SUNGUIDE® DISSEMINATOR

Florida Department of Transportation's Traffic Engineering and Operations Newsletter

FDOT

Connected Vehicle Demonstration at FDOT's TERL

By Derek Vollmer, FDOT Traffic Engineering and Operations, and Stephen Novosad, Atkins

As the Florida Department of Transportation (FDOT) continues its connected vehicle activities by expanding its regional test bed and investigating how autonomous and connected vehicle technology can integrate, it commissioned a series of connected vehicle demonstrations in August at the Traffic Engineering Research Laboratory (TERL). Connected vehicles involve vehicle-to-vehicle (V2V) and vehicle-to-infrastructure (V2I) communications. Many different applications could be developed for connected vehicles and the demonstration at the TERL showcased a few applications to prove the concept.

The first demonstration uses V2V and V2I communications. The roadside unit (RSU) is configured with directional zones that can be used to detect a vehicle driving in the wrong direction. When a vehicle communicates with the RSU, the message includes the vehicle's location, direction of travel, and speed. From the information provided by the vehicle, the RSU will determine if the vehicle is traveling the wrong way within the configured zone. Once a wrong-way vehicle is detected, a message is sent to the wrong-way driver with a warning about traveling in the wrong direction. Messages are also sent to oncoming drivers warning them that a wrong-way driver was detected. The RSU will also send a message to the transportation management center (TMC), alerting the operators of the wrong-way driver.

Wrong-way driving demonstration.

The second demonstration involves V2I and V2V communications. In this demonstration, an over-height detector is used to determine if a vehicle is too tall to travel under an overpass. Once a vehicle triggers the over-height detector, a RSU will send a message to the driver indicating the vehicle is too tall for the overpass they are approaching. The driver will also be instructed to exit the freeway before the overpass. If the driver does not exit the freeway, another message is sent warning the driver of the impending collision and messages are sent to other vehicles approaching the overpass, warning of the impending collision. The TMC will also be alerted that an over-height vehicle is about to hit an overpass.

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The third demonstration also involves V2V communications. This demonstration simulates a hard braking event. A vehicle will be traveling down the roadway with a couple of other vehicles traveling behind it. The first vehicle comes across something that requires the driver to suddenly apply their brakes. The equipment within the vehicle will detect this sudden braking and send messages to surrounding vehicles informing them of the braking event. The vehicles behind the vehicle that braked suddenly will receive messages informing the drivers that a vehicle ahead of them suddenly stopped. The message will also inform the drivers how far ahead the event occurred. For vehicles traveling in the opposite direction, no messages are received.

The fourth demonstration involves V2V communications where one vehicle simulates an emergency vehicle. When the emergency vehicle turns on their siren/light bar, the vehicle will transmit messages to other vehicles around it. Depending on where the other vehicles are located in relation to the emergency vehicle, different messages will appear informing drivers of the presence of the emergency vehicle.

Finally, the fifth demonstration involves both V2V and V2I. This demonstration shows how a message can be relayed from a disabled vehicle that is too far away to communicate with any RSUs. A vehicle will be parked out of range of the RSU. A switch will be activated to indicate the vehicle is disabled and the reason the vehicle is disabled. For example, the vehicle may have run out of fuel or have a flat tire. Another vehicle will pass by the disabled vehicle, and the disabled vehicle will transmit a "mayday" message to the passing vehicle. The message will include the vehicle's location and information about why the vehicle is disabled. When the passing vehicle is within range of an RSU, it will transmit the "mayday" message. The RSU will then communicate this message to the TMC. The TMC can dispatch a Road Ranger to assist the driver with the disabled vehicle. The information in the message will include the vehicle's location and the reason the vehicle is disabled, so the Road Ranger will already be aware of the situation and can obtain any supplies needed prior to arriving on scene.

This series of connected vehicle demonstrations performed at the TERL showcases situations using V2V and V2I communications and how connected vehicle technology will benefit drivers and improve safety on Florida's roads.

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

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Inside the TERL: Today and Into the Future

By Alan El-Urfali, FDOT Traffic Engineering and Operations

Today, the Florida Department of Transportation's Traffic Engineering Research Laboratory (TERL) is recognized as one of the leading traffic control product evaluation laboratories in the southeast region of the United States. With the rapid advancement of intelligent transportation systems (ITS) and the continued efforts by manufacturers to produce technologically advanced products to meet current and future demands, the TERL continues to be steadfast with its mission. The TERL's mission statement – to ensure a uniform system of traffic control devices on the highways of Florida and to improve the safety and mobility of Florida's travelers – is a time-honored tradition of every member of the TERL team. Highly qualified and experienced TERL staff continue to display their enthusiastic approach in evaluating new products and work in concert, confronting challenges such as product deficiencies and devices that do not meet FDOT standards and specifications. Some of the new products certified by the TERL include advanced thermal imaging cameras, power over ethernet (POE) cameras, advanced traffic controllers with touch-screen configuration, POE-managed field ethernet switches, advanced traffic adaptive systems, passive pedestrian detection devices, and light-emitting diode-equipped traffic controller cabinets.

The TERL's vision has been and remains its guiding principal—to be the leader in the evaluation and testing of technology to improve transportation safety and mobility. This spans from 1971, when *Florida Statute* 316.0745 was signed into law, through today's advancement in traffic control and ITS technologies, and into the future where more advanced and emerging technologies, such as connected vehicles, are imminent.

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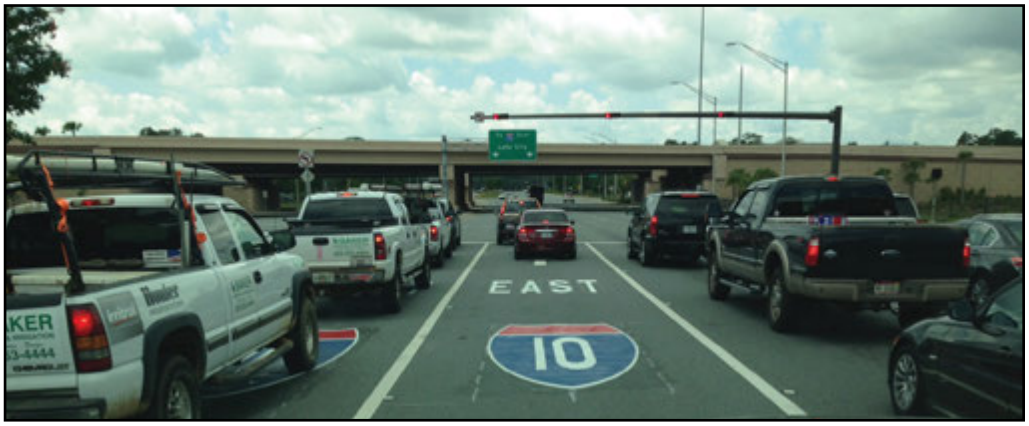
Reducing Wrong-Way Entry Fatalities in Florida

By Raj Ponnaluri, FDOT Traffic Engineering and Operations

Florida's ***2012 Strategic Highway Safety Plan*** pledged support to the Federal Highway Administration's (FHWA) Toward Zero Deaths: A National Strategy on Highway Safety initiative. The Florida Department of Transportation (FDOT) has signed on to develop actionable items to reach this goal. This new initiative to reduce the incidence of wrong-way driving crashes (WWDC) is one such measure. In so doing, FDOT's Traffic Engineering and Operations Office (TEOO), at the direction of FDOT Secretary Prasad, has directed several initiatives to study the incidence of WWDCs, analyze crash scenarios, conduct field investigations, and develop countermeasures to mitigate WWDCs. The multi-pronged strategy includes a multi-disciplinary effort and involves consulting and research, coordination with District offices, and discussion with FDOT's Roadway Design Office. This article provides a brief overview of FDOT's work efforts.

In 2013, the TEOO staff attended the National Wrong-Way Driving Summit and contributed to the discussions on this theme. States that are addressing WWDCs are implementing the conventional countermeasures, which combine signage, pavement marking, and wrong-way detection. Following participation at the summit, TEOO developed its first initiative to deploy two pilot projects on Florida's Turnpike Enterprise (FTE) and in the Tallahassee region. FTE implemented a pilot project on the northern section of its Homestead Extension of Florida's Turnpike from NW 41st Street to University Drive. This 18-mile stretch includes ten exit ramps and comprised of four separate phases:

1. Signing and pavement markings;
2. Mainline detection;
3. Ramp detection; and
4. SunGuide® software enhancements.



Pavement markings on SR 61 indicating I-10 on-ramp.

FDOT District Three implemented a pilot project at four I-10 off-ramps leading to SR 363, SR 63, SR 61, and SR 261 in Tallahassee.

Both projects included detailed design, engineering, filed evaluations, and technology used for wrong-way detection. Due to several WWDCs in the Tampa area, the District Seven Traffic Operations Office conducted a District-wide inventory of off-ramp locations and started upgrading signing and pavement marking to provide better visibility along off-ramp locations.

While learning the lessons from the pilot project implementations, FDOT initiated a statewide study to:

- Review and analyze WWDCs in the state during the last five years;
- Review field conditions at 40 fatal crash locations along limited-access facilities;
- Develop countermeasures for a large-scale implementation; and
- Provide recommendations to support the state's WWDC mitigation effort.

To complement this engineering study, a human factors research effort is also underway. The main objective of this research effort is to assess the reasons for drivers mistakenly entering limited-access facilities in the wrong direction.

Experienced traffic engineers from FDOT's TEOO debated extensively, conducted informal audits of arterials leading up to the freeway on- and off-ramps, and concluded that the left-turn arrows preceding the actual turn lanes may in fact suggest to an impaired driver that a left turn can be made while that turn may in fact lead the driver to an on-coming off-ramp. At night time, when traffic is low and lighting is poor, the odds are high that an impaired driver may perceive the wrong turn to be the right move. Following such practical considerations, the Roadway Design Office was consulted to consider changes to current standards for including pavement messages with interstate shields and "To"/'straight arrows' along the left lane preceding the off-ramps.

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Addressing WWDCs is now ingrained in FDOT's culture with all Districts and disciplines actively working together to address this concern. District Four, for example, developed a schematic of signing and pavement marking; the plan suggests using a straight green arrow in the rightmost lane where drivers should not be attempting to make a right-turn onto an off-ramp.

The Traffic Engineering Research Laboratory is actively involved in testing new devices that can help warn the wrong-way motorists. Two examples include the use of a rectangular rapid flashing beacon and an embedded roadway light-emitting diode display that appears to be a stop bar set away from the ramp terminus. This is spaced at a distance that can provide adequate notification for an erring driver to correct along the path. These two devices will be submitted to the FHWA as a Request for Experiment as allowed by FHWA's ***Manual of Uniform Traffic Control Devices***.

FDOT will continue its efforts to reduce the incidence of WWDCs in the state. As many of the current initiatives close out within the next few months, FDOT will expand its efforts to implement countermeasures while adopting new technologies and devices that can support the mitigation of WWDCs.

For information, please contact Mr. Ponnaluri at (850) 410-5418 or e-mail to Raj.Ponnaluri@dot.state.fl.us.

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Wrong-way sign with light-emitting diode display.

All Eyes on District Four ITS!

By Dong Chen, FDOT District Four

The Florida Department of Transportation (FDOT) is dedicated in its commitment to educate motorists and partner agencies through a variety of outlets. Throughout the summer of 2014, the FDOT District Four Intelligent Transportation Systems (ITS) Unit was featured in the first-ever historical display case exhibit at FDOT's District Four Headquarter in Fort Lauderdale.

District Four ITS exhibit display.

Following a successful exhibit displaying the I-595 project in the spring, the ITS Unit was selected to exhibit successful program initiatives that seek to enhance transportation services. The end result was an exhibit that not only proved itself as an extremely effective educational tool, but also showcased some of the latest and most advanced ITS equipment in the nation. The display case allows people walking by the exhibit a place to pause before they head out the door; this allows a chance to introduce them to ITS.

The three-month exhibit features live-feed from over 200 closed-circuit television cameras on the freeway camera network, live-feed from inside the SMART SunGuide® Regional Transportation Management Center (RTMC) control room, a blade inside a telecommunication switch, ITS Annual Report covers from 2004 to 2013, and a photo gallery highlighting the District Four ITS Program. Visitors can also receive information on operations, the Traffic Incident Management Program, and the Severe Incident Response Vehicle Program.

In addition to the display case unveiling on July 21, 2014, Dong Chen, the District Four ITS Program Manager provided a live question and answer session with exhibit visitors who wanted to learn more about ITS.

Overall, the District Four ITS exhibit was greatly accepted by the public and private industry representatives. Initial disbelief that "live" operations could be deployed from miles away rapidly turned to appreciation while the exhibit viewers observed the RTMC operations team actively managing a live traffic incident.

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FDOT Develops Incident Management Plan for 95 Express Phase Two

By Javier Rodriguez, FDOT District Six and Daniel Smith, FDOT District Four

The Florida Department of Transportation (FDOT) is working to launch Phase Two of the 95 Express Lanes Project in southeast Florida by the middle of next year. The project will span two counties and, when complete, it will feature a total of 21 miles of express lanes between Miami-Dade and Broward Counties.

To prepare, FDOT is building on the success of Phase One, which launched in 2008 and has been operating in Miami-Dade County for the past five years. Districts Four and Six have been working together on all aspects of operations and recently presented Phase Two's incident management plan at a joint Traffic Incident Management meeting in August.

Preparing for 95 Express Phase Two.

Both Districts had a hand in developing the plan, which takes into account the unique incident management scenarios the expansion will present for each county and its regional partners. It outlines recommendations and performance goals that will position FDOT to provide a seamless response and achieve a high level of reliability for the facility. The plan recommendations are based on experience FDOT has amassed in supporting the incident management efforts for Phase One. Both Districts evaluated the effectiveness of the plan and took stock of their existing resources. Past trend were analyzed to identify areas of improvement and project future performance.

As a result, they outlined new performance goals for Phase Two that called for the event verification time to remain under two minutes; incident response times to remain under ten minutes; travel-lane blockage duration times to remain under 20 minutes; and have the facility available to drivers for non-recurring incidents 97 percent of the time or more.

To achieve these goals, the plan recommends supplementing the project's existing operational and incident management resources. It outlines a communications plan that will guide both Districts when managing and responding jointly to events. This communications guide is especially crucial because incidents may cross county lines and require support from both Districts. It also outlines the responsibilities each District holds for the different scenarios that may arise.

The 95 Express Phase Two Incident Management Plan recommended the following resources be added to help support operations:

- Additional 95 Express operators housed at each transportation management center (TMC);
- Additional Road Ranger tow trucks to patrol express lanes and general purpose lanes;
- Additional flatbed tow trucks staged at strategic locations within the project limits;
- Evaluate feasibility of adding a Class C wrecker;
- Additional incident response vehicles to support incident management efforts; and
- Additional Florida Highway Patrol troopers to support law enforcement efforts.

In addition to these resources, the plan also recommends evaluating the feasibility of adding a mechanism to physically close the facility at applicable locations.

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Going Green!

By Randy Pierce, FDOT Traffic Engineering and Operations

"Go Green" is a global call to use energy more efficiently and to reduce energy consumption in general. Many sectors of industry have been responding and doing their part to help in this effort. We see this now in almost all aspects of daily life—from hybrid vehicles to light-emitting diode (LED) light bulbs to the econo-mode setting on window air conditioners. However, some sectors of industry, which anticipate decades of return-on-investment for their capital costs, have been slower to adopt this green philosophy. One such sector is the telecommunications industry. Traditionally, the investments in capital made by this industry anticipate a ten- to 20-year life cycle for equipment. In some cases, telecommunications industry equipment operating today may have been installed in the early 1990s. Ironically, the explosion of consumer and business demands for data and faster Internet access is changing this paradigm and shortening life cycles so that telecommunications providers can stay current and competitive with technology. This shift toward shorter life cycles has created an opportunity for the telecommunications industry to catch up in its efforts to go green. The Florida Department of Transportation (FDOT) Intelligent Transportation Systems (ITS) Program statewide telecommunications network has been working on going green for almost ten years and serves as an example of how the telecommunications industry needs to move quickly to heed the call to help with this important issue.

The FDOT ITS statewide telecommunications network includes almost 70 microwave tower sites that link together forming a backbone for many ITS applications to traverse the state of Florida. You can see these towers in the right-of-way as you drive Florida's interstates. At the base of every one of these towers is a small building, or equipment shelter, that houses the complex telecommunications equipment that operates the ITS statewide telecommunications network. These shelters are standard in the telecommunications industry. You will see them in operation on the telephone and cable networks near where you live and at the base of many cellular telephone towers. Almost all of these shelters have several design features in common. FDOT has been working hard to improve the energy efficiency of several of these design features and these improvements are all portable to other telecommunications providers in the industry.

One design feature that has been improved is tower lighting. Most of the ITS statewide telecommunications network microwave towers have lighting systems to warn airplanes in the area that there is an obstruction in the way. Older obstruction lighting systems utilized incandescent light bulbs as illuminators. Small lighting systems can consume 2,000 watt-hours of electricity during operation. As these systems reach end-of-life, FDOT is replacing the entire obstruction lighting system with modern solid-state controlled LED systems. An entire LED obstruction lighting system consumes less than 500 watt-hours during sustained operation, thus offering at least 75 percent improvement in electrical energy efficiency. LED technology also promises improved performance and reliability as well as increased safety for airplanes. Improved reliability also means reducing the need to hire climbing crews who travel to these sites to make repairs. With almost 70 sites, the reduction in servicing is significant. Reducing maintenance activities also contributes indirectly to the go-green philosophy.

Each equipment shelter is air conditioned to protect the telecommunications equipment inside and provide an acceptable work environment for maintainers.

One of FDOT's microwave towers.

Energy efficiency is also being realized with the replacement of 15-year-old air conditioners with modern units utilizing two-stage rotary compressor technology. Fifteen telecommunications sites were upgraded and an average electrical energy efficiency improvement of 40 percent was measured among the sites. FDOT has also replaced the thermostats that control these air conditioners. Traditionally, the temperature was maintained at a constant level using a fixed thermostat. Now, ITS network-connected thermostats permit FDOT to adjust the thermostat level remotely. With this design feature change, several strategic operational profiles are possible and the biggest energy consumer in the shelter can be operated in a much greener way. For example, the temperature can be raised to the minimum acceptable level for the communications equipment in the shelter, and then lowered in advance of a planned maintenance activity for personnel to work in the shelter. Also, if a severe weather event is anticipated, like a hurricane, the temperature can be raised in the shelters in threatened areas to preserve generator fuel. The elevated temperature may make it uncomfortable to work for long periods in the shelter and there may be some risk of long-term impact to the equipment. However, the ability to keep the equipment operational long after a hurricane has passed and commercial power has not yet been restored is a significant strategic advantage to FDOT personnel who rely on ITS applications carried on the telecommunications network.

New LED obstruction lighting on microwave towers.

Most telecommunications shelters, including all of FDOT's ITS statewide telecommunications network shelters, rely on battery power to operate the equipment. The use of battery power ensures that equipment will not experience any power failures, even when commercial power has failed and the back-up generator is still starting up. FDOT has begun upgrading its battery plants and associated charging power supplies, called rectifiers. The new rectifiers use more efficient technology, known as switching power supply technology, which offers a 25 percent electrical energy efficiency improvement and substantially improved performance, reliability, and maintainability. In fact, all new power supplies that FDOT's ITS statewide telecommunications network deploys now use switching power supply technology.

As indicated, in the event of a power outage many telecommunications shelters, like those of FDOT's ITS statewide telecommunications network, switch from commercial power to an on-site generator to provide electrical power to run the shelter. FDOT has been replacing aging diesel generators with new, more efficient, cleaner burning, propane generators. Unlike diesel fuel, propane has a virtually unlimited shelf-life and cannot contaminate the soil and surrounding environment the way diesel fuel does when it spills.

Day/night strobe with a 75 percent efficiency improvement.

FDOT has been very pleased with the success of all of these shelter design improvements. Their strategic deployments have not only made the planet greener, but in most cases have saved FDOT and, thus, Florida's taxpayers a great deal of money. All of the improvements made by FDOT are appropriate for just about any telecommunications provider's shelter in use today. If the collective social consciousness that is demanding we all think greener is not enough to sway a provider or business to operate more efficiently, the associated business case model that will increase long term profits by reducing operational costs should.

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SunGuide® Software and Waze© Data Integration

By Derek Vollmer, FDOT Traffic Engineering and Operations, and Clay Packard, Atkins

There are millions of traffic probes throughout Florida's roadways just waiting to be tapped into. Anyone with a smartphone can participate by using the Waze© mobile application. Waze is a navigation, entertainment, and social media mobile application where users can receive traffic information and directions as well as post events they find during their journey. Waze harvests the crowd-sourced input from users and compiles real-time traffic information that is sent back out to users through the app. The Florida Department of Transportation (FDOT) is always interested in exploring cost-effective sources of traffic information for Florida's roadways. Moreover, many of Florida's arterial roadways are not currently instrumented to obtain traffic information directly. Having access to this real-time, crowd-sourced data feed helps to provide much broader coverage for Florida's roadway networks, especially where there is no instrumentation.

FDOT is also interested in a way to provide Florida's roadway users with the rich, real-time traffic data that FDOT generates. Waze is a platform to reach many Waze app users as a distribution channel to present FDOT's real-time traffic data along with other value-added features, such as voice navigation, a touch of gamification, and some social media functionality.

To realize these benefits, FDOT and Waze have agreed to mutually exchange data. FDOT has provided access of their third-party data feed to Waze for real-time traffic information, and is also providing planned road closure information. Waze has provided FDOT with access to the Waze data feed that includes their crowd-sourced traffic incidents. Both parties must providing attribution to one another to identify the source of the incident notification. Waze already attributes specific users that contribute incident notifications, so it was natural for them to attribute FDOT-reported incidents as "reported by Florida Department of Transportation." The Florida 511 advanced traveler information system (FL511) will initially do a global attribution stating "some data contributed by Waze" once FDOT begins using the data. This statement will later be replaced by attribution only on the events having Waze as the first notifier.

The Waze data in SunGuide® software will provide an additional incident detection source. The goal of the Waze data integration into SunGuide software is to deliver Waze data to operations, where it can be processed in a way that minimizes any impact and meets FDOT's desire to utilize and publish data through FL511 on schedule. In order to accomplish this goal, Waze data will be processed in two phases. The first phase of the Waze data integration uses an existing center-to-center (C2C) feed to transmit Waze incidents and populate them on the map as read-only remote center events. A quick modification will be made to the map to indicate which events are Waze incidents, as opposed to local Event Management incidents. The SunGuide software operator map will distinguish Waze incidents with a large, red 'W' attached to the otherwise standard event icon set and will draw attention to Waze incidents with a red, blinking alarm circle for the first two minutes they appear. Operators will then manually create their own local event using information from these Waze remote C2C events and manage the local event as a normal event with a secondary notification source.

The second phase of the Waze data integration into SunGuide software will make this much more user-friendly and semi-automated, much like how the Florida Highway Patrol computer-aided dispatch incident data operates. Phase 2 will employ the Incident Detection Subsystem (IDS) to present an actual SunGuide software IDS alert to the operator. The alert handling functionality will then offer to create the event and populate it with as much information as available. Another option will be offered to dismiss the alert and associate it to an existing event. The phase 2 design goals are to help simplify the operation by reducing the number of actions operators are required to take to process and publish Waze incidents. Additional improvements will be considered, including the addition of a find-on-map function added to the alert. This button will help the operator easily reference the map to check on other events that may already be created for the actual incident.

Having Waze incidents presented to operators in SunGuide software is necessary to consolidate notification sources so that each incident is only published once. Also, operators only verify the first notification to publish verified incidents on instrumented roadways. This will provide a more reliable information source to motorists for instrumented state roadways. Waze can help get some incident information to motorists where ITS assets are not available. Waze events published to the FL511 system will include an attribution flag in order to attribute Waze-notified events.

SunGuide® Disseminator Word Challenge

This effort is helping FDOT benefit from crowd-sourced information and is also providing another distribution channel for FDOT's data. It will help motorists stay informed and plan for efficient, safe journeys on Florida's roadways.

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

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We invite you to have some fun and complete the *SunGuide Disseminator* Word Challenge!

Unscramble the letters to complete the word for the clue found under the boxes.
Use the letters in the red circles to complete the final puzzle.
The answers can be found on the page 12.

Enjoy
and
Good Luck!

And they said old timers weren't □□□□□□□□□ back then!

N E D R A N M S T O I T O

□□□○□□○□□□□□○

This was held at the TERL to showcase connected vehicle.

G E Y E R N

□□○□□□

FDOT is working to improve this efficiency in telecommunications.

D W C W

□□○○

FDOT is developing initiatives to mitigate these incidences.

G A X E C E H N

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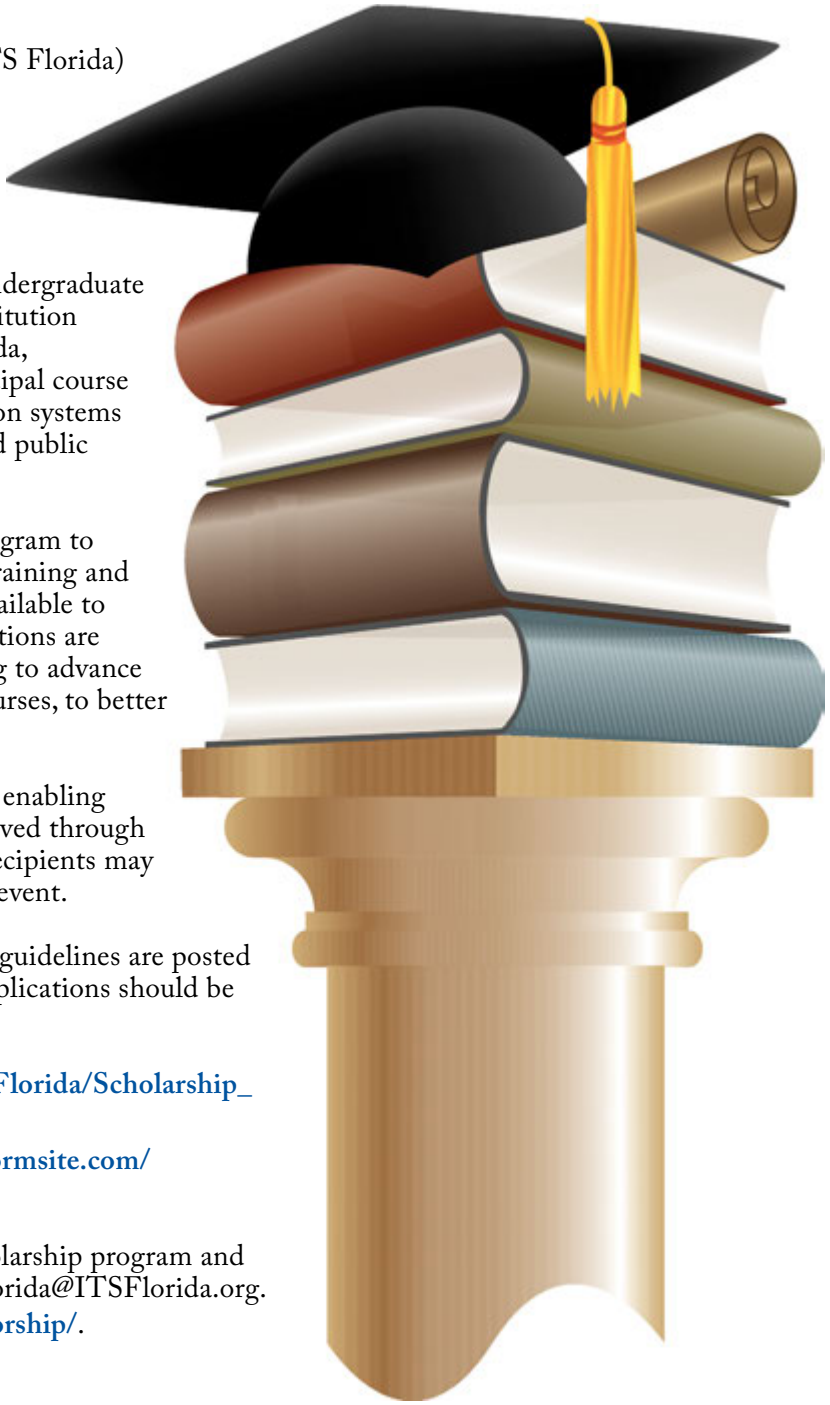
FDOT and Waze have an agreement to do this with data.

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 in the public transportation field as a career 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.

There is an Academic Scholarship opportunity available to undergraduate and graduate students attending an ITS Florida member institution (Florida International University, University of Central Florida, University of Florida, and 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 Training and Certification Scholarship is available to public and private sector nominees whose respective organizations are members of ITS Florida. The 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 the opportunities that can be achieved through education, training, and certification programs. Scholarship recipients may have an opportunity to give a presentation at an ITS Florida event.

The deadline for submission is September 26, 2014. Detailed guidelines are posted on the ITS Florida web site for the 2014 scholarships and applications should be submitted to the following sites:

- **Academic Scholarship**: **http://fs16.formsite.com/ITSFlorida/Scholarship_Academic_com/index.html**
- **Training and Certification Scholarship: http://fs16.formsite.com/ITSFlorida/Train_Cert_Scholarship/index.html**

Anyone interested in information about the ITS Florida scholarship program and sponsorship opportunities may contact Sandy Beck at ITSFlorida@ITSFlorida.org. Sponsorships are also available at **http://itsflorida.org/sponsorship/**.

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Editorial Corner: Systems Engineering – What's the Point?

By Kris Milster, FHWA, Florida Division

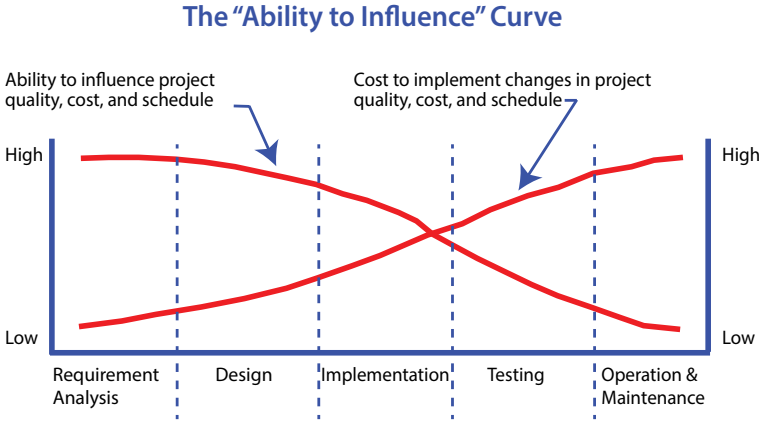
Since the Florida Statewide Systems Engineering training almost two years ago, engineers have constantly asked, "Why are you making us do a paper work exercise? Why do I have to go through a process when I already know what I want? I am an engineer, and now you are saying I need a Master's degree in English to implement transportation systems?" While I certain sympathize with this – especially the last question– the systems engineering process is not just a requirement, but a good business practice.

One of my latest responses to a peer was as such—the Systems Engineering process can be likened to buying a car. You don't just walk to a car dealership and hand them a blank check so they buy a car for you. They'll have no idea what you want and you will end up being unhappy. What most people do is research what they need, shop around, and take a test drive in a few vehicles to see if those meet their needs. Only after this will they finally purchase the vehicle. The same goes for systems engineering. One's needs are assessed and then validated using a rigorous process, and with this process, there are two fundamental reasons to why we go through systems engineering: project configuration and risk mitigation.

First and foremost, systems engineering is a process to deliver complex, high-tech projects. Intelligent transportation systems (ITS) complexity is compounding daily. We are almost at a point where the chewing gum and paper clips we have put on existing systems for years can no longer support us. Now the industry is moving fast into the concept of transportation systems management and operations, including multi-modal integration, connected vehicles, express lanes, and active parking. While these are great in theory, the question is always how do we implement them? How do you take abstract technology concepts and turn them into workable solutions for travelers? These efforts require advanced software, multiple stakeholders and technologies, and a solid communications infrastructure—each compounding the risk and uncertainty of the project.

The second item is that systems engineering lowers risk of failure for these projects, which have a historically low rate of success. Did you know that only about a third of information technology projects are considered a success, according to the Standish Group? Would you be comfortable investing your funds knowing that two out of three times you will lose your money? As an industry, we should take every precaution necessary to mitigate these issues as failure takes place in many forms. It can be construed as overrunning costs, delaying the project, or reducing functionality of the system. These failures are unacceptable for ITS projects and hurt the credibility of our industry.

It would be wrong for me to sit up here in my ivory-laden tower without poking the Feds in the eye at least once. The most recent publicized example of poor systems engineering is through the launch of the extremely complex health care web site. According to a recent Government Accountability Office report, "CMS [Centers for Medicare and Medicaid Services] incurred significant cost increases, schedule slips, and delayed system functionality for the FFM [federally facilitated marketplace] and data hub systems due primarily to changing requirements that were exacerbated by oversight gaps." The requirements were changed up to six months before release because they were not well-defined at the beginning. Using the Ability to Influence Curve, we can show that CMS should have made these requirements concrete near the beginning. They could have avoided failure as the quality, cost, and schedule would not have been sacrificed. This constant changing late in the project's life-cycle led to the failure of the system, which is what the systems engineering process is set-up to avoid.



While this example is not indicative of all projects, the main point is this: we need to embrace systems engineering if we ever hope to have the most advanced and useful systems. Rather than viewing it as an impediment, the process needs to be viewed as a way to build success. Then, and only then, will we be ready for the challenges the 21st century is holding for us (along with keeping blank checks out of the hands of car dealers).

For information, please contact Mr. Milster at (850) 553-2246 or e-mail to kris.milster@dot.gov.

Sources: http://www.gao.gov/products/GAO-14-694 / http://www.ops.fhwa.dot.gov/publications/seitsguide/seguide.pdf

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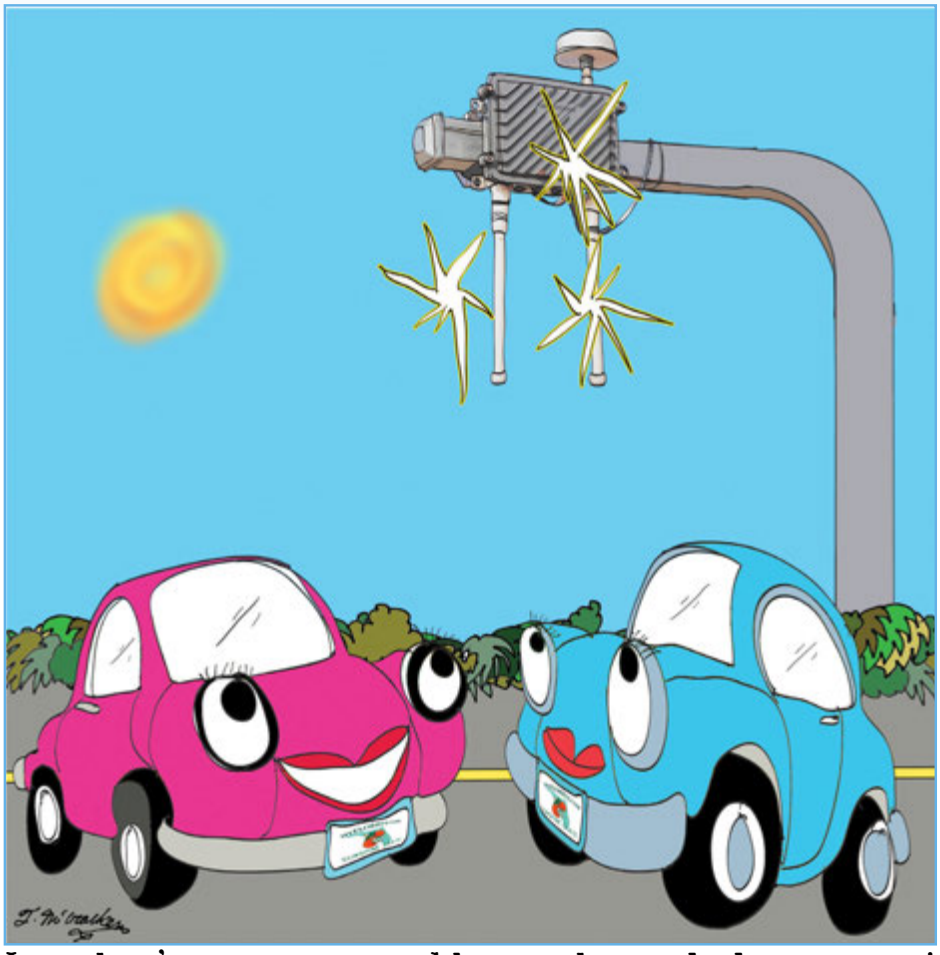
Moment of Humor!



I see they're putting more bling in the roadside units now!

Word Challenge Answers

EXCHANGE

ENERGY

WWDC

DEMONSTRATION

GONNEGTED back then!

And they said old timers weren't

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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