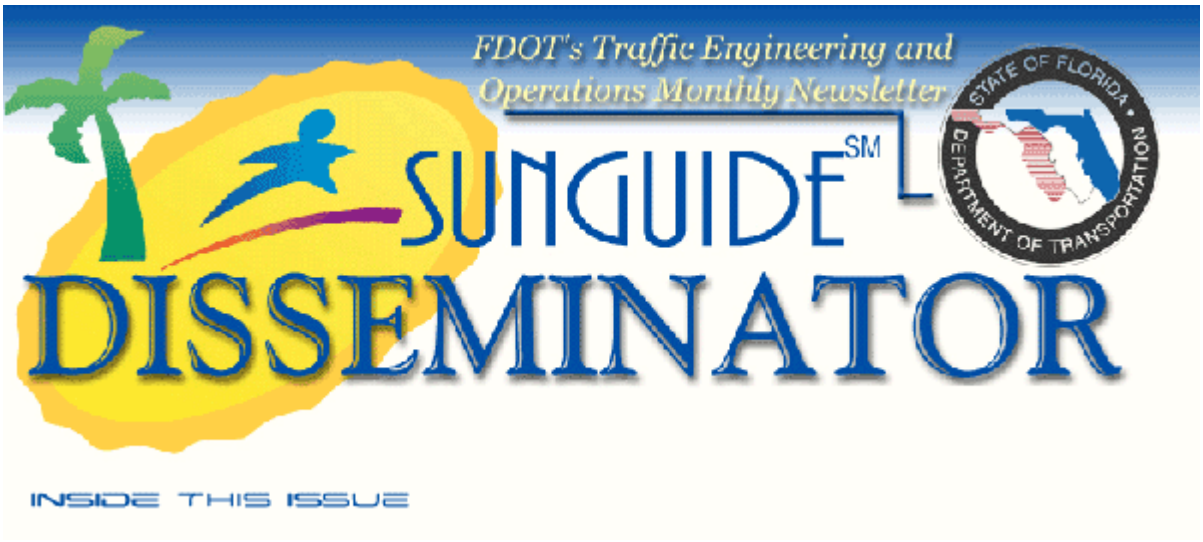

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Link to Florida's Statewide ITS General Consultant

Statewide Invitation to Bid Underway

FDOT is in the process of implementing a statewide invitation to bid (ITB) for the procurement of ITS devices.

The underlying concept behind this statewide ITS procurement contract is to leverage statewide purchasing power in order to reduce material costs. It will also provide an easy mechanism to purchase ITS materials that are typically needed for deployment, operation, and maintenance of systems. The Districts strongly support the ITB concept and have requested it several times; however, it had not been practical to attempt until the recent finalization of the statewide specifications for ITS equipment and materials.

The pursuit of a statewide procurement contract for ITS devices was undertaken to meet the needs of FDOT in general, as well as a specific need from District 2 to support its I-295 Systems Manager Project. The ITB has been advertised and apparent low bidders identified. Low bidders have been contacted and sample devices have been sent to FDOT for review and evaluation. The material samples are being evaluated by FDOT 's Traffic Engineering Research Lab (TERL). The TERL review consists of document reviews, testing, and a general verification that the submitted devices meet the ITB specifications and the needs of the projects that the state procurement contract will support.

TERL is using its own staff consisting of FDOT personnel, research associates from Florida State University, and consultants to execute and complete reviews in a thorough and timely fashion. Specialty teams have been created to perform evaluations of submitted products. The ITB included approximately 50 items, ranging from single-mode fiber optic cable and transient volt surge suppressors to edge switches and dynamic message signs. Teams review product documentation and samples for compliance with ITB specifications, then perform in-house testing, as needed, to evaluate product performance.

One of the primary reasons that the TERL was called on to perform this task was the fact that the lab already has responsibility for creating and maintaining FDOT's Approved Product List (APL). Mandated by Florida law, the APL is a list of devices that TERL has evaluated and found to conform to FDOT's published specifications.

TERL's evaluation of devices is a necessary step to ensure the uniformity of signals and traffic control devices used on the state's streets and highways. Now that statewide specifications for ITS devices have been adopted, the TERL is responsible for evaluating products against these specifications and determining if they are acceptable for FDOT use. As a result, the APL will soon include ITS devices along with traffic signals, controllers, and other equipment that the TERL has already evaluated and placed on the list for over 30 years.

This was but one of the many reasons why the TERL was the logical choice to provide support for the product evaluation efforts required by the ITB.

Another reason TERL is charged with the evaluation of ITS devices included in the ITB is that it possesses a test area equipped with FDOT's SunGuide^{SM} Software. This means that the lab will be able to test the devices' operational capabilities within the SunGuide framework. It also has procedures in place for evaluation and testing based upon years of experience in evaluating traditional traffic control devices and maintaining the APL.

Once the TERL has completed the evaluation of submitted products and documentation, the devices meeting the specifications, and deemed acceptable for use, will be placed on a term purchasing contract resulting from the ITB procurement process. At that point FDOT, as well as any counties and cities that are allowed by their procurement departments, will be able to buy ITS equipment directly from the statewide contract as they feel is appropriate. As noted previously, it is expected that FDOT District 2 will utilize this mechanism to purchase equipment to support construction of the I-295 Systems Manager Project. The contract is for a one-year term, with an option to renew for an additional year, and is expected to provide a convenient mechanism for the purchase of ITS material that has demonstrated acceptable levels of quality, functionality, and performance. It should be noted, however, that purchasing from this contract is not mandatory, but left up to the Districts' discretion.

This statewide ITS procurement contract has been a long-anticipated and needed vehicle for procurement of ITS devices.

This article was provided by Ron Meyer, PBS&J/FDOT ITS General Contract. For more information, please contact Mr. Meyer at (850) 410-5612 or email Ronald.Meyer@dot.state.fl.us.

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Commercial Vehicle Operations Workshop Held in Tampa

Hurricanes…Super Bowls…The Daytona 500…Roadway design…Federal certification of MPOs…What do all of these have in common? All of these topics, in addition to many others, were discussed during the recent FDOT sponsored commercial vehicle operations (CVO) workshop in Tampa.

On June 19-20, 2006, the FDOT Incident Management and CVO Programs sponsored an interactive workshop centered around commercial vehicle operations and the important relationship CVO has with traffic engineering, transportation operations, and planning. The workshop, held in Tampa, was designed to educate transportation professionals who traditionally are not involved with CVO issues in their daily work. The "classroom" portion of the workshop brought in speakers from Florida and across the U.S. to share their expertise with the workshop attendees. Throughout the workshop, attendees also learned from each other as they were encouraged to share their own lessons learned with the group. In addition

to the interactive presentations, a half-day of the workshop was devoted solely to hands-on demonstrations of ITS technologies applied to commercial vehicle regulation activities and to a site visit in the Tampa area where participants witnessed roadway design challenges that come with having truck weigh stations in urbanized areas.

Representatives from various disciplines (and perspectives) attended the workshop. Attendees were from state government (Florida, Georgia, and Texas), federal government, private industry, municipal planning organizations (MPOs), academia, law enforcement, the trucking industry, and toll road authorities. This breadth and depth of knowledge allowed attendees to ask questions and establish meaningful dialogs about issues that they are not normally directly exposed to in their daily activities. These issues will, however, impact their agency or their work at some point as truck volumes increase significantly in the coming years.

Topics covered during Day One of the workshop included:

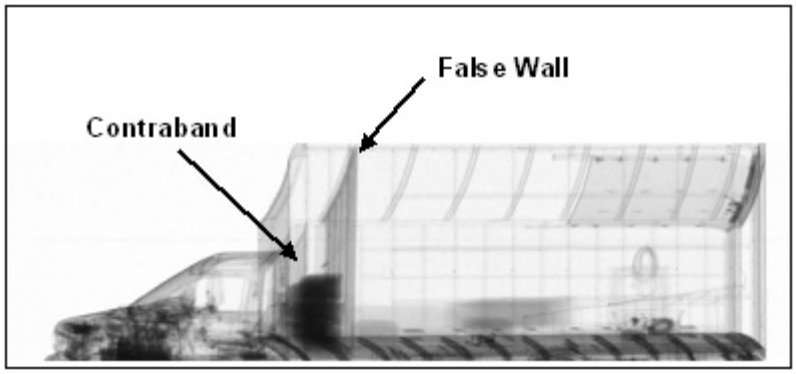
- The Importance of CVO to Florida;
- An Overview of Florida's Commercial Vehicle Information Systems and Networks (CVISN) Program; and
- Planned and Unplanned Special Events as they relate to CVO (including the Super Bowl; hurricanes, evacuations and their immediate aftermath).

Day Two focused on:

- The Federal Perspective on CVO and Freight Concerns (with regard to transportation planning activities);
- CVO and Traffic Incident Management;
- Input from the trucking industry;
- CVO and Freight From the MPO Perspective; and
- CVO Technologies – Saving Lives, Money Time

Inspection without VACIS

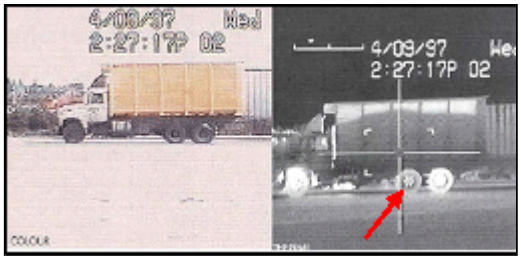
Day Two also included site visits where attendees participated in technology demonstrations and personally used some of the latest technologies. Participants rode along with Department of Agriculture and Consumer Services officers as they scanned a tractor-trailer with a VACIS™ (Vehicle and Cargo Inspection System) machine and pointed out the contraband in the vehicle and trailer (a shot gun, simulated cannabis, and a simulated pipe bomb, were just a few items that were uncovered in a matter of a few minutes [rather then the manual method of an officer climbing into the back of the truck and investigating each box or carton]).



Inspection with VACIS

Infrared video imaging tool

At the I-4 weigh station several participants performed what is referred to as performance based brake testing. They used a hand held unit which uses infrared video imaging and differences in temperature to identify potential safety problems with a vehicle's brakes. This ITS tool allows officers to quickly screen vehicles as they pass through the weigh station; giving them a visual indicator of those vehicles which require a more in-depth brake inspection. The photo below (left side) demonstrates what is visible to inspectors as a vehicle passes through the inspection station and the figure on the right shows what the camera sees. The red arrow indicates a wheel which could have brake problems. Since this wheel is darker than the rest, it is not generating heat (which normal functioning brakes do). This vehicle would be pulled in for a manual inspection of its brakes.



In their evaluations of the workshop, participants gave high marks to the overall workshop, the quality of the presenters, the workshop content, and the value of the site visits/technology demonstrations. When asked whether the workshop should be offered again, participants overwhelmingly said 'yes,' and that they would recommend it to others. Although the workshop was originally planned as a one-time occurrence, the feedback received from participants has sparked the idea that it should be repeated. As was stated earlier, one of the primary reasons this workshop was held was to mainstream CVO and freight issues into the transportation planning and operations processes in Florida. Given this fact, it seems to make sense to continue a program that reaches those individuals that are responsible for those activities.

This article was provided by Richard Easley and Sharon Easley, E-Squared Engineering. For more information, please contact Mr. Easley at (703) 858-5588 or email reasley@e-squared.org.

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FDOT/FHWA Conduct Systems Engineering Process Improvement Reviews

Systems Engineering can help in Managing Increasing Technical Complexity for ITS Projects

The Florida Division, Federal Highway Administration (FHWA), and FDOT recently partnered to conduct systems engineering (SE) process improvement reviews in four FDOT Districts. The reviews were aimed at assessing how well the state's guidance and tools were working to ensure successful ITS project development and compliance with Federal-aid requirements, such as 23 Code of Federal Regulations (CFR), Subchapter K – ITS, Section 940.

In each District – including District 1, Bartow; District 2, Jacksonville; District 6, Miami; and District 7, Tampa – the reviews focused on identifying opportunities for improvement in FDOT's statewide Systems Engineering Management Plan (SEMP), jointly developed by the state and the FHWA.

The SE process improvement review team conducted project surveys and on-site interviews to determine the current level of SEMP use and SE practice. Three process areas were addressed:

1. *SE Management* – Planning, process control, risk management, configuration management, and quality assurance
2. *SE Technical* – Project definition and deployment
3. *SE Environmental* – Process definition, process improvement, and competency

The reviews also targeted SE practices in concept of operations (ConOps), system requirements, traceability, and system testing, all essential elements in providing effective technical control of complex projects.

The team confirmed that the Districts are in the early stages of using SE and employing the statewide SEMP. The interviews provided a better understanding of how various forms of SE processes are used to control project design and deployment. For example, many informal SE management and development processes are already embedded in FDOT's traditional project design and deployment. By formalizing these processes, SE capability and technical control can be greatly improved.

The interviews also revealed that the ITS Program is making headway in identifying the types of tools and training needed to raise SE competency. Some District personnel are experimenting with software to track system design reviews, system changes, and requirements testing and verification. Florida already offers an introductory course in systems engineering, and the State Configuration Management Board (CMB), which directs software development, expanded its role to address evolving technical concerns.

Summary of SE Process Review Results

The ITS Program shows early signs of success in SE process deployment. For example, statewide and regional ITS project planning and design architectures are used as a starting point for developing system requirements and bringing stakeholders into the project development process.

Another success indicator is FDOT's assessment of projects based on lifecycle analysis. The system lifecycle is a fundamental concept in SE, as all lifecycle phases need to be accounted for in order to properly value a system over its useful life. Ignoring some phases of the system lifecycle can put a program at risk of significant future cost.

Finally, a key success of the ITS Program was the development of the SEMP. The SEMP is the foundation for applying SE to ITS projects in a defined organizational process. Completed in March 2005, the SEMP is now being used on all new ITS projects as a comprehensive guide to help District ITS engineers and ITS project administrators employ SE processes and comply with Federal-aid regulations. The SEMP also includes templates, checklists, and recommendations for tailoring systems engineering practices to the scale of individual ITS projects. Most importantly, the SEMP, which can be accessed on-line at www.floridaits.com, specifies the steps involved in the development and management of complex ITS projects.

Critical areas for improvement identified during the reviews included developing ConOps to assist in the definition and communication of system needs, and formalizing methods for the organization and development of system requirements. Without ConOps, poor system requirements definition leads to poor requirements traceability and an impaired ability to facilitate system testing (i.e., verification, validation, and acceptance).

As a result of the SE process improvement reviews, the following prioritized recommendations were offered to enhance SE capabilities and competency within the ITS Program:

- Conduct small workshops and symposia to assist with the implementation and refinement of FDOT's statewide SEMP.
- Provide education and training for the proper writing and organization of system requirements.
- Add a project level SEMP template to the statewide SEMP.
- Integrate SE work products (e.g., ConOps, Requirements, Requirements Traceability and Verification Matrix, Work Breakdown Structure, etc.) into traditional FDOT project documentation (e.g., Feasibility Study, Request for Proposal, etc.) and require use of the SEMP in contract documents.
- Establish an SE Document Library to facilitate the sharing of SE resources.
- Expand the role of the statewide CMB to help refine FDOT's overall SE process.
- Continue to assess SE capabilities and isolate critical elements of FDOT's SE process that need improving.

FDOT staff will use the outcome of the process reviews to guide their efforts in achieving further SE capability and competency improvements, especially in the priority areas of ConOps, requirements, test plans, and requirements traceability capabilities..

For a copy of the final report, contact Gene Glotzbach, Gene.Glotzbach@dot.state.fl.us, or Chung Tran, Chung.Tran@fhwa.dot.gov.

This article was provided by Chung Tran, Florida Division, FHWA. For more information, please contact Mr. Tran at (850) 942-9650 or email Chung.Tran@fhwa.dot.gov.

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Editorial Corner—A Lot Can Happen in a Year

What has the ITS Program accomplished this past fiscal year? Of course it will all be revealed in our upcoming annual report that is under development, this editorial will give you a sneak preview of the top accomplishments that epitomize and define the work being conducted by the ITS Program.

Sunguide[SM] Software

The first accomplishment to note is the development of the Sunguide[SM] Software, a statewide software system used to standardize common regional transportation management (RTMC) functions. This software package was developed beginning in October 7, 2003, when the notice to proceed with was issued to Southwest Research Institute (SwRI). SwRI was selected after an extensive negotiation process. Sunguide Software was completed in 2005 and has been installed in RTMCs in Ft. Lauderdale (June 2005), Jacksonville (October 2005), and Miami (November 2005). All new RTMCs that come on line will utilize the Sunguide Software.

To address changing needs and market issues, software packages are continuously modified. The Sunguide Software is no different. Enhancements are being pursued to address center-to-center communications, Road Rangers data storage and report generation, travel time computations, emergency evacuation information dissemination, and proportional fonts.

Statewide 511 System

The second accomplishment to note is the deployment of a statewide 511 system. This system was launched on November 17, 2005, with a press conference that included the FDOT Secretary Denver J. Stutler, Acting Federal Highway Administrator J. Richard Capka, and a number of District Five personnel led by District Five Secretary George Gilholey. The statewide 511 system was deployed as part of the *i*Florida Grant awarded to District Five, and provides information on the state's limited-access facilities with the ability to transfer to the three regional 511 systems for more detailed information. Callers can dial 511 anywhere in the state of Florida and receive information on construction, accidents/incidents, lane closures, and severe weather alerts.

As of December 2005, over 12 million calls have been placed to the three regional 511 systems and the statewide system. Although the 12 million calls is only a small portion of the potential number of calls a state of 17 million people should generate, it is a significant percentage of the over 40 million total calls made to 511 nationally.

ITS Device and Equipment Specifications

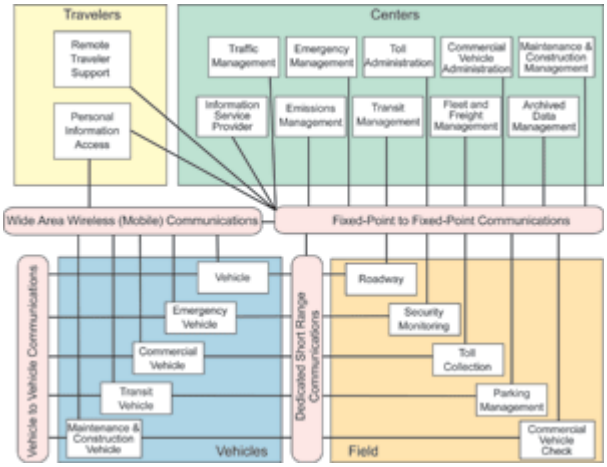
The third accomplishment to note is the development of ITS specifications to support ITS field device deployment. The ITS Program has developed specifications for the most commonly utilized ITS field devices as well as RTMC equipment. The specifications were developed through an exhaustive review process that included industry review as well as in-house review to ready them for final processing through FDOT's specification development process. The specifications are included in Sections 780 through 785 in the *Workbook of Implemented Modifications to the Standard Specification for Road and Bridge Construction*. The specifications that have been developed, fall under the following categories:

- General requirements for Intelligent Transportation System Devices (Section 780),
- Motorist Information Systems (Section 781),
- Video Equipment (Section 782),
- Fiber Optic Cable and Interconnect (Section 783),
- Network Devices (Section 784), and
- Infrastructure (Section 785).

These sections are adopted and are in effect for all lettings as of July 1, 2006.

Specifications regarding Vehicle Detection and Data Collection (Section 786) are currently being processed through the FDOT's specification development process and will be available for use beginning January 1, 2007. Other specifications to be on the lookout for are Road Weather Information Systems, which will fall under Section 781, Motorist Information Systems; and Field Cabinets and Equipment Shelters, which will fall under Section 785, Infrastructure.

Statewide ITS Architecture



The final on the list of top accomplishments for this past fiscal year is the Statewide ITS Architecture (SITSA) update. The objective of the Florida SITSA update was to comply with FHWA 23 CFR Rule 940 requirements and to assure compatibility with Version 5.1 of the National ITS Architecture. The SITSA was developed after receiving input from stakeholders from around the state. An extensive stakeholder involvement program was developed which took FDOT Central Office and consultant personnel to all the Districts. Prior to the stakeholder workshops, information was collected regarding existing architectures, and existing and future ITS.

Based on information gleaned from the existing architectures, and existing and future ITS, along with the needs articulated by the stakeholders, the SITSA was updated and documented through a series of technical memorandums. The SITSA and the supporting technical memorandums are hosted on Consystec's Web Site at www.consystec.com.

These accomplishments are major milestones in the FDOT's efforts to better manage traffic congestion on our roadways today. The Sunguide Software will assure that the RTMCs constructed within the state will be able to communicate with each other so that data can be

exchanged between RTMCs; the statewide 511 system will put travel information in the hands of the public so that they will be able to make informed decisions regarding their transportation plans; the specifications will provide some uniformity in the equipment being deployed and establish a minimum acceptable level of quality for ITS devices and equipment; and the Statewide ITS Architecture describes ITS functions/processes, defines ITS subsystems, and establishes the data flows between systems to provide a framework for integrating ITS.

The ITS Program has been busy in other areas as well. The ITS Program has updated the *ITS Strategic Plan*, completed the up-grade of the statewide microwave system, develop a center-to-center communications plan, held a Contraflow Workshop, reviewed and updated the state's contraflow plan for hurricane evacuation, and established a testing program for ITS devices at the Traffic Engineering and Research Lab.

Adding in other on-going tasks makes for a very busy year! A lot has truly been accomplished since this time last year.

This editorial was provided by Gene Glotzbach, FDOT Traffic Engineering and Operations Office. For more information, please contact Mr. Glotzbach at (850) 410-5616 or email Gene.Glotzbach@dot.state.fl.us.

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FDOT Equipment Certification

The FDOT Traffic Engineering and Operations Office, through the Traffic Engineering Research Laboratory (TERL), is responsible for approving all traffic control signal devices. Approved devices are kept on the FDOT Approved Products List (APL), a listing of devices that may be relied upon as meeting FDOT specifications, standards, or other criteria.

The APL is a means for the FDOT to meet *Florida Statute 316.0745, Uniform Signals and Devices*, which states, "All official traffic control signals or official traffic control devices purchased and installed in this state by any public body or official shall conform with the manual and specifications published by the Department of Transportation pursuant to subsection (2)."

More information on the FDOT APL may be viewed at www.dot.state.fl.us.TrafficOperations/TERL/APL.htm. Specific approved products in the FDOT APL may be searched at rite.eng.fsu.edu/iapl/page1.php.

For more information, please contact Carl Morse, FDOT Traffic Engineering and Operations Office, at (850) 410-5417 or email Carl.Morse@dot.state.fl.us.

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Announcements

Transpo2006—Empowering Our Mobile Society

Transpo2006 will be held at the Westin Innisbrook Golf Resort in Palm Harbor, Florida, November 27-30, 2006.

Mark your calendars for this MUST ATTEND event!

Transpo2006 is sponsored by ITS Florida, the Florida Section of ITE, FHWA, and FDOT. This conference offers an opportunity to join your peers from all over Florida and the United States to examine developments in ITS and how technology can be used to empower, plan, engineer, manage, and advance our mobile society.

Conference information is posted at the **Transpo2006** Web site at http://www.itstranspo.org. Once at the Web site, you may secure your exhibit booth location, register for the conference, or review other conference information as it becomes available.

Transpo2006 offers excellent sponsorship opportunities. This information is also available at the Web site, or you may contact Karen Crawford at 850-224-7775.

Register early to avoid late fees!

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Mark Your Calendar For the FICE/FDOT Design Conference 2006

FDOT and the Florida Institute of Consulting Engineers (FICE) will hold the Design Conference 2006 on July 30 thru August 2, 2006, at the Rosen Centre Hotel in Orlando Florida.

For more information and to register, visit the conference Web site at http://www.dot.state.fl.us/Structures/DesignConf2006/default.htm.

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Don't Miss the 2006 National Rural ITS Conference—the "Last Best Place"

Don't miss the 2006 NRITS Conference, to be held in Big Sky, Montana, August 13-16, 2006.

The 2006 NRITS Conference will provide an opportunity for transportation professionals dealing with rural transportation issues to discuss current topics, exchange information, and attend valuable and memorable networking events. This is a unique opportunity to learn first hand about new and innovative approaches to help solve the many challenges facing rural transportation.

Plan on attending NRITS, set in the majestic backdrop of the Rocky Mountains and Lone Mountain. More information is available on-line at http://www.2006nrits.org/.

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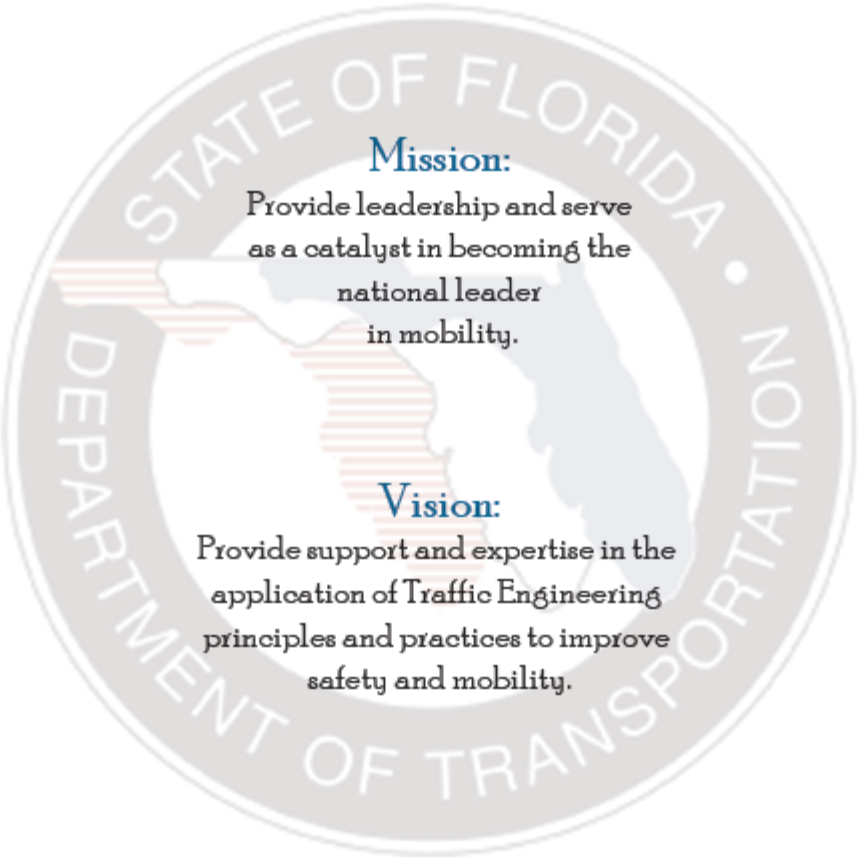
FDOT Traffic Engineering and Operations Mission and Vision Statements



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PBS&J QCAP Document Control Panel	
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Reviewed by:	England
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