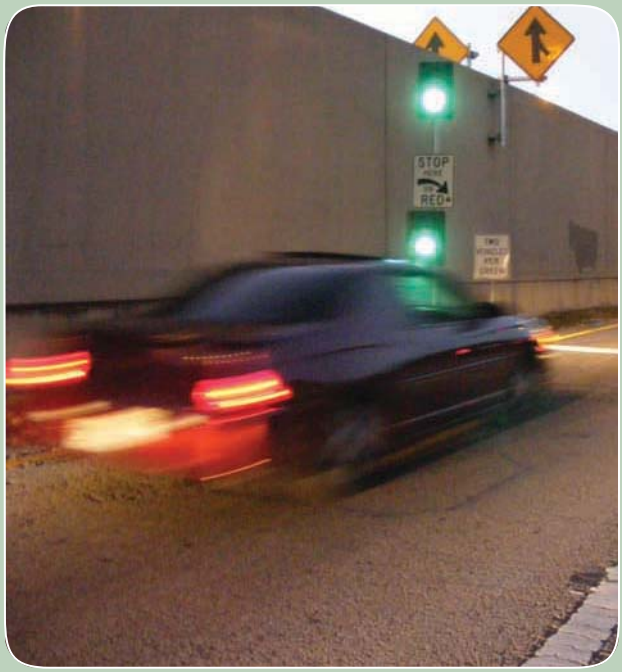
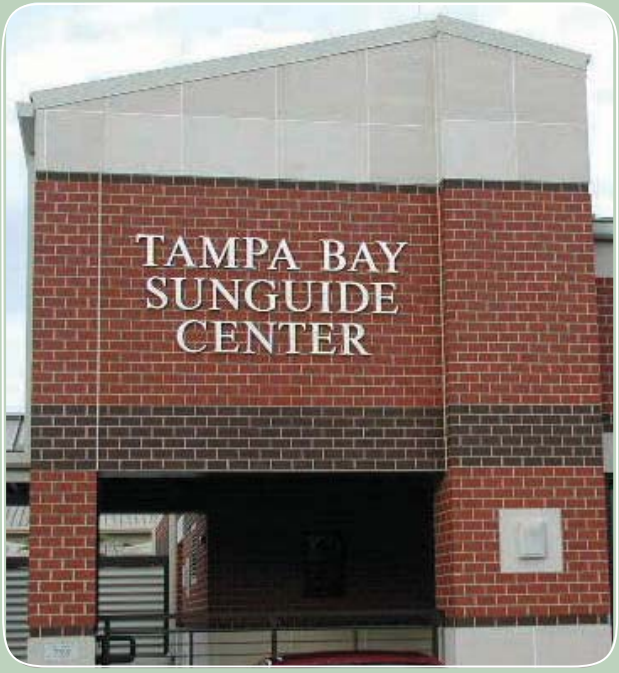
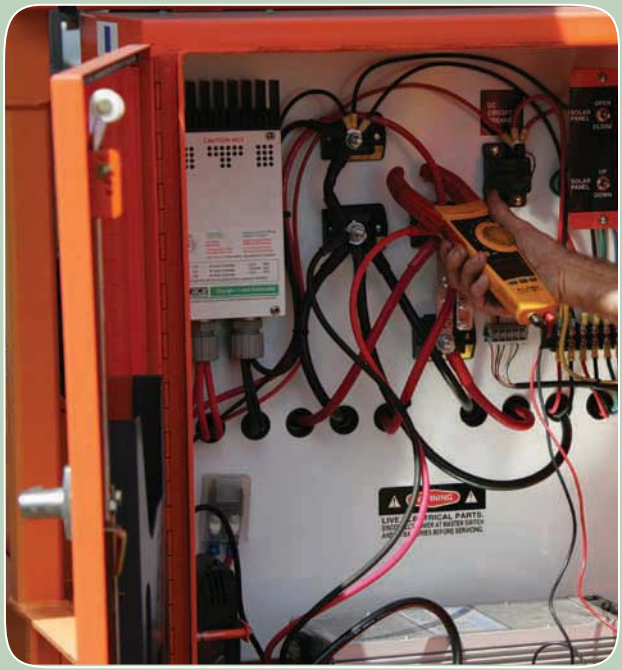






Florida Department of Transportation

Intelligent Transportation Systems Program

Annual Report

Fiscal Year 2009-2010

CONTENTS

WELCOME

Florida Department of Transportation

CHARLIE CRIST
GOVERNOR

605 Suwannee Street
Tallahassee, FL 32399-0450

STEPHANIE KOPELOUSOS
SECRETARY

Dear Reader:

On behalf of the Florida Department of Transportation Intelligent Transportation Systems (ITS) Program, we are pleased to present this Annual Report for fiscal year 2009-2010. This fiscal year presented us with a major challenge—our economy. With declining funds, we looked for ways to maximize our dollars and provide our traveling public with greater convenience and improved safety.

At the end of June 2010, over 1,100 miles of limited-access roadways had ITS deployments (54 percent of the limited-access Florida Intrastate Highway System); however, we have rural interstates on which ITS infrastructure has not been deployed. We explored and found alternate data collection sources to feed information into our statewide 511 advanced traveler information system; thereby, enhancing information provided to travelers in rural areas of our state.

Our SunGuide® software has continued to shine again this year. We enhanced the software to meet challenges presented from:

- Deployment of Florida's 511 traveler information system;
- Expansion of the video aggregation subsystem to include video steaming; and
- Modification to support the 95 Express, operations by adding variable time-of-day toll rate management tables and coordination of the toll rate signs, gantry signs, and lane status signs located along the express lanes.

The Florida Department of Transportation's Executive Board endorsed our new and emerging Transportation System Management and Operations Program. Emphasizing the importance of continual improvement of operational performance, this program is all about managing our existing infrastructure and road networks as efficiently and effectively as possible.

Florida's WiFi® has been fully deployed for over a year. This wireless broadband service allows travelers on Florida's interstate highways and toll roads to have internet access at selected FDOT locations. Travelers have expressed their satisfaction with this pilot project, logging in over 65,000 times. The mobile WiFi hotspot trailer has also proved to be a valuable asset, traveling throughout the state, offering assistance where there are no ITS deployments.

This year we have also highlighted happenings from the Florida Traffic Incident Management and Commercial Vehicle Operations Program in this report along with some exciting news from the Traffic Engineering Research Lab.

I hope this glimpse of some of the highlights in this report will entice you to read further. We are proud of our accomplishments and hope that you will be as excited for our program as we are!

Elizabeth Birriel

Elizabeth Birriel, PE
Deputy State Traffic Operations Engineer
Florida Department of Transportation
ITS Program Manager

VISION & MISSION

FDOT's Vision

Serving the people of Florida by delivering a transportation system that is fatality and congestion free.

FDOT's Mission

Provide a safe transportation system that ensures the mobility of people and goods, enhances economic prosperity, and preserves the quality of our environment and communities.

FDOT's ITS Program

The ITS Program endeavors to provide a safe transportation system that ensures the mobility of people and goods, enhances economic prosperity, and preserves the quality of our environment and communities.

FDOT's Commitment to ITS

FDOT maintains a State Highway System of more than 12,000 centerline miles and 42,633 lane miles. According to the FDOT *Five-Year Work Program*, $9.8 billion was budgeted in this fiscal year to support Florida's transportation needs. As part of its annual program, FDOT made significant investments in ITS and is committed to investing approximately $929 million between 2002 and 2020.


IN GOD WE TRUST
OF THE STATE OF FLORIDA

ITS PROGRAM OVERVIEW

FDOT's ITS Program Area Descriptions and Major Accomplishments

The Florida Department of Transportation's (FDOT) Traffic Engineering and Operations Office coordinates and promotes the deployment of intelligent transportation systems (ITS) throughout Florida. The ITS staff are led by Elizabeth Birriel, P.E., Deputy State Traffic Engineer—ITS Program Manager.

Florida's ITS is organized into the following program areas:

- ITS Management/Deployments—*Gene Glotzbach, P.E.*
- ITS Software, Architecture, and Standards—*Arun Krishnamurthy, P.E.*
- Telecommunications Program Management—*Randy Pierce*

Two other program areas within the Traffic Engineering and Operations Office have a very close relationship with ITS and are represented in this annual report:

- Commercial Vehicle Operations and Traffic Incident Management—*Paul Clark*
- Traffic Systems—*Trey Tillander, P.E.*

ITS Management/Deployments

Program Description

- Promote ITS deployments on Florida's roadways, develop standards, maintain the *ITS Strategic Plan*, and implement a systems engineering process to support procurement and deployment of ITS.
- Deploy advanced traveler information systems and 511.
- Manage the *Ten-Year ITS Cost Feasible Plan* and develop the *Arterial ITS Plan.*
- Develop a probe-based data collection program to supplement data collection in areas of the state that are not instrument with ITS devices.
- Support the I-95 Corridor Coalition through the co-chairmanship of the Travel Information Services Program Track.
- Support the National 511 Coalition Working Group as an active member.
- Support the FDOT Transit Office by providing expertise to various transit projects.

Major Program Accomplishments

- Updated the *Ten-Year ITS Cost Feasible Plan*.
- Launched the Next Generation 511 System and FL511.com website which includes the provision of closed-circuit television camera images in snapshot format.
- Developed the Invitation to Bid documents; currently in the process of finalizing a contract with IBI Group for the Video Aggregation System Phase II project that will make full motion video available to the public through the FL511.com website.
- Monitored and improved operation of the Next Generation 511 System based on user input and testing by FDOT contractors.
- Managed the Global-5 Communications marketing efforts for the Next Generation 511 System.
- Produced *Florida's 511 Progress Report—Knowledge is POWER … Know before you go!*, an annual report for 2009.
- Completed a pilot project involving AirSage for probe data collection using a cellular phone-based data collection system.
- Awarded a contract for traffic flow data on I-10 and the northern portion of I-75 to INRIX through the I-95 Corridor Coalition's contract with the University of Maryland.
- Continued to provide support to District Traffic Operations and Work Program staffs to update the Districts' portions of the *Ten-Year ITS Cost Feasible Plan*.
- Continued to operate and troubleshoot the license plate reader data collection system in Tallahassee to collect travel times along I-10 and post these times on the two dynamic message signs deployed in the Tallahassee area.
- Continued to support and provide quality assurance to the Traffic Engineering and Research Lab (TERL) with development of an ITS lab to test ITS equipment operability using the SunGuide® Software.
- Continued to support the Change Management Board and process engineering change proposals.
- Continued to produce the *SunGuide® Disseminator* (FDOT's Traffic Engineering and Operation's monthly newsletter).
- Continued to provide support to FDOT's Public Transportation Office for their Resource for Advanced Public Transportation System Program.
- Continued work on developing ITS performance measures.
- Continued to develop ITS specifications and maintain existing specifications based on field experience with deploying various ITS devices.

ITS Software, Architecture, and Standards

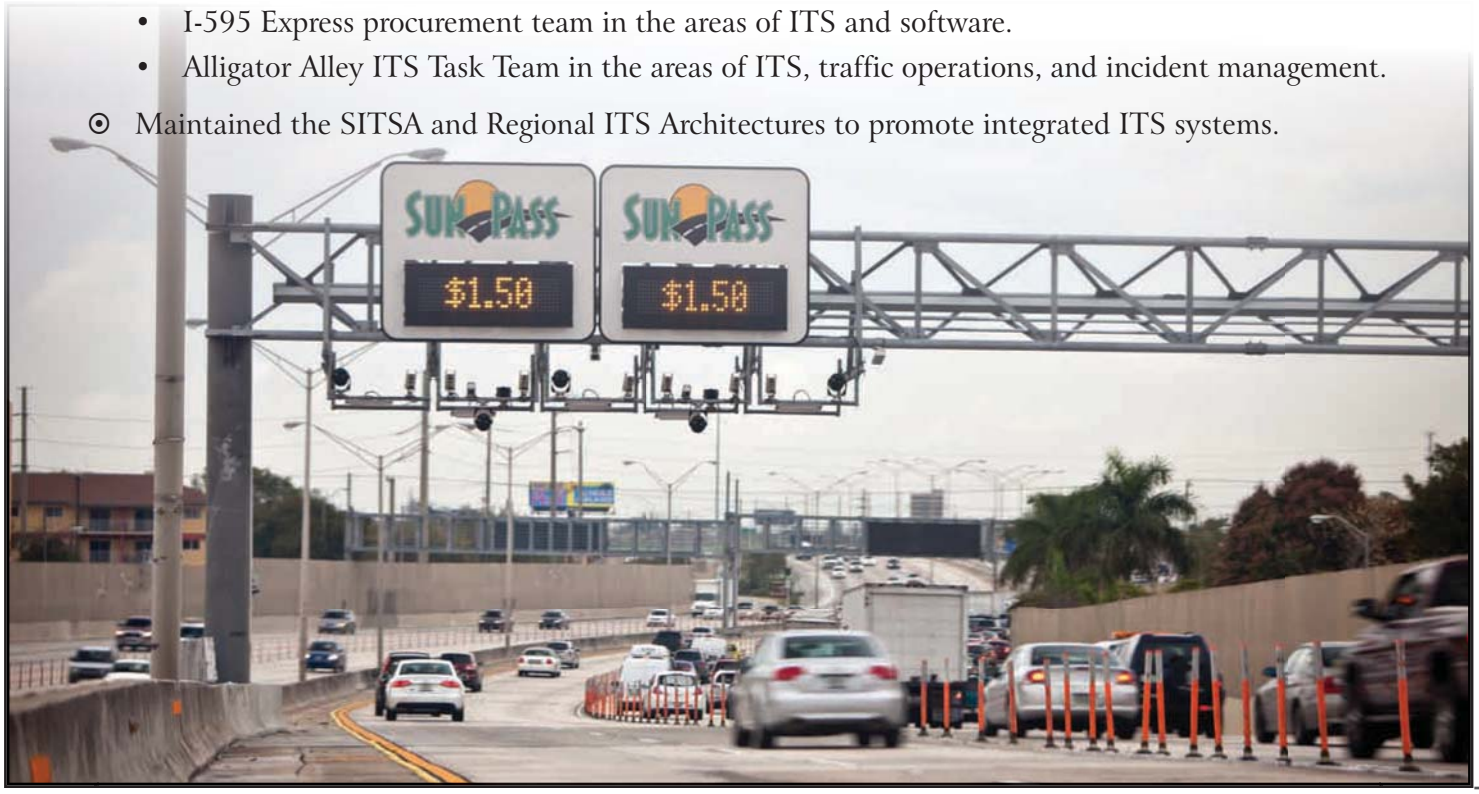
Program Description

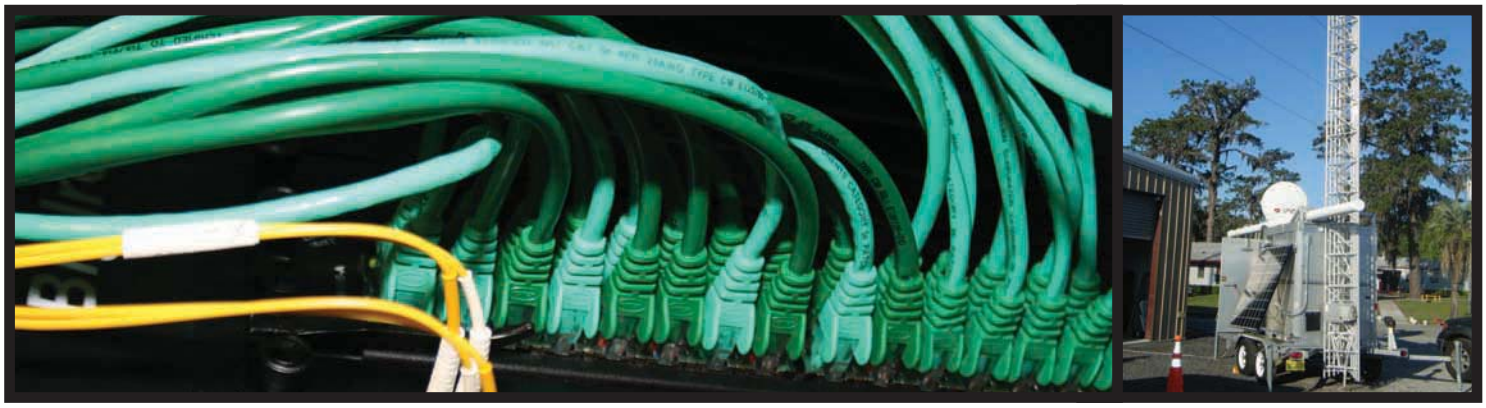
- Manage the SunGuide® Software, including support of the software at transportation management centers.
- Manage the FDOT Ramp Metering Software System for ramp meter control and monitoring.
- Develop and maintain the *Statewide ITS Architecture* (SITSA) to promote an integrated ITS; assist in development of District, regional, and corridor ITS architectures to ensure SITSA conformance.
- Develop and update standards and specifications for ITS devices.
- Develop and promote the use of the systems engineering management and configuration management processes to the FDOT Districts.
- Coordinate ITS training to enhance the quality and quantity of the state's ITS workforce.
- Coordinate the FDOT's ITS Research Program with the Districts to identify the needs, priorities, and applicability of emerging ITS concepts.
- Coordinate Traffic Operations and ITS support for public-private partnerships and managed lanes projects.

Major Program Accomplishments

- Conducted SunGuide Software Release 4.2 Independent Verification & Validation (IV&V) at the FDOT Traffic Engineering Research Lab (TERL). This release provides the ability to obtain real-time traffic data from Florida Highway Patrol and support for Citilog software for incident detection.
- Deployed the SunGuide Software at the Fort Myers (District 1), Florida's Turnpike Enterprise, I-595 Express, Lee County (District One), and Palm Beach County (District Four) regional transportation management centers.
- Coordinated with the University of Central Florida and the University of Florida to assist with FDOT-sponsored research projects using SunGuide Software.
- Conducted SunGuide Software Release 4.3 IV&V at the TERL and Fort Lauderdale. This release provides dynamic pricing features for the 95 Express Lanes operation, multiple entity floodgate enhancements, and Society of Automotive Engineers Code updates to the Florida Advanced Traveler Information System.
- Developed incident duration performance measures reports for the Florida Transportation Commission.
- Developed highway safety campaign dynamic message sign message reports for the Statewide Quality Assurance Review.

- Supported the Districts with the creation and updates of various SunGuide report templates.
- Developed and provided SunGuide Software operator training at all Districts.
- Developed concept and requirements for SunGuide Software Release 5.0. This release includes enhancement to the operator map using new advanced mapping technology and graphical user interface.
- Conducted SunGuide Software Release 5.0 IV&V at the TERL
- Managed the legal protection of the SunGuide logo and the SunGuide Software source code by registering it as a registered trademark with federal copyright.
- Negotiated and selected a new contract vendor for SunGuide Software Support, Maintenance and Development (SMD) project.
- Implemented a transition plan from the current SunGuide contract to the new SunGuide SMD contract.
- Continued monitoring the use of completed FDOT Standard Specifications for General Requirements for ITS 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).
- Performed technical reviews and provided support for project-specific requests related to specification modification.
- Continued updating the FDOT Standard Specification Section 781 to support the use of arterial dynamic message signs.
- Provided technical support to the
  - 95 Express Operations Group in the areas of ITS, signing, operational analysis, and incident management.
  - I-595 Express procurement team in the areas of ITS and software.
  - Alligator Alley ITS Task Team in the areas of ITS, traffic operations, and incident management.
- Maintained the SITSA and Regional ITS Architectures to promote integrated ITS systems.





Telecommunications Program Management

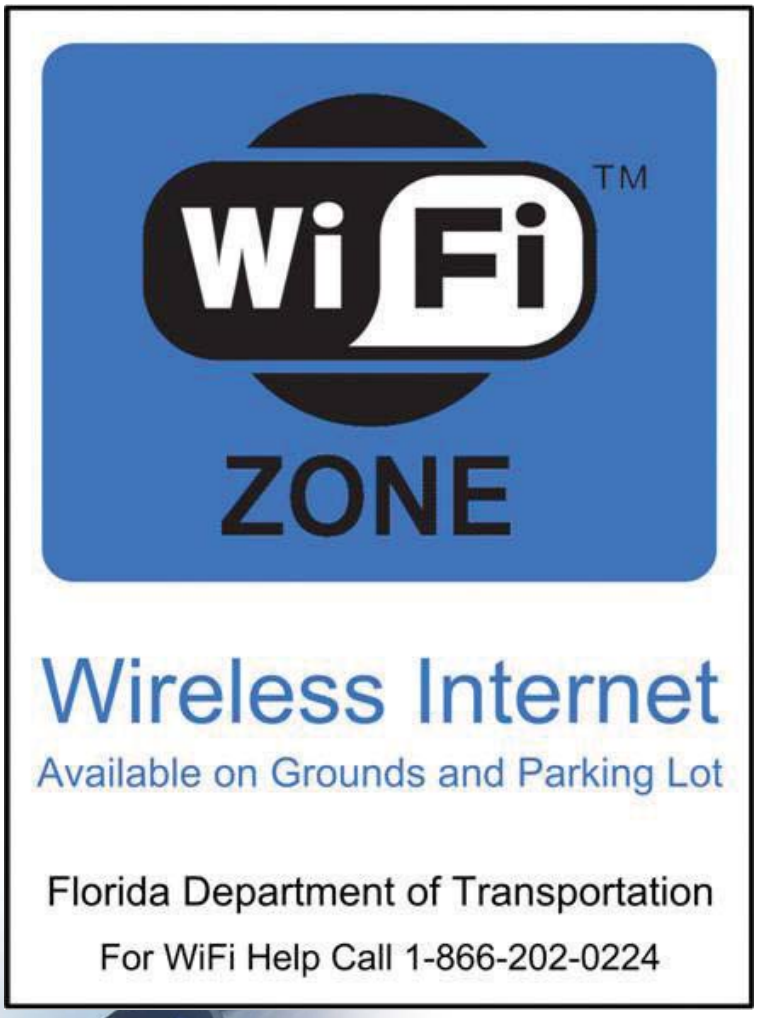
Program Description

- Guide deployment of a communications backbone to serve ITS deployments on major corridors.
- Implement and manage the Statewide ITS Wide Area Network (WAN) to support ITS deployments.
- Manage the operations and maintenance program for the statewide ITS telecommunications network to support ITS deployments, motorist aid call boxes, and various ITS research and development initiatives.
- Manage all FDOT Federal Communications Commission radio licenses (over 600 licenses).
- Manage the Wireless General Manager Agreement, a resource-sharing public/private partnership which places commercial wireless carriers on FDOT rights-of-way with Lodestar/American Tower.
- Develop operations standards and equipment specifications to support District telecommunications initiatives in their ITS, Maintenance, and Traffic Incident Management programs.

Major Program Accomplishments

- Developed a new training program for the ITS Facility Management System (ITS-FM) to better enable the Districts to manage their overall telecommunications networks, field system configuration, and components. Conducted initial training sessions with Districts One and Seven.
- Experienced a net reduction of two wireless collocation subleases under the Lodestar/American Tower Wireless General Manager Agreement as a result of industry consolidation.
- Completed a contract for deployment of permanent emergency generator power systems at nine statewide ITS telecommunications network locations to provide continuity during power outages.
- Awarded a contract for deployment of an additional permanent emergency generator power system at the Pensacola statewide ITS telecommunications network location to provide continuity during power outages.
- Completed a contract for a microwave network deployment for the FDOT radio system in District Six.
- Awarded a contract for repeater deployment for the FDOT radio system in District Five.
- Received legislative approval of a budget request to replace up to 2,570 mobile radios over a five-year period in the FDOT radio system.

- Trained trainers in Districts One and Seven in the operation of the FDOT radio system and its operation in the new repeater network.
- Reported weather data from eight field weather stations in continued support of the National Clarus Initiative, a program to provide information to all transportation managers and users to alleviate the effects of adverse weather (e.g., fatalities, injuries and delays).
- Received a grant from the Federal Highway Administration for participating in the Clarus Connection Incentive Program to provide weather observations and metadata to the Clarus system.
- Received approval from the National Oceanic and Atmospheric Administration to use their satellite-based "data collection service" to deliver bridge sensor data. Wind speed sensors are planned for installation next year.
- Upgraded and maintained WiFi® internet access in four welcome centers and the Turkey Lake Service Plaza.
- Commissioned a WiFi® internet access mobile trailer for deployment in support of special events and emergency management.



Traffic Systems

Program Description

- Develop, maintain, update, and publish minimum specifications for traffic control signals and devices; evaluate and certify/approve these devices for use in Florida.
- Develop, implement, and maintain vendor quality assurance and product approval programs. These programs are used to list equipment on the FDOT Approved Product List (APL) to ensure a uniform system of traffic control devices in Florida.
- Develop, update, and support standard specifications and standard drawings for traffic control device installations.
- Provide testing, verification, and validation services for ongoing development of the FDOT SunGuide® Software, Florida Advanced Traveler Information System, and other statewide transportation software and system applications.
- Provide support services and infrastructure for ITS telecommunications, central data warehouse, and planning traffic monitoring station functions.
- Provide technical assistance and training relating to the design, implementation, and operation of traffic control signals and devices used in Florida.
- Conduct the Traffic Engineering Research Laboratory (TERL) testing, research, and development programs.
- Represent Florida on national technical advisory groups that develop traffic control and ITS device standards.
- Maintain and update traffic operations asset inventory.

Major Program Accomplishments

- Maintained the statewide APL vendor qualification program to evaluate and qualify traffic control signal and device manufacturers requesting listing of their products on the APL—qualified 17 and re-qualified 24 manufacturers in 2009.
- Maintained a statewide APL product approval program to certify/approve traffic control signals and devices used in Florida—reviewed 90 product applications and approved 44 products in 2009.
- Transitioned portable maintenance of traffic devices from the FDOT Qualified Products List to the APL. Began qualifying all associated manufacturers.

- Integrated the intelligent transportation systems (ITS) APL into the web searchable APL.
- Developed, updated, and supported 15 standard FDOT contract documents. This included equipment specifications for the *FDOT Minimum Specifications for Traffic Control Signal Devices*, installation and equipment specifications for the *FDOT Standard Specifications for Road and Bridge Construction* along with modifications to the *FDOT Design Standards*.
- Provided technical support and testing services for the lane-use control signal technology used on the Jacksonville and Miami reversible lane system projects.
- Evaluated, tested, and certified the first 12-inch character dynamic message sign (DMS) designed for use on arterials. This supplements the three 18-inch character, full-size, walk-in DMSs already listed in the FDOT APL.
- Completed renovation and placed into operation the TERL Certification Lab, including a controller cabinet testing area and light tunnel.
- Completed construction on additional and enhanced testing facilities, including a DMS test area complete with concrete pads to place full-sizes signs onto, and a test intersection complete with a roadway and mast arms to compliment the existing span wire test intersection.
- Developed and procured a new statewide APL contract to provide an efficient method for users to acquire devices listed on the APL.
- Provided maintenance and oversight of the statewide ITS device procurement contract and monitored deployment and use of the 45 approved ITS devices.
- Performed end-to-end system testing of various SunGuide® Software components, interfaces, and field devices, including independent verification and validation testing. This included supporting the Florida Turnpike Enterprise's transition to SunGuide Software.
- Represented the American Association of State Highway and Transportation Officials on the Joint Committee on the National Transportation Communications for ITS Protocol (NTCIP) and the NTCIP DMS Working Group regarding the development and deployment of NTCIP requirements for traffic control signals and devices.
- Completed development of Florida's closed-circuit television camera NTCIP requirements.
- Started a program to increase TERL efficiency and implement continuous improvement using International Organization for Standardization guidelines.
- Managed the following research projects:
  - Statewide central data warehouse prototype,
  - Development of automated testing tools for traffic control signals and devices,
  - Impact of detection and communication degradation on traffic management systems operation, and
  - Managed lanes operations.

Commercial Vehicle Operations and Traffic Incident Management

Program Description — Commercial Vehicle Operations

- Promote commercial motor vehicle safety as it relates to commercial vehicle operators as well as the traveling public.
- Manage Florida's Commercial Vehicle Information Systems and Networks (CVISN) program, a nationwide program under the direction of the Federal Motor Carrier Safety Administration (FMCSA) by focusing on safety enforcement resources on high-risk commercial operators; integrating federal and state regulatory systems to improve access to, and verification of, operating credentials; improving efficiency through electronic screening of commercial vehicles; and enabling online application and issuance of operating credentials.
- Support the Office of Motor Carrier Compliance (OMCC).

Major Program Accomplishments — Commercial Vehicle Operations

- Received certification of Florida's CVISN program as 'Core Compliant' by the FMCSA.
- Received official approval from FMCSA for *Florida's Expanded CVISN Program Plan / Top Level Design* document. This approval allows Florida to begin deployment of the next phase of the federal CVISN program and to access $3.2 million in federal grant funds designated for CVISN program projects.
- Deployed an additional pre-clearance station in Pensacola for electronic screening of commercial vehicles entering Florida.
- Assisted the OMCC in updating/redesigning the *Commercial Motor Vehicle Manual*—a quick go-to book used by commercial vehicle drivers to locate information needed to legally operate commercial motor vehicles in Florida.
- Assisted the OMCC in the design and development of their annual report.

Program Description — Traffic Incident Management

- Provide technical support and assistance to FDOT's District Offices and other partners in regards to traffic incident management.
- Develop policies and procedure for FDOT's Road Ranger and Rapid Incident Scene Clearance (RISC) Programs.
- Support the I-95 Corridor Coalition's Incident Management track.

- Assist the State Emergency Operations Center (SEOC) with evacuation management.
- Collect traffic incident management (TIM) related data to determine areas of improvement for future planning.

Major Program Accomplishments — Traffic Incident Management

- Conducted the first annual *Road Ranger Responder Survey for Incident Responders*.
- Developed and provided training for use of the Statewide Law Enforcement Radio System.
- Partnered with the Florida Sheriff's Association, Florida Fire Chiefs Association, and the Florida Police Chiefs Association in an effort to train every traffic incident responder in Florida in TIM. The program, named TIM in 10, consists of roll call videos, classroom training and web-based training.
- Continued to support the Districts in deployment of the RISC Program.
- Distributed approximately 1,300 copies of the "Time 4 Safety" video in direct support of the Tim in 10 effort.
- Worked with the I-95 Corridor Coalition to facilitate quick clearance training.
- Provided several articles for the SunGuide® Disseminator (FDOT's Traffic Engineering and Operation's monthly newsletter).
- Continued work on developing TIM and Road Ranger performance measures.

Alternative Travel Information Systems Data Sources—Covering Our Rural Roadways

By Gene Glotzbach, FDOT

The Florida Department of Transportation (FDOT) has been on a crash course to deploy intelligent transportation systems (ITS) in our urban areas since 2002, when the *Ten-Year ITS Cost Feasible Plan* was developed. The initial plan provided for deployment of ITS utilizing $496 million—set aside by the FDOT's Executive Board. The *Ten-Year ITS Cost Feasible Plan* allocated funds to every District for the deployment of ITS infrastructure, including transportation management centers (TMC).

Prior to the Executive Board's dedication to a statewide ITS deployment through the provision of funding resources, the Districts had to scratch out funds from their budgets to deploy ITS. ITS projects were in direct competition for funding with traditional concrete and asphalt projects. ITS deployment was slow to start and fell short of addressing operational needs. The funds set aside for the *Ten-Year ITS Cost Feasible Plan* allowed the FDOT to accelerate the statewide ITS deployment, putting Florida on the fast track to becoming the national leader in ITS deployment.

Eight years after the development of the *Ten-Year ITS Cost Feasible Plan*, the Districts have made great strides in deploying ITS in their urban areas. Within the next couple of years, the *Ten-Year ITS Cost Feasible Plan* should be about 90 percent deployed. The *Ten-Year ITS Cost Feasible Plan* concentrated the funding on ITS deployment in our urban areas where the need was the greatest. There is certainly enough deployed now for the Districts to know, with good certainty, what is happening within their urbanized areas. However, a significant gap remains with the deployment of ITS infrastructure in rural areas of the state.

There are over 500 miles of rural Interstate on which the FDOT will not have ITS infrastructure deployed. That is, we will not have deployed closed-circuit television (CCTV) cameras and sensors to collect data; nor will we have deployed dynamic message signs to provide information back to the motorist. Deploying these devices on our rural interstate highways would entail a significant cost. So in order to collect information on the rural segments of the interstate, FDOT explored alternate data collection sources. Any one alternate source of data may not be enough for complete reliance, but the different sources taken collectively paint a good picture of what is happening in our rural areas.

One alternate source of data coming in is the feedback to the FDOT's 511 advanced traveler information system. The 511 system allows a caller to report traffic issues they encounter which are not currently reported by the 511 system. Before the information can be reported on the 511 system, it must be verified. Other callers reporting the same problem can corroborate the initial report; however, it is better to have that corroboration come from another data source.

The Florida Highway Patrol's (FHP) computer-aided dispatch (CAD) system is another source of data. The FDOT has integrated the FHP CAD system into the statewide TMC software package to provide an easy means of retrieving information provided by the FHP's CAD system. This is statewide information and can provide a means of identifying traffic problems and/or corroborating information provided through other means.

The FDOT also just begun a test project using data from the General Motors OnStar© system. OnStar and FDOT representative met to discuss utilizing information provided by OnStar subscribers to their operators. It seems they get traffic conditions feedback from motorists, but don't know what to do with the information. They have agreed to provide that information to the FDOT. During the testing period, OnStar operators will

pass along any traffic conditions information to the FDOT TMC operators in Districts Two and Five. This information is just another source of data to identify and/or verify problems in the areas without ITS deployments. We are looking to expand this test project by partnering with a commercial vehicle fleet to utilize information reported by their truck drivers regarding traffic flow issues. The fleet dispatcher would pass this information along to the appropriate TMC operator.

The timely and accurate reporting of traffic conditions is directly related to the information that is available to TMC operators. Typically, identifying and verifying problems on non-instrumented rural area roadways is difficult since reliance must be placed on data coming from sources outside of the FDOT. However, the data received by the FDOT from outside sources is helpful in identifying where there is a problem, but there is little to no information on when a problem has cleared. The real problem is determining when to remove an incident from the system and when the congestion caused by that incident has abated. People who call in to let you know there is a problem, never call back to let you know the problem has cleared and certainly would not have information on when the congestion cleared and when traffic returned to a normal condition, as they are long gone by the time traffic returns to normal flow. With the FHP CAD, once the trooper clears the site, any information regarding the congestion goes with the trooper. This shows a need for development of another data source—one that provides the missing information regarding when an incident has been cleared.

Use of probe data collection methods may prove to be beneficial in helping the FDOT to determine when to remove reported traffic issues from the 511 system, and when traffic flow has been restored to normal conditions. The FDOT's Central Office, ITS Program has contracted with INRIX, Inc. to provide probe data information. INRIX will provide travel time information collected from global positioning systems and other sources as well as provide access to their website, which provides a graphical display of traffic flow utilizing the red, green, yellow, and orange color code. This information will benefit TMC operators to not only determine and verify the advent of traffic problems, but more importantly, it will help operators to determine when to remove traffic problem information from the 511 system.

Probe data, updated every few minutes, will give operators a good picture of traffic flow conditions. As travel times begin to increase for a segment of roadway, the operator can begin to track incoming calls or check the FHP CAD information to see if there is a report that corresponds with the information provided by the probe data collection system. If there is a connection, the operator can post the problem to the 511 system. Probe data can continue to be monitored and when travel times begin to decrease, operators can prepare to remove the traffic issue from the 511 system. Granted, this a simplistic example and information may not be as cut and dry as this example would indicate, but the bottom line is that the more sources of data utilized in the process, the quicker and more accurate the information will be that is disseminated via the 511 system.

In addition to the Central Office's contract with INRIX, several Districts have established relationships with other probe data providers to assist with monitoring and managing traffic conditions on their roadways. A selling point with the probe data collection systems used by the FDOT is that it does not require the deployment of infrastructure and, therefore, can be deployed quickly.

There are also data collection systems that require installation of infrastructure to provide travel times, such as the license plate reader, which provides travel times by matching license plate information. Bluetooth® systems also require deployment of readers to read signals from Bluetooth devices used in cars by motorists. These systems provide accurate data that can be utilized by TMC operators to help manage traffic on covered facilities. However, there is a cost involved to deploy infrastructure in order to utilize Bluetooth as a probe system.

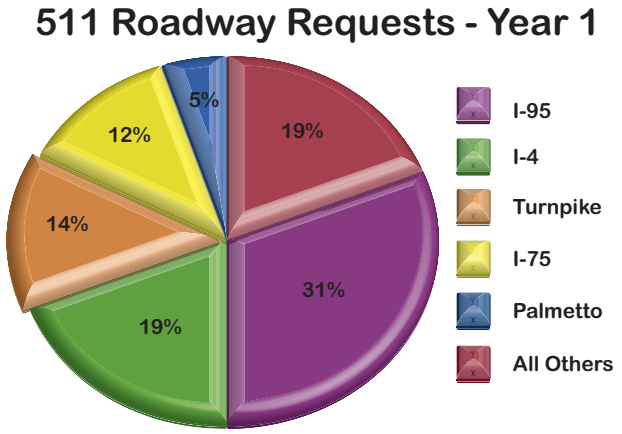
In summary, there are more ways to collect traffic flow data than you would probably imagine—and this data is getting more accurate as technology progresses. Supplementing data collection capabilities with data collected by third parties is a good way to fill in the gaps to provide a benefit to the public.

Stay tuned for what's in the future!

Florida Statewide 511—A Look Back at Year One

By Gene Glotzbach, FDOT, and Vicky Mixson, Global-5 Communications

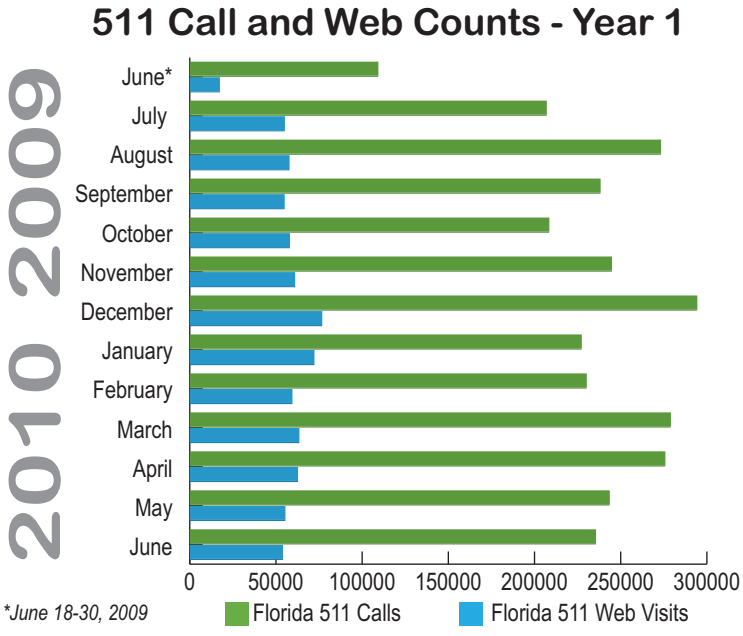
The Florida Department of Transportation's (FDOT) Next Generation Statewide 511 Advanced Traveler Information System successfully launched June 2009, and continues to improve and provide traffic and travel information to Florida's residents and visitors. The interactive voice response system covers all of Florida's interstates and toll roads and many metropolitan roads. It features information on crashes, congestion, commuter travel times, and transfers to transit agencies, airports and seaports in English and Spanish. 511 is also updated with information on road closures, bridge closures, and toll suspensions during emergencies such as a hurricane or wildfire.



The FL511.com website features the same information as the phone system in addition to hundreds of closed-circuit television traffic cameras, information posted on overhead dynamic message signs throughout the state, and My Florida 511 personalized services. By signing up for My Florida 511 personalized services at FL511.com, travelers can create custom routes to hear information on those routes first when calling 511. Users can even register to receive alerts via e-mail, text message, and phone call based on time of day, day of week and severity of incident. Personalized services help users know about traffic before traveling.

In the past year, travelers have provided helpful feedback through the 511 phone system and e-mails to the FL511.com website. FDOT made many improvements and adjustments based on user feedback, including:

- Users can interrupt Main Menu prompts by requesting information in English
- Spanish-speaking callers must say "Español" or press 2 during the greeting before requesting information or entering touch-tone mode



- Call center operators provide callers with additional instruction to navigate the 511 call
- A phone call tutorial was developed and placed in the main menu of the 511 phone menu; callers can say "Tutorial" at any time during the call to hear more detailed instruction on how to navigate the system
- 511 users can provide traffic reports to FDOT District traffic operators through Florida's 511 feedback function
- A new transfer is available to Tampa International Airport

One year after launching the new system, 511 has received nearly 3 million calls—a nationwide record for 511 systems! Other notable statistics include:

- 63,834 outgoing calls to personalized service users who requested phone call alerts (My Florida 511 users also have the option to receive text messages and/or e-mail alerts)
- Top Area Codes:
  - 954 – 14.3 percent
  - 305 – 12.7 percent
  - 407 – 11.7 percent
  - 561 – 11.4 percent
  - 786 – 4.9 percent

In addition to helpful feedback on improvements for the system, 511 has received praise from every region of the state.

All feedback provided about the system via the 511 telephone call or the FL511.com website is reviewed on a daily basis. Calls are made to users with specific questions about navigating the 511 interactive voice response system to assist them in getting the information they need. The overall goal of the Florida 511 program is to ensure that the system provides useful and timely travel information to the public…24 hours a day, 7 days a week.

Caller from North Florida:
"I appreciate your line and I appreciate your help. I think it's a great thing you're doing on 511 and thank you very much."

Central Florida Caller:
"Just wanted to say that this was the best idea anybody's ever come out with. It's always very accurate and the voice recognition is awesome."

Tampa Bay Caller:
"I find the system very easy to use. I simply set up my profile one time online and in a 15- to 30-second call I can get travel times and any reported crashes. It's a tremendous timesaver."

Caller from Southwest Florida: "I'd like to say this new system is outstanding. I've used some of the other 511 systems in other states and they do not compare. Well done Florida Department of Transportation."

Caller from South Florida:
"I wanted to let you guys know you're doing a great job. I really enjoy calling especially when I have to make these long drives from West Palm Beach all the way down to Homestead. Thank you for your service."

FL511.com user from South Florida:
"I visited 511 online today for first time in a couple of months. Wow, great job! It's totally revamped and is now great. This new Web site is fast and gives more info than ever. Finally, color coding gives you quick overview. Great job and thanks a bunch!"

Improvements to SunGuide® Software—Supporting Florida's Advanced Traveler Information System

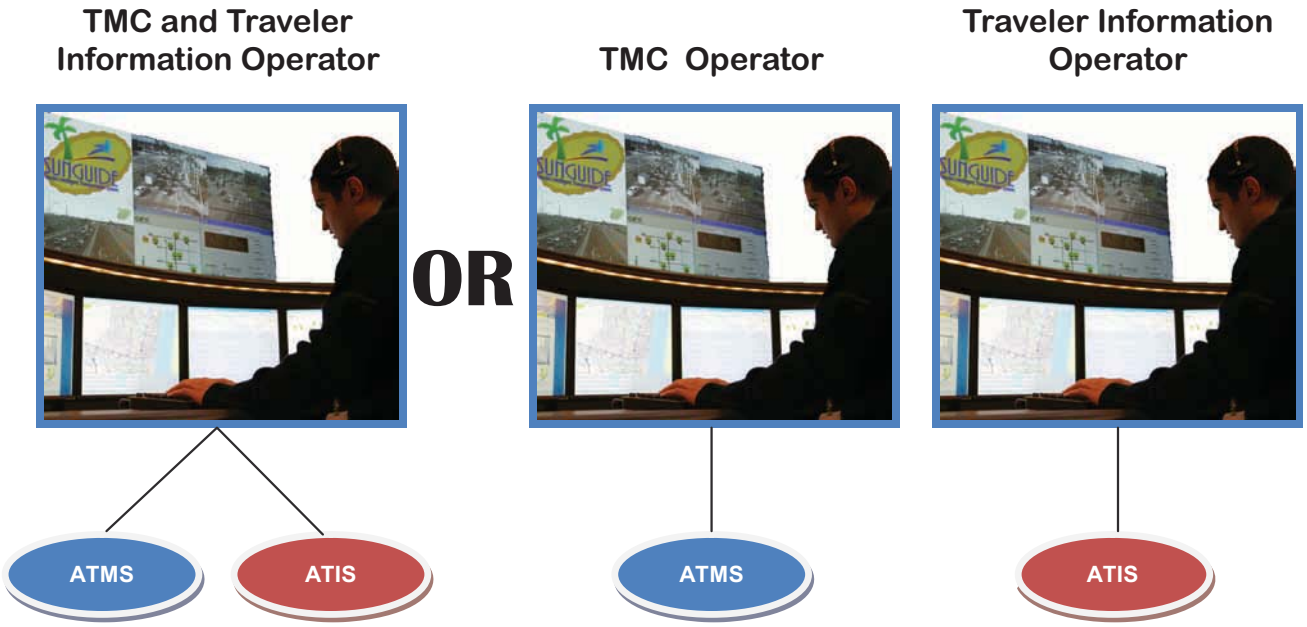
By Arun Krishnamurthy, FDOT, Erik Gaarder, PBS&J, and John Hope, PBS&J

On June 18, 2009, the Florida Department of Transportation (FDOT) officially launched Florida's Advanced Traveler Information System (FL-ATIS) to the public, providing a single, comprehensive source of traveler information throughout the entire State of Florida. The FL-ATIS provides motorists with information on current traffic conditions, travel times, emergencies, weather conditions, construction, and planned events as well as information on public transit and closed-circuit television camera images. This system also allows users to create personalized accounts alerting them of adverse traffic conditions along their personalized routes of interest. In order to accommodate Florida's language needs, all information is available in English and Spanish. Motorists can access this information by either calling into the 511 telephone service, which uses state-of-the-art interactive voice response (IVR), or by viewing a publically accessible website—www.FL511.com.

The information backbone of the FL-ATIS is the SunGuide® Software—an advanced transportation management system (ATMS) software. The unique aspect of SunGuide's support of FL-ATIS is that it provides a direct data connection between FDOT's ATMS and ATIS.

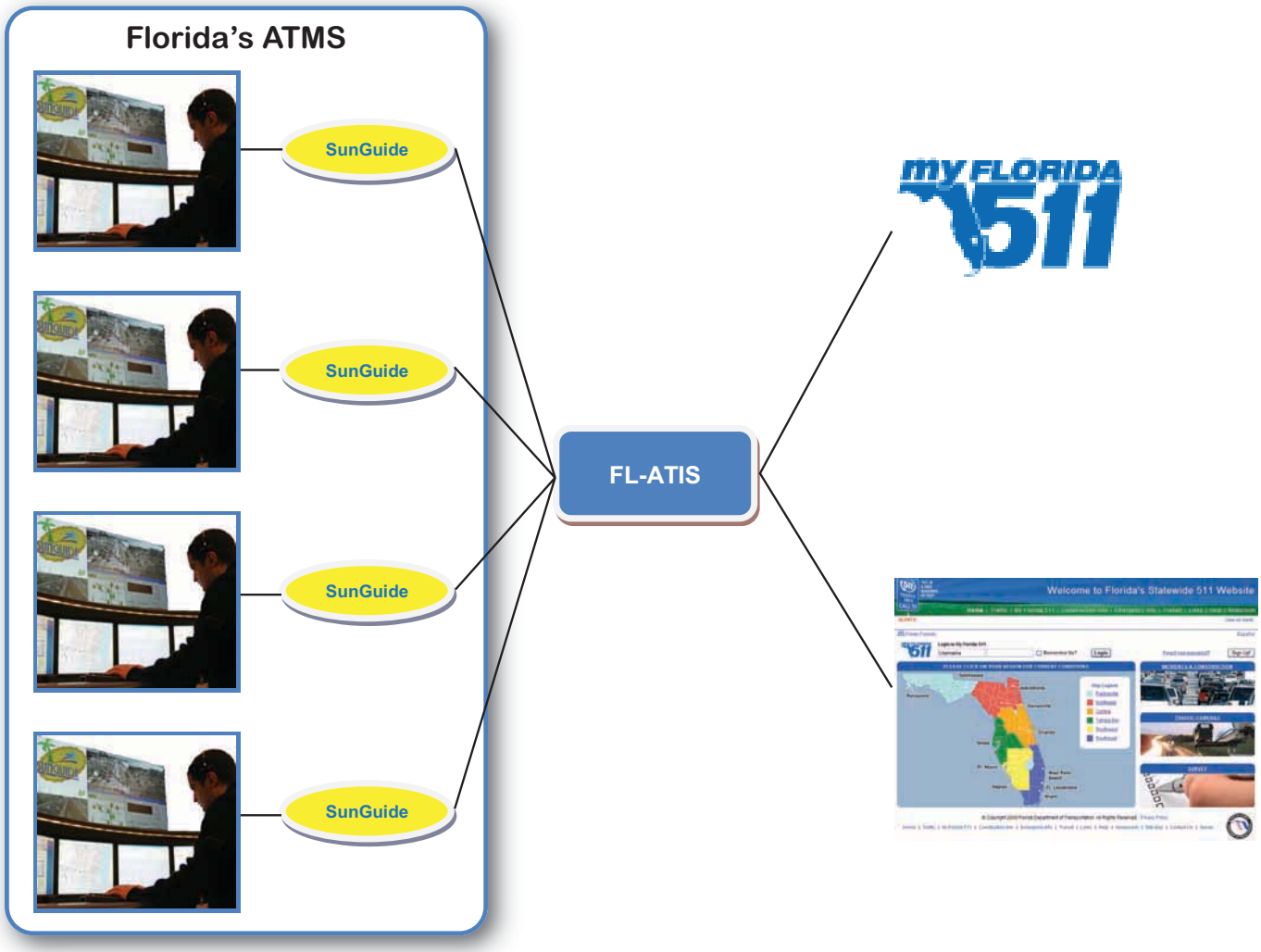
Traditionally, these two systems—ATIS and ATMS— are independent of each other. The typical design of most systems; where a single operator must duplicate information into two separate systems, or two different operators enter duplicated information into two separate systems is shown below. This design results in an additional cost to operate the system and delay as data is manually entered. It also introduces the risk of human error due to manual data entry.

Typical ATMS / ATIS Architecture



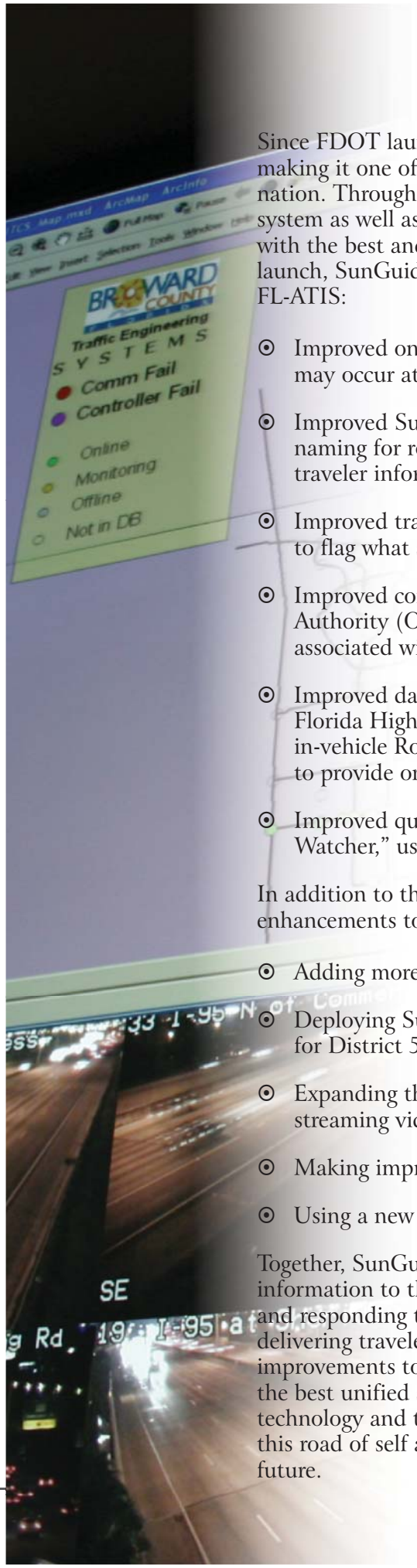
In contrast, FDOT's SunGuide has a direct connection into FL-ATIS as shown in the following illustration, eliminating duplicate efforts and reducing the possibility of reporting conflicting information.

SunGuide to FL-ATIS Architecture



In the SunGuide to FL-ATIS architecture, each SunGuide deployment connects to and provides traveler information directly to FL-ATIS. FL-ATIS receives traveler information from the regional transportation management centers (RTMC) located in FDOT Districts 1, 2 (also handling District 3), 4, 5, 6, and 7; Florida's Turnpike Enterprise (FTE); and Miami-Dade Expressway Authority (MDX). Each RTMC utilizes the SunGuide software to monitor and control traffic monitoring devices and record traffic and event conditions on a 24/7/365 basis. SunGuide is in constant communication with intelligent transportation systems (ITS) devices—receiving device status and data, interpreting this data, and presenting it to the RTMC operator in a usable format.

Beyond traffic management functionality, RTMC operators can use SunGuide to report conditions directly to FL-ATIS, thereby informing the traveling public. SunGuide software automatically provides some of the information it handles to FL-ATIS, such as travel time information and camera images. But other types of information, such as statewide alerts, traffic incidents, and alternate route information, are selectively provided to FL-ATIS as well as to dynamic message signs, highway advisory radio, and email distribution lists using SunGuide-configured response plans. This allows operators to present the information which is most pertinent to the traveling public.



Since FDOT launched the FL-ATIS, the system has received over three million calls, making it one of the most widely used 511 traveler information systems in the nation. Through the first year of operation, FDOT has been closely monitoring the system as well as tracking caller and website user feedback to provide the public with the best and most effective traveler information possible. Since the FL-ATIS launch, SunGuide has received the following enhancements to support and improve FL-ATIS:

- Improved on- and off-ramp data reporting; to better report traffic incidents that may occur at vital interchanges
- Improved SunGuide deployment consistency between Districts, including naming for roadways, camera images, and devices; to provide more seamless traveler information reporting as motorists travel to different parts of the state
- Improved traveler information management; to allow SunGuide administrators to flag what should or should not be published to FL-ATIS
- Improved connectivity between the Orlando-Orange County Expressway Authority (OOCEA) and FL-ATIS; to reduce the amount of downtime associated with communications issues
- Improved data sources feeding into SunGuide, including an interface with the Florida Highway Patrol computer-aided dispatch system and improvements to in-vehicle Road Rangers service patrol tablets to allow dispatched Road Rangers to provide on-site traffic information
- Improved quality control with the addition of a District 6 add-on called "511 Watcher," used to double-check data going out to FL-ATIS

In addition to these first year improvements, FDOT has planned future enhancements to SunGuide in support of FL-ATIS, including:

- Adding more reportable locations to increase coverage areas throughout Florida
- Deploying SunGuide to OOCEA to improve management of OOCEA roadways for District 5
- Expanding the camera image functionality by increasing the number of available streaming videos published to FL-ATIS
- Making improvements to weather event reporting
- Using a new integrated mapping subsystem to improve locating traffic events

Together, SunGuide and FL-ATIS provide a valuable tool for disseminating traveler information to the public. Much of the FL-ATIS success is attributed to listening and responding to the system user comments, examining the processes involved in delivering traveler information from SunGuide, and making continual improvements to both FL-ATIS and SunGuide in concert with each other to provide the best unified system available to the state and traveling public. Even as technology and traveler needs change and evolve, FDOT plans on progressing down this road of self analysis and continual improvement as it moves ahead into the future.

Video Aggregation Subsystem—Building on Success

By Gene Glotzbach, FDOT, and Erik Gaarder, PBS&J

The Florida Department of Transportation (FDOT) is embarking on the second phase of the video aggregation subsystem (VAS II) of Florida's Advanced Traveler Information System (FL-ATIS). FL-ATIS was recently launched on June 18th, 2009, and relies on FDOT's regional transportation management centers (RTMC) to collect traffic information, which is then sent to a central location for distribution via the "511" traveler information phone system and the www.FL511.com website. When FL-ATIS was launched it was decided that the VAS would be launched in two distinct phases. The initial phase would consist of dissemination in the form of still images, while the second phase would expand this capability to include streaming video. The VAS is a critical part of the FL-ATIS, providing the public with access to images from FDOT's statewide closed-circuit television (CCTV) cameras. Counting the seven FDOT Districts, Florida's Turnpike Enterprise, Miami-Dade Expressway Authority, and the Orlando-Orange County Expressway Authority, there are about 1,600 CCTV cameras available for distributing images. FDOT anticipates that this number will expand to more than 2,000 CCTV cameras in the next few years.

During this past year, the FDOT Central Office worked with all of the Districts to fine tune the requirements for the second phase of the video aggregation subsystem (VAS II). The FDOT then utilized an Invitation to Negotiate procurement strategy. As one might imagine, with a technical project such as this one, there were a lot of details that needed to be ironed out during the negotiation phase. Detailed discussions concerning the number of CCTV cameras to transcode, what type of hardware/software solution to deploy, and what level of resolution was desired, were all reviewed and negotiated. A few of the key details that were agreed upon were:

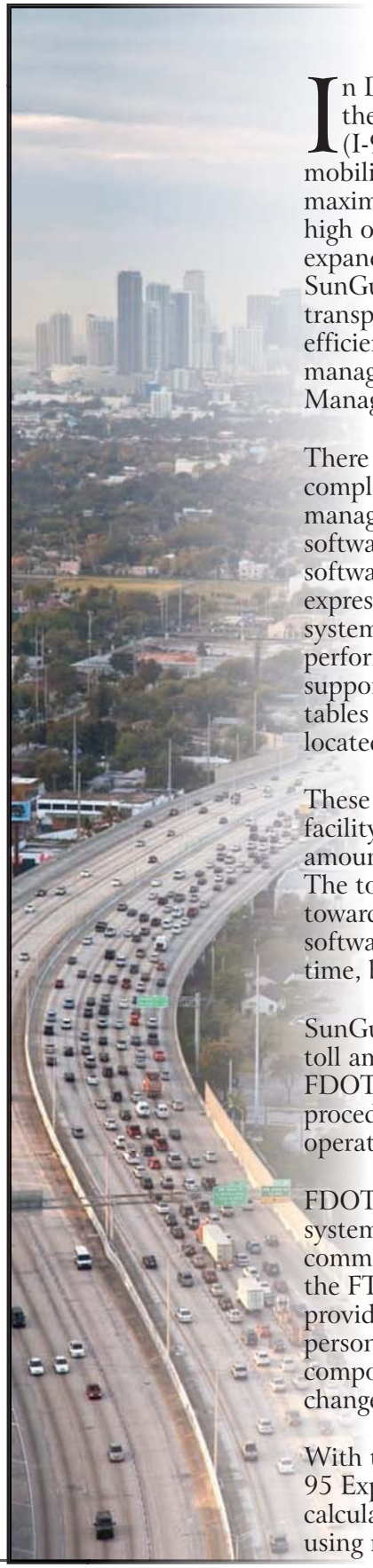
- VAS II will have the capability of supporting up to 1,140 individual CCTV video streams to 3,570 users simultaneously.
- VAS II will deploy "transcoding on demand." Transcoder servers deployed in each RTMC will be dynamically instructed by the FL-ATIS website—via a custom central on-demand transcoding software module based on the end user video stream request—to transcode 'requested' video streams. This will allow end users to view any video stream available to the transcoder servers.
- VAS II will utilize the ITS wide area network.

The FDOT selection committee, with the assistance of the procurement office, successfully negotiated the VAS II contract, which was signed on June 29, 2010. Once the Notice to Proceed is given, it is anticipated that it will take between six to nine months to develop and deploy VAS II. The VAS II contract was carefully constructed to follow a systems engineering approach and to allow flexibility to deal with any unforeseen issues. Some of the critical milestones that will be carried out include:

- Coordination with each District and creation of integration plans
- Preliminary and critical design reviews
- Factory acceptance testing and independent verification and validation

This second phase of VAS will build upon FL-ATIS' ongoing successes. With VAS II, FDOT will further cement Florida's spot as a leader in intelligent transportation systems.

SunGuide® Software Evolution—Supporting 95 Express



By Arun Krishnamurthy and Rory Santana, FDOT

In December 2008, the Florida Department of Transportation (FDOT) launched the first phase of 95 Express, covering a seven-mile segment of Interstate 95 (I-95) in each direction. 95 Express is a congestion management tool to improve mobility on I-95 and employs managed lanes to increase freeway efficiency and maximize existing traffic capacity by using various operational strategies, including high occupancy toll lanes. The second phase, currently undergoing design, will expand the system to 22-miles in each direction. The 95 Express, which uses the SunGuide® software, has received significant recognition by the public as well as the transportation industry for benefits provided to motorists in improving safety and efficiency along this facility. SunGuide software is an advanced transportation management center (TMC) software used in collaboration with the Express Lanes Manager (ELM) software to operate the 95 Express facility.

There have been limited express lane deployments in the country due to their complexity. Additionally, they are different from the conventional congestion management tools traditionally used. As a result, there is not much guidance for the software functionalities that needs to be included. Prior to utilizing SunGuide software for the express lanes, SunGuide already had support for the entire array of express lanes features, including providing control for intelligent transportation systems devices, Road Rangers dispatch and monitoring, incident management, and performance measures reporting. The SunGuide software was further modified to support 95 Express operations by adding variable time-of-day toll rate management tables and coordination of the toll rate signs, gantry signs, and lane status signs located along the express lanes.

These electronic signs display current toll rates at the approaches to the 95 Express facility. The toll rate tables within the software have a comprehensive set of toll amounts for the different times of day, days of week, and events such as holidays. The toll rates vary over time. It is important to ensure that a motorist traveling towards the facility sees the same rate at all times and is charged that amount. The software built in delay so all of the toll rate display signs do not update at the same time, but update based on the time it takes for a motorist to travel between signs.

SunGuide also has the capability to stop tolling or override automatically generated toll amounts if there is a crash on the general purpose lanes or the express lanes. The FDOT District Six SunGuide TMC in Miami has a comprehensive operating procedure to deal with various events or incidents that may affect the express lanes operations.

FDOT takes advantage of the existing Florida's Turnpike Enterprise (FTE) tolling system which is used to charge motorists using the express lanes. SunGuide communicates the toll amounts displayed on the 95 Express lanes in real-time with the FTE's tolling system. FTE continues to manage the SunPass® accounts and provides customer service to the toll facility users. The FTE's customer service personnel use another SunGuide application, Toll Viewer, a web-based browser component, to access events and toll rate information in order to evaluate toll price changes and respond to customer questions.

With the development of an additional software—Express Lanes Manager (ELM)—95 Express introduced dynamic tolling capability. To generate dynamic tolling, ELM calculates toll amounts based on real-time traffic conditions along the express lane using nationally accepted techniques described in Highway Capacity Manual. ELM

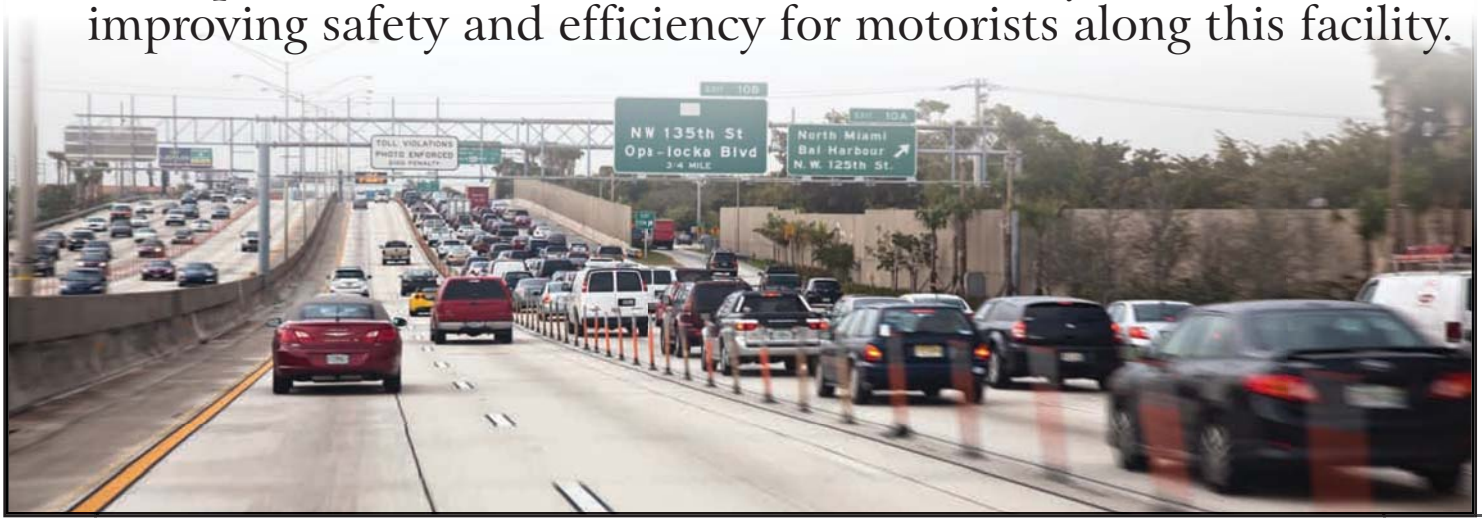
configures the dynamic pricing formula to provide the maximum throughput—generally providing speeds greater than 45 miles per hour. ELM processes traffic data every 15-minutes to dynamically change the toll rate based on traffic density. ELM also provides additional functionality to monitor traffic along the entire express lanes corridor, view historical traffic, monitor detector status, and track express lane operator actions.

With the future expansion of the 95 Express lanes, FDOT anticipates that this project will help further reduce congestion and improve safety. SunGuide, along with ELM, continues to evolve to support the 95 Express—using innovative processes, such as dynamic toll pricing, which is not common with other express lane projects across the nation. These software systems, supporting the 95 Express, continue to "push the limits" and provide functionalities that allow this project to be unique and progressive.

It's not by mistake that the 95 Express, with the help of SunGuide, is receiving public and transportation industry recognition. The 95 Express has proven its worth through benefits provided to motorists, such as:

- Average speed difference between express lanes and general purpose lanes – 15 to 20 mph
- Person throughput increased 12 percent
- Incident duration before and after reduced by 50 percent through better incident management strategies
- Transit ridership increased 30 percent
- Transit travel time reduced by 68 percent

With the addition of the second phase coming on-line in 2012, 95 Express will add another 15-miles to the system, further improving safety and efficiency for motorists along this facility.



WiFi® Hotspots in Florida— A Popular Traveler Service and More

By Randy Pierce, FDOT, and Brian Kopp, The Semaphore Group

FDOT Welcome Center.

The Florida Department of Transportation (FDOT) initiated the WiFi® pilot project two years ago to provide wireless internet access to travelers. The project has been fully deployed now for over a year. Using this wireless broadband service, travelers on Florida's interstate highways and toll roads have internet access at eight different FDOT locations and have logged on to the internet more than 65,000 times! The project includes stationary WiFi hotspots at four welcome centers and one Turnpike service plaza as well as a mobile WiFi hotspot trailer—deployed and tested at three rest areas to date.

This pilot project is continuing to yield valuable information on what a statewide FDOT WiFi system should entail. In particular, the mobile WiFi hotspot trailer, which was first deployed last year, has shown that there is a high level of traveler interest in WiFi internet access at rest areas. The highest daily usage statistics recorded for the project so far, more than 100 log-ins in one day, have been at a rest area that does not have any right-of-way signage indicating that the service is even available.

The mobile WiFi hotspot trailer has also proved to be a valuable asset in several other ways. Its array of equipment includes video cameras that can monitor traffic as well as emergency events. It is equipped with voice radio capabilities, a resource used during the trailer's deployment in support of the Florida Department of Emergency Management's "Operation Radar"—a communications interoperability exercise that took place earlier this year. The WiFi trailer uses a sophisticated mobile satellite system to link to the internet making it a strategic asset as well. FDOT also considered using the trailer in a unique deployment to monitor flood conditions at an I-10 bridge in a rural area not equipped with closed-circuit television (CCTV) cameras. Most recently, in late June 2010, the mobile WiFi hotspot trailer was deployed to Panama City to support the effort to protect Florida's coasts from the Deep Horizon oil spill.

The success of the WiFi pilot project and the initial data that gathered has led the FDOT to approve extension of the project for an additional two years. This extension will allow a popular program to continue while permitting additional research on how best to deploy a statewide FDOT WiFi system for travelers.

WIFI Hotspots: The Current System

The current WiFi pilot project operates at Florida's welcome centers on I-10, I-75, I-95, and US-231 as well as at the Turkey Lake Service Plaza on the Florida Turnpike and on the FDOT mobile WiFi hotspot trailer. These installations include a broadband internet link either by a satellite link or, in the case of Turkey Lake, a digital subscriber line (DSL) link. Due to their remote locations, satellite links are necessary at the welcome centers.

While at any of these locations, travelers can use their laptops and personal digital assistants (PDA) to access WiFi hotspot equipment through a satellite or DSL connection. The log-in process requires the traveler to browse first to an FDOT home page and then to the internet. The process behind the scenes is complex and involves a connection to a remote computer server where firewall protections are in operation and log-in statistics are gathered to control access.

When travelers log in with their laptops and PDAs they are first greeted with the FDOT welcome page and can navigate in a "walled garden" that allows them to check the weather and traffic before browsing to the internet. Access is free, but timed for a maximum of 90 minutes. After that, each traveler must wait two hours to gain access again. This is intended to encourage travelers to resume their journey.

The operation of the FDOT home page computer server and the operation, monitoring, and repair of the entire system are performed by the contractor who installed it for the FDOT—ZOOM Information Systems. ZOOM monitors the status of the network and is responsible for correcting any service outages within 48 hours. In their oversight role, the FDOT receives daily and weekly system status reports.

ZOOM audits the occasional system outages—generally attributable to either weather effecting the satellite service or internet network equipment needing to be reset. These anomalies provide valuable information on how to design and configure equipment for a future statewide deployment.

Traveler acceptance of the FDOT WiFi service has been steady. Since being fully deployed, the overall system usage has been consistent at approximately 700 total log-ins per week for all six hotspots (including the trailer). The survey results continue to provide interesting data about the way the system is used. Among travelers who access the WiFi hotspots 42 percent are tourists, 31 percent are commercial truckers, and 15 percent are commuters. Checking email is the number one reason travelers log on, by a factor of 2-to-1 over any other reason. This may explain why most travelers indicate that they only expect to stay online for 5-15 minutes. While the number of log-ins to date is a positive indication of traveler acceptance of the system, the survey also indicates acceptance with 91 percent of travelers rating the system as "extremely useful."

WiFi Hotspots: On the Move

Since mid-2009, the mobile WiFi hotspot trailer has added a different dimension to the system. It offers the same internet service to travelers that they find at the welcome centers, and travelers cannot tell the difference. However, "behind the curtain" there is a sophisticated communications system providing this mobile internet access. First, a motorized satellite antenna system automatically tracks the satellite that provides the internet service. There is a state-of-the-art remote monitoring system that monitors for equipment failures, high temperatures, and even when the door on the WiFi trailer is opened. These alarms are reported in real-time via satellite to ZOOM, who monitors the system continuously.

FDOT District 2 Radio Shop Personnel Deploying the Mobile WiFi Trailer.

Beyond communications, the trailer also has a video surveillance pod that includes three CCTV cameras offering pan-tilt-zoom capability and remote viewing through the internet. This feature has been used to monitor the area around the trailer and has been considered for use in unique applications, such as interstate bridge flood monitoring. The equipment on the WiFi trailer was specifically designed as a "set and forget" system, allowing installers to set it up and walk away, leaving the trailer to provide internet access unattended. This has proved to be a valuable feature.

In support of its primary mission, the FDOT deployed the WiFi trailer at three rest areas, one each on I-75, I-95, and I-10, to collect data on traveler interest in this service. The statistics have been impressive. At all three sites, the trailer outperformed the WiFi hotspot service offered at all of the welcome centers and the Turnpike service plaza. These mobile deployments included temporary signage placed on the public buildings within the rest areas, but unlike the welcome centers, there is no indication on the roadway that there is WiFi service within the rest area.

The Mobile WiFi Trailer Deployed for Operation Radar at Camp Blanding in January 2010.

In January 2010, the mobile WiFi hotspot trailer demonstrated yet another capability when it was used to support the Florida Department of Emergency Management's field exercise—"Operation Radar." During this exercise, conducted at Camp Blanding, the mobile WiFi hotspot trailer was collocated with emergency communications vehicles from the Florida Department of Health, the Florida Department of Agriculture, the American Red Cross, the Department of Homeland Security, and the Federal Emergency Management Administration. Several of these agencies reported that they used the FDOT mobile WiFi hotspot service in conducting their exercises. In addition, the Florida Department of Management Services used the WiFi trailer to establish a "bridge" connection to the State Law Enforcement Radio System, allowing their personnel to talk over the radio system via a laptop connection.

During Operation Radar, the FDOT also verified that the mobile WiFi hotspot trailer has the capability of serving as a mobile voice radio station. In the event of an emergency, FDOT voice radios on the trailer could communicate with FDOT road crews and nearby yard facilities, creating an on-scene command post capability should a District need it.

The most recent demonstration of the extraordinary capabilities of the mobile WiFi trailer is in its ongoing support of an emergency request by Bay County, Florida, to use the trailer video cameras to monitor the St. Andrews Bay inlet at Panama City. Construction of a barrier across the inlet is underway in an effort to keep oil from the Deep Horizon oil spill out of the Bay while permitting ship traffic to pass through. The Bay County Traffic Management Center (TMC) made the emergency request to place the trailer next to the inlet so they can monitor the construction and subsequent operation of the barrier in real-time. The St. Andrews inlet is flanked on both sides by a Florida state park that has little infrastructure. The self-contained, set-and-forget design of the FDOT mobile WiFi hotspot trailer made it ideal for this application. Responding to the emergency request, FDOT relocated the trailer from Lake City to Panama City, deployed it at the state park, and established the internet-based video feed at the Bay County TMC, all within just a few days.

WiFi Hotspots: The Future

Recently, the FDOT decided that this valuable pilot project should be extended beyond its initial end date of August 2010. This service is popular, but also a valuable service to our state's travelers. It helps by providing needed information about road conditions and weather and ensuring travelers remain safe drivers by offering a good reason to take a needed rest; it may also help to deter drivers from texting while driving if they know they can stop and easily enjoy free internet access.

Extending the pilot project will also allow the FDOT to continue gathering traveler acceptance data by deploying the WiFi trailer at additional rest area sites as well as other types of sites. After supporting efforts in Panama City, FDOT will likely deploy the mobile WiFi hotspot trailer at a weigh-in-motion (WIM) station. There is interest in shifting truck traffic from overcrowded rest areas to the available parking at WIM stations. It is thought that deploying the WiFi trailer might encourage some truck drivers to rest at these locations. If it is successful, then a future statewide deployment may include WiFi hotspots at WIM stations.

The WiFi pilot project extension will also permit the FDOT to investigate ways to save money on the operational costs of the WiFi system by leveraging the existing FDOT communications networks. One of the most expensive aspects of operating the WiFi system is supporting the satellite service that brings internet access to each welcome center. The FDOT would like to investigate connecting the welcome centers to the internet via nearby FDOT radio towers. This "last mile" wireless link would permit the FDOT to provide an internet connection directly to the welcome centers by transporting it over their own communications network, thus circumventing the need for individual satellite links at each welcome center. Such an approach would save operational costs and also improve performance by eliminating the weather-related vulnerabilities associated with satellite internet services.

Additionally, the FDOT would also like to explore ways to save money on operational costs by involving interested third parties who want to advertise. One such possibility is to sell WiFi hotspot sponsorships to travel-related vendors. The Federal Highway Administration recently defined acceptable right-of-way sponsorship signage for WiFi systems at rest areas in Kansas. These signage locations are very valuable and there is some indication that travel-related vendors might be willing to finance the cost of installing and operating WiFi hotspots at rest areas here in Florida, in exchange for a right-of-way sponsorship sign at the approach to each WiFi equipped rest area. In these economically difficult times, this may be a very strategic and cost-effective way to deploy WiFi internet access for travelers on a statewide basis in the near future.

FDOT's Highway Maintenance Radio System—Providing Statewide Connectivity

By Randy Pierce, FDOT, and John Hogan, RCC

Since 2004, the Florida Department of Transportation (FDOT) has been constructing a statewide 47 MHz repeater radio system to augment the existing yard channels that have been in use since the mid-1950s. The new repeater system is designed to provide mobile-to-mobile communications across each District while utilizing the existing mobile radios in the FDOT vehicles. With the yard channels, mobile-to-mobile communications was limited to a few miles and the height of the yard tower governed mobile-to-yard communications. When the new repeater system is complete, a mobile radio will be able to talk to any other mobile radio, or yard, from anywhere within a District.

Leveraging the motorist aid call box system tower and microwave infrastructure makes communications across an entire District possible. Radio repeaters were located at key tower sites and tied together using the microwave system. Within each District, a device called a voter performs the final connection and ties the individual radios together into a network. If the voter fails or the microwave fails, each repeater falls back to stand-alone mode and communications can continue within the local area.

To date, projects to provide repeater communications to Districts 1, 2, 3, 4, and 6 are complete. The District 7 repeater system is currently in process and the contract to build the District 5 repeater system has just been executed.

However, the motorist aid call box system that the repeater system depends upon only exists along the interstate system and areas off-interstate may experience poor or no coverage. Though the repeater range is excellent at 47 MHz, it's not enough to cover all areas and "fill" sites will be needed. FDOT will address these sites after work in District 5 is complete.

Filling the Gaps

The Panama City site in District 3 provides a good example of a fill site added during construction. This site is part of Florida's Statewide 800 MHz Law Enforcement Radio System (SLERS) and, based upon sophisticated radio propagation analysis, would provide excellent coverage for units operating in the area. Through an agreement with Harris Corporation, the operator of the SLERS, the FDOT installed a 47 MHz repeater on the tower and uses the SLERS to carry the radio audio back to the Florida Highway Patrol (FHP) in Tallahassee, the site of one of the FDOT's motorist aid call box systems. FDOT receives the audio from the Tallahassee FHP, which is then carried over their microwave system to the voter located at Chipley.

Other identified gaps including:

- Sopchoppy/Carrabelle area along Highway 98 in District 3,
- Perry and Chiefland area along US-19/27 in District 2, and
- Bartow in District 1.

At these locations, long-range wireless point-to-point links must be established to the nearest microwave tower site to tie the repeater into the network. The FDOT successfully deployed such links to replace unreliable and expensive telephone interconnect circuits in the Florida Keys, with path lengths of more than 34 miles.

Because the motorist aid call box system operates along the very western and southern portions of District 1, a great deal of area around Lake Okeechobee is not covered. The FDOT has been working closely with the South Florida Water Management District (SFWMD) to arrive at a resource-sharing partnership that would allow the FDOT to utilize SFWMD towers and microwave system to provide fill sites.

What Else is Happening?

Besides filling the coverage gaps, the FDOT is working on a solution to allow for internet protocol (IP) based communications with the 47 MHz repeater radio system. This radio over IP (RoIP) solution will enable the FDOT to tie two or more Districts together for interoperability purposes. Furthermore, once the IP infrastructure is in place, communications with the State Emergency Operations Center, or any other location with network connectivity to the motorist aid call box system, will be possible.

A new project that is just about to start is the conversion of the repeaters from AC to DC power. All of the FDOT's microwave sites are equipped with DC-power battery systems that provide for more than eight hours of continuous operation. With the project to deploy emergency generators at all microwave sites nearly complete, the FDOT is now upgrading the repeaters with DC-power supplies and connecting them to the DC-power battery system. This conversion should greatly improve system reliability, as the repeaters are isolated from the commercial AC-power grid.

Available When Most Needed

The 47 MHz repeater radio system is coming at a very opportune time. With the elimination of cell phones throughout the FDOT, more users are requesting installation of 47 MHz radios. District-wide communications made available by the repeater system will diminish the negative effect of the loss of cellular communications. Furthermore, with the hardening of the infrastructure and the redundancy built into the motorist aid call box microwave system and repeater system, the FDOT's critical communications during a major event, such as a hurricane, can more readily be handled by the repeater system. Since cellular systems tend to fail or their networks become overly congested during a major event, this is a positive answer to critical communications.

The FDOT is committed to the 47 MHz repeater radio system, as evidenced by the recent approval of a legislative budget request to purchase new 47 MHz radios to begin the process of replacing the old stock of mobile radios. Right now, the FDOT's primary focus is to complete the last major build-outs in District 5 and 7 by the end of the year and continue to work on finding facilities to fill the gaps in the repeater system. Other projects, such as the RoIP system and the DC-power conversion are also high priority and in progress.

The ITSFM Continues to Evolve

By Randy Pierce, FDOT, and Tim Sapp, Telvent

The Intelligent Transportation Systems Facility Management (ITSFM) continues to evolve as more users embrace the benefits of implementing this tool. Facility management systems are a proven technology used to manage complex networks. The ITSFM is a statewide geographical information system (GIS) web-based application hosted by Byers Engineering Company (Byers) and managed by the Florida Department of Transportation (FDOT) Intelligent Transportation Systems (ITS) Program. The purpose of the ITSFM is to provide a centralized and collaborative tool, designed to manage ITS assets and the connectivity of the communications and electrical subsystems supporting ITS field equipment. The ITSFM tool allows FDOT to compile network asset information into a single, graphical and tabular database so the Districts and Central Office can manage the entire system; it also ensures proper planning for future growth and funding availability.

Implementation Update

Since many Districts share fiber optic assets with regional partners to connect outlying areas or to provide redundant communications routes, the FDOT has made the ITSFM available to these partners to manage their ITS assets. Currently, Pinellas County and the Miami-Dade Expressway Authority (MDX) are implementing ITSFM in their regions.

The FDOT Central Office works closely with the Districts and regional partners to support this statewide implementation. Several users are well underway with implementing the ITSFM:

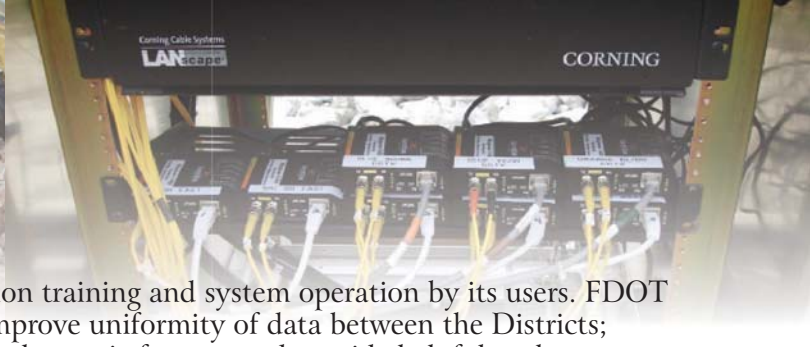
- Districts 2, 6, and 7 have contracted with local consultants to collect and populate their facilities into the application.
- District 3 will have the Design-Build-Operate-Maintain (DBOM) contractor implement the Pensacola system.
- District 1 is working with the Central Office ITS Program for data collection training and support as the first step to their implementation.
- Pinellas County is in the data collection mode using in-house resources.
- MDX has contracted services to provide field survey and data encoding to implement a fully operational system.

Data Management

A large amount of data will populate the ITSFM, so data collection and entering the data into the system utilizing predetermined standards to provide maximum functionality from the application is critical. These standards allow users to view specific data, and filter out unwanted data in graphical and tabular views and reports. The ITSFM includes feature tables based on these standards that provide predefined text in the drop-down menus to ensure misspelled words such as the manufacturer name, equipment type, and model of an ITS device will not adversely affect queries and searches.

Maintenance of the standards and feature tables must be performed on a routine basis. As deployment of ITS expands throughout the state, new device types and equipment manufacturers must be added to the application. The Central Office ITS Program, working with the Districts and regional partners, is responsible for updating the standards and feature tables and for creating new features needed to support new types of ITS field equipment. New device types being added this year include:

- Ramp meters
- Electronic feedback speed signs
- Roadway weather information systems
- Cable barrier warning systems
- Trail blazer signs
- Warning beacons
- Highway advisory radios



Focus on Training

Currently, the ITSFM focus is centered on data collection training and system operation by its users. FDOT developed the ITSFM Data Collection Guidelines to improve uniformity of data between the Districts; explain the importance of high quality as-built plans in electronic format; and provide helpful tools to support the documentation of asset information. These guidelines discuss data sources, such as the as-built plans, both electrical and communication configuration schematics; custom developed ITSFM attribute forms; and maintenance records needed to populate the application. Districts 1 and 7 received the guidelines and provided comments, which were incorporated.

FDOT is also updating the user training courses to focus on the user ITSFM operational with less emphasis on the available functions resident in the application. This training is structured based on the different types of users (i.e. managers, maintenance personnel, and ITS engineers). All training will be hands-on, where the learner receiving training on the live system. The curriculum will include executing multiple scripts and queries to obtain the information needed to answer the question or to resolve the issue. The training follows a progressive format that focuses on the needs of the different type of users, so mangers will attend for a period of time then be excused; maintenance staff will continue for an additional period of time, and so forth. After interviewing District staff to define their operational needs at the local level, these needs will then be incorporated into the curriculum.

ITSFM Upgrades

Byers' continues to enhance the core ITSFM application with new releases planned though the end of this year. Some of the enhancements include:

- Improved fiber break functionality to allow renaming of logical connectors without lose of associations.
- Addition of user audit reporting interface to query user edits by user, type, date, etc.
- Fiber trace enhancements to allow the user to launch a fiber trace from a record in the splice details report and specify the direction the user wants the trace to run.
- Addition of the Delete Features-By-Query to allow users to delete certain feature from the query results table. This will be helpful to delete features such as unwanted GPS_POINT, etc.
- Ability to output the splice details report to a printer or export to a portable document format file for viewing outside of the application and improved representation of port to port connectivity.
- Addition of path reporting to allow users to query all fiber paths and their opposite end point from a single splice case in the network.
- Several enhancements to the connectivity manager , including:
    - Source-By-Sequence to allow the user to set source by sequence;
    - Clear-All-Splices, allowing the system to clear all splices associated with a network path; and
    - Presentation of the binder number and colors, along with strand colors, in the dialog.

Looking Ahead

The Central Office ITS Program supports the ITSFM statewide implementation and has the following activities planned:

- Update the ITSFM application to support new ITS field devices.
- Develop a statewide contract with Byers Engineering Company for inventory and data encoding.
- Conduct ITSFM data collection training classes with the remaining Districts.
- Develop user training courses focused on the operational needs of the users.
- Continue on-going support to the Districts and regional partners.

SunGuide® Software Customer Service

Arun Krishnamurthy, FDOT, and David Chang, PBS&J

SunGuide® software is a critical part of the day-to-day operations at Florida's transportation management centers (TMC). SunGuide is an advanced traffic management systems software used to manage roadside intelligent transportation systems devices and incidents on Florida's interstates. As with any software supporting traffic operations, reliability and efficiency are paramount. SunGuide plays an important role in achieving the Florida Department of Transportation's (FDOT) objective of reducing incident clearance time. Any delay in the software actions results in subsequent distress for travelers on the roadways and potentially longer periods of congestion.

SunGuide software was developed and continuously enhanced over a period of seven years to provide more functionality to the TMCs; as a result, the software has grown to approximately three million lines of code. With software of this complexity and importance, prompt support is critical and sometimes challenging. Based on general industry guidelines, typical software support and maintenance costs range from 50 to 70 percent of the total lifecycle cost. As a result, it is important to understand the software needs and propose a support structure that fits these needs. If the software support were overstaffed, the FDOT would pay more for support than required. However, if the support is understaffed and under-budgeted, there is a possibility that critical issues may not be addressed in a timely manner resulting in software downtime and TMC operators unable to perform their duties.

The SunGuide Software project places high importance on the timeliness of software support. The FDOT Central Office procures and manages the software project. Based on input from the software users, the current support includes the following features:

1. The software support is easily reachable via web and phone.
2. The support staffing includes a mix of on-site and remote staff. The support is available 24-hours a day and 7-days a week.
3. The software support not only includes resolution of defects, but also includes updates or enhancements to minimize downtime and address the changing needs of the users.

It is critical to provide quick response on software support issues. If support wait times run for several days, the user would encounter continuous inconveniences and frustration. The SunGuide project places an emphasis on identifying issue responses. The current contract clarifies expected support response times for software issues. The FDOT requires the contractor to respond to:

- Software failure issues within one hour,
- Issues pertaining to software configuration and defects within one day, and
- Enhancements within three days.

This translates to shorter wait times to resolve software issues and should increase TMC operator's productivity.

FDOT tracks software issues using a web-based issues tracking tool—FootPrints—that allows users to enter issues, and support staff to respond to and collaborate on issue resolution. As FootPrints tracks software issues, FDOT has the ability to measure the software contractor's performance and statistics. FDOT can use this measurement data to further refine the processes used and effort spent.

Software support is part of the software lifecycle and it is important to keep the software usable and efficient. With significant cost to maintain software, it is important to understand and meet the goals and objectives for this effort. SunGuide Software places emphasis on the response time on issues as the software supports TMC operations. The FDOT has developed a comprehensive plan for software support to ensure that the user's issues are dealt with in a timely manner.

FDOT-TERL Completes Infrastructure Improvements—It's Built – Now Let's Use It!

By Trey Tillander and Jeffrey Morgan, FDOT

If you were at the Florida Department of Transportation's (FDOT) Traffic Engineering Research Lab (TERL) anytime within the last year you would have heard or seen contractors busy at constructing one of two infrastructure improvements being made at the test facility. Fiscal year 2010 started midway into the transformation of the TERL's old Traffic Operation's Shop into a state-of-the-art traffic control signal and device Certification Laboratory, and ended with the completion of the second of two badly needed test intersections. With the addition of the Intelligent Transportation Systems (ITS) Product Approval Program in 2006, and the increased responsibilities that came along with that endeavor, the TERL needed updating… and got it!

FDOT update the TERL to support their goal of ensuring that only a safe and uniform traffic control system is implemented in the State of Florida. The TERL plays an important role in achieving this goal by evaluating and certifying traffic control signals and devices to meet FDOT requirements as required in Florida Statute 316.0745 - Uniform Signals and Devices. FDOT accomplishes this stated goal by utilizing a broad variety of activities and specialized testing infrastructure.

FDOT-TERL's Newly Renovated Certification Lab – Open for Business!

The first improvement project included transforming the 1960s-era Traffic Operation's Shop building, located in the TERL's back yard, into a state-of-the-art traffic control signal and device Certification Laboratory. From the 1970s to the 1990s, the old building housed the Statewide Traffic Operations Signal Shop. With the changes brought on by FDOT's decentralization in the 1980s, FDOT reduced the use of the building to miscellaneous purposes such as equipment storage, etc. The building was showing its age and was not ready to meet the challenges presented by the evolving transportation technologies that vendors were presenting to the lab for testing.

Traffic Signal Cabinet Test Area

Before ***After***

To meet the current and future technology needs, the FDOT developed project requirements, procured a design-build team, and completed construction plans to update the old shop building. FDOT testing staff designed the building layout to be as functional as possible. Project construction began on February 25, 2009, and was completed within budget in October 2009. The FDOT Support Services Office managed the project. Some features of the newly renovated Certification Lab are:

Light Testing Tunnel

Before ***After***

- Traffic signal cabinet test area;
- ITS and uninterruptible power supply cabinet test area;
- Traffic signal controller and ITS device (i.e, cameras, vehicle detectors, etc.) test work benches;
- Device and sign mounting hardware evaluation area;
- Light testing "tunnel" to test illumination intensity and color spectrum of traffic signals, pedestrian signals, flashing beacons, electronic message signs, lighted street name signs, warning lights, etc.;
- Delineated shipping and receiving areas;
- Secure storage room for tools, test equipment, etc.;
- Storage for approved traffic control device products;
- Two loading docks – one for large trucks and one for small trucks;
- Secure storage and charging area for outdoor platform lift vehicle; and
- Four outdoor concrete slabs with power and communications for testing large electronic message signs and portable devices.

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

To complement the newly remodeled Certification Lab (and existing span-wire intersection, which was upgraded in late 2007 to include new span wire [both single and dual-point] and all signal and signal hardware), the TERL embarked on another test intersection construction project to meet the needs that had risen due to the extensive use of mast arms within 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 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 needs for safe and controlled testing within an intersection, the FDOT Research Center funded the design and construction of a new mast arm intersection. This intersection includes all mast-arm related signal hanging devices, an ITS pole, and a curbed roadway with pedestrian and bicycle features. The project consisted of a two-lane, four-way intersection with a bike lane, sidewalk, and a mid-block crosswalk. The FDOT State Roadway Design Office produced the construction plans and project construction began on September 25, 2009. FDOT District Three Midway Operations managed the construction and completed the project on schedule and within budget on July 1, 2010.

The new mast arm intersection complements the existing span wire intersection by allowing the evaluation of mast arm-related devices and attachment hardware that cannot be tested on a span wire setup. As with the span wire intersection, the mast arm 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.

Mast Arm Intersection

Before ***After***

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
- Fifty-foot ITS pole with camera lowering system
- Fiber optic interconnect with span wire intersection
- Single and dual post sign structures with communications and power

These completed infrastructure improvement projects will allow the TERL to meet the current and future needs of the FDOT traffic control signal and device certification program. Due to the growth of Florida's transportation system and continuing technology innovations, the FDOT Approved Product List 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 enhanced Certification Lab and new mast arm intersection (and upgraded span-wire intersection) will enable. This infrastructure enhancement is a significant contributor to the TERL's mission to provide a safe and uniform system of traffic control signals and devices to the traveling public of Florida.

For all of the improvements listed in this article, much appreciation goes out to the FDOT Research Center, State Roadway Design Office, District Three Midway Operations, FDOT Support Services, and the contractors (Southland Contracting, C.W. Roberts, and Ingram Signalization) for their significant contributions to these successful projects!

SunGuide® Tackles Roadway Clearance by Facilitating Traffic Incident Management

Arun Krishnamurthy and Paul Clark, FDOT, and Clay Packard, PBS&J

Effectively detecting, responding to, and removing traffic incidents—and restoring traffic capacity—are the primary benefits of efficient traffic incident management. The key to realizing these benefits lies in the Florida Department of Transportation's (FDOT) and Florida Highway Patrol's (FHP) Open Roads Policy to clear the roadway within 90 minutes after a crash or incident. This policy for quick clearance helps prevent congestion and secondary crashes. SunGuide® Software plays a critical role in implementing this policy—from detection, dispatch, and dissemination during an event to reporting performance measures that ensure continuing improvement.

Detection

SunGuide® Software integrates several systems to help detect incidents. Speed, volume, and occupancy sensors can alert traffic management operators of any congestion caused by an incident. VisioPaD, a video-based automatic incident detection system, uses existing, live roadway closed-circuit television camera video streams to identify incidents and accidents on roadways. Road Rangers patrol and locate incidents, which they report to the transportation management center (TMC), using computers integrated with the SunGuide Software.

Dispatch

Typically, responding to a detected incident is a coordinated effort between FHP and FDOT Road Rangers as well as a potential host of other responders, including tow trucks, fire and rescue, hazardous material clean-up crews, and ambulances, to name a few. In most situations, FHP takes the lead role in directing on-scene operations of all responders present, investigating the incident details, and writing the official report. The FDOT Road Rangers are responsible for assisting FHP in any way possible with a specific focus on clearing any blockage from the roadway and reporting time-stamped incident data for all responder activity to the TMC operator. FHP typically determines if there is a need to call other resources into action; if they are needed, their activity data is entered into SunGuide by several different possible ways. The TMC operator is the primary person responsible for updating the SunGuide with event data; however, many Road Rangers use global positioning satellite (GPS) enabled, wireless connected, tablet computers to enter some of the event data directly into SunGuide from their vehicles.

Additionally, FHP's computer aided dispatch center is capable entering data collected from the on-scene officer into SunGuide. When the FHP dispatcher enters data in SunGuide, the TMC operator reviews this data and accepts it into the event. The TMC operator collects this information to dispatch the Road Rangers to the appropriate incidents and help to effectively manage the Road Rangers for the entire roadway or FDOT District. The information collected by the TMC operator is also used within SunGuide to provide helpful messages to travelers. Finally, this data provides very useful information to create reports that show the benefits of having a well-managed traffic operations program.

Dissemination

After detecting the incident, and throughout the management and reporting process, SunGuide creates a response plan to disseminate information about the incident. SunGuide delivers this information to motorists by dynamic message signs, highway advisory radio, email, text message, and the www.fl511.com website. Providing current information helps motorists to make decisions on taking alternate routes or traveling at a alternate times. This helps to improve traffic conditions for them as well as for those managing the incident, thus reducing congestion, reducing secondary crashes, and improving overall efficiency of the roadway. Oftentimes, the Road Rangers can update SunGuide with the status of the incident using their mobile devices. When the status update is entered by a mobile device, it goes directly to SunGuide where operators can quickly provide this information to the traveling public.

"Whatever is measured, can improve" is an axiom for performance-based improvement that works in almost any program in any industry. Traffic incident management is carefully and extensively reported on in the SunGuide Software so that each phase of the traffic incident management timeline can be measured for time efficiency. SunGuide includes performance measures reporting that can aggregate traffic incident management on a quarterly basis. These reports can be compared to previous quarters to see how certain high-level policy or implementation changes have affected the incident management performance.

While SunGuide's primary role is integrating intelligent transportation systems devices and traffic operations technologies, it also incorporates key traffic incident management processes—detection, dispatch, dissemination, and reporting. SunGuide truly is a key asset to implementing the Open Roads Policy, which helps to save lives, reduce injuries, and save billions of dollars through transportation efficiency.

Traffic Incident Management— A Part of the Solution

By Paul Clark, FDOT

Traffic incident management (TIM) is defined by the Federal Highway Administration as the planned, systematic, and coordinated use of human, mechanical, institutional, and technical resources to reduce the duration and impact of incidents, and improve the safety of crash victims, incident responders, and motorists. Basically, TIM makes the roads safer for all parties involved—from the motoring public to the crash victim and everyone in-between; what we need to remember is that TIM is not a one agency responsibility. It takes multiple partners combined to accomplish the task, including law enforcement, fire-rescue, emergency medical services (EMS), transportation agencies, towing and recovery service providers, and others. Although each one of these responders has a different job on-scene, at the end of the day, they all come together for a unified goal of keeping the road open and everyone safe. But, for TIM to be effective you must ensure that the three Cs are in-place—communication, coordination, and cooperation.

This can be difficult to achieve, but through TIM teams and outreach, it is possible. Florida is constantly looking for ways to improve and the Florida Department of Transportation's (FDOT) TIM initiatives are a part of the solution.

TIM in '10

One concept FDOT employs in Florida is to ensure that first responders dealing with traffic crashes have a common knowledge base from which they operate. It is essential that these responders all receive a basic level of TIM training. Educating first responders with the same materials promotes better incident coordination and aid in promoting safe, quick clearance goals to all responding agencies. The goal of Florida's "TIM in '10" project is to provide every Florida first responder with Traffic Incident Management Training for Responders by the end of the year 2010.

This effort encompasses state, county, and local law enforcement agencies; volunteer and municipal fire/rescue departments; and numerous towing and recovery professionals. To reach the goal of training all Florida responders, FDOT reached out to their partners at the Florida Police Chiefs Association, the Florida Sheriff's Association, and the Florida Fire Chief's Association, and received their endorsement. Reaching tens of thousands of responders is an ambitious goal, but one that is worth achieving to improve responder safety and save lives.

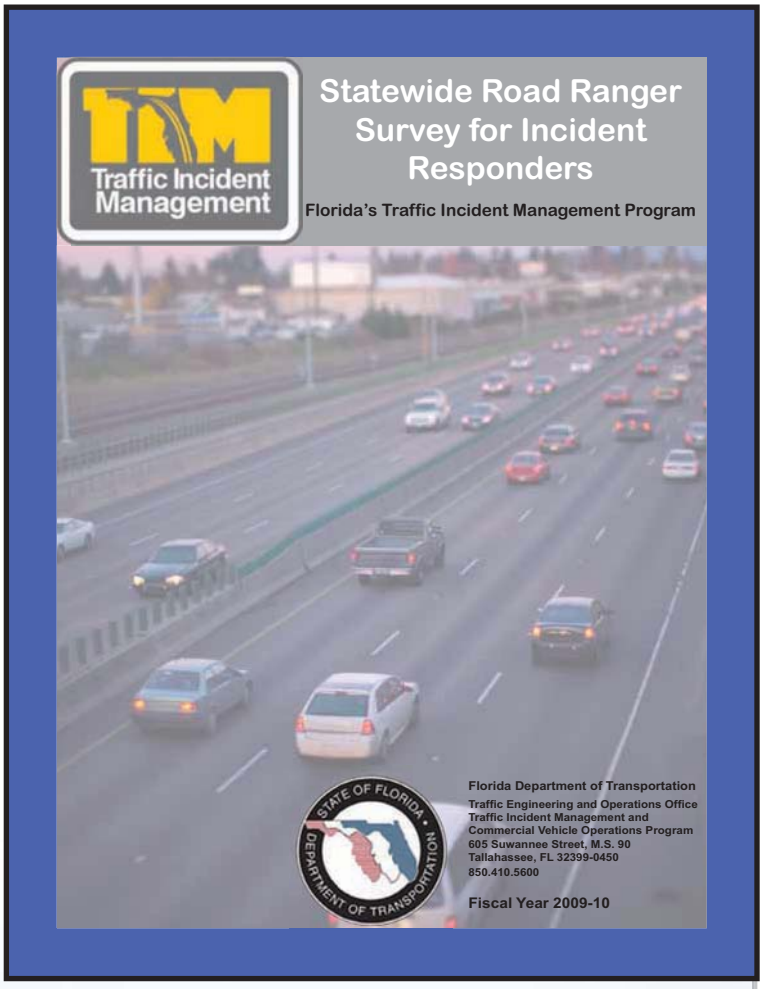
One of the avenues that we are using to get information out regarding "TIM in '10" is through the distribution of the "TIMe 4 Safety" video. The North Florida Transportation Planning Organization funded development of a comprehensive guidebook

and a series of five short (6 to 8 minute) videos aimed at training responders in TIM. These products have been mass-produced in a digital format. The FDOT Traffic Engineering and Operations Office, Traffic Incident Management Program shipped these videos to FDOT Districts, local and state law enforcement agencies, fire/rescue departments, asset managers, local tow companies, and many others. To date we have received commitments from over 350 agencies in Florida to distribute this information to approximately 29,500 Florida first responders.

Statewide Road Ranger Survey for Incident Responders

The final initiative from this year is the "Statewide Road Ranger Survey for Incident Responders." This survey has a threefold purpose:

1. Determine the incident responder's opinion of the program,
2. Establish a baseline to measure "customer satisfaction" among incident responders in future years, and
3. Solicit comments and suggestions to improve the program from the incident responder's perspective.



There were 792 responses from law enforcement, fire rescue/ EMS, and others. Although the responses to the survey were extremely positive, there are still areas where the program could improve. One of the main areas is communications between on-scene responders and FDOT's Road Rangers. As a result, the Traffic Incident Management Program developed training for Road Ranger operators on how to effectively use the 800 MHz Statewide Law Enforcement Radio System. To date, we have had eight training sessions with more to come in the near future.

Keep the Three Cs Going

Looking back at the past year is very gratifying for the TIM Program. There were several key accomplishments, such as conducting our first annual Road Ranger Survey for Incident Responders; developing and providing training to our Road Rangers for the Statewide Law Enforcement Radio System; and distributing the "Time 4 Safety" video to responders statewide and the "TIM in '10" initiative. All of these initiatives help Florida's TIM Program to accomplish the objective of a more effective program— to reduce the duration and impact of incidents, and improve the safety of crash victims, incident responders, and motorists.

One thing we always need to remember is that effective communications, inter-agency cooperation, and coordination amongst all incident responders will help make the road safer for the traveling public as well as the first responder.

Florida's Commercial Vehicle Information Systems and Networks Program—Providing Benefits to the State and Industry

Paul Clark, FDOT, Richard Easley and Sharon Easley, E-Squared Engineering

CVISN Program Benefits Include:

- Safer roadways
- More efficient use of limited staff resources
- Decreased highway maintenance costs due to overweight truck induced damage
- The ability to gather origin/destination data for freight planning

Members from each state agency involved in any aspect of commercial vehicle regulation make up the Florida Commercial Vehicle Information Systems and Networks[1] (CVISN) team, including:

- Florida Department of Transportation Permits Office and Office of Motor Carrier Compliance;
- Florida Department of Revenue;
- Florida Department of Highway Safety and Motor Vehicles;
- Florida Department of Agriculture and Consumer Services;
- Federal Motor Carrier Safety Administration (FMCSA)—responsible for federal regulations); and
- Industry agencies, including representatives from the trucking community as well as the Florida Trucking Association.

Since 2001, the team has been meeting on a monthly or bi-monthly basis to share and discuss program activities and commercial vehicle operations (CVO) related issues.

The Florida CVISN team works together in planning projects. There is no preferential treatment to individual agencies in choosing projects; all team members work together to plan the timing and funding for projects. Additionally, the team members all have an equal say in the program oversight. Each state agency, the FMCSA, and the Florida Trucking Association all have a seat and one vote on the Executive Steering Committee, which governs the Florida CVISN program.

The Federal CVISN program has two phases—the Core CVISN and the Expanded CVISN. The Expanded CVISN phase follows the Core CVISN phase once a state receives certification as "CVISN

1 CVISN is a federal (FMCSA) initiative to improve motor carrier safety and enhance efficiency of administrative processes for industry and government.

Core Compliant" by the FMCSA. In order to be eligible for the maximum available federal funding, a state must attain CVISN Core Compliance. FMCSA defines the technology and infrastructure deployments that are required for Core CVISN Compliance; states must demonstrate that they have deployed these systems/technologies during the certification process.

The Expanded CVISN phase allows much greater flexibility in that the states can define which projects make the most sense for them and meet their unique needs. Florida received CVISN Core Compliant certification on February 24, 2009. Florida began formal planning for the Expanded CVISN in 2007, had the list of planned projects approved by the CVISN Executive Steering Committee in 2008, and has been approved for $3.1 million in FMCSA grant funds to begin work on the Expanded CVISN phase projects. The Expanded CVISN grant funds awarded to Florida were the maximum available.

The CVISN program also supports Florida's CVO industry by enhancing safety, security, and productivity of the industry as well as assisting the industry in decreasing emissions and fuel costs for carriers. The planned Expanded CVISN projects will continue and improve on these benefits.

During the Core CVISN phase of the program, the projects focused on system deployments in one of three areas: electronic screening of commercial vehicles, electronic credentials administration, and safety information exchange—all prescribed by the FMCSA. Additionally, although not a Core CVISN requirement, Florida chose to include online, electronic over-size/over-weight permitting in this phase of their CVISN program. This addition came at the request of the commercial vehicle industry, which wanted an electronic means of applying for their permits.

Florida's Expanded CVISN Program will encompass nine projects. Florida's CVISN team developed these projects. The Expanded CVISN projects will cross state agency boundaries and provide benefits to the commercial vehicle regulatory agencies and to the commercial vehicle industry. The Florida CVISN team will manage the schedule for deploying the projects over the course of the next five years.

Florida's first Expanded CVISN project deployment is already underway. It adds enhancements to the online permitting system. This project will aid the motor carrier community by further streamlining the process for obtaining oversize/overweight/over-dimensional permits. Planned enhancements will greatly decrease the turn-around time from application to approval of the majority of these permits. These automated processes will also assist the permitting department in handling the increase in demand for permits and credentials that will come with the predicted future growth in the commercial vehicle operations industry with fewer additions to required staffing. As of the May 2010 status report, more than 50 percent of the permit applications have been submitted (and permits issued) electronically—a savings in time for the industry and increased efficiencies for Florida DOT.

As part of Florida's Expanded CVISN Program, there are plans to evaluate Florida's non-port of entry status. Under the current system, commercial vehicles must obtain certain operating credentials prior to crossing the state line into Florida; failure to do so can result in a stiff fine. The current status potentially puts an undue financial burden on motor carriers entering Florida. The study will evaluate the feasibility of changing Florida's status, conduct a review of what legislative changes would be required to change this status, identify best practices with regard to port-of-entry, determine the costs and benefits of changing to port-of-entry status, and provide recommendations.

Another planned project is the Container Number Database Project. This database will be one of the first in the nation to capture (at highway speeds) and store container numbers. This database will provide origin and destination information for container movements in Florida. Additional capabilities for the Container Number Database will involve linkages to other databases such as Florida's Electronic Freight Theft Management System to check for stolen cargo activity.

Other projects will deploy proven technologies designed to enhance safety, security, and mobility of motor carriers in Florida. These technology deployments will help enforcement personnel to target limited staff resources toward screening for the small percentage of vehicles that could potentially pose safety problems. Florida will deploy one or more virtual roadside facilities equipped with high-speed weigh-in-motion, license plate readers, length and width detection, and infra-red brake analysis. Additional pre-clearance and pre-screening technology deployments will allow safe and legal motor carriers to avoid or limit pull-ins for inspection activities.

Florida's Expanded CVISN Program will capitalize on previous investments and successes to continue to optimize safe and efficient movement of people and goods throughout the state, improve the state's commercial vehicle regulatory environment, ensure CVO-related safety without undue costs to the motor carrier industry, and guide the development and installation of adopted CVISN projects and programs in an efficient and cost-effective manner.

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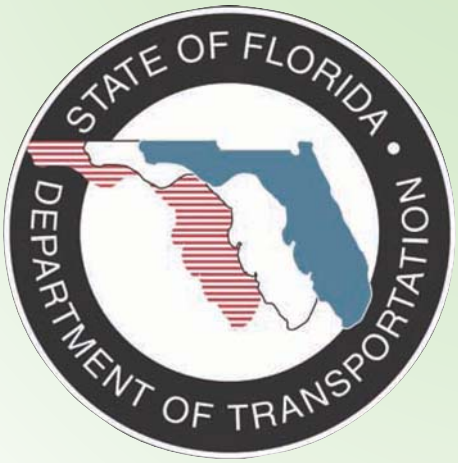

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