



SUNGUIDE® DISSEMINATOR

Florida Department of Transportation's Traffic Engineering and Operations Newsletter



Summary of V2I Deployment Coalition

By Suzanne Murtha, Atkins

Earlier in 2015, the American Association of State Highway and Transportation Officials (AASHTO), Intelligent Transportation Society of America (ITS America), and Institute of Transportation Engineers (ITE) formed a Vehicle-to-Infrastructure (V2I) Deployment Coalition (Coalition) of their members to work with the United States Department of Transportation (USDOT) to encourage deployment of dedicated short-range communications (DSRC) equipment. After ITS America's 25th Annual Meeting and Expo in Pittsburgh, Pennsylvania, the Coalition had its first meeting. Each of the three participating organizations contributed one-third of the total 50 official members in the coalition. The coalition has five groups:

Each group met in Pittsburgh to discuss their role in each of 12 major deployment topic areas. These topic areas include:

- Vehicle-to-everything applications
- Alternate communications to DSRC
- Data business models
- Patents-Intellectual Property
- Security
- V2I outreach
- Business model for V2I deployment
- V2I standards
- Understanding V2I liability assignment
- V2I synergies with other emerging technologies
- V2I consumer messaging
- V2I multi-modal applications

Deployment Initiatives

- Co-Chair Bill Legg, WSDOT
- Co-Chair Joe Averkamp, Xerox

Deployment Research

- Co-Chair Greg Larson, Caltrans
- Co-Chair Robert Bertini, CA Polytech State University

Infrastructure Operator OEM & Supplier Partnerships

- Co-Chair Matt Smith, MI DOT
- Co-Chair Faisal Saleem, Maricopa County, AZ

Deployment Guidance

- Co-Chair Elizabeth Birriel, Florida DOT
- Co-Chair Faisal Saleem, Maricopa County, AZ

Deployment Standards

- Co-Chair Ed Seymour, TTI
- Co-Chair Gary Duncan, Econolite

Inside This Issue July 2015

Summary of V2I Deployment Coalition.....	1
District Six: 95 Express Project Update	2
FTE Represents at National Conferences	3
Traffic Engineering and Operations Outreach at the 2015 Design Training Expo	4
Systems Engineering Update	5
ITS Florida: Anne Brewer Scholarship Program	6
Editorial Corner: An Overview of ITS America's 25 th Annual Meeting and Expo	7
Announcements.....	8
FDOT Contacts	8

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The groups met over the course of two days and ranked the importance of each of these topics. Several key concepts emerged over the days that were common among the groups.

Several groups requested standardized guidance for local deployment. USDOT and ITS America are currently working on deployment guidelines for connected vehicles. Several groups in this coalition rank this among the higher needs for each interest area. A second common request was for an understanding of intellectual property in the connected vehicle space. Specifically, what Internet protocol is owned and by whom and what does that mean for deployers?

The Coalition agreed to meet again before January 2016, and several of the groups agreed to regular meetings in advance of the next large group meeting. To participate in the V2I efforts, please reach out to ITS America, AASHTO, or ITE.

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

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District Six: 95 Express Project Update

By Javier Rodriguez, FDOT District Six

The Florida Department of Transportation (FDOT) continues to expand 95 Express in southeast Florida. Phase One of the project launched six years ago in Miami-Dade County and has been widely credited with improving the travel time reliability of Interstate 95 (I-95). Phase Two plans to build on its success and extend the benefits to Broward County.

Expansion efforts for 95 Express have continued since construction broke ground in 2011. Phase Two is converting the current high-occupancy vehicle lane to two express lanes in each direction, which will extend north to Broward Boulevard for a total of 21 express lane miles (from Downtown Miami). To achieve this, FDOT has completed various activities such as repaving the corridor, widening five bridges, installing noise walls at various locations, and modifying certain areas of the highway such as the Ives Dairy Road Interchange. FDOT is currently in the process of installing intelligent transportation systems devices and tolling equipment as well as new overhead and guidance signs to support operations.

FDOT recently completed a major construction milestone on Phase Two. It modified travel lane configurations and extended the plastic poles that divide the express lanes from the non-tolled general use lanes for about one mile north in the southbound and northbound directions. The poles were extended to eliminate pre-existing access points and introduce new entry and exit locations one mile north from their former locations. This extension helped FDOT introduce Segment Two of 95 Express. Segment Two is located near Ives Dairy Road and will serve as the project's midway access point should drivers choose to exit or enter before traveling to the end of the 21-mile stretch in either direction. There will be a total of three segments once Phase Two is complete to give drivers the opportunity to exit at the Golden Glades Interchange, Ives Dairy Road, and Broward Boulevard.

95 Express launched in December 2008, as a pilot program to mitigate the region's growing driver demand. The project offered a multi-modal approach to congestion management and combined transit, tolling, technology, and travel-demand techniques to improve mobility. As a result, 95 Express has provided more travel options and improved travel speeds to benefit all drivers on I-95. Phase Two is slated for completion in fall 2015. Phase Three of 95 Express is currently in the pipeline and will begin construction in 2016, to expand the facility north to Linton Boulevard in Palm Beach County.

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

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FTE Represents at National Conferences

By Michael Washburn and Ryan Brown, Florida's Turnpike Traffic Operations

Florida's Turnpike Enterprise (FTE) managers had the privilege of representing the Florida Department of Transportation (FDOT) at two high profile international industry conferences in June, formally presenting FDOT and FTE operational practices, and sharing and learning about industry best practices.



FTE Traffic Operations Engineer John Easterling attended the International Bridge, Tunnel, and Turnpike Association (IBTTA) Maintenance and Roadway Operations Workshop held on May 31st through June 3rd in Oklahoma City, Oklahoma. Mr. Easterling presented on Florida's Turnpike Operations initiatives at two sessions of the conference, covering FTE's deployment of road weather information systems (RWIS) and FDOT's transportation management center's use and interaction with social media, namely the Waze group-sourcing application.

Mr. Easterling was a panel presenter at two sessions: "Using Social Media/New Media" and "Weather Information You Can Use." Representatives from the Pennsylvania Turnpike and the City of Wichita Public Works joined him for the social media discussion, and representatives from Illinois, Colorado, and Pennsylvania for weather information session. A question and answer session was part of each session following formal presentations.

FTE representatives were able to network and learn from more than 100 other maintenance and operations practitioners from around the country and the world.



Mr. John Easterling, Turnpike Traffic Operations Engineer, making a presentation to IBTTA workshop attendees on June 2, 2015, in Oklahoma City, OK.



In concert with the high level of exposure at the IBTTA workshop, Ryan Brown, a Senior Traffic Engineering Manager at FTE, also presented at Intelligent Transportation Society of America's (ITS America) 25th Annual Meeting and Expo in Pittsburgh, Pennsylvania, held from May 31st through June 3rd. The conference was the 25th anniversary of the founding of ITS America, and was attended by hundreds of intelligent transportation systems (ITS) and engineering

professionals from throughout the country. FDOT and FTE took center stage for its presentation on their wrong-way driving detection and notification system. In a packed presentation session focusing on "Collision and Wrong-Way Warning Systems" and accompanied by representatives from Minnesota, the Central Florida Expressway, and national ITS leaders, FTE and the pilot programs from FDOT dominated the question and answer session, with a focus on the local and national importance of stopping the wrong-way driving epidemic.

For information, please contact Mr. Gordin at (407) 264-3316 or e-mail to Eric.Gordin@dot.state.fl.us.

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Traffic Engineering and Operations Outreach at the 2015 Design Training Expo

By Ron Meyer, Atkins

The Florida Department of Transportation's (FDOT) 2015 Design Training Expo was once again a tremendous opportunity for FDOT to engage with industry and private sector partners to foster innovative solutions for tomorrow's transportation needs. The Expo, organized and executed by FDOT's Office of Design, was held June 9-11th at the Buena Vista Palace in Lake Buena Vista, Florida. Representatives of FDOT's Traffic Engineering and Operations Office presented information on multiple topics including Design Countermeasures to Reduce Wrong-Way Crashes; the Systems Engineering for Intelligent Transportation Systems (ITS); Traffic Engineering Manual Updates; Fiber Design for Signals and ITS Projects; Manual on Uniform Traffic Studies; and Proprietary Product Justification Requirements for Traffic Signals and ITS. The Expo provided an excellent forum for outreach, sharing ideas and information, networking, and updating transportation professionals on the latest work of the Traffic Engineering and Operations Office.

As with past Expos, the ITS Section contributed to the program by presenting Fiber Design for Traffic Signals and ITS Projects. The presentation touched on a wide range of information relating to fiber optic networks including an overview of fiber, considerations to be given during network design, and specific examples of design concepts and plans as well as information on FDOT requirements and pay items related to fiber optic network design.

The deployment of ITS in Florida has brought forth tremendous growth in FDOT's fiber optic communications infrastructure. ITS deployments require reliable high bandwidth fiber optic networks to connect field devices to regional transportation management centers (TMC) and to connect regional TMCs to each other. Almost all of the interstates in Florida are monitored by ITS and, therefore, almost all systems in the state are part of a large statewide fiber optic network. Fiber optic cable is also the preferred communications medium for arterial traffic control systems. At every opportunity, copper communications cables used for signal interconnect are being replaced with fiber to take advantage of fiber's high bandwidth, security, resistance to electromagnetic interference and surge, light weight, smaller size, and lower cost.

Fiber network design is now a common and integral part of roadway plans as build-out and expansion of the traffic system communications network is often included with roadway improvements or new construction. Designers must frequently consider and include fiber optic designs in their projects and become familiar with how fiber works and the standards that govern its use. They must consider how to plan for future growth and scalability; minimize exposure and design with redundancy in mind; and be familiar with link budgets as well as equipment characteristics and limitations. The fiber design presentation given at the Expo provided practical and useful information on all these topics along with examples of designs, descriptions of fiber optic equipment and pay items, and links to references and resources for more information.

Copies of all presentations given at the Expo are available on FDOT's Office of Design web site at <http://www.dot.state.fl.us/officeofdesign/training/designexpo/2015/>. Questions and feedback received at the meeting and afterwards indicate that the material presented was helpful to attendees. We encourage you to visit the web site and review the extensive list of presentations from the Expo. You are likely to find something interesting and helpful across a wide variety of disciplines.

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

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Systems Engineering Update

By Derek Vollmer, FDOT Traffic Engineering and Operations

Systems engineering is a practice that helps ensure a final product meets the needs of the user while minimizing the risk of schedule and cost overruns. This is a good practice to ensure that intelligent transportation systems (ITS) projects meet the needs and vision of a region. Not only is it good practice, but it is also a federal requirement. Rule 23 Code of Federal Regulations (CFR) 940.11 states that “all ITS projects funded with highway trust funds shall be based on a systems engineering analysis.”

It is important to know how the rule defines ITS and an ITS project. ITS is defined as “electronics, communications, or information processing used singly or in combination to improve the efficiency or safety of a surface transportation system.” An ITS project is defined as “any project that in whole or in part funds the acquisition of technologies or systems of technologies that provide or significantly contribute to the provision of one or more ITS user services defined in the National ITS Architecture.” It is important to note the definition states “in whole or in part.” So a large project with a small ITS component is considered an ITS project.

ITS projects, at a minimum, will need to provide the seven systems engineering analysis items listed in 23 CFR 940.11. These include:

1. Identifying portions of the regional ITS architecture being implemented,
2. Identifying participating agencies roles and responsibilities,
3. Defining requirements,
4. Analyzing alternative systems and technologies,
5. Listing the method of procurement,
6. Identifying applicable ITS standards and test procedures, and
7. Having procedures and resources for the operation and management of the system.

Whether additional documentation is needed will depend on the project risk assessment results based on criteria provided in a checklist. The checklist will be available once the Florida Department of Transportation (FDOT) releases its new version of the Systems Engineering and ITS Architecture Procedure. FDOT will release the procedure before January 2016. If a project is determined to be low-risk, then only the seven minimum analysis items and the completed checklist need to be included for the project. If the project is determined to be high-risk, then the project will need, at a minimum, the following additional documentation:

- Project systems engineering management plan,
- Concept of operations,
- Analysis of alternative system configurations and technology options,
- High-level systems requirements,
- Requirements traceability verification matrix,
- List of applicable ITS standards,

- Systems verification plan,
- Systems validation plan,
- Systems acceptance plan, and
- Operations and maintenance plan.

Some of the seven minimum requirements will be included within the required documentation for high-risk projects. For instance, identifying portions of the regional ITS architecture will be included in one of the sections within the concept of operations. Among other items, the concept of operations identifies stakeholders, their roles and responsibilities, and user needs for a project.

Florida is currently undergoing a major update to its statewide and regional ITS architectures. This effort will end in December 2015, and Florida’s statewide and regional ITS architectures will be compliant with version 7.0 of the National ITS Architecture and 23 CFR 940.9 for regional ITS architectures. In addition, the updated architecture will now include project ITS architectures within a region. This is important because high-risk projects will need a project ITS architecture as required in 23 CFR 940.11. If stakeholders throughout Florida have planned ITS initiatives in the next 5, 10, or 15 years, now is the time to include these projects in the regional architectures whether they are funded or not. This will make pulling together the required architecture documentation for a project down the road a lot easier.

Before an ITS project receives highway trust funds, compliance with the federal and state requirements will need to be demonstrated to the Federal Highway Administration Florida Division. It is important for project managers to identify ITS projects early on, so the appropriate systems engineering documentation can be created for the project. Going back to the definition of ITS, it is important to note that the definition in 23 CFR 940 is more encompassing than some might think. The definition includes projects, for instance, in traffic control, new weigh station technologies, or new communications interfaces to share information between different jurisdictions or entities.

More information about systems engineering in Florida and to access systems engineering document templates is available online at http://www.dot.state.fl.us/trafficoperations/ITS/Projects_Deploy/SEMP.shtm.

For information, please contact Mr. Vollmer at (850) 410-5615 or e-mail to Derek.Vollmer@dot.state.fl.us.

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ITS Florida: Anne Brewer Scholarship Program

By Sandra Beck, ITS Florida

One of the Intelligent Transportation Society of Florida's (ITS Florida) goals is to increase the number of professionals seeking a career in the public transportation field in order to sustain growth and improvement throughout the industry. The ITS Florida Scholarship Program provides scholarships to deserving students—the future leaders of transportation in Florida.

ITS Florida has an academic scholarship opportunity available to undergraduate and graduate students attending an ITS Florida member institution (Florida Institute of Technology, Florida International University, University of Central Florida, University of Florida, University of South Florida). Principal course work shall include transportation and intelligent transportation systems (ITS), transportation engineering, planning, public policy, and public administration.

In 2013, an additional goal was to expand the scholarship program to include a separate scholarship for ITS Florida members for training and certification. The Erika Birosak Training and Certification Scholarship is available to public and private sector nominees whose respective organizations are members of ITS Florida. This scholarship assists those seeking to advance their skill set through additional training and certification courses to better serve their organizations and the ITS industry in Florida.

ITS Florida awards cash scholarships to deserving applicants, enabling them to take advantage of opportunities that can be achieved through education, training, and certification programs. Scholarship recipients may have an opportunity to give a presentation at an upcoming ITS Florida event.

Please look for the application process and deadline in the near future. Anyone interested in information about the ITS Florida scholarship program and sponsorship opportunities may contact Sandy Beck at ITSFlorida@ITSFlorida.org. Opportunities to sponsor scholarships are also available at <http://itsflorida.org/sponsorship/>.

For more information on ITS Florida, please check the ITS Florida web site at www.itsflorida.org or contact Sandy Beck, Chapter Administrator, at itsflorida@itsflorida.org.

If you wish to contribute an article to the *SunGuide® Disseminator* on behalf of ITS Florida, please email Stephanie Hoback at Stephanie.Hoback@Wavetronix.com or Sandy Beck.

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Editorial Corner: An Overview of ITS America's 25th Annual Meeting and Expo

By Suzanne Murtha, Atkins

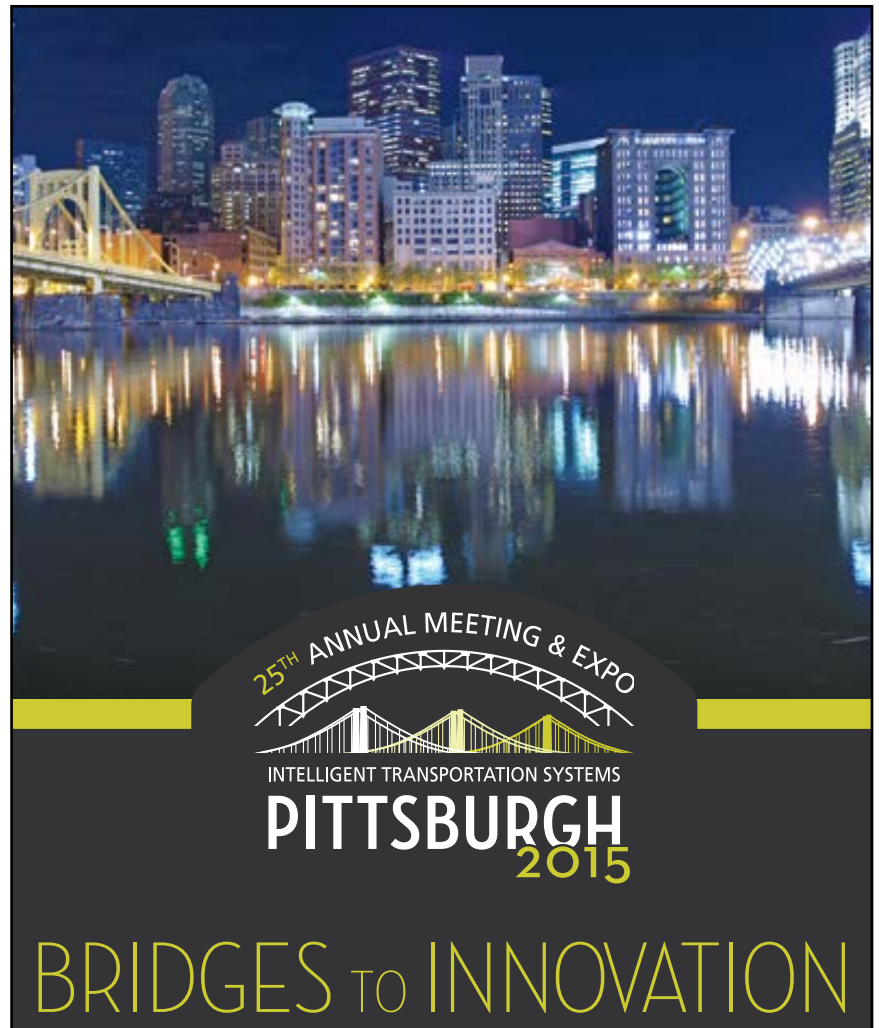
I had the pleasure of attending Intelligent Transportation Society of America's (ITS America) 25th Annual Meeting and Expo last month in Pittsburgh, Pennsylvania. Some of the main themes were connected vehicles, data, the Internet of things, and shared transportation models. As this meeting followed closely to the 21st World Congress on Intelligent Transport Systems held in Detroit in September 2014, attendance was around 2,500. The exposition hall was small, but it was filled with great exhibitors. Although this annual meeting had fewer sessions than last year's meeting, that approach was well-received, and most of the sessions were packed with attendees.

Connected vehicles and the impending notice of proposed rulemaking (NPRM) were a major topic of discussion in several sessions, including a plenary with modal administrators and the Department of Energy. The highlight of that United States Department of Transportation plenary session was that all of those modal administrators were in agreement with the NPRM and were all excited to see a mandate go forward. There were also several sessions regarding connected vehicle deployment and the Vehicle-to-Infrastructure Deployment Coalition met as well. The industry is gearing up for connected vehicle deployment.

In preparation for planning for the forthcoming deployment of connected vehicles, a second important theme was data. There several key questions about data that are under consideration. One of these is "what data will we get and when?" This discussion revolved around what standards for what messages will be developed, and when and what data will be used in message sets. Another key question about data is "how much?" This question examined what in-vehicle systems will be developed, and when will those systems be on the road. Several models are being developed to determine answers to these questions and these answers will vary depending on the region and interest in the speed of deployment.

Among one of key new entrants to the annual meeting and to the intelligent transportation systems industry is Uber. The theme of the closing plenary was exploration of vehicle ownership models. Cars are the only asset where the owner pays tens of thousands of dollars and has it sit idle 95 percent of the time. The reason this is acceptable is that there is no reliable alternative. Car share allows a shift in that logic. An Uber can be at your house within minutes to meet transportation needs without the outlay of cash to invest in personal transportation. Uber was a major sponsor of this annual meeting as well as a plenary speaker. Uber's presence at the annual meeting represents a leap in market expansion for the ITS industry. It shows the beginning of a shift from vehicle ownership to shared transportation concepts.

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



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Announcements

Please Welcome Stacie Smith!

Please join us in welcoming Stacie Smith, our new Administrative Assistant, to the Traffic Engineering and Operations Office. Stacie previously work at the Department of Agriculture and has an excellent background in the areas of budget and purchasing, including cost accounting, and already has experience with normal state agency requirements related to travel and other items.

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FDOT Traffic Engineering and Operations Mission and Vision Statements

Mission:

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

Vision:

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

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