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DISSEMINATOR

Florida Department of Transportation's Traffic Engineering and Operations Newsletter

New District Four ITS Project Provides Traffic Information on US 27

By Daniel Smith, FDOT District Four

Commercial vehicles comprise a significant amount of the traffic on US 27 in South Florida. In planning an intelligent transportation systems (ITS) deployment project along US 27 in Broward and Palm Beach Counties, the Florida Department of Transportation (FDOT) District Four ITS managers wanted to make sure commercial vehicle drivers receive information on crashes and congestion. To do this, they incorporated a new way to disseminate alerts – a Citizens Band (CB) radio channel.

This is the first time FDOT District Four included a CB radio channel in an ITS project, according to Jason Trujillo, FDOT District Four Senior ITS Design and Deployment Engineer. The \$4.5 million project also includes closed-circuit television cameras, dynamic message signs, vehicle detectors, highway advisory radio, and a road weather information system. This ITS project will be managed from the SMART SunGuide® Transportation Management Center in Fort Lauderdale.

The project extends 46 miles, from Griffin Road south of I-75 to State Road 80 in South Bay. The four-lane highway is heavily used by trucks hauling gravel from a rock quarry along US 27 as well as trucks carrying harvested sugar cane to processing mills in western Palm Beach County. It is also a major long-haul truck route.



46-mile ITS project on US 27 in District Four.

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Commercial vehicle crash on US 27.

The ITS improvements will enhance the efficient movement of goods and services, providing traffic information and travel times to truckers and other motorists. There are few cross streets along this remote section of US 27 and no convenient detours between I-75 and SR 80. Real-time alerts about crashes and other lane-blocking incidents will enable motorists to adjust their route before entering the facility and avoid delays. In the past few years, there have been a number of severe crashes that forced the closure of the highway for hours. One of the most tragic was a crash in February 2010, involving a tractor trailer and a truck towing a livestock trailer. The incident resulted in a fatality and the death and injury of dozens of farm animals.

Actual construction activities are expected to begin in early 2013, following five months of design. The project is scheduled for completion at the end of 2013.

For information, please contact Mr. Smith at (954) 847-2785, or email to Daniel.Smith@dot.state.fl.us.

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District Six Launches “Put it Down” Distracted Driving Campaign

By: Carlos Sarmiento, FDOT District Six, Community Traffic Safety Program Coordinator

On August 22, 2012, the Florida Department of Transportation (FDOT) District Six hosted a kick-off event at the SunGuide® Transportation Management Center, in anticipation of a safety campaign to inform drivers in Miami-Dade and Monroe Counties of the risks of distracted driving. The “Put it Down” campaign, which targets drivers between 16 and 24, is expected to continue through October with a series of community outreach events and dissemination of safety messages throughout the District.



Representatives from the partner agencies discuss contributions to the campaign.

“Text messaging while driving causes a driver to be physically, visually, and cognitively distracted, which is an extremely dangerous combination,” says FDOT District Six Secretary Gus Pego. “Nothing – no message, no phone call – nothing is worth driving while distracted.”

According to the Pew Research Center, 40 percent of American teens say they have been in a car when the driver used a cell phone in a way that put people in danger. In addition, 11 percent of all drivers under the age of 20 involved in fatal crashes were reported as distracted at the time of the crash. Statistically, this age group has the largest population of distracted drivers.

For information, please contact Mr. Sarmiento at (305) 470-5437 or email to Carlos.Sarmiento@dot.state.fl.us, or visit www.distraction.gov.

Educational institutions that have partnered with FDOT include: the University of Miami, Florida International University, Miami Dade College, Barry University, and Miami-Dade County schools.

The Florida Highway Patrol, Miami-Dade Expressway Authority, Florida’s Turnpike Enterprise, the Dori Slosberg Foundation, Florida’s Community Traffic Safety Teams, Florida Department of Highway Safety and Motor Vehicles, South Florida Commuter Services, Miami-Dade County, Miami-Dade Metropolitan Planning Organization, and AAA/Traffic Safety Foundation have all joined the campaign efforts as well.



Participants were encouraged to take the “Distracted Driving Challenge” using a simulator provided by AAA.

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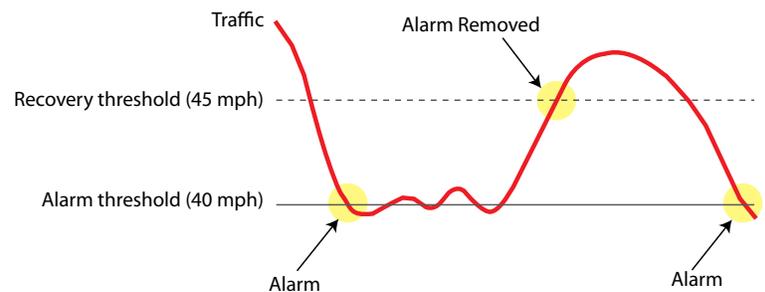
Interpreting Traffic with SunGuide® Software

By Arun Krishnamurthy, FDOT Traffic Engineering and Operations

SunGuide® software is the Florida Department of Transportation's (FDOT) statewide advanced traffic management systems software used at each of Florida's regional transportation management centers (TMC). This article focuses on the software's traffic responsive process that notifies the TMC operators of potential events—called alerts in the SunGuide software. Whenever an incident occurs, the traffic speeds on the roadway decrease. The software monitors the change in speeds and notifies the operator if the speed goes below a pre-defined threshold.

Generating alerts using traffic detector information seemed intuitive and simple at first. However, this turned out to be a challenging task. Traffic conditions are sometimes difficult to interpret; for example, when a roadway segment does not record any traffic, it could mean that there is a crash in the vicinity, or there is really no traffic, or the detector is malfunctioning. So, it is important to look at the possibilities to understand what caused the issue to occur so that the software does not generate false alarms. Generating false alarms not only diminishes the confidence the TMC operators have in the alerts, it also diminishes the value of the alerts. Traffic conditions are dynamic and it is difficult to definitively identify a crash on a facility unless more information is analyzed.

FDOT initially experimented with identifying crash conditions using a single threshold value. The idea was simple—if the traffic speeds dropped below the threshold, it would raise an alarm. We soon realized that sometimes traffic speeds hover around a certain speed. If the traffic speeds hover around the threshold, going slightly above and below the threshold multiple times, the software would generate multiple alerts each time the value dipped below the threshold. These multiple alerts for a single segment within a short time are counter-productive. We improved the software by eliminating this behavior. Once the prior alarm threshold triggers an alert, the software will not trigger a subsequent alert if the speed is fluctuating just above and below the alarm threshold. In order for the software to generate a subsequent alert, the roadway segment must first return to the recovery threshold value, which indicates the segment has recovered back to normal conditions. This ensures that the operators are alerted only when the traffic speeds dip significantly after having been normal. With this modification, we were able to address the limitation of the initial proposed solution. These thresholds are customizable by time of day, allowing for higher variations in traffic speed during peak hours when traffic is unstable, and allowing for smaller variations during non-peak hours.



Incident detection concept in SunGuide software.

However, this solution did not address the no-traffic condition. The alerts are generated using a simple rolling average of speed data for a user-defined period. When there is no traffic, the vehicle detection devices report traffic speed on the roadway as zero and, in some circumstances, there may be only one vehicle in a time period and it could be driving slowly. As the calculation is based on simple averaging across time periods, it weighs the time period with no traffic or one slow moving vehicle the same as the time period with more vehicles driving at regular speeds, thus showing a significantly lower average speed than what is observed on the roadway. We are planning to implement volume weighted speed and travel time calculations. This will allow the traffic speed and travel times to be weighted based on volume. With the volume weighted calculations, the slow moving vehicle is weighted less and no-traffic data is disregarded from the calculation.

As we discussed, traffic conditions are dynamic and are sometimes difficult to interpret; however, it is important for the software to have the business intelligence to identify abnormal traffic conditions. SunGuide software has added business intelligence to help interpret traffic conditions on the roadway. We anticipate that this will help TMC operators identify incidents sooner and help keep the roadways clear and traffic moving.

For information, please contact Mr. Krishnamurthy at (850) 410-5615 or email to Arun.Krishnamurthy@dot.state.fl.us.

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Tomorrow is Here Today

By Elizabeth Birriel, FDOT Traffic Engineering and Operations

The Florida Department of Transportation (FDOT) Traffic Engineering Research Laboratory (TERL) was the site of a very interesting and informative demonstration of an autonomous guided vehicle (AGV). This state-of-the-art, driverless, robotic electric vehicle is designed to shuttle people to short-range destinations such as between airport terminals and around university campuses, large parking lots, and amusement parks.

The TERL hosted the AGV demonstration on August 13, 2012, after almost a week of setup and fine-tuning at the TERL. The demonstration at the TERL enabled safe operation of the AGV along the roadways and through signalized intersections that are part of the TERL campus. The demonstration started with a 15-minute presentation detailing how the AGV operates and ended with a 15-minute demo ride.



Autonomous guided vehicle at TERL.



Demo ride in the autonomous guided vehicle.

movement. It is electric-powered and recharges by induction, a wireless charging system, to transfer energy at each scheduled stop. Since the AGV is a zero-emission electric vehicle, it is also environmentally friendly.

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

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ITS Florida: Prepare for Call for Board of Director Nominations

By Erika Birozak, TransCore, and Sandra Beck, ITS Florida

The Intelligent Transportation Society of Florida (ITS Florida) Nominating Committee and Board of Directors is pleased to announce this call for recommendations for Officer and Director-at-Large positions on the Board of Directors. You can view the current Board of Directors at <http://www.itsflorida.org/board-committees/board-members.aspx>.

Please note that Officers traditionally “move up the ladder”; however, nominations are needed for all positions. In addition to the Officers, there are three Director-at-Large positions open. Positions to be filled for calendar year 2013 in this election are:

- President and Chairman of the Board (1-year term)
- Vice President (1-year term)
- Secretary (1-year term)
- Treasurer (1-year term)
- Directors-at-Large (three openings, each for a 2-year term), one of which must be a representative of an academic organization.

ITS Florida invites all member organizations to recommend potential candidates for these positions. Recommendations must come from a representative of an ITS Florida member organization in good standing and, of course, the recommended individual must be employed by an active member of ITS Florida. If you have any questions about membership, please contact ITSFlorida@ITSFlorida.org. Self-recommendations are acceptable and encouraged. ITS Florida will send instructions and forms to all member organizations in September, or you can download the form at <http://fs16.formsite.com/ITSFlorida/Nomination/index.html>. ITS Florida must receive the completed form back, along with a biographical sketch and vision statement from the proposed candidate, no later than October 9, 2012.

Elections will be held electronically in November, with ballots sent to the primary representative of each member organization.

ITS Florida Bylaws require a balance on the Board of Directors in terms of sector of employment and ITS America membership. Accordingly, the Nominating Committee requests that you identify the affiliation (company) of the nominee as a public agency, private enterprise, or academic group, and their ITS America membership status. The form has space for this information.

The Nominating Committee actually nominates the slate of candidates for approval by the Board of Directors; the Nominating Committee also has the right to nominate its own candidates. A large number of candidates for any office is undesirable; thus, it is possible that not all persons recommended will be nominated. The Board of Directors is always interested in “new blood,” so ITS Florida seeks recommendations to diversify the Board of Directors membership. In evaluating potential candidates, the Nominating Committee considers potential candidates’ past service to ITS Florida, ITS America, or even other State Chapters, if recently moved to Florida; and/or contributions to the intelligent transportation systems (ITS) profession as well as their sector of the ITS industry, and ITS America membership, which is desired, but not required.

Candidates should keep in mind that the ITS Florida Board of Directors will meet in person four to six times in 2013, (usually four times) with possibly four to six additional meetings by teleconference. Officers and Directors-at-Large are expected to participate actively in these meetings and other assigned committee and task force activities during the course of the year. Potential nominees should ensure that their employer is willing to support the time commitment and cover travel expenses.

For additional information, a copy of the ITS Florida Bylaws, which will provide insight into the duties of the Officers and Director-at-Large positions, is available on the ITS Florida web site at <http://www.itsflorida.org/resources/official-documents.aspx>.

If you have any questions, please feel free to contact ITSFlorida@ITSFlorida.org.

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Editorial Corner: Star Wars Technology—We’re Not There Yet

By *Gene Glotzbach*

Wouldn’t it be nice if we actually had the technology that appears in the movies and books we read? Life would be so much easier. We have achieved some success in matching the technology seen on television, at the movies, and in books. For example, the technology that went into the comic character Dick Tracy’s watch years ago is here and basically available to the public through smart phones. We have capabilities for people to communicate with anyone almost anywhere at any time.

Technology is advancing at an ever increasing rate and we can do now what was unheard of just a few years ago; but as wonderful and amazing as today’s technology is, what we write about and see on television and at the movies makes it appear as though technology has advanced much further. The fact that the public now has capabilities at their fingertips that they never dreamed of a few years ago, coupled with

what they see on television or read about, has given them a false impression of what our technical capabilities really are. As far as I know, we have yet to “beam” someone anywhere.

Computers have given us almost instant access to information that we only dreamed about a decade ago. Voice recognition software has made it seem as though we are actually talking to the device in a give-and-take conversation. The voice is no longer that of a machine, but from a real person, giving the perception of talking to a real live person. From what you see at the movies, you begin to get the impression that you are carrying on an intelligent conversation with the device, but you are not. The device is only responding to pre-established commands that have been programmed into software accessed by the device. If you provide a command that the device does not recognize, the device will generally go into an error-handling mode, designed to guide the user to provide a proper command. The device can't interpret what you meant to say. We have yet to develop artificial intelligence that replicates the processes of the human brain; but if you were to believe what you see at the movies, you would tend to think that we have.

When developing technology-based solutions, we must keep in mind what the public's expectations are regarding the advancement of technology, in order to better manage those expectation. The benefits of a good project can be overlooked due to adverse publicity from the public who feel that the project does not live up to the technical capabilities that were perceived to be possible. Adverse publicity, based on public misconceptions of exactly what technological capabilities exist, can end up in many hours spent defending a good project. It's just not possible to satisfy everyone; there will always be that one person who feels that the latest technology in not being used properly.

What will help allay the public's scrutiny of a system is to design a system that uses the latest technology and works as advertised. Utilizing sound systems engineering principles will help assure that your system will indeed work as advertised. Having a system that has been vigorously tested and independently verified and the operation validated, will help assure that you are putting out the best product. That coupled with a good process to address feedback will go a long way in minimizing any adverse feedback.

We can sympathize with the public. We too wish we had the technology portrayed by Hollywood. Image how much better we could manage our transportation system with such advanced technology!

For information, please contact Mr. Glotzbach at (850) 410-5616 or e-mail to Gene.Glotzbach@dot.state.fl.us.

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Announcements

Congratulations Alan!

We would like to congratulate Alan El-Urfali, P.E. on his appointment to the position of Deputy State Traffic Operations Engineer for the Traffic Systems Section in the Traffic Engineering and Operations Office in Tallahassee. Alan will oversee the Traffic Engineering Research Laboratory (TERL), including the Approved Products List (APL) program activities. Alan previously served in our office as the Traffic Systems Studies Engineer.

Alan has over 20 years experience in Transportation Design, Planning, Traffic Operations, Manufacturing, and Civil Land Development with expertise in Traffic Engineering. Alan is a University of Tennessee graduate with a B.S. Degree in Engineering Physics and is currently working on completing his Master's degree in Transportation Engineering.

Please join us in welcoming Alan to his new position.

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Telecommunications Contract Awarded

The Intelligent Transportation Systems Program Telecommunications General Consultant Services contract was awarded to Telvent USA. Negotiations are currently underway to finalize this contract which extends for five years. Work on the new contract begins October 1, 2012.

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2012 Transpo™

October 28-31, 2012
Hyatt Regency Coconut Point

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.

Make Your Plans to Attend Transpo2012 NOW!

Transpo2012 will be here before you know it. ITS Florida would like to invite you to Transpo2012 at the Bonita Springs Hyatt Regency Coconut Point, Bonita Springs, Florida, on October 28-31, 2012. Program and planning committees are already busy organizing an outstanding lineup of exhibits, demonstrations, and technical sessions that will build on topics driving the ITS industry.

More information is available at <http://www.itstranspo.org/>

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