SUNGUIDE® DISSEMINATOR

Florida Department of Transportation's Traffic Engineering and Operations Newsletter

FDOT

District Six Hosts Tour for National ITE Conference

By Javier Rodriguez, FDOT District Six

The Florida Department of Transportation District Six Intelligent Transportation Systems (ITS) Office recently hosted a tour for the Institute of Transportation Engineers (ITE) as part of its annual Technical Conference and Exhibit.

National ITE Members Toured the SunGuide TMC in March 2014

The goal of the ITE conference was to focus on the challenges and opportunities of working with multidisciplinary teams to meet customer, community, and political expectations when developing regional transportation solutions. With this theme as part of the agenda, District Six worked with event organizers to offer a 95 Express presentation during its Technical Conference and Exhibit. The goal was to show members how the District has managed the project's complex operations while working to meet the public's expectations over the past five years.

More than 20 members from the conference attended the tour. They had the opportunity to visit the SunGuide® Transportation Management Center (TMC) and learn how 95 Express has continued to meet the public's expectations even as operations evolved since its inception. The presentation guided attendees through the project's pre-launch activities in development, design, and public information. The importance of including ITS operations during the early process of design to improve project outcome was discussed. The importance of developing the operational strategies that promoted the project's long-term success, such as an incident management plan, enhancing software applications, establishing interagency communications as well as a multi-modal customer service program to support public inquiries, was also discussed with the attendees.

After the presentation, the group had the opportunity to discuss the project with District staff in an open question and answer format. They were also guided through a technical tour of the TMC control room and given a closer look at the express lanes. They were able to see the lanes being managed in real-time and were given an operational overview from the TMC manager's perspective.

For more information about ITE, please visit www.ite.org.

For information, please contact Mr. Rodriguez at (305) 470-5757 or e-mail to Javier.Rodriguez2@dot.state.fl.us.

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Inside This Issue
June 2014

The *SunGuide Disseminator* is a publication of:
Florida Department of Transportation
Traffic Engineering and Operations Office
605 Suwannee Street, MS 36
Tallahassee, Florida 32399-0450
(850) 410-5600
http://www.dot.state.fl.us

FDOT Completes Fiscal Year 2013/14 Statewide Road Ranger Survey for Incident Responders

By Paul Clark, FDOT Traffic Engineering and Operations

The Florida Department of Transportation's (FDOT) *Statewide Road Ranger Survey for Incident Responders* is conducted with the primary goal of assessing the Road Ranger Program from the perspective of FDOT's response partners. Road Rangers are FDOT's front line traffic incident management (TIM) service since they regularly patrol the most highly traveled interstate corridors in the state, assisting responders and motorists.

This survey measures two types of areas with questions pertaining to the program and personnel. The program-oriented questions focus on topics, such as response times, training, and Road Ranger vehicles. The personnel-oriented questions are designed to provide information regarding how Road Rangers preformed in the field. In addition to the structured questions, FDOT obtained excellent data from the additional comments provided within the open-response areas.

Road Ranger providing assistance at an incident.

The personnel area of the survey sought information regarding the respondent's perception of the Road Ranger operator's knowledge and performance by presenting a series of questions relating to their satisfaction with Road Ranger operators. These areas include professionalism, respectfulness, helpfulness, and competency. Respondents rated each area with scores ranging from a numerical value of one for "Extremely Dissatisfied" to five for "Extremely Satisfied." The average for all responses in these categories was 4.53, which is a very slight decrease from last year's average of 4.54. Improvements were shown in the competency area; however, the other areas: professionalism, respectfulness, and helpfulness, each had very slight decreases. A closer review of data reveals that the helpfulness question received the highest average of 4.58 and the competency question received the lowest rating of 4.7, but continues to show improvement each year.

The programmatic area received an overall average score of 4.39 based on scores ranging from a numerical value of one for "Strongly Disagree" to five for "Strongly Agree." The program area receiving the highest average score of 4.60 indicates that the presence of Road Rangers continues to improve on-scene safety for responders, which is a primary function for Road Rangers. The program area receiving the lowest average score was "Road Ranger Response Times are Acceptable" with an average total score of 4.21.

Response times are a very important measurement for the Road Ranger Program. For each one-minute of lane blockage, drivers behind the incident can experience up to four minutes of delay. The risk of a secondary crash increases incrementally. Enhanced communications between Road Rangers and the on-scene responder who requested their assistance is one factor that could positively influence the response time satisfaction level. This could be accomplished through more efficient use of existing equipment or processes, such as the statewide law enforcement radio system. Periodic reviews of Road Ranger patrol zones with respect to activity levels and response times could also ensure that the available Road Ranger resources are utilized in the most efficient manner.

Eighty-four percent of respondents believe that Road Rangers are adequately trained for their positions; the remaining respondents believe that training could be improved or are not aware of what type training is required for Road Ranger operators. Continued outreach to the incident response agencies regarding the role and capabilities of the Road Ranger and participation in joint training activities when possible could help improve scores in this area.

A more comprehensive review of the open response questions yielded a wealth of information that, combined with responses from program and personnel sections, highlights program areas needing improvements.

The following information identifies areas in need of program improvements, both at the District and statewide levels.

Training

- Involve Road Rangers in the National TIM incident responder training.
- Identify opportunities for integrated training with the Florida Highway Patrol (FHP), fire/rescue, emergency medical services, and other response agencies such as the Strategic Highway Research Program 2 National Incident Responder training.
- Provide periodic equipment training, including proper vehicle clearance techniques.

Information Sharing

- Continue to emphasize the need for utilizing interoperable communications.
- Continue outreach to incident response agencies regarding Road Ranger capabilities.

Equipment

- Review and revise requirements for Road Ranger vehicle types and equipment.
- Review Road Ranger radio communication guidelines with transportation management centers and FHP regional communications centers.

The *Statewide Road Ranger Survey for Incident Responders* provides a means to gather performance measurement information from those who often do not have the opportunity to provide direct input. This survey is only successful because of the cooperation received from all of the organizations that work daily with Road Rangers. This survey informs us that there are many areas where our Road Rangers excel and other areas that need improvement.

FDOT would like to express appreciation to those who completed this year's *Statewide Road Ranger Survey for Incident Responders*.

For information, please contact Mr. Clark at (850) 410-5607 or e-mail to Paul.Clark@dot.state.fl.us.

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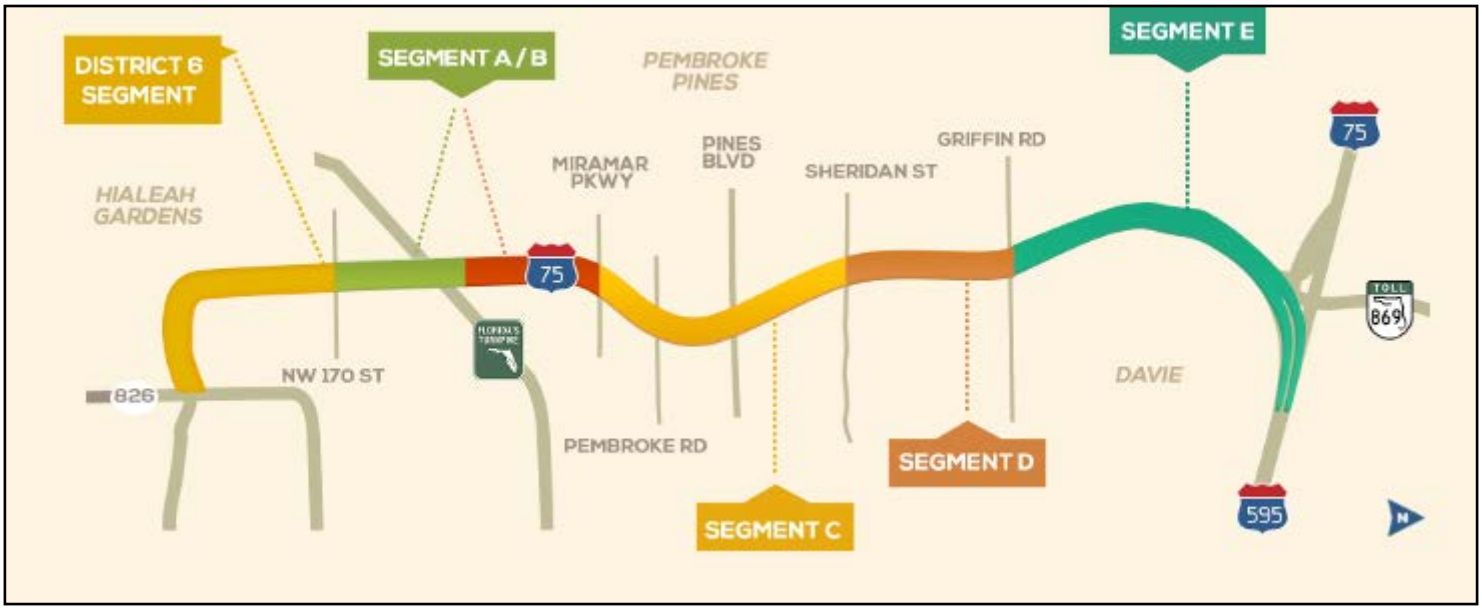
System Integration of the ITS infrastructure for I-75 Express Lanes

By Daniel Smith, FDOT District Four

Florida Department of Transportation (FDOT) District Four has put plans are in place to add express lanes to another interstate! District Four is implementing express lanes along 15 miles of I-75 from I-595 in Broward County to NW 170th Street in Miami-Dade County connecting to an adjacent District Six I-75 Express Lanes project from NW 170th Street to SR-826 (Palmetto Expressway) in Miami-Dade County.

The project includes the addition of two express lanes within the I-75 median, physically separated from the existing general purpose lanes by a 28-foor grassy median. In order to expedite construction, an aggressive procurement schedule was developed that allowed construction to begin in early 2014. The total project is estimated to cost $567 million and is scheduled to be completed by early 2018. To minimize affects to the public, work will be completed in five segments: Segment E, Segment D, Segment C, and Segment B/A.

The proposed intelligent transportation systems (ITS) for the I-75 express lanes consists of a tolling system and ITS management system. The major components of the tolling system include tolling gantries, tolling shelters, toll amount dynamic message signs (DMS), lane status DMSs, motorist information DMSs for express lanes and general purpose lanes, and security closed-circuit television (CCTV) cameras at tolling shelters. The major devices for the ITS management system includes



Additional express lane segments.

CCTV cameras, microwave vehicle detector stations, and automatic lane control gates along the express lanes and reversible lanes at the I-595 connection.

FDOT has contracted with design-build (DB) firms for deployment of the ITS infrastructure along I-75 with five projects—four projects let by District Four and one by District Six. Unlike other DB projects, District Four will separate the ITS integration work creating a fifth segment from the DB's scope of work and award it as a separate contract called the system integrator.

The project limits for this District Four system integration project extend from within the I-595 right-of-way (ROW) in Broward County to approximately NW 138th Street in Miami-Dade County. Since the project's work extends into other's ROW, coordination with District Six, Florida Turnpike Enterprise (FTE), FTE's toll system integrator, and the I-595 Express, LLC is required.

The system integrator shall design, construct, and integrate the I-75 Express ITS project such that the subsystems, ITS devices, and ancillary components within all segments shall be integrated with SunGuide® software, dynamic toll pricing software, and associated hardware at FDOT's District Four SMART SunGuide Regional Transportation Management Center to operate as one stand-alone segment.

The system integrator will be responsible for reviewing the plans and specifications submitted by each segment's DB firm and will understand how the work performed by each segment's DB firm relates to this system integration project. In addition to the plans reviews, the system integrator shall coordinate field surveys with FDOT and each segment's DB firm. The system integrator shall become familiar with the ITS infrastructure and devices deployed along I-75 under the I-75 corridor's DB projects, the I-595 project, and other related projects.

Upon FDOT's written notice of final acceptance, a 90 consecutive calendar-day burn-in period test shall commence for all subsystems, ITS devices, and ancillary components designed, procured, constructed, installed, mounted, integrated, made operational, and tested as part of the I-75 Express ITS Project. Upon FDOT providing acceptance to the DB firm for each project segment, the system integrator will assume responsibility of maintenance of all ITS devices

The I-75 Express Lanes will provide additional capacity, resulting in improved operational conditions, more reliable travel times, and reduced user delay. This project will complete another section of the South Florida managed lanes network for all motorists and will improve mobility and relieve congestion, provide additional travel options, and accommodate future growth in the area.

Project details are available at **www.75-express.com**.

For information, please contact Mr. Smith at (954) 847-2785 or email to Daniel. Smith @dot.state.fl.us.

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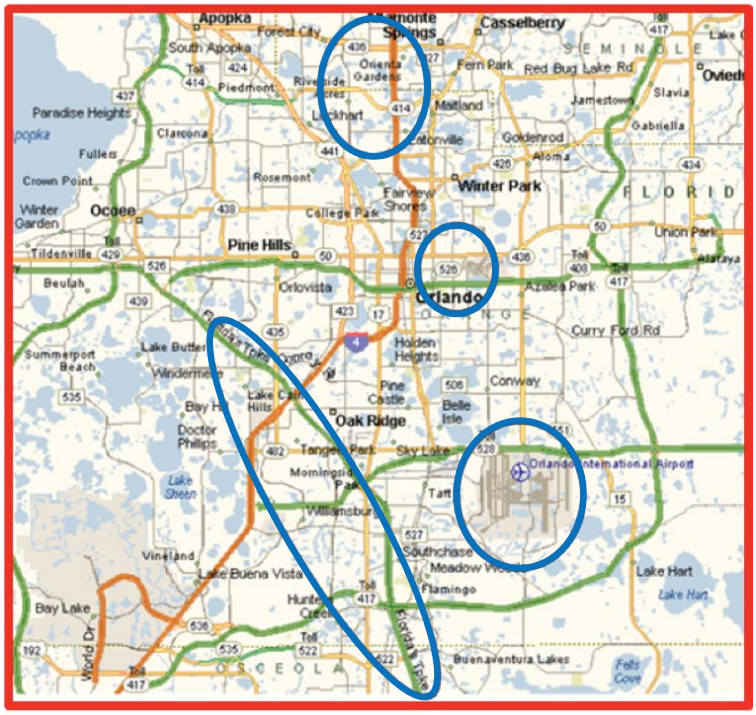
Connected Vehicle Update

By Steve Novosad, Atkins

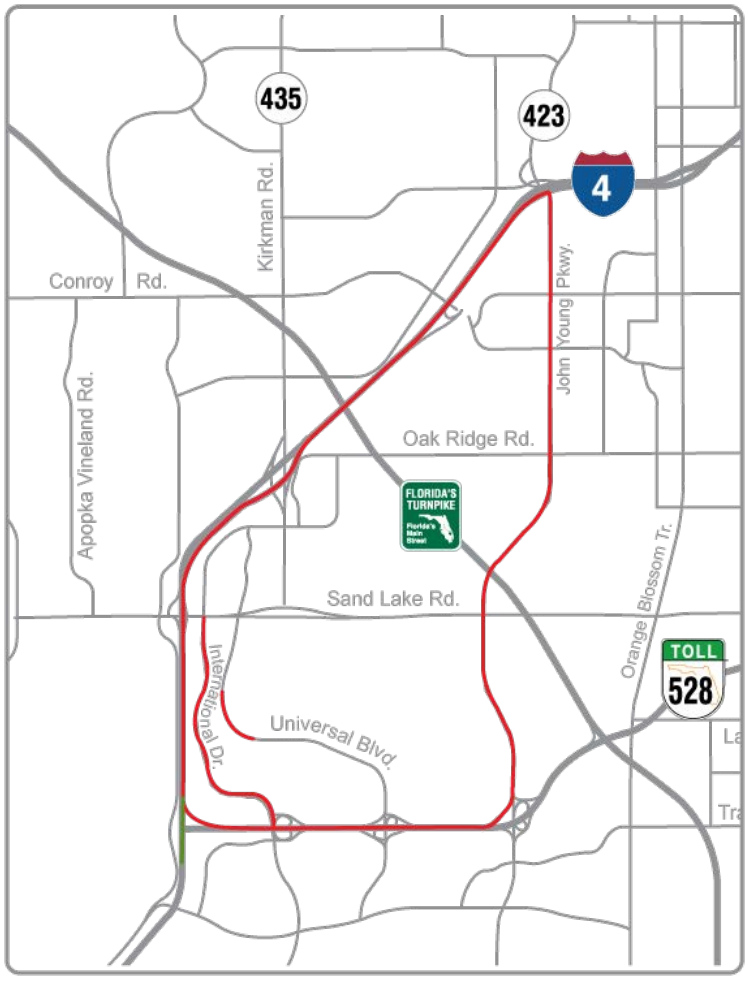
As one of the original affiliated connected vehicle test beds for the United States Department of Transportation (USDOT), the Florida Department of Transportation's (FDOT) Orlando connected vehicle deployment was the first to integrate connected vehicle data into an advanced transportation management system (ATMS). This application has been the staple for the test bed, since the 2011 World Congress on Intelligent Transport Systems.

During the past three years, FDOT has been evaluating the right time to expand the test bed. Connected vehicle technology has made significant strides in the last three years and some of the devices have become stable enough for FDOT to initiate its planned test bed growth. The current test bed, identified by the red lines in the picture, provides a loop on local and Orlando-Orange County Expressway Authority-maintained roads, and Interstate 4 (I-4) in the Orange County Convention Center area.

This test bed consists of approximately seven miles of Interstate 4, a small section of State Road (SR) 528, John Young Parkway from SR-528 to I-4, and a section of International Drive from Sand Lake Road to SR-528. Roadside units, deployed along these routes, communicate with connected vehicle equipped vehicles using dedicated short-range communications (DSRC). DSRC provides vehicle-to-infrastructure and infrastructure-to-vehicle communications.



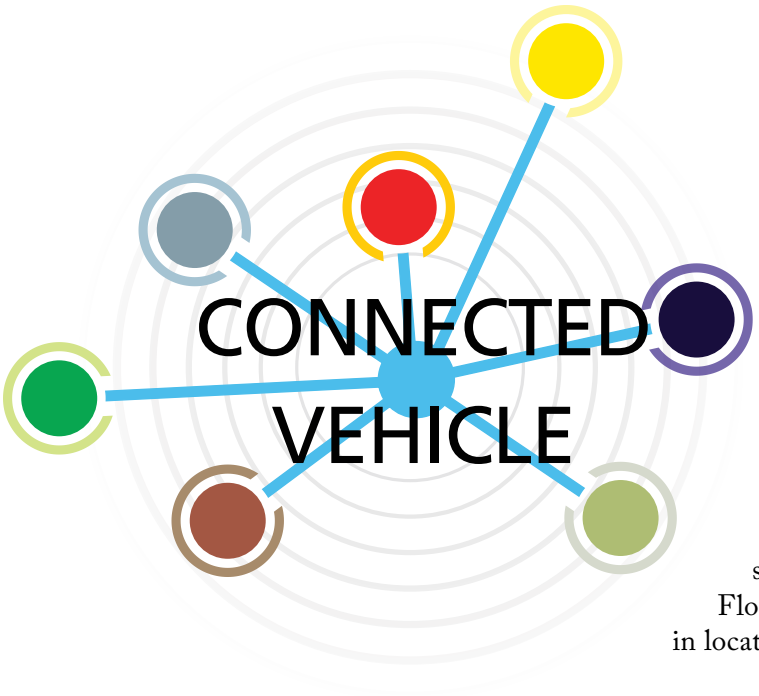
Potential Orlando connected vehicle test bed (in red rectangle) with DSRC hotspots (highlighted in blue).



Current Orlando connected vehicle test bed.

As part of the new and expanded test bed, FDOT will be utilizing multiple communications paths to perform connected vehicle activities. In addition to DSRC, Wi-Fi® and cellular will be utilized to communicate in the test bed. By utilizing multiple communications medians, the size of the test bed can be greatly expanded. With these multiple communications path, an example of a possible test bed might look like the illustration below.

Generally, Wi-Fi and cellular could be available through the test bed (red rectangle). The highlighted areas (dark blue) would have DSRC available for communications as well. These highlighted areas or hotspots can be used by DSRC-equipped vehicles to exchange information with roadside equipment



connected to signal controllers; SunGuide® software, FDOT's advanced traffic management software used in the regional transportation management centers (RTMC); and other devices and applications implemented by FDOT.

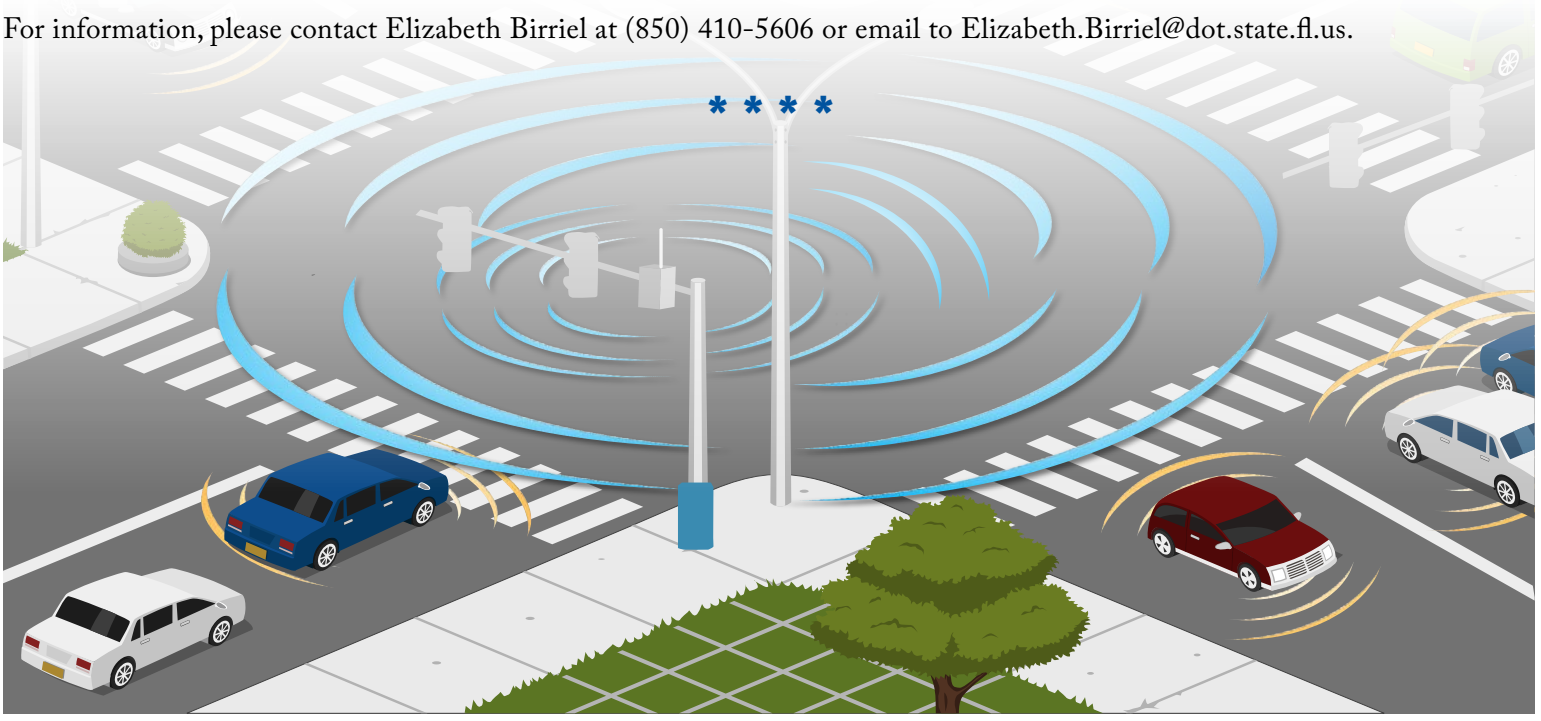
As part of the test bed rollout, FDOT is developing two connected vehicle applications that will demonstrate the benefit of connected vehicle technology in managing and keeping the roadway network safe. The implementation of a wrong-way driving application is underway. Reducing wrong-way driving has become a priority for FDOT. Utilizing connected vehicle technology, FDOT is implementing an application that will allow wrong-way driving vehicles to be identified quickly. Wrong-way driving information will be sent to the RTMC, which can then pass the information to the Florida Highway Patrol or other law enforcement agencies to assist in locating the wrong-way driving vehicle.

FDOT is also implementing a second connected vehicle application, which is focused on improving work zone safety for workers, construction vehicles entering and exiting the work zone, and drivers approaching and traveling through work zones. Connected vehicle technology will be used to perform activities such as alerting drivers that they are entering a work zone and the work zone speed limit, alerting drivers entering the work zone of vehicles that may be entering/exiting the roadway from/to the work zone, alerting workers of vehicles that are approaching the work zone and could enter the construction area, and alerting construction vehicles entering/exiting the work zone of vehicles that could potentially cause a dangerous situation.

As part of its expanded test bed, FDOT is analyzing what real-world issues may exist within the test bed. FDOT is also reviewing a connected vehicle application suite developed by the USDOT. FDOT plans to compare these issues with the USDOT applications and identify one or more applications that could be used to solve these real-world issues.

More information on FDOT's connected vehicle program is available at **www.dot.state.fl.us/trafficoperations/its/projects_deploy/cv/Connected_Vehicles.shtm**.

For information, please contact Elizabeth Birriel at (850) 410-5606 or email to Elizabeth.Birriel@dot.state.fl.us.



ITS Florida News

By Snadra Beck, ITS Florida

The Florida Section, Institute of Transportation Engineers (FSITE) / Intelligent Transportation Society, Florida Chapter (ITS Florida) will hold their **FSITE/ITS Florida 2014 Summer Meeting** on **June 25–27th, 2014** at the **Sheraton Sand Key Resort in Clearwater Beach, Florida**. The theme for this summer meeting is ***A.C.C.E.S.S. Florida 2014***. In this case, "access" isn't referring to access management; it's an acronym for Active Arterial Management, Congestion Management, Connected Vehicles, Express Lane Systems, and TSM&O (or transportation systems management and operations). The Wednesday workshop will serve as a practitioner's guide to adaptive traffic signal control, including a virtual tour of a working adaptive traffic signal control system in Pinellas County.

This conference also provides the opportunity for vendors to market equipment and present new technologies to the attendees in a group setting.

An ITS Florida golf tournament will be held with proceeds going toward the ITS Florida Scholarship fund. Look for additional information on the golf tournament in the near future.

Register for the conference before June 15 for a discount at **http://floridasectionite.fikket.com/event/fsite-summer-meeting-2014**. Hotel reservations can be made at **https://www.starwoodmeeting.com/StarGroupsWeb/booking/reservation?id=1403214971&key=1A4EC7B6**

Transportation Management Center Outstanding Achievement Award

ITS Florida's President, Gregg Letts, presented an Outstanding Achievement Award to the Florida Department of Transportation (FDOT) District Three, the City of Tallahassee Public Works, and the City of Tallahassee Regional Transportation Management Center (RTMC) on April 15th, 2014. **Lee Smith**, District Three Intelligent Transportation Systems (ITS) Engineer, and **Wayne Bryan**, City of Tallahassee, are pictured with the award.

The City of Tallahassee RTMC is located at the Leon County-City of Tallahassee Public Safety Complex, which began operation on July 15, 2013. Jointly sponsored by FDOT District Three and the City of Tallahassee Public Works Department, the RTMC completes the deployment of ITS in District Three's urbanized areas.

(L-R) Gregg Letts, District 3 Director of Operations Phillip Gainer, District 3 Secretary Tommy Barfield, District 3 Traffic Operations Engineer Jared Perdue, and District 3 ITS Engineer Lee Smith

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Editorial Corner: Cost Savings in FDOT's 511 Program

By Gene Glotzbach, FDOT Traffic Engineering and Operations

The Florida Department of Transportation's (FDOT) 511 traveler information system (FL511) is based on the concept of decentralized data collection and centralized information dissemination. FDOT Districts collect data and feed the FL511 system from their regional transportation management centers (RTMC) via a center-to-center (C2C) interface. This information is compiled into a cohesive format by the FL511 contractor and is then sent out to the public via various dissemination methods. The concept of decentralized data collection and centralized information dissemination relies heavily on the ability to reliably move information from the RTMCs to a central location for dissemination. The existing connections from the District RTMCs to the central dissemination point are currently handled through leased circuits. A leased circuit or 'leased line' is a dedicated communications line between two distinct locations. The lines are usually fiber optic and no other 'traffic' is passed through the line except for what the two parties wish to share between each other. The cost to lease all the circuits is a significant portion of the annual operations and maintenance costs for the FL511 system; however, there is relief on the way.

As FDOT deploys more and more intelligent transportation systems (ITS) to monitor and better operate our limited-access facilities, it is also focused on maintaining the reliability of the existing systems while improving the ITS communications infrastructure. FDOT is continually installing fiber optic cable and/or wireless (microwave) paths to facilitate communications between field devices, particularly the closed-circuit television cameras with the RTMCs. Fiber optic technology uses glass (or plastic) threads (fibers) to transmit data. A fiber optic cable consists of a bundle of glass threads, each of which is capable of transmitting messages modulated onto light waves.

Fiber optic cable was installed in Florida in a piecemeal fashion, but as more fiber has been installed to support ITS deployments, FDOT began to connect the fiber segments into a single network thus linking RTMCs together and creating a wide area network (WAN). This ITS WAN provides much of the same connectivity capability as FDOT's leased circuits.

In order to reduce costs, FDOT is in the process of reconfiguring our existing communication architecture to make use of the ITS WAN infrastructure where possible. To accomplish transition from leased circuits to utilizing the ITS WAN, a team was brought together with representatives from the FL511 system and FDOT's Telecommunications Program. This team is in the process of setting up the needed internet protocol addresses and making the needed modifications to facilitate the transition to the ITS WAN. The team will then work with the Districts to identify and document changes required that support the FL511 system transition to the ITS WAN. Once the changes are identified, implemented, and tested, FDOT will finalize the cut over to the ITS WAN and decommission the leased circuits.

Although not all leased circuits will be replaced by the ITS WAN, most will and will be able to provide FDOT with significant savings to the FL511 contract.

For information, please contact Mr. Glotzbach at (850) 410-5616 or e-mail to Gene.Glotzbach@dot.state.fl.us.

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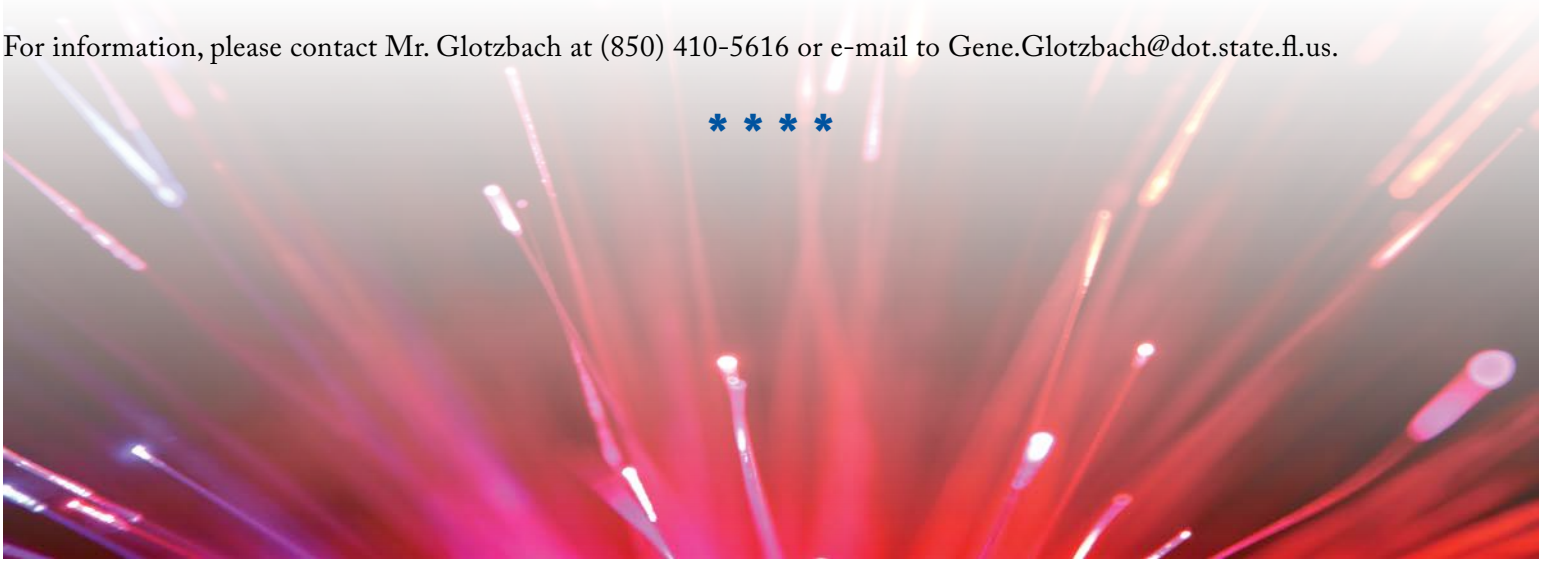

Announcements

21st World Congress

Get ready now; spring and summer will soon come and go… then the 21st World Congress on Intelligent Transport Systems will be upon us. This year, the World Congress is at the newly refurbished Cobo Center in Detroit, Michigan—America's original Motor City—on September 7-11. Now is the time to make plans to attend. The World Congress only comes to North America every third year so this will be the most important ITS gathering until 2017.

Information on registering and/or participating is available at http://itsworldcongress.org/.

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ITS 3C Summit

Registration is now open for the the 2014 ITS 3C Summit, a joint annual meeting between the Gulf Region Intelligent Transportation Society, the Intelligent Transportation Society of Florida, and the Intelligent Transportation Society of Georgia. The meeting will be held September 14 - 17, 2014 at the Arthur R. Outlaw Convention Center in Mobile, Alabama. More information is available at http://www.its3csummit.com.

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FDOT Traffic Engineering and Operations Mission and Vision Statements

Mission:

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

Vision:

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

FDOT Contacts

District 1
L.K. Nandam, DTOE
Chris Birosak, ITS
FDOT District 1 Traffic Operations
PO Box 1249
Bartow, FL 33831
(863) 519-2490

District 2
Jerry Ausher, DTOE
Peter Vega, ITS
FDOT District 2 Traffic Operations
2198 Edison Avenue
Jacksonville, FL 32204
(904) 360-5630

District 3
Jared Perdue, DTOE
Lee Smith, ITS
FDOT District 3 Traffic Operations
1074 Highway 90 East
Chipley, FL 32428-0607
(850) 638-0250

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

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

District 6
Omar Meitin, DTOE
Rory Santana, ITS
FDOT District 6
1000 NW 111th Avenue, MS 6203
Miami, FL 33172
(305) 470-5312

District 7
Gary Thompson, DTOE
Chester Chandler, ITS
FDOT District 7 Traffic Operations
11201 N. McKinley Dr.
Tampa, FL 33612
(813) 615-8600

Florida's Turnpike Enterprise
John Easterling, DTOE
Eric Gordin, ADTOE
Florida's Turnpike Enterprise
PO Box 9828
Ft. Lauderdale, FL 33310-9828
(954) 975-4855

Mark Wilson
State Traffic Engineer
(850) 410-5600

Elizabeth Birriel
Deputy State Traffic Engineer - ITS
(850) 410-5606

Paul Clark
Incident Management and Commercial Vehicle Operations
(850) 410-5607

Fred Heery
Deputy State Traffic Engineer - Operations
(850) 410-5419

Alan El-Urfali
Deputy State Traffic Engineer - Systems
(850) 410-5617

Physical Address:
Rhyne Building
2740 Centerview Drive
Suite 3-B
Tallahassee, FL 32301

Mailing Address:
Burns Building
605 Suwannee Street
MS 36
Tallahassee, FL 32399