



SUNGUIDE™ DISSEMINATOR

SunGuide™ Release 4.1—Independent Verification and Validation Testing

The Florida Department of Transportation (FDOT) performed a successful independent verification and validation (IV&V) test of the SunGuide™ Software Release 4.1. The test took place at the FDOT District Five (Orlando) Regional Transportation Management Center (RTMC) from November 3 to 6, 2008. The test setup and preparation took place from October 27 to November 2, 2008.

This release satisfies the design requirements established during the System Design Review held on December 7-8, 2007; and a follow-up review held on January 7, 2008. The proposed travel time (TvT) enhancement requirements were reviewed and approved at Change Management Board meetings on March 8, 2007, and April 5, 2007. Release 4.1 enhances the travel time subsystem and expands the current SunGuide™ Software by adding probe-based data into the TvT calculation. The probe-based data collection capability includes license plate readers (LPR) and automatic vehicle identification (AVI) toll tag data. A factory acceptance test (FAT) was conducted in San Antonio, Texas, on October 14-16, 2008. The IV&V test was then scheduled prior to the software being accepted for deployment at the District RTMCs.



Sirit IDentity Flex AVI reader on SR-417 at Boggy Creek Rd (exit 17)

The success of this IV&V test was largely due to the “can do” team-oriented philosophy. The primary purpose of the IV&V test is to ensure that the software release meets set requirements and is reliable and maintainable. An independent

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team, not associated with the software development, produced a set of test procedures to verify and validate these set requirements. During this IV&V test, a team comprised of FDOT Central Office staff, including the ITS general consultant, were supported by District Five personnel and the software developer to provide a suitable test environment, install the software, and conduct the test. Everyone worked together toward the completion of a successful test. Having members of the software development team on site to assist the IV&V test team in the set up and configuration was invaluable; and they continued to provide excellent support to the IV&V test team during the test phase. The District Five staff worked hard to provide a stable test environment, including servers located at Deland, workstations in Orlando, and dedicated addresses across the network.

Part of verifying proper software operation is confirming that it works properly with the installed communications networks and roadside devices. That level of testing must often wait until the IV&V test as the development facility may only have access to one or two devices that are not completely representative of field conditions. This IV&V test used a combination of data simulators and actual operational field devices. The test environment included four Orlando-Orange County Expressway Authority Sirit AVI readers located on State Road (SR) 417. The test also used four FDOT District Five TransCore IT2020 AVI readers from the iFlorida project at two sites on SR 436.



Since LPR devices were not available, the LPR requirements testing on the City of Tallahassee system will be conducted at the FDOT Traffic Engineering Research Laboratory once the SunGuide™ Software has been deployed at the City of Tallahassee and LPR devices have been fully tested.

This software release will be deployed at the District's RTMCs to support Florida's Advanced Traveler Information System (FL-ATIS). Once installed at the District RTMCs, Release 4.1 will enable traveler information to be gathered locally and provide this information to a centrally located information dissemination subsystem of FL-ATIS. This information will then be made available on the FL-ATIS Web site and by dialing 511 on a telephone from anywhere in the state.

To sum it up—a great IV&V test and dedicated individuals with a “can do” attitude, all establishing a new high mark for the next IV&V team to strive for and a new functional capability for SunGuide™ users.

This article was provided by Trey Tillander, FDOT Traffic Engineering and Operations Office, and David Chang, PBS&J. For information, please contact Mr. Tillander at (850) 410-5617 or email to Trey.Tillander@dot.state.fl.us.

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Transportation Workshop: Freight—It's Everybody's Business

WHAT: On January 12-13, 2009, the Florida Department of Transportation (FDOT) Incident Management (IM) and Commercial Vehicle Operations (CVO) Programs (under Mike Akridge) are conducting an interactive workshop centered on Florida's transportation system—specifically, the important relationship freight movement and safety have with traffic engineering, transportation operations, planning, and ultimately, Florida's economic well being. This will be the third workshop sponsored by the FDOT IM and CVO Programs.



WHY: Many of us in the transportation arena feel that CVO and freight issues are addressed by an office dedicated to such issues; and we rely on that freight office to handle all freight issues. What we don't realize is that freight is everyone's business. Trucks roll on our roadways; trains cross our roadways; intermodal ports link to our roadways. This workshop will illustrate and explain the important links between freight and the 'seemingly unrelated' areas of emergency operations (police, fire, medical), traffic/transportation engineering, construction operations, transportation planning, toll road operations, private developers, environmental agencies, and even transit. In addition to describing the reasons for increased coordination among these groups, this workshop will describe several of the technologies that are available to facilitate that improved coordination.

Just a few areas that will be discussed include: increased coordination for activities, such as special events; hurricane evacuations; urban freight deliveries; parking (both in town and on our highways); incident management; increased intermodal freight activities (and the anticipated strain on the roadways in our region); and several of Florida's freight-related programs that are receiving national attention.

To reinforce the interactive sessions, this two day workshop includes a half day site visit to see some of the advanced technologies that benefit Florida's freight flows. Additionally, to further prove the point that freight is everyone's business, attendees will visit a site that demonstrates the dangers of thinking that freight is 'someone else's' responsibility. Namely, a site that impedes freight movements and endangers the lives of the traveling public.

WHEN: January 12 (Monday), 8:30 a.m – 5:00 p.m and January 13 (Tuesday), 8:00 a.m. – 3:00 p.m.

WHERE: Tampa, Florida - Embassy Suites/USF Busch Gardens

This workshop is dedicated to assisting transportation operations and planning professionals to understand how their jobs greatly impact the freight community (positively and negatively) and how the safety of Florida's citizens and the health of Florida's economy can hang in the balance.

Will this workshop make a difference to you in your everyday job? More than one attendee stated that they will keep freight considerations in mind now that they've learned how interconnected passenger and freight issues truly are.

For registration information, please contact Sharon Easley at (703) 858-9545 or email SEasley@e-squared.org. Due to the interactive nature of the workshop, attendance is limited to 50 participants. The registration fee is \$95.00 per attendee and includes food and site visit transportation. Register early to secure a space.



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FDOT District Six Participates in a Congestion Relief Plan Along Miami's Dolphin Stadium

The Florida Department of Transportation (FDOT) District Six Transportation Management Center (TMC) has taken part in a multi-agency traffic management plan to improve mobility around Dolphin Stadium.

The stadium, which is the largest sporting venue in South Florida, serves host to up to 75,000 patrons per sold-out event. Stadium officials developed a post-game exit plan that, with the help of the TMC and members of the Southeast Florida Regional Transportation Management Center Operations Committee (SEFRTOC), has reduced congestion for all motorists traveling along the stadium's roadways during that time.

The plan is composed of a series of traffic control procedures that provides for the efficient flow of vehicles exiting the stadium

after the conclusion of each Miami Dolphins game, particularly on the northbound direction of Florida's Turnpike. With most patrons using that portion of the highway for their post-game commute, convergence with regular traffic often caused congestion and increased delays along the stadium's adjacent roadways. Short-term closures and rerouting efforts were imposed to disperse the traffic concentrated along the northbound entrance ramps of the Golden Glades Interchange with direction to the Turnpike. To coordinate these efforts, stadium officials requested the support of SEFRTOC member agencies, FDOT District Six, and Florida's Turnpike Enterprise (FTE), along with the Florida Highway Patrol (FHP) and Miami-Dade County Police Department (MDPD).

Ramps are closed for approximately two hours after each game, and motorists are encouraged to use alternate routes, such as the I-95. Alternate route information is provided to motorists three days in advance of game day through the use of the TMC's intelligent transportation system (ITS) infrastructure located along the vicinity of the Golden Glades Interchange. Dynamic message signs are used to notify motorists of ramp closures, and serve as the plan's supplemental source of information for motorists riding along the roadway. The primary source of information is disseminated through the stadium's contractor which places static closure and variable message signs along FDOT's right-of-way. This combination of resources and coordination has been important to inform motorists on northbound I-95, eastbound and westbound State Road 826/Palmetto Expressway, US 441, and State Road 9. In addition, traffic control procedures have been further enhanced through the use of the TMC's operational support services. Closed-circuit television cameras and control room operator assistance help monitor traffic and manage conditions to ensure that safety and mobility goals are met during this time. FHP supports the re-routing efforts and directs traffic through the use of off-duty law enforcement officers at closure locations; and MDPD helps monitor traffic from their aviation unit. FTE has supported the initiative by providing the appropriate number of staff on its toll plazas, which has helped ease traffic flow and increase the efficiency of the overall effort.

The plan has benefitted the stadium's outbound traffic by creating quicker clearance procedures for its patrons. It has also enabled regular commuters to continue their travels without becoming involved with post-game traffic, thus improving mobility along the stadium's regional roadways even during periods of high congestion.

This article was provided by Javier Rodriguez, FDOT District Six. For information, please contact Mr. Rodriguez at (305) 470-5341 or email to Javier.Rodriguez2@dot.state.fl.us.



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ITS Florida Starts the Countdown Clock for Orlando 2011: Joint ITS World Congress and ITS America Annual Meeting

During the 15th World Congress on Intelligent Transportation Systems held in New York City in November, the Intelligent Transportation Society (ITS) of Florida in conjunction with the Florida Department of Transportation (FDOT) started the digital countdown clock for the 18th World Congress on Intelligent Transportation Systems to be held jointly with the ITS America Annual Meeting and Exposition, October 16-20, 2011, at the Orlando/Orange County Convention Center.

To officially start the World Congress 2011 countdown clock, all delegates attending the 2008 World Congress on ITS were invited to take part in the ceremony at the ITS Florida and FDOT displays in the Exhibit Hall on Tuesday, November 18. The ceremony featured remarks from ITS Florida President Anita Vandervalk, ITS America President Scott Belcher, and the Chair of the 2008 World Congress, Patrick McGowan. A crowd of delegates and ITS Florida members and supporters gathered to hear more about Florida innovations planned for the next World Congress on ITS to be held in the United States. A representative from the Orlando/Orange County Convention Center was also on hand to answer questions about Orlando, Florida—America's number one family vacation destination.

ITS Florida and FDOT are depending on the involvement of hundreds of volunteers to ensure the success of the 2011 ITS World Congress in Orlando. Volunteer recruitment is already underway through the new ITS Florida Web site, www.itsflorida.org. Volunteers are encouraged to click on the "About Us" tab and to fill out the "Contact Us" form to indicate their willingness to serve on the various committees.

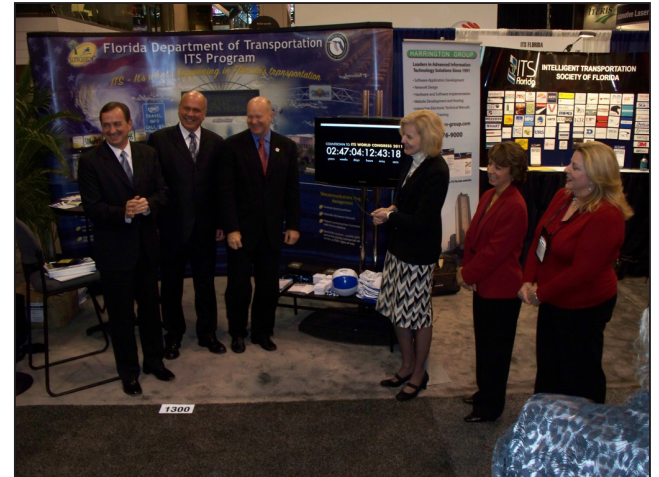
ITS Florida welcomes corporate and individual members from across North America and the world. Member benefits include:

- Monthly electronic newsletters announcing member achievements
- Publication of original research and articles on ITS success stories
- Regular training programs to keep our members at the top of their field
- A team of experts ready to present valuable information to your organization or conference
- Opportunity to attend the biennial Transpo Conference, the second largest ITS gathering in the United States, just behind the ITS America Annual Meeting
- Involvement in planning the next ITS World Congress to be held in the United States

The new ITS Florida Web site, designed by Global-5 Communications and programmed by The Harrington Group, made its debut at the ITS World Congress in New York. Visit www.itsflorida.org to see all the new features and to stay connected as ITS Florida continues to count down to the next World Congress in the United States in 2011.

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.



From left to right: Patrick McGowan, Chairman of the 18th World Congress on ITS Organizing Committee; Michael Noblett, Chairman of the 15th World Congress on ITS Organizing Committee; Scott Belcher, ITS America President and CEO; Anita Vandervalk, ITS Florida President; Elizabeth Birriel, Florida Department of Transportation Deputy State Traffic Operations Engineer and ITS Program Manager; and Rebecca McCollum, Orlando/Orange County Convention and Visitors Bureau.



Editorial Corner—VII: Demonstrations at the 2008 World Congress on ITS and SunGuide™

Last month, the Intelligent Transportation Society of America (ITSA) hosted the 2008 ITS World Congress (WC) in New York City the week of November 17-20. As with all WC events, much effort was put into displaying and demonstrating the latest technological advances of the host country as they relate to intelligent transportation systems (ITS). For this event, the centerpiece for live demonstrations was the New York Vehicle Infrastructure Integration (VII) Test Bed demonstrations.

The demonstrations showcased the VII program's technology that has been under development over the past few years. Not only did the participating companies demonstrate the current level of work funded by the United States Department of Transportation, but they also advanced the state-of-the-art through tight integration of this technology with existing traffic management infrastructure, fusing multiple backhaul information sources into a unique experience for conference participants, all while set in the dense urban environment of New York City. This integration created a truly powerful and data rich environment of real-time traveler and ITS-related information to be transmitted from vehicle to infrastructure and vice versa. In simple terms, the demonstration comprised three components: roadside infrastructure, demonstration buses, and backhaul applications. The roadside infrastructure consisted of dedicated short range communication (DSRC) radios linked to city and state backhaul infrastructure providing the foundation for the demonstration test beds. Two test beds, or demonstration routes, provided a city and freeway version of the technology. Over 40 DSRC radios were installed over the last year in both the city and freeway test beds. The backhaul applications provided the source data for transmission over the DSRC channels. Source data included traveler information from multimodal sources, such as rail, ferry and air, traffic management, transit signal priority/preemption, commercial vehicle weigh-in motion and over-height, and other private sector sources. In addition, probe data from the demonstration buses was transmitted to backhaul applications, which calculated the demonstration loop travel times and sent this back to the demonstration bus. The final piece of the demonstration was the demonstration bus itself. The buses were equipped with DSRC radios and antennas that received incoming DSRC messages and transmitted probe data and transit signal priority requests. Participants were able to see the incoming messages and probe data generated on a human machine interface that was displayed on six screens throughout the bus.



buses, development of the probe data and transit signal priority/preemption applications on the DSRC on-board unit, and the probe data collection application residing on the backhaul.

The demonstrations exceeded the capabilities of what the current VII program has achieved. The New York test beds provided real-time bi-directional data. At no point during the demonstration was the data canned or faked. The demonstration team consisted of over 20 organizations including the DSRC radio software developers, system integrators, signal controller developers, traffic management center integrators, city and state agencies, backhaul application developers, and ITSA staff. All of these members contributed to an environment that made participants feel as though a finished product was ready for deployment. Participants could also get the feel of how the same system can provide different types of information, whether in a city or freeway environment.

Southwest Research Institute® (SwRI®) played an integral part in the design, development, deployment, and operation of the New York test beds. Specifically, SwRI was responsible for integration and coordination with the demonstration



In conjunction with this demonstration, SwRI demonstrated advanced active safety and automated vehicle applications based on substantial internal research and international collaboration. In late 2006, SwRI established a \$5 million internally-funded research and development program called the Southwest Safe Transport Initiative (SSTI) to improve safety in urban traffic environments. SSTI is charged with developing new sensor, computing, and mobile technologies to augment vehicle platforms and provide autonomous vehicle capabilities. Through SSTI, the SwRI is fusing the latest technology from multiple industries to meet the challenges associated with autonomous control of cars, trucks, and tractors. Through the fusion of technologies and design methodologies from multiple industries, such as unmanned aerial systems, ITS, cognitive multi-agent systems, machine vision, engineering dynamics, hardware/software-in-the-loop simulation, large-scale multi-function robotics, and safety and reliability systems, SwRI is developing a full-scale autonomous ground vehicle platform to be used for advanced engineering intelligent vehicle systems/applications development.

SwRI and the Institut National de Recherche en Informatique et en Automatique (INRIA), a French national institute, began a joint research project in early 2008 to explore the challenges and benefits of sensor sharing among vehicles in a cooperative traffic system. This joint research was demonstrated as part of the active safety demonstration

at the 11th Avenue Theater in New York City in front of the conference center. The demonstration involved a pedestrian stepping into a crosswalk in front of a stopped vehicle, such as a bus. As the SwRI autonomous vehicle approached the intersection, the pedestrian could not be detected by the vehicles' onboard sensors or by the driver. Traveling in the opposite direction, another vehicle, equipped with sensors and a DSRC radio, detected the pedestrian in the crosswalk and transmitted the information about the crosswalk and pedestrian to the SwRI vehicle. This enhanced perception allowed the SwRI vehicle to automatically stop at the crosswalk, allowing the pedestrian to safely cross.

SwRI envisions that the Florida Department of Transportation (FDOT) will be well positioned to develop, demonstrate, investigate, and validate future VII applications directly with the SunGuide™ software. SunGuide offers an unmatched ITS consisting of technologically advanced sensor data and modular system architecture. Components are in place that will ease the integration of VII-generated probe data for fusion with existing sensor data. Numerous data sources are available, such as advanced traveler information, incident management, multimodal transition information, and transportation mobility.

With the 18th World Congress on ITS being held in Orlando in 2011, Florida has the time and opportunity to showcase advanced VII and cooperative vehicle systems integrated tightly with the SunGuide software in a production traffic operations environment. Such a demonstration could highlight a fully implemented and functional VII-enabled "TMC of the Future" and provide baseline data on how VII has improved traffic management operations following integration with ITS devices, traveler information, 511, and other sources such as commerce and tourist information. Analysis of what Florida considers important, for not only demonstrating in 2011 but utilizing VII to improve Florida roadways, should be conducted sooner rather than later. As the New York event organizers learned, aggressive planning in order to finalize applications and equipment installation proved beneficial.

This editorial was provided by Steve Sprouffske, Ryan Lamm, and Steve Dellenback, Southwest Research Institute. For information, please contact Mr. Dellenback at (210) 522-3914 or email to SDellenback@swri.org.

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Inside the TERL

The FDOT has a goal to assure that only a safe and uniform ITS and 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.

Product Evaluation

Signalized Intersection and ITS Products

A total of 100 applications have been submitted for listing on the FDOT's Approved Products List (APL). Of these applications, 74 were approved for product evaluation. Out of the 74 approved applications, 66 products have been received for evaluation. There have been 27 product approvals and 26 evaluations closed due to inactivity, insufficient data, or failure. The remaining 11 applications are awaiting the manufacturer to either submit the product or additional information.

Approved products can be viewed at the following Web pages:

Signalized Intersection products - <http://www3.dot.state.fl.us/trafficcontrolproducts/>

ITS products - http://www.dot.state.fl.us/TrafficOperations/Traf_Sys/ITS%20APL/TemporaryITSAPL.shtm

Product Specifications

There are currently four product specifications in the development stage and five planned for future development.

APL Vendor Quality Assurance System Evaluation

Qualification of the manufacturer is required before a device can be evaluated for listing on the APL. One manufacturer was qualified in November 2008. We now have a total of 86 qualified manufacturers, of which 33 have recently been re-qualified. Re-qualification is due on a four year basis. There are currently two manufacturers under investigation regarding problems found in the field.

Two Steps to Get on the APL

- 1) Vendor Qualification = review of the vendor's quality control and assurance program
- 2) Device Evaluation = review of the device to verify conformance to FDOT's standards

Vendor Qualification + Device Evaluation = APL listing

Dynamic Message Sign Certification

The TERL is currently evaluating dynamic message signs for listing on the APL. Testing is being performed to ensure compliance with *ITS Specifications 781-Intelligent Transportation Systems Motorist Information Systems*.



Skyline (right) and Daktronics (left) dynamic message signs undergoing testing at the TERL. Pictured are (left to right) Ron Meyer (TERL), Ed Hernandez (Daktronics) and David Bremer (TERL).

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

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Announcements

Save the Date

For the "Back by Popular Demand" FDOT-sponsored
FREIGHT and Traffic Engineering/Transportation Planning/
Operations/Special Events Workshop

When: January 12 – 13, 2009
Where: Embassy Suites/USF Busch Gardens, Tampa,
Florida
Cost: \$95.00 per attendee and includes food and site
visit transportation.

For questions or additional information please contact
Sharon Easley with E-Squared Engineering at (703) 858-
9545 or via email to SEasley@e-squared.org.

Register early to secure a space.

FDOT Traffic Engineering and Operations Mission and Vision Statements



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