SUNGUIDE® DISSEMINATOR

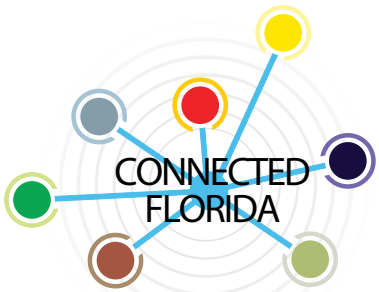
Florida Department of Transportation's Traffic Engineering and Operations Newsletter

Centennial FDOT 1915 ★ 2015

Connected Vehicle Applications: Wrong-Way Driving

By Suzanne Murtha, Atkins

When the Florida Department of Transportation (FDOT) considered applications to include in its response to the United States Department of Transportation's Broad Agency Announcement for connected vehicles (CV), one of the first applications discussed was wrong-way driving.



Addressing wrong-way driving is a statewide priority for FDOT. Florida has a problem with high-impact, deadly wrong-way crashes. During 2009-2013, there were 280 wrong-way collisions in Florida, resulting in 75 fatalities. Forty-nine out of these 280 wrong-way collisions in Florida occurred on Florida's Turnpike Enterprise (FTE) facilities alone. These collisions are not only the result of wrong-way drivers entering the FTE mainline facilities from ramps, but also from service plazas such as the one at Turkey Lake in Central Florida just north of the I-4 interchange.

Emergency responders.

FTE is currently piloting a wrong-way driving solution with detection systems and light-emitting diode flashers along with other devices along the Homestead Extension to the Florida Turnpike, which has ten exit ramps, and the Sawgrass Expressway, having five exit ramps.

FDOT demonstrated a CV wrong-way driving application at its Traffic Engineering Research Laboratory in August 2014, and is currently considering integrating two solutions to form a CV suite for wrong-way driver detection. CV equipped and non-CV equipped vehicles will provide information to SunGuide® software, which will alert CV

Sample message from wrong-way driving demo.

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equipped vehicles. The second solution would send an alert over a dedicated short-range communications (DSRC) signal, satellite radio, and long-term evolution (LTE) WiFi® to drivers in the vicinity when a wrong-way driving movement is detected.

These solutions consider the various levels of in-vehicle deployment. Starting out with lower amounts of in-vehicle deployments, the proposed wrong-way system builds on existing systems and can send signals via DSRC as well as other communications types. Satellite radio, for example, can broadcast to vehicles with communications equipment installed in their vehicles. Vehicles with mobile devices, or new vehicles with factory installed WiFi or 4G systems, can receive LTE signals.

If we do see a mandate for DSRC deployment in 2016, as is currently anticipated, FDOT will be prepared to receive and send DSRC signals as well as use the infrastructure to prevent head on collisions in advance of significant market penetration of DSRC.

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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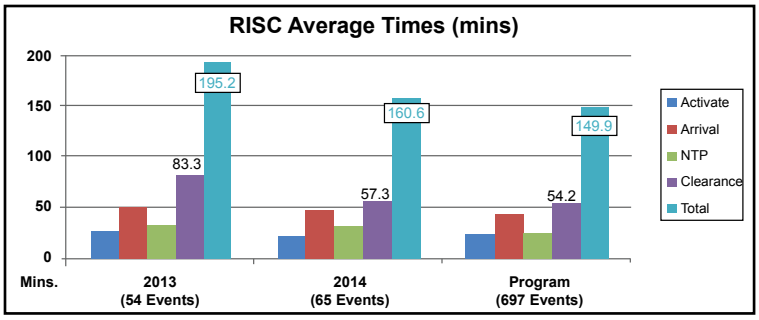
FTE's RISC Program Achieving Goals in 2014

By Jim Hilbert, Florida's Turnpike Traffic Operations

The Florida's Turnpike Enterprise's (FTE) Rapid Incident Scene Clearance (RISC) program experienced significant clearance time improvements in 2014 while seeing an increase in the number of incident activations. The average RISC clearance times decreased from 83.3 minutes in 2013 (for 54 activations) to 57.3 minutes in 2014 (for 65 activations) – an average delay time improvement of more than an hour. Improvements were also seen in activation, arrival and Notice to Proceed (NTP) times.



"Our RISC program continues to provide direct benefits to our customers by reducing delays and lane closure times," said FTE Traffic Operations Engineer John Easterling. "FHP (Florida Highway Patrol) and our tow vendors have an effective working relationship that allows for good communication, debriefings, and lessons learned."

While there was a marked improvement in vendors' performances from 2013 to 2014, a continuing effort will be made in 2015 to work closely with RISC vendors in adhering to the RISC program requirements and continued interface with FHP to minimize activation and NTP times wherever possible.

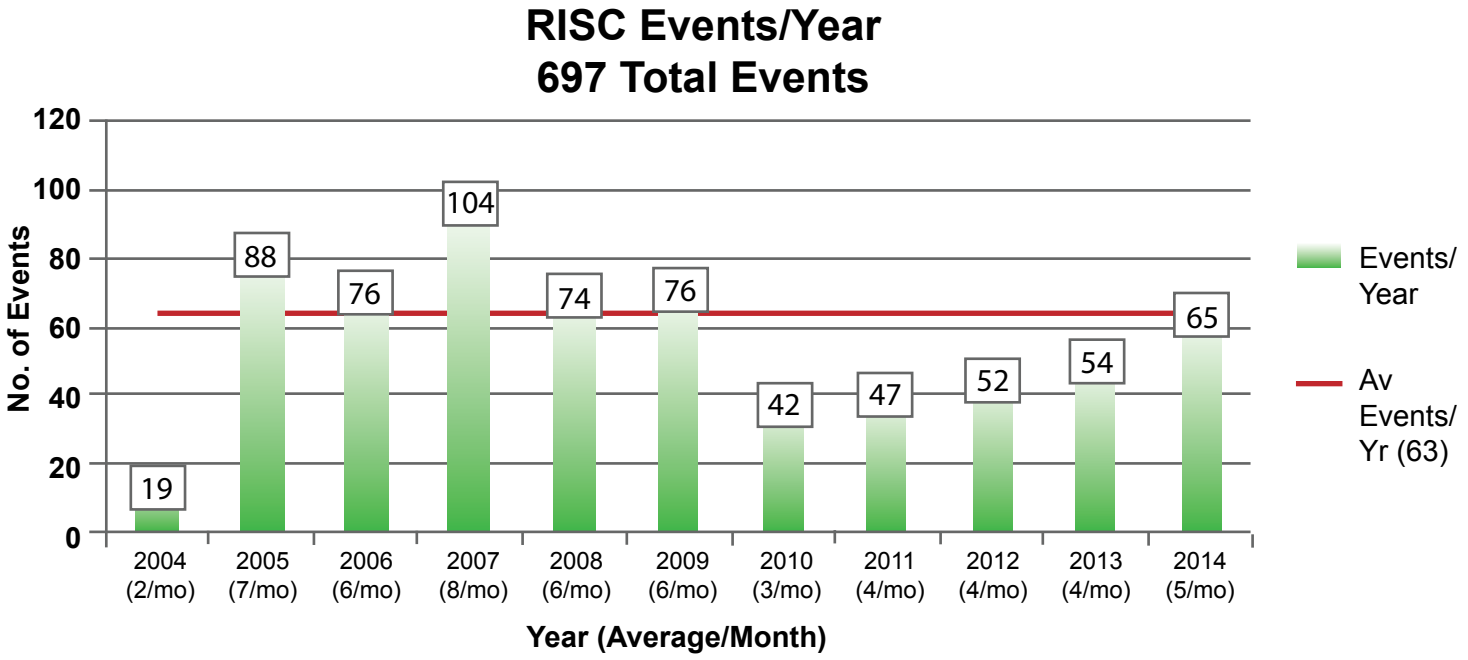
In 2014, there were 65 activations with a 47.9 minute average response time and 57.3 minute average clearance time. The first wrecker average arrival time was 34.5 minutes. The 2014 on-time arrival rate was 98 percent and the clearance rate for incidents with NTP was 97 percent. The number of activations in 2014 was slightly above the overall program yearly average of 63 and reflects the continuing steady increase of events over the last five years (a 54 percent increase over 42 activations in 2010).

FTE has nine RISC tow vendors that provide complete coverage on the Turnpike system's 460 centerline miles. Vendors earned an incentive bonus for 62 of the 65 activations, or 95 percent. Of the three activations where no bonus was paid, one was for late arrival time and two were for long clearance times (after making arrival time).

The innovative RISC heavy-duty towing and recovery program is a major component of the FTE's Traffic Incident Management Enhancement program. Developed and implemented by FTE in 2004 to reduce the impact of major large-vehicle traffic incidents, RISC helps meet Florida's Open Roads Policy goal of clearing the roadway in 90 minutes or less. Now a statewide incentive-based program,

RISC pays monetary bonuses from $600 to $3,500 to qualified participating tow companies for meeting stated safe, quick clearance goals.

To participate in the program, towing and recovery companies must meet contractual equipment and training standards to ensure the safe and efficient clearance of major incidents. Once activated, recovery contractors are required to respond to an incident scene within 60 minutes with two heavy-duty Class D wreckers and a maintenance of traffic support truck, and open the travel lanes within 90 minutes once they are given a NTP. The contractor may be assessed liquidated damages if the travel lanes are not open within 150 minutes. The FTE transportation management center serves as the official timekeeper of RISC milestones and is the primary contact for FHP and the hub of traffic and incident management communications.



Since the program's inception at FTE in March 2004, there have been 697 RISC activations, operating at a 95 percent success rate in incidents where the vendor made its contractual arrival time, received a NTP, and was used to clear the incident. The overall program average response time for heavy duty wreckers to the scene is 47.9 minutes. Clearance times (after NTP) have ranged from five to 204 minutes, with an average clearance time of 54.2 minutes.

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

FTE's RISC vendor works to upright and recover a cement mixer truck from the Sawgrass Expressway in June 2014.

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CVO Update

By Marie Tucker, FDOT Traffic Engineering and Operations

Florida's transportation system has seen an increase in commercial vehicle traffic over the years. The high percentage of freight transported by trucks shows how important the roadway network is to Florida. Commercial trucking and on-time freight delivery play a significant role in day-to-day operations for suppliers and receivers and Florida is utilizing resources to make operations more efficient and safe.

Truck Parking

The steady growth of commercial truck travel has led to an increasing demand for truck parking spaces at public rest areas on interstate highways in Florida. Access to safe parking areas for trucks is an essential component of an efficient freight transportation network; yet, truck drivers consistently have difficulty finding areas to safely rest. Currently there are two main issues with truck parking—there are not enough parking spaces and there is a lack of real-time information for parking space availability at facilities designed to accommodate commercial trucks. Without reliable, real-time information about parking space availability, drivers often end their shift early and travel from lot to lot looking for available parking. Furthermore, drivers who haven't found parking before running out of driving hours are often forced to park illegally and unsafely on the shoulder of the highway or on an off-ramp to avoid fines or discipline from their employer.

The Florida Department of Transportation (FDOT) is currently evaluating what it will take to implement a truck parking system throughout the state. This will be a phased approach; phase one will include installing a parking system at weigh stations and rest areas throughout the state. FDOT will communicate parking information via dynamic message signs located prior to each site and a hands free smartphone application. The second phase will incorporate a predictability function that will allow commercial drivers to plan more efficient trips. The last phase will implement a public private partnership with privately owned truck stops.

Weigh station with truck parking.

Weigh-in-Motion.

Weigh-in-Motion

The Motor Carrier Size and Weight Office is currently working on a project that is funded through the Commercial Vehicle Information Systems and Networks grant to install mainline weigh-in-motion systems at Florida's three port of entry sites. This system will allow commercial vehicles to be weighed while traveling at highway speed. The software will then sort the vehicles and determine if they need to

pull into the weigh station or if they can bypass. This will benefit the trucking community with time and fuel savings and will also prevent the weigh station from becoming backed up on the ramp.

Bypass Service

Last fall the FDOT signed an agreement with Drivewyze, a company that provides a bypass service to commercial vehicles. To participate in this program a driver or carrier must submit an application with their credentials and pay a monthly subscription fee that allows them to bypass weigh stations if given the appropriate signal. As of February 2015, this same type of service is now available at Florida Department of Agriculture Interdiction Stations. Carriers that do not haul agriculture products or operate refrigerated units and are enrolled with Drivewyze could be eligible for this program. This will also benefit the trucking community with time and fuel savings and will also prevent lengthy backups at the interdiction stations.

Bypass service now available to registered commercial vehicles.

These are a few of the projects that Florida is currently working on to make the roadways safer and more efficient for the commercial trucking community.

For information, please contact Ms. Tucker at (850) 410-5619 or e-mail to Marie.Tucker@dot.state.fl.us.

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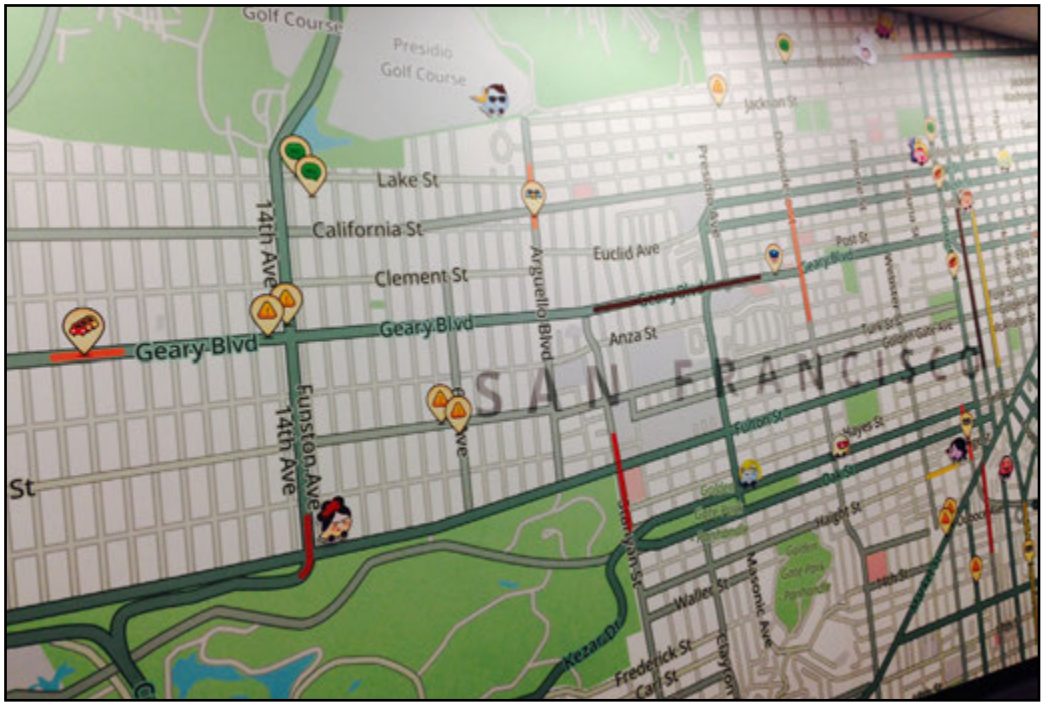
Waze Connected Citizens Partner Summit

By Derek Vollmer, FDOT Traffic Engineering and Operations

Waze is a mobile application that motorists can use to report traffic conditions like crashes, weather, construction, disabled vehicles, debris in the roadway, potholes, and other things that might affect a driver. The Waze application displays this information for other motorists to see or hear and provide feedback about whether the event is there or not. Waze created the Connected Citizens Program to connect with government agencies. When a partnership is created, Waze will share their crowdsourced data with that agency, and the agency will share its data with Waze. In the spirit of partnering, Waze hosted a summit for the various partners to get together to share their experiences and interact with Waze technical staff.



Waze map on office wall.

In attendance at the summit were representatives from Rio de Janeiro, Latvia, Hungary, the City and County of Los Angeles, City of Boston, departments of transportation (DOT) (including Florida [FDOT], Kentucky, Tennessee, and District of Columbia), Castle Rock Associates, and Waze staff from Israel and the United States. The summit started with brief introductions followed by updates from Waze staff. In the updates and throughout the entire summit, it was apparent that Waze listens to their partners' needs and implements changes to meet those needs. Of course, there are architecture limitations restricting Waze from implementing some needs, but where possible, Waze jumps into action. Some examples include changing the data feed update frequency, adding a reliability score for alerts, and creating a road closure tool to make it easy for partners to report road closures to Waze.

The summit focused on how partners are integrating and using Waze data. Many of the partners in attendance gave presentations on how they are using, or plan to use, data from Waze. FDOT's focus is on integrating Waze data for state roadway operations and, currently, FDOT uses Waze data that needs a response from operations, like a crash or a stranded vehicle. City agencies were highly interested in the pothole data provided by Waze. The District of Columbia DOT (DDOT) had an initiative called "Potholeaplooza." During this initiative, DDOT had a goal to repair potholes within 48 hours of a pothole being reported. They produced heat maps to show clusters of potholes and would send crews out to areas with the highest concentration of potholes.

The City of Boston was also interested in potholes, but more unique to Boston was how "vehicle stopped on shoulder" could be interpreted. Within the City of Boston, they discovered a vehicle stopped on the shoulder usually meant a car was double parked. They are using this data to determine areas where this occurrence happens more frequently, so they can work on solutions. Rio de Janeiro showed how they used information from Waze during the World Cup and for a visit from Pope Francis; also, how they plan to use Waze during the 2016 Summer Olympics. Rio de Janeiro is working closely with Waze so these large events have transportation success.

Other state DOTs are trying to integrate their snowplow location data into Waze. This allows Waze users to know which routes have been plowed. Kentucky DOT used Waze data to help replace missing signs in a more efficient manor on their roadways. There were also talks of providing garbage collection truck locations so Waze users could avoid a road that shows a garbage truck collecting trash.

After all of the presentations and discussions, Waze went through all of the ideas for improvement that were mentioned during the course of the summit. The list of ideas was prioritized, and then we discussed our interpretations of the different ideas to nail down the needs of the different agencies. This was a good process, and it demonstrated how Waze listens to their partners and then takes action.

Entry area to Waze office.

The last part of the summit allowed partners to interact directly with the Waze technical staff. This was very informative. We looked at the data feed FDOT provides to Waze and stumbled across an item that was flagged with an error. We discovered an event was stuck in FDOT's system and, therefore, remained in the data feed. We were able to track down the issue, discover the cause, and resolve the issue on our end. We also saw how Waze extracted and interpreted information from FDOT's data feed. This knowledge is useful when thinking of improvements that could be made to our data feed.

The summit was a success. Partners heard updates from Waze and from the other partners. We learned how other agencies are using Waze data to solve transportation problems. Waze demonstrated their commitment to these partnerships by listening and implementing changes based on what the partners needed. It will be interesting in the future to see how many more ways agencies use Waze data to solve problems and improve the driving experience for motorists.

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

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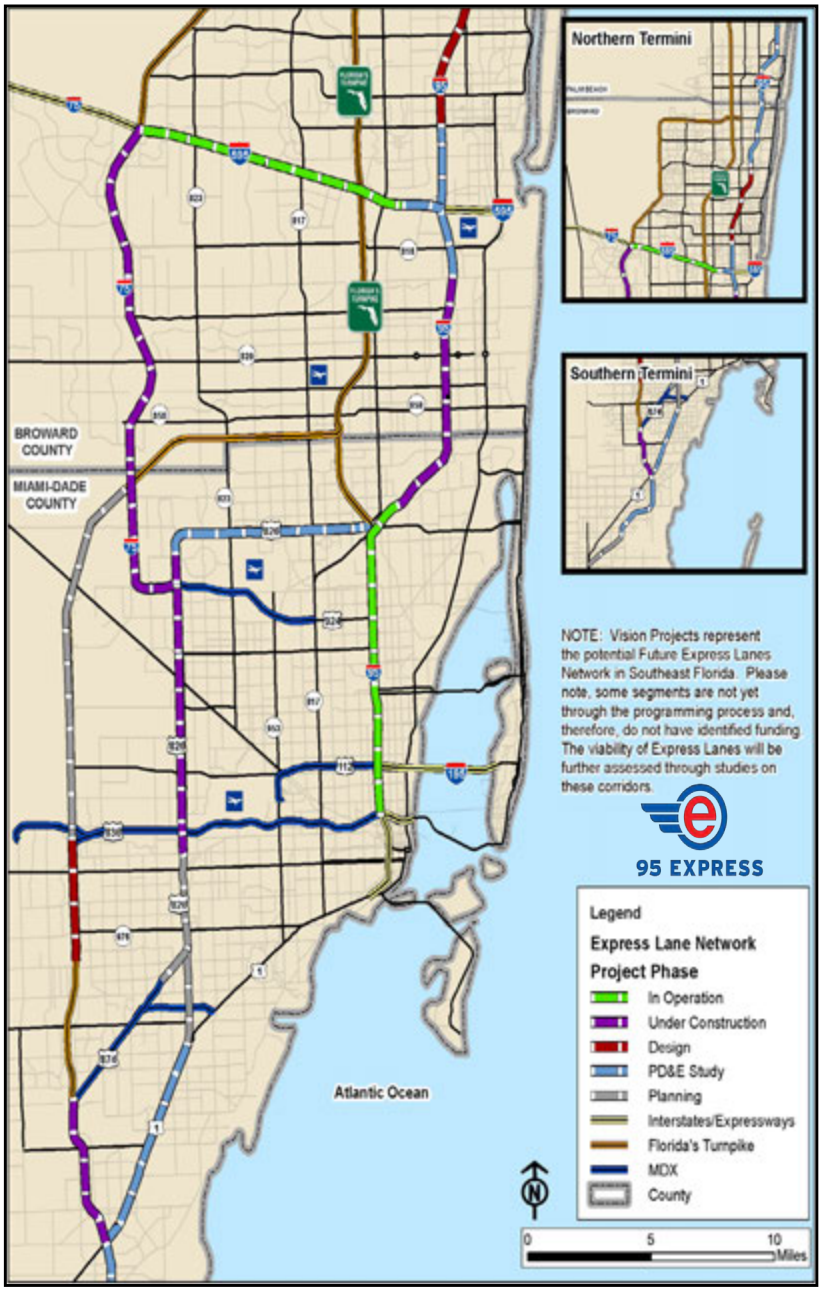
FDOT District Six Updates Citizen Committee on South Florida's Express Lanes Network

By Javier Rodriguez, FDOT District Six

The Miami-Dade Metropolitan Planning Organization's (MPO) Citizens Transportation Advisory Committee (CTAC) visited the Florida Department of Transportation (FDOT) District Six's transportation management center this spring to learn more about the express lanes network being planned for the region.

CTAC serves as a forum for citizens to raise issues associated with transportation projects and planning. It is made up of approximately 20 members and convenes every month to ensure that proposed projects are being implemented in a way that is responsive to the community's needs and goals.

The committee wanted an update about the express lanes projects that will ultimately make up the cross-county network in Miami-Dade and Broward Counties. They wanted to know how the current projects were working and how the overall network is progressing.



Express lanes network in South Florida.

District Six representatives provided the group with a comprehensive overview of each project's status as well as the vision for the network. The update began with FDOT's longest-running managed lanes project, 95 Express Phase 1. The group was briefed on the operational benefits 95 Express has provided along the corridor including additional travel choices and improved speed reliability. The project's bus rapid transit system was presented as a successful example of 95 Express by noting its popularity through increasing ridership numbers and additional routes. It was noted that the expansion of 95 Express to Broward County (Phase 2) and eventually to Palm Beach County (Phase 3) will build upon the results of Phase 1 and thus increase the reach of system benefits to a more regional level. Staff also updated the group on 595 Express. The key differences between 595 Express and 95 Express were noted as an example of how even though each project may be unique (based on corridor demands), they all work to achieve the same mission of improving trip reliability for all commuters. The presentation ended with a status update on the 75 Express, Palmetto Express, and Florida's Turnpike Enterprise construction efforts to enhance the network.

The committee showed great support for the creation of a regional express lanes network based on the information presented. They cited the benefits experienced from 95 Express Phase 1 as a reason for their support and also provided additional operational strategies for project and network consideration. All recommendations were documented by the MPO representative and follow up discussions will be held in the future.

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

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ITS Florida April Board Meeting and Networking Event – A Great Success

By Stephanie Hoback on behalf of ITS Florida

One of the many benefits ITS Florida offers its members is a venue for transportation professionals from private and public sectors to network and share institutional knowledge. Our latest event was our ITS Florida Board meeting that took place on April 15, 2015, at the Tallahassee Traffic Management Center located in the Leon County Public Safety Complex at 911 Easterwood Drive, Tallahassee Florida.

ITS Florida treated members and guests to a guided tour of the state-of-the-art shared facility, led by Mr. Wayne Bryan, Signal System Engineer at City of Tallahassee.

The rainy weather did not stop the fun. The meeting was followed by a networking social event held at the University Center Club at Florida State University's Doak Campbell Stadium. The event was well attended and a wonderful time was had by all.

We look forward to seeing you at our next event.

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: Time to Get Ready

By Randy Pierce, FDOT Traffic Engineering and Operations

Summer is approaching and here in Florida that means wonderful, warm, sunny beaches, but it also means hurricane season. Each year about this time, the public is advised to double check their hurricane preparedness plans and stock up on those important safety items. At the Florida Department of Transportation (FDOT) the plans may be different, but the process is the same. For a large distributed state agency in a coastal state known for its hurricanes, FDOT's preparedness plans are extensive. As part of this agency, the intelligent transportation systems (ITS) statewide network is no different. In some ways, preparations for the hurricane season are actually part of the normal everyday operations of the statewide network; however, FDOT implements some special measures in the months right before June.

The ITS statewide network is a complex, mission critical infrastructure that supports FDOT's operation of mobile voice radios, inter-transportation management center communications, bridge wind-speed monitoring during severe weather, connections to the State Emergency Operations Center, and other applications. These important operational tools are used on a daily basis, but are especially important during a severe weather event, such as a hurricane, that can disable other forms of communications such as cell phones and the Internet. FDOT's ITS Program maintains the statewide network systems using robust telecommunications industry standards ensuring that all aspects of the network will be as survivable as possible in the event of a hurricane.

To review an example of the ITS statewide network preparedness plans, consider the power systems at each network site. Each critical location in the ITS statewide network, either a microwave tower site or fiber optic site, or both, has a battery backup system to allow them to continue to operate when commercial power fails. But these battery systems are designed to last only a few hours. With a major hurricane, commercial power failures can last days, if not weeks. To permit the ITS statewide network to continue to operate for these longer periods, FDOT relies on generator systems installed at each site. The proper maintenance of these generator systems is the key to ensuring they will operate when needed – during a hurricane. FDOT tests these generators each week of the year, not just before hurricane season. Once a week these generators are started and the commercial power connection is switched to them so they are running the load of their ITS statewide network site. This weekly exercise operates the motor and fuel system and all turning parts of the generator to keep them ready should they be needed. Any faults during the test exercises are quickly repaired. FDOT does make one There is one change to these power systems that is made in the months before hurricane season. The generator propane fuel tanks are topped off and kept full! This practice ensures that FDOT cost-effectively manages these systems during the rest of the year. The fuel storage tanks are large and can run a typical ITS statewide network site for more than a week should a large hurricane cause significant destruction to Florida's fuel servicing infrastructure. However during the rest of the year, if there are no impacting hurricanes, some of the stored fuel is used for weekly tests. It is assumed that during a localized significant power failure caused by something other than a hurricane, it will be possible to refill the effected fuel storage tanks within a few days.

Microwave tower.

Generators are located at the base of each tower.

The ITS statewide network sites are modern and their efficient and green specifications not only save money and serve an environmentally conscious society, but also help with hurricane season preparedness. The use of propane as a fuel instead of diesel for the power system generators is a better choice for the environment, and also ensures that fuel that sits unused will be reliable and chemically stable when it is needed. In addition, the ITS statewide network sites now have a remote control thermostat that allows FDOT to remotely manage the largest consumer of electricity in these sites: the air conditioner. In the event of an extended commercial power outage due to a hurricane, FDOT's response plans include allowing the temperature to rise a few degrees in the ITS statewide network sites. This increase in temperature will not be significant enough to cause failures of any of the equipment; however, it will extend the operating window for the generator by saving fuel.

FDOT's ITS Program also has a new mobile component to its networking capabilities that is designed to support Internet data communications and provide situational awareness and support for ITS and other partnering federal, state, and local agencies during any emergency (not just a hurricane). The FDOT ITS Program now has three trailers that are able to support FDOT's mission during emergencies. All of the trailers can connect to the Internet and support WiFi® wireless connectivity for ITS operations. Two of the trailers connect to the Internet via either cellular or satellite and the third trailer supports only cellular connectivity. The satellite-based connectivity permits operation of the trailers even in hurricane-impacted areas where cellular and other telecommunications connectivity may be disrupted. Features on some of the trailers include daylight and forward looking infrared nighttime cameras, interoperability radios that allow FDOT personnel to talk with other public safety agencies, and even an experimental fog prediction and detection system under development.

Now, in the months before hurricane season, FDOT's ITS Program is working hard to make sure that these mobile assets are ready should they be needed.

For information, please contact Mr. Pierce at (850) 410-5608 or e-mail to Randy.Pierce@dot.state.fl.us.

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Announcements

Florida's I³ Transportation Showcase

Register now for your opportunity to be a part of bringing planning, design, and technology together in a one-of-a-kind meeting, in a never-before-seen, exciting new conference. The Florida I³ Transportation Showcase will combine topics from many areas of interest for members of each organization.

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FLORIDA'S TRANSPORTATION SHOWCASE

The meeting is being held at the Omni ChampionsGate near the Orlando area. Hotel rates start at $119 with free parking. Register today at https://www.floridasectionite.org/events.html.

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There's Still Time to Register

There is still time to register for the 25th Intelligent Transportation Systems Annual Meeting & Expo being held at the David L. Lawrence Convention Center in Pittsbugh, Pennsylvania, on May 31 - June 3, 2015.

Make plans to join the more than 2,000 industry business leaders, manufactures, investors, researchers, elected officials and policymakers, engineers and public sector participants, as we explore the bridges to innovation through ITS technologies.

Online registration is available at http://itsannualmeeting.org/register/

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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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