ramp Signal Uninterrupted Power Supply (UPS) Upgrades** – The former UPSs located at all 22 ramp signal locations were replaced with new ones to improve the reliability of the ramp signaling system. This project began in February 2012 and was completed in May 2012.

- **95 Express Fiber Redundancy** – Throughout June 2012, District Six engineered and deployed a 95 Express fiber redundancy plan to improve the reliability of the system and provide an alternate communications path. This made the system less susceptible to communication failures and ensures critical data are received at the TMC.
- **I-195 Fiber Optic Infrastructure Improvement** – Due to theft and vandalism along the corridor, portions of I-195 fiber optic backbone were replaced and made vandal resistant. This project began and was completed in late April 2012.
- **I-95 Directional Bore at NW 14 Street** – Due to theft and vandalism, District Six deployed a directional bore to install a conduit under I-95 near NW 14 Street where electrical feeds and access pull boxes were buried. These buried electrical lines improve system reliability by making it more difficult for possible vandals to access the system. This project began and was completed in late July 2011.

VANDALISM/THEFT OF ITS FIELD DEVICES

Aside from the I-95 directional bore at NW 14 Street and I-195 Fiber Optic Infrastructure Improvement projects described above, District Six continued implementing security locks on cabinets along I-75 and I-95. Coordination continued with law enforcement and the State District Attorney’s office to optimize enforcement efforts along high risk areas to prevent more acts of vandalism.

TMC IT UPGRADES

District Six upgraded all TMC IT servers to a new operating system (Windows Server 2008) during FY 2011-2012, as well as upgraded all TMC workstations with new computers and a new operating system (Windows 7). The SunGuide software’s database software was also upgraded to Oracle Version 11.2 and a failsafe feature was also implemented to provide full database redundancy in the case of failure, errors or data loss.

TMC VIDEO WALL

During FY 2011-2012, the TMC’s video wall monitors reached the end of their life cycle. The TMC’s maintenance staff began planning the replacement of the video wall which will be completed during FY 2012-2013.



TRAVELER INFORMATION

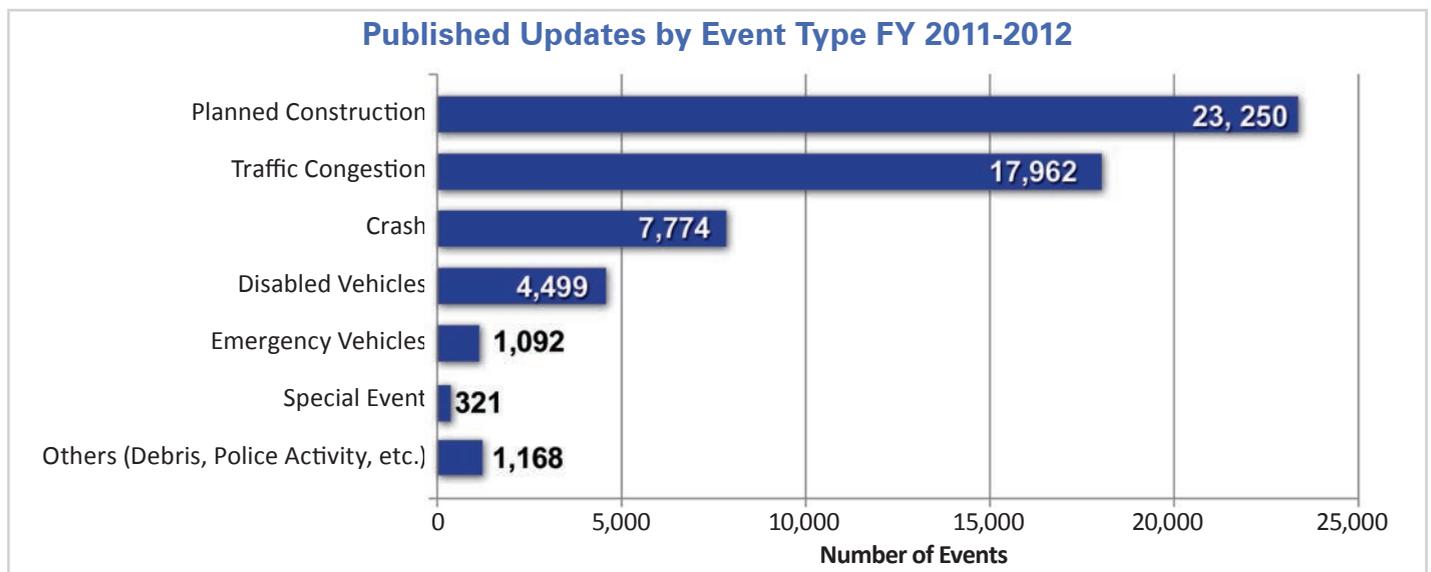
FDOT provides traveler information to its customers through the statewide Florida Advanced Traveler Information System (FLATIS), commonly referred to as 511. The service disseminates real time traffic information through the Internet on FL511.com and a smartphone application as well as through a phone-based Interactive Voice Recognition (IVR) System. Other forms of traveler information can be found on District Six’s many DMS, which display lane blockage information and travel times, as well as District Six’s ITS website, SunGuide.org, which allows customers to view live feeds of the ITS Program’s CCTV cameras in Miami-Dade and Monroe counties.

FLATIS

During FY 2011-2012, 511 continued to receive a significant amount of calls statewide with users in Miami-Dade and Broward counties making up more than 40 percent of those calls. District Six TMC operators published over 56 thousand event updates on the 511 website from lane blockage and congestion events on roadways managed by the District Six TMC. A published event is anything related to traffic that could cause a problem for the motoring public. The table to the right depicts the number of published events for each roadway and the graph below shows the different types of published events.

Roadway	Published Events	Percentage
I-95 Mainline	13,597	24.25%
95 Express	4,072	7.26%
SR 826/Palmetto Expwy	21,740	38.78%
I-195	7,377	13.16%
I-395/MacArthur Cswy	3,539	6.31%
I-75	2,640	4.71%
SR-886/Port Blvd	18	0.03%
US-1 (Miami-Dade County)	1,802	3.21%
US-1 (Monroe County)	1,242	2.22%
Card Sound Road	29	0.05%
SR 997/Krome Avenue	1	0.00%
US 27	9	0.02%
Total	56,066	100.00%

Published Updates by Event Type FY 2011-2012



• **Smartphone Application and Social Media** – FLATIS

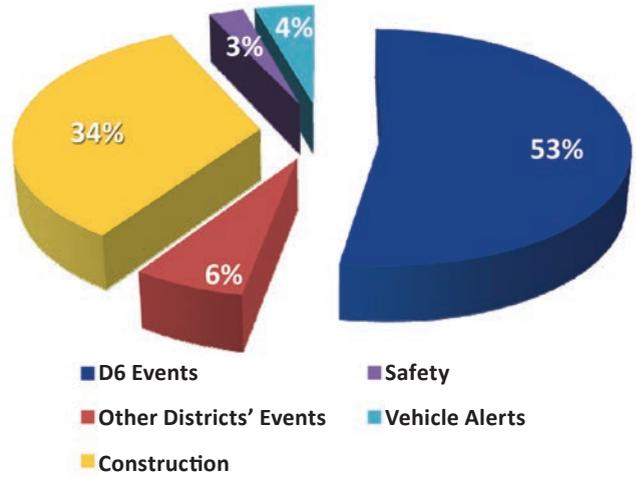
added new media to its traditional dissemination channels during FY 2011-2012 by launching the Florida 511 “app” on Apple’s App Store. Users can now download the application on their iPhones, iPods and iPads and survey travel information in their vicinity statewide. The application gives users the option to have traffic incidents populate automatically based on the user’s GPS location. Aside from its first smartphone application, Florida 511 took its first step into social media in February 2012 with the launch of several 511 Twitter feeds, which Twitter users can follow to populate their feeds with real-time, up-to-the-minute traveler information in the areas of Florida they desire. The 511 Twitter accounts can be found by searching “FL511” on Twitter. The use of these new media is another testament to preparing for tomorrow by offering FDOT’s customers user-friendly and current technology to access traveler information.



DMS MESSAGING

Another important component of District Six’s traveler information service is its system of DMS, which displays lane blockage information, travel times, pre-event messages and congestion messages, all of which help motorists plan their trips and avoid congestion in both Miami-Dade and Monroe counties. In FY 2011-2012, more than 140,900 messages were displayed on District Six DMS, with the majority of messages being for incidents and construction. This is a 97 percent increase compared to the previous fiscal year.

DMS Messages by Type





PUBLIC OUTREACH

TMC staff continued its mission to promote the ITS Program's benefits throughout FY 2011-2012 within the industry and to its customers. These activities led to District Six being recognized at both the state and national level with prestigious awards for its regional public information efforts and its 95 Express marketing and outreach campaign. The staff also continued to participate in national conferences to raise awareness of the importance of public information and customer service in the ITS world, and strides were made in local outreach as well. A series of grassroots initiatives to broadcast the program's message by appearing on local television shows and participating in community events also helped raise public awareness of the program and its benefits.

LOCAL

District Six kicked off a regional public information campaign that included municipal, community and media outreach to promote the ITS Program's services. TMC staff also participated in local shows for WLRN news and CBS 4's Focus on South Florida as well as gave several interviews to the Miami Herald for print articles published throughout the year. Additionally, TMC staff launched an internal education plan to inform District Six employees of new services and resources to increase the awareness of the ITS Program within the Department.

STATEWIDE

TMC staff hosted a variety of presentations for statewide industry professionals to share the District Six's operational experience with 95 Express, the Ramp Signaling System and its incident management services throughout the year. The ITS Program was also featured in several notable publications across the state including the Tampa Tribune, Florida Times Union and Sun-Sentinel, among others. Staff also regularly submitted industry articles, published service newsletters and enhanced its website to keep the public informed about program initiatives and travel benefits. For these efforts, District Six was recognized with an Outstanding Achievement Award in Public Information by the Intelligent Transportation Society of Florida (ITSFL).

NATIONAL

TMC staff was selected to present at the 2012 Intelligent Transportation Society of America's (ITSA) Annual Meeting on the importance of customer service to the successful operations of an express lanes system and its impact on ITS. At the meeting, District Six was awarded the prestigious Best Innovative Practice Award for its 95 Express marketing and outreach campaign by ITSA.

INTERNATIONAL

TMC staff also participated in the ITS World Congress meeting's special session on public information in ITS and coordinated a tour of the SunGuide TMC for event delegates from India, Japan, South America and Europe.

ENGAGING THE PUBLIC

During FY 2011-2012, TMC staff assisted in disseminating a 95 Express public survey and maintaining the program's website updated with the latest news. They also published the Traffic Incident Management (TIM) Newsletter, hosted media events for the 511 Traveler Information Service and sent e-mail blasts to partner agencies and the community about ITS Program news.

- Articles published: 13
- Newsletters published: 4
- Public tours and presentations hosted: 21
- Media interviews conducted: 11
- Community Events: 5

CUSTOMER SERVICE

Customer service efforts continued to be a high priority for the ITS office during FY 2011-2012, especially because TMC staff is responsible for handling general ITS and 95 Express-related inquiries. They received more than 300 comments on a variety of topics that included tolling, transit and data requests for academic and professional institutions from around the world. To better prepare for the interagency customer service efforts needed for 95 Express Phase II, TMC staff also completed work on an updated version of its in-house public inquiry management software.



BENEFITS TO THE PUBLIC

The FDOT District Six ITS Program's budget for FY 2011-2012 included operations, maintenance and capital improvement costs. The costs displayed in the table to the right are considerably less than the normal capital costs associated with expanding highways and facilities.

One of the most important financial benefits of the ITS Program to South Florida customers is the reduction in incident duration. The average travel lane blocking incident duration during this fiscal year was 27.5 minutes; which represents a 45% reduction from the 2005 FDOT District Six established baseline average duration of 50 minutes.

When the delays associated with incidents are reduced, motorists save time. This time savings can be directly translated to dollars. As shown in the benefits table, the Incident Management Program's contribution to the reduction in delay due to incidents translates into savings of \$1.7 billion. Additionally, 95 Express and the Ramp Signaling System also contributed to the reduction of delay during peak hours translating into savings of \$39 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; conservatively it does not include other road user cost savings.

When comparing the total estimated benefits of the ITS Program during FY 2011-2012 to the total annual operating expenses and capital investments (annualized over ten years at seven percent), the ITS Program is shown to be yielding

\$36.12 in economic benefit for every dollar spent (Benefit Cost Ratio of 36.12:1).

Fiscal Year 2011-2012 Costs	
ITS Operations	\$5,930,279
ITS Maintenance*	\$3,302,372
Road Rangers	\$3,536,863
FDOT Cost Center Operating Budget**	\$1,265,933
Other (Consultants, FTE, FHP, FIU)	\$3,516,160
Total Annual Operating Costs	\$17,551,607
Total Annualized Capital Costs	\$29,760,451
Total Annual Costs	\$47,312,058

Fiscal Year 2011-2012 Benefits	
Incident Management	\$1,669,679,009
Express Lanes / Ramp Signals	\$39,008,688
Total Benefits	\$1,708,687,697

* Includes Express Lanes ITS Maintenance and Delineator Repairs

** Includes Utilities for Express Lanes



A LOOK AHEAD TO FISCAL YEAR 2012-2013

95 EXPRESS PHASE II

Construction is already underway for 95 Express Phase II. District Six will continue to support the project by preparing all necessary documents to ensure 95 Express operations continue to be a success. These documents will update software requirements, policies, procedures and incident management resources to handle the project's 14-mile expansion into Broward County. District Six will be working closely with its partners to ensure all stakeholders' needs and concerns are adequately addressed and to maintain a regional approach across jurisdictional boundaries.

OTHER EXPRESS LANES PROJECTS

Building on the success of 95 Express, FDOT is currently planning to extend express lanes to other facilities in South Florida. To fully realize and maximize the benefits provided by express lanes, each individual express lanes facility must be developed as part of an overall network of express lanes facilities, meaning all express lanes would be linked to function and operate as a seamless, region-wide network.

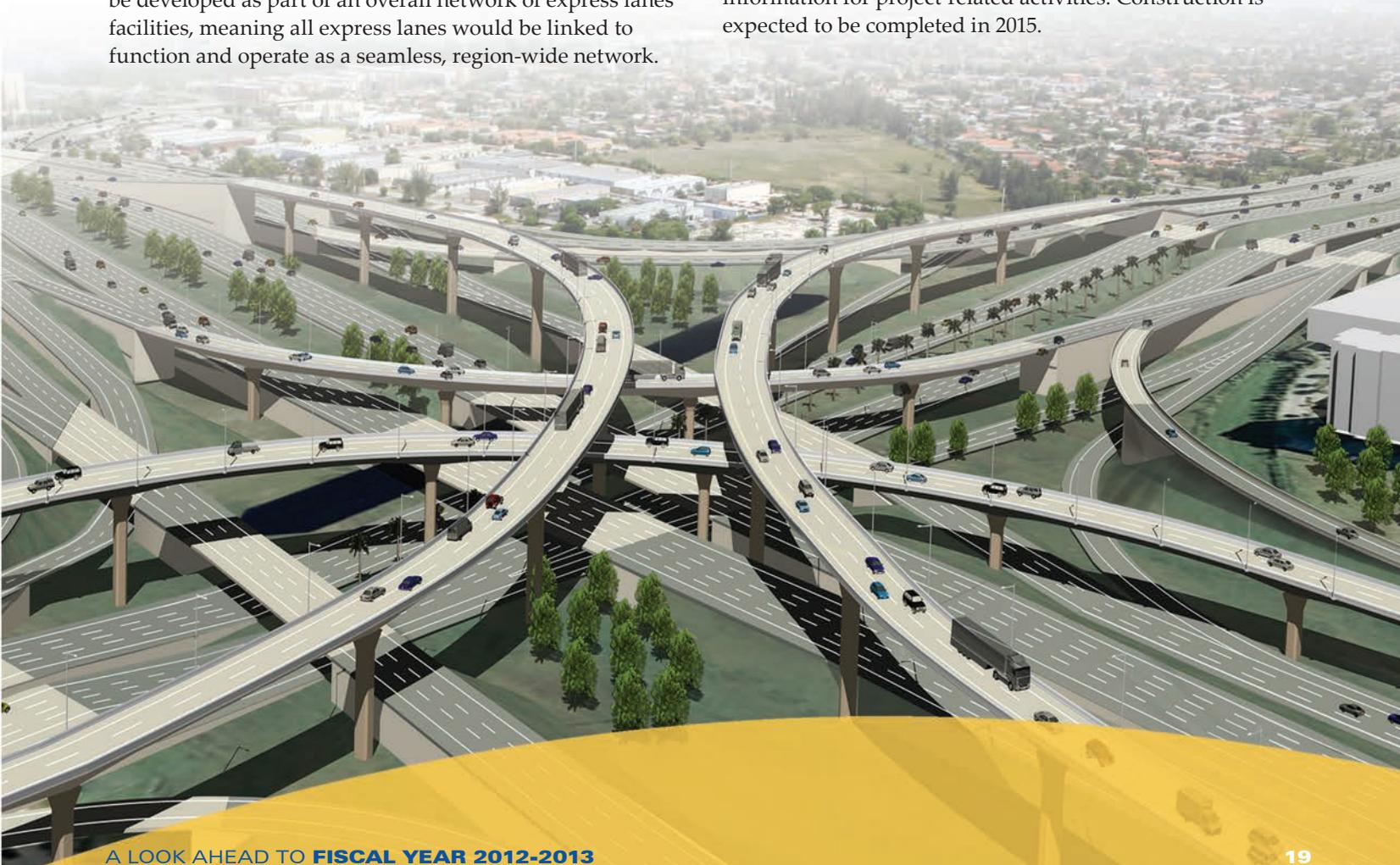
Roadways being targeted for this expansion are I-75 and SR-826, as well as portions of the Golden Glades Interchange and the SR 826/SR 836 Interchange.

PORT OF MIAMI TUNNEL PROJECT

The Port of Miami Tunnel project will continue construction during FY 2012-2013 and the ITS office will continue to support the project with its incident management and traveler information services.

SR 826/SR 836 INTERCHANGE RECONSTRUCTION SECTION V

This major interchange reconstruction project includes the relocation of current CCTV cameras and the addition of new cameras and new freeway and arterial DMS. District Six's ITS Program will continue to support the project by providing incident management and disseminating traveler information for project-related activities. Construction is expected to be completed in 2015.





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