



SUNGUIDE® DISSEMINATOR

District Four Performs a Power Redundancy Test in Broward County

The Florida Department of Transportation (FDOT) District Four Intelligent Transportation Systems (ITS) Unit recently completed deployment of a power distribution system upgrade in Broward County. Deployment of this system reduced the number of commercial power connections down from several dozen to six. In addition to simplifying power distribution, this system reduces maintenance costs and increases device availability. Part of the system deployment involved the installation of small generators near commercial power connections. The approach of the 2010 hurricane season brought attention to the need to test the full system and its capabilities.

The FDOT District Four ITS Unit planned a one-day test to occur during off-peak hours. The ITS Unit alerted all involved parties of when and why the commercial power to ITS devices would be turned off. Some of the team members involved in the testing stayed at the regional transportation management center (RTMC) to monitor the impact of commercial power loss. The rest of the team traveled a predetermined route to manually disconnect commercial power at the distribution sites. After turning off power, an uninterruptible power supply (UPS) would ideally maintain the system power until the generators could automatically start and assume the power load for the ITS devices within the distribution network.

However, since this is the first year the generators have been in place, the test was sure to yield some interesting results. The team decided this would also be an ideal time to test the redundant fiber optic communications path by removing all power to a main communications hub site; this should result in the network data traffic rerouting itself nearly instantly.

The major issues uncovered by the test were:

- A dead generator battery was unknown to the maintenance staff due to lack of an automated monitoring system.
- An incorrectly configured redundant path from a major hub to the RTMC was located.
- Some detector sites did not contain UPS devices or had UPS with dead batteries, breaking the data chain at locations where daisy chaining was used.

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The ITS Unit quickly created and completed a list of corrective measures. The biggest lesson learned was to not be complacent and assume that a backup plan is fully functional—just because it is in place. From now on, to maintain redundant systems that are always ready for use with critical assets, the ITS Unit will perform a full system test twice a year—once before and once after hurricane season. Any time a hurricane watch is issued for the area, the test will be conducted again.

This article was provided by Jason Trujillo, FDOT District Four. For information, please contact Mr. Trujillo at (954) 847-2635 or email to Jason.Trujillo@dot.state.fl.us.

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Making the 2011 World Congress on ITS

The 2011 World Congress hosted by the Intelligent Transportation Society of America (ITS America) will showcase the best in transportation technology, business resources, and industry expertise! Preparations are underway for what promises to be the largest transportation event of the year. ITS America anticipates that the meeting in Orlando will draw the largest attendance to date—12,000 delegates from more than 65 countries.

The festivities will kick-off on Sunday, October 16, 2011, with an opening ceremony at the new Hilton Orlando. On Monday, a welcome reception will celebrate the opening of the 350,000 square-foot exhibit hall; ITS Florida will also host a reception at Sea World's Discovery Cove.

New for this event, ITS America will host dedicated tours of the exhibit hall following the forum showcases and Best of ITS Awards. The exhibit hall will also feature a "theater" with lively sessions, technology presentations, and networking events.

Showcasing Cutting-edge Transportation Technology

A highlight of any World Congress is the technology demonstrations, and Orlando will not be exception. It is an exciting time to be involved in ITS, as many of the most promising technologies are being deployed today. As a result, the 2011 event will go one step beyond demonstrations and showcase projects that can be implemented in the Orlando region and will remain long after the event draws to a close.

The 2008 World Congress in New York City had three main venues for technology demonstrations with 48 participating companies, and more than 100 on-site demonstration staff, traffic enforcement, and volunteers. Orlando promises to be even bigger.

The Orlando region is unique in that it already boasts an infrastructure surrounding the convention center that is multi-modal in nature and allows participants to build and demonstrate different technology solutions within the same geographic area. Demonstrations could showcase technology ranging from tolling applications to pedestrian detection and warning systems to vehicle-to-vehicle communications. Some of the potential corridors in the Orlando region for these demonstrations include Interstate 4, the Beachline Expressway (SR 528), International Drive, and Florida's Turnpike Toll 417 (Seminole Expressway/Central Florida GreeneWay/Southern Connector Extension). These showcases will help ITS come alive and illustrate the benefits of transportation technology for consumers and business leaders from across the globe. Orlando is poised to provide the nation with the largest test site for advanced technology in all modes of transportation.

If you are interested in developing a technology demonstration for the World Congress, the time to get involved and start planning is now! Please contact Patty del Pozo at PdelPozo@itsa.org.

You can also stay up-to-date by following us on Twitter or joining our Facebook group:

http://twitter.com/its_america

<http://www.facebook.com/pages/Washington-DC/Intelligent-Transportation-Society-of-America/129950007827>

We hope you will get involved; help us showcase the best of ITS here in Florida. So mark your calendars for what is sure to be an unforgettable event!

This article was provided by Emily Fishkin, ITS America. For information, please contact Ms. Fishkin at (202) 721-4204 or email to EFishkin@itsa.org.



2008 World Congress in New York City technology demonstration



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District Six ITS Program Supports Port of Miami Tunnel Project Construction Effort

The Florida Department of Transportation (FDOT) District Six Office recently broke ground on one of the largest and most important transportation improvement projects in the state's history. Construction efforts for the Port of Miami Tunnel (POMT) Project began this May and work is expected to last approximately four years with final project completion scheduled for spring 2014.

The \$1 billion project is designed to improve traffic access going to and from the Port of Miami, with the tunnel serving as a dedicated underwater roadway connecting the Port with the MacArthur Causeway and Interstate-395 (I-395). The improved access will alleviate daily congestion associated with port traffic for the more than 7,000 cargo trucks, passenger buses, and vehicles that utilize the facility every day. It will help keep the Port of Miami internationally competitive and ensure its ability to handle projected growth for both the cargo and cruise ship industries. On the local front, general conditions will also improve, as industry-related vehicles will be removed from downtown Miami's already congested street network to reduce regular traffic, improve safety, and increase the economic viability of the city.



The POMT project consists of three main construction improvements, including: a tunnel connection between Watson Island and Port of Miami (Dodge Island), increased connections to the Port of Miami roadway system, and widening of the MacArthur Causeway bridge. Construction will be executed in several phases, with the main part of the work (deep-digging and boring) to start next year. For now, the contractor is focusing on building the new layout of the MacArthur Causeway which will result in traffic diversions and regular closures along this important stretch that connects the various surrounding islands as well as the City of Miami Beach to the mainline. The District Six Intelligent Transportation Systems (ITS) Program is fully supporting these efforts by providing traffic management assistance along the physical limits of this project. District Six has full ITS coverage along Port Boulevard and the MacArthur Causeway. Ten closed-circuit television (CCTV) cameras, ten microwave vehicle detectors (MVDS) and two dynamic message signs (DMS) provide operators at the District's SunGuide® Transportation Management Center (TMC) with the ability to monitor traffic conditions and broadcast traveler information, such as road closures, via DMS and the 511 phone and web systems.

Private tow-truck operators, contracted through the project's concessionaire, will provide regular motorist assistance and incident management services seven days a week, from 6 a.m. to midnight. However, the ITS Program is committed to providing additional event management resources, such as Road Rangers service patrols and incident response vehicle support for major events, or when needed. Additionally, the District Six ITS Program participates in regular coordination meetings and has added a live streaming video tour of the project roadways on its program website at www.sunguide.org.

The ITS Office is proud to play an important role in the POMT project, which will not only be beneficial to the south Florida region in the short-run, but for many years to come, as it continues its economic growth. With the benefits the ITS Program can deliver, the FDOT will help to ensure the POMT project is implemented as smoothly as possible with the least amount of impact to the public.

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FDOT-TERL's New Mast Arm Intersection—Open for Testing!

Since the 1970s, the Florida Department of Transportation's (FDOT) Traffic Engineering Research Lab (TERL) has used a span-wire test intersection for controlled testing of traffic signal equipment. In late 2007, TERL upgraded this test intersection with new concrete strain poles, span wire, and both single and dual-point signal attachments. In 2008, the TERL embarked on a mast arm test intersection project to meet the growing needs of the FDOT's traffic control device certification program. This program is required by Florida law to ensure a uniform system of traffic control devices on the streets and highways of Florida.

The increased emphasis of traffic signal hurricane survivability has led to more mast arm intersections deployed within the State of Florida. In addition, technological advances in traffic management have increased the quantity, type, and size of devices installed on mast arm intersections. These devices range from light-emitting diode (LED) blank-out and internally illuminated street name signs to video and radar vehicle detection devices. Finally, increased emphasis on reducing crashes at signalized intersections has led to other additional traffic control devices on signal structures, such as retroreflective backplates.

In early 2009, to meet the increased needs for safe, controlled testing, the FDOT Research Office funded the design and construction of a new mast arm intersection, intelligent transportation systems (ITS) pole, and roadway with pedestrian and bicycle features. The project consisted of a two-lane, four-way intersection with a bike lane, sidewalk, and mid-block crosswalk. The FDOT Central Roadway Design Office produced the construction plans and project construction began on September 25, 2009. The FDOT District Three Midway Construction Office managed the construction and completed the project on schedule and within budget on July 1, 2010.



TERL mast arm intersection - BEFORE construction



TERL mast arm intersection - AFTER construction

The new mast arm intersection complements the existing span wire intersection by allowing evaluation of mast arm-related devices and attachment hardware that cannot be tested on a span wire setup. The intersection was designed to include as many testing and research scenarios as possible. For example, human factors research, particularly in the pedestrian area, was accommodated during the design.

Some additional features of the new intersection are:

- National Electrical Manufacturers Association TS2 traffic signal cabinet
- 170 traffic signal cabinet
- Galvanized mast arms
- Horizontal and vertical signal heads
- Retroreflective backplates
- Countdown pedestrian signal heads
- Multiple pedestrian push buttons
- Multiple vehicle detector loop types
- 50-foot ITS pole with camera lowering system
- Fiber optic interconnect with span wire intersection
- Single and dual post sign structures with communications and power.

The completed project meets the current and future needs of the FDOT traffic control device certification program. Due to the growth of Florida's transportation system and continuing technology innovations, this program now consists of over a thousand approved products manufactured by more than a hundred qualified vendors. The TERL looks forward to the improved testing capabilities that the new mast arm intersection enables. This infrastructure enhancement is a significant contributor to the TERL's mission to provide a safe and uniform system of traffic control devices to the traveling public of Florida. Much appreciation goes out to the Research Office, Central Roadway Design Office, and District Three for their significant contributions to this successful project!

This article was provided by Trey Tillander, FDOT Traffic Engineering and Operations. For information, please contact Mr. Tillander at (850) 921-7361 (TERL) or (850) 410-5617 (Rhyne Building), or email to Trey.Tillander@dot.state.fl.us.

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ITS Florida and Members Host a Variety of Training and Technical Forum Opportunities

The ITS Florida Professional Capacity Building Committee (PCB) offers numerous exciting training opportunities for its members throughout the year. Training includes webinars, “Lunch and Learn” sessions, instructor-led courses, technical subcommittees, and technology forums. ITS Florida offers these opportunities based upon an understanding of their members’ target training needs.

In 2009, ITS Florida hosted four well-attended “Lunch and Learn” sessions/webinars and a technology forum that covered intelligent transportation systems (ITS) related topics, such as Decision Support Tools, Traffic Engineering Research Laboratory (TERL), Transportation Systems Management and Operations (TSM&O), Traffic Management and Operations Planning Studies, Integrated Corridor Mobility, Intellidrive (Vii) Updates, Traffic Signal Control Innovation, and Incident Management/Emergency Transportation Operations.

To date in 2010, ITS Florida and its members have hosted several training opportunities, including a “Lunch and Learn” session at the Orlando-Orange County Expressway Authority regarding statewide ITS project updates (photo to the right) and a technical presentation on the “Common Protocols Used in ITS.” A Surge Protection and Grounding course is currently in the works and should be offered within the next few months. Additionally, the Transpo2010 conference will host major ITS vendors showcasing their technologies as well as providing additional training focused on both current technologies and future ITS aspects. This will include a number of professional development hour credit opportunities. Also being considered this year is the required “Laws and Rules” course.

Please visit <http://www.itsflorida.org/> for further information and to view upcoming opportunities on the training calendar!

This article was provided by Dale W. Cody and Shawna Slate, Metric Engineering, Inc. For information, please contact Mr. Cody at (407) 644-1898 or email to DCody@metriceng.com.

For more information on ITS Florida, please check the ITS Florida Web site at www.itsflorida.org or contact Sandy Beck, Chapter Administrator, at itsflorida@itsflorida.org. If you wish to contribute an article to the SunGuide Disseminator on behalf of ITS Florida, please email Mary Hamill at MaryKHamill@global-5.com.

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Editorial Corner—Endorsing Transportation System Management and Operations

The Federal Highway Administration defines Transportation System Management and Operations (TSM&O) as “an integrated program to optimize the performance of existing multimodal infrastructure through implementation of systems, services, and projects to preserve capacity and improve the security, safety and reliability of our transportation system”.

In simpler terms, TSM&O is a program based on measuring performance, actively managing the multimodal transportation network, and delivering positive safety and mobility outcomes to the travelling public in Florida.

With fewer funds available to build our way out of congestion, improving our current roadways has become critical. TSM&O improves mobility for all roadway users through an emphasis on real-time active management and operation of the existing transportation system. TSM&O partners are comprised of public and private agencies throughout transportation, partnered together as one cohesive entity to make cost-effective investment decisions. This cohesiveness serves to improve communications, coordination, and collaboration amongst transportation partners leading to more effective leveraging of existing infrastructure.

Realizing the potential benefits of adopting this program, on May 20, 2010, the Florida Department of Transportation (FDOT) Executive Board endorsed the working definition of TSM&O, the TSM&O Business Plan, and the outline of a Strategic Plan.

The application of TSM&O has the potential of positively affecting many different areas and programs within the FDOT. Areas such as work zone management, freight management, freeway and arterial management, and transit operations and management stand to benefit from this program.

Several FDOT Districts have already started implementing TSM&O. The Traffic Operations office in District Four has defined a TSM&O network and, in conjunction with Broward County, is deploying an advanced traffic management system that will support the real-time operations and management of the initially selected network.

District Six has had great success with TSM&O in their implementation of express lanes on I-95. With a combination of congestion pricing, ramp management, express bus, and carpools on I-95 in Miami-Dade County, they have been able to improve the performance of both the general use lanes and what had been high-occupancy vehicle (HOV) lanes. Before implementation of the express lanes, during peak hour operations, both the general use lanes and the HOV lanes had average speeds of 20 mph. After implementation of the express lanes, the general use lanes have average speeds of 41 mph and the express lanes have speeds of 57 mph.

Florida’s Turnpike Enterprise is also using TSM&O in their implementation of low-cost/high-return projects called “Efficiency Projects.” A proposed restriping project on the Anderson Mainline Toll Plaza, estimated at \$53,000, will reduce travel time by seven percent and yield a benefit cost ratio of 138. These numbers are consistent with estimates that benefit cost ratios for system operations measures are 9 to 1 compared to the addition of conventional highway capacity which has a benefit cost ratio of 2.7 to 1.

The benefits of implementing TSM&O are numerous. By making the most effective and efficient use of the infrastructure we currently have, we can provide better flow through work zones, improve travel time reliability, provide better incident management, and realize cost savings while improving coordination between planning, operations, and other partners such as metropolitan planning organizations. TSM&O is already proving its worth to the FDOT!

This editorial is provided by Elizabeth Birriel, FDOT Traffic Engineering and Operations Office. For more information, please contact Ms. Birriel at (850) 410-5606 or email to Elizabeth.Birriel@dot.state.fl.us.

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Inside the TERL

The Florida Department of Transportation (FDOT) has a goal to assure that only a safe and uniform traffic control system is implemented in the state of Florida. The Traffic Engineering Research Lab (TERL) plays a part in obtaining this goal by satisfying Florida Statute 316.0745 - Uniform Signals & Devices. Below is a look Inside the TERL at activities that help accomplish our goal.



The primary mission of the TERL is to maintain an Approved Product List (APL) of devices that have been tested and verified to meet FDOT requirements. Establishing and maintaining the APL encompasses a broad variety of activities. These activities are divided into the following three steps: (1) the initial request to add a product to the APL; (2) the review of the manufacturer's quality system; and (3) the actual testing of the product being submitted for listing on the APL.

The following is a step-by-step summary of these three steps.

How Do You Get a Product Listed on the FDOT Approved Product List?

The FDOT's Approved Product List approval process is outline as follows:

Step 1: Request For Product Consideration:

To begin the approval process, a completed Request For Product Consideration form is submitted to introduce the company and product to the TERL. This helps determine which approval process the company will need to follow.

Step 2: Vendor Qualification:

Before the product can be evaluated, the vendor must prove that they meet minimum industry standard quality control and assurance standards by completing a quality system evaluation QA/QC Assurance Evaluation Survey. If successful, the vendor is qualified and allowed to proceed to step 3.

Step 3: APL Application & Device Approval:

This is the last step in the approval process. During this step the application is reviewed to verify that the product meets FDOT specifications via a paperwork review; then the actual product is tested against current FDOT specifications.

Upon successful completion of these steps, the product is listed on the FDOT Approved Product List located at:
<http://www3.dot.state.fl.us/trafficcontrolproducts>

The TERL welcomes and encourages any comments and feedback regarding products listed on the APL. Is there a product you would like to have placed on the APL? Are you a maintaining agency in Florida that would like to sponsor a project to evaluate a new product; would you like to share your experiences with a product (good or bad) with us? If so, we want to hear from you.

This article was provided by Jeff Morgan and Trey Tillander, FDOT Traffic Engineering and Operations Office - TERL. For more information, please contact Mr. Morgan at (850) 921-7354 or email Jeffrey.Morgan@dot.state.fl.us.

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Announcements

2010 Transpo™

ITS: NOW MORE THAN EVER

Save These Dates for Transpo 2010

Transpo 2010 will be held on December 12-15, 2010 at the Sawgrass Marriott in Ponte Vedra Beach. More information on participating in this event can be found at <http://itstranspo.org/>.

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FDOT Traffic Engineering and Operations Mission and Vision Statements



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