



# SUNGUIDE® DISSEMINATOR



Florida Department of Transportation's Traffic Engineering and Operations Newsletter

## CFX / FDOT Partner for Wrong-Way Driving Countermeasures

By Corey Quinn, Central Florida Expressway Authority

While wrong-way collisions only account for about 3 percent of crashes on highways, the fatality rate for those crashes can be 12-27 times higher than other types of accidents. With the safety of our customers being top priority, the Central Florida Expressway Authority (CFX) is designing and deploying a wrong way driving countermeasures project, starting at key locations on its system. CFX's close coordination with the Florida Department of Transportation (FDOT) has helped to lay the groundwork for an ambitious automated system.

CFX's initial deployment includes multiple locations on the west end of State Road (SR) 408 (Spessard Holland East-West Expressway) and east end of SR 528 (Martin Andersen Beachline Expressway). Locations were chosen based on Florida Highway Patrol crash reports and a study that CFX commissioned from the University of Central Florida (UCF) to determine the extent of wrong-way driving activity on CFX roadways. At each location, there is primary detection equipment on an off ramp, and secondary equipment at exit gores and upstream on mainlines. The following two maps show all secondary locations. For example, on SR 528, "SR 520 WB-1" is the exit gore location and "SR 520 WB-2" is the mainline location, providing two chances to detect a wrong-way driving event.

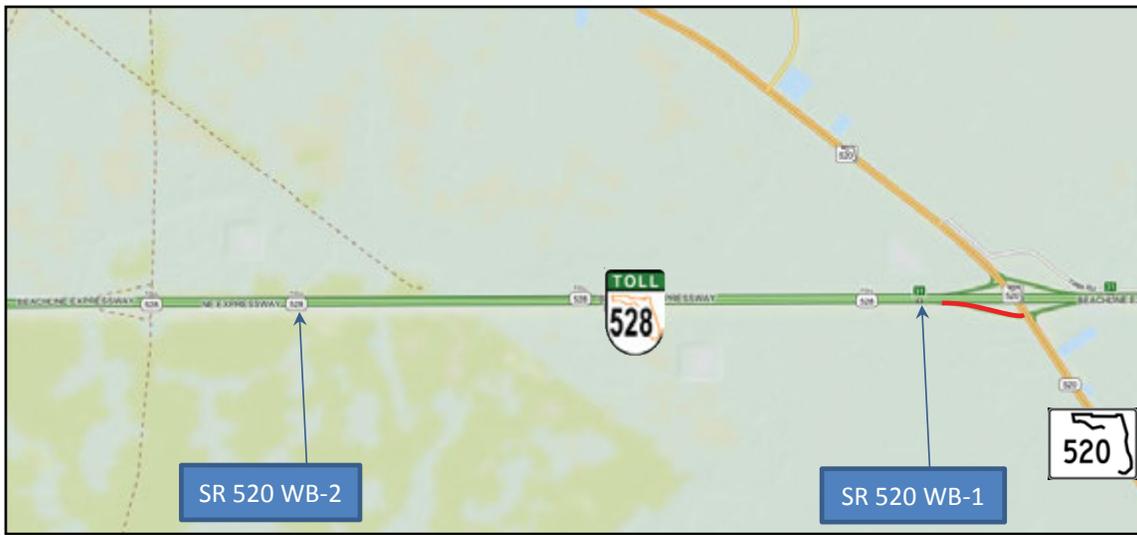


Four pilot locations on SR 408 (two mainline sensors per location).

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One pilot location on SR 528 (two mainline sensors per location).

The figure to the right depicts the deployment concept. The primary system at each site automatically triggers wrong-way warning signs, captures images, and utilizes dual radars upon the vehicle's approach and as the vehicle passes. The secondary system at each site triggers alarms within the SunGuide® software event management to warn traffic operators and designated responders so that the event can be passed to existing dynamic message signs and the FL511 traveler information web site.

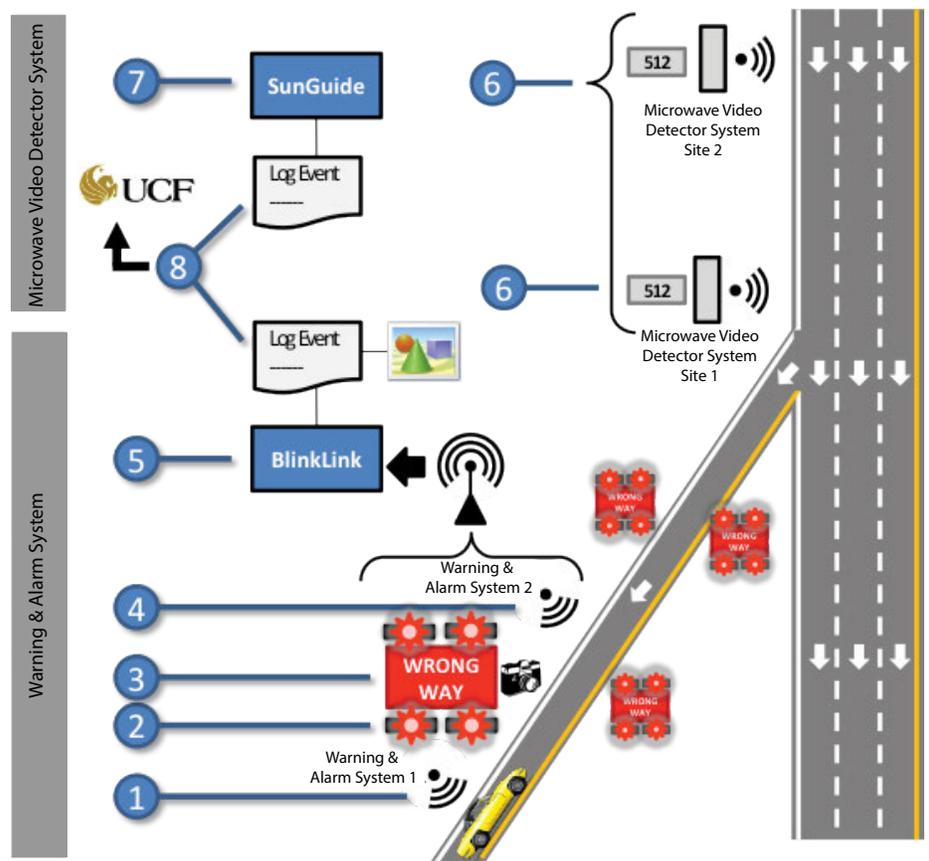
FDOT District Five operations staff manage traffic events on CFX expressways. Although there is automation built into CFX's wrong-way driving countermeasures system, manual operator management of the wrong-way event is critical for first responder coordination to help avoid any resulting crashes and assist with lane and/or roadway closures should crashes occur.

Because CFX is in the study phase of this project and the application of this technology is new to wrong-way detection, there is a possibility for the system to generate false positives – triggering alarms when no wrong-way events occur. Fine-tuning the detector equipment, and establishing operational procedures and tools for operational staff to confirm the events and react accordingly when events are confirmed, is needed.

CFX plans on maturing this system over the coming years, ironing out technological and operational issues, and expanding coverage at more selected locations, including possible locations at open medians. Coordination between CFX and FDOT is important for the continued success of this project.

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### Concept of Operation



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# District Four 2014 Annual Report: Building on our Strengths

By Dong Chen, FDOT District Four

It took a great deal of tactical planning, strong leadership, and smart budgeting in 2014 for the Florida Department of Transportation (FDOT) District Four Intelligent Transportation Systems (ITS) Unit to start deployment of several major new projects.

After five years of construction, the renovation of the I-595 in Broward County was completed and the I-595 reversible express lanes opened in early 2014. The project improvements were implemented through a public-private-partnership (P3) agreement between FDOT and I-595 Express, LLC, to serve as the concessionaire to design, build, finance, operate, and maintain the I-595 corridor improvements project for a long-term commitment of 35 years. The \$1.2 billion design-build project is Florida's first P3, and the country's first availability-payment transportation project.

To channel our strengths and capitalize on the many opportunities we have in the ITS industry, we virtualized our infrastructure servers in 2013 and updated them in 2014. Our commitment to maintain high availability of the ITS network was demonstrated this year by a significant investment in SunGuide® software, FDOT's advanced traffic management system software, which allows FDOT to control and monitor roadside equipment, vehicle resources, and incidents. By upgrading its supporting infrastructure platform, we were able to increase our ability to dynamically provide motorists with timely travel information throughout the District. This allows us the ability to shift processing and storage requirements on demand to various locations whenever major incident management requirements dictate the highest priority level of system resources and attention. With these new platform enhancements, District Four is able to achieve its long-range objective of providing the most robust intelligent transportation management platform in the state.

The *2014 SMART SunGuide ITS Annual Report* highlights these and other accomplishments. The theme of the report, quite appropriately, is "Building on our Strengths." The report is available on the SMART SunGuide web site at <http://www.smartsunguide.com/SmartDocs.aspx>.

One of the highlights of the *2014 SMART SunGuide ITS Annual Report* is the benefit-cost ratio. This important measure shows the value of the dividends passed along to motorists on FDOT District Four investments in its ITS. The 2014 benefit-cost ratio was 10.08. This means each dollar spent on ITS improvements generated \$10.08 worth of benefits. Motorists received these dividends primarily in the form of time and fuel savings from various programs within the ITS Unit. The Road Rangers, for example, assisted with traffic control at thousands of incidents, easing delays and restoring normal traffic flow as quickly as possible.

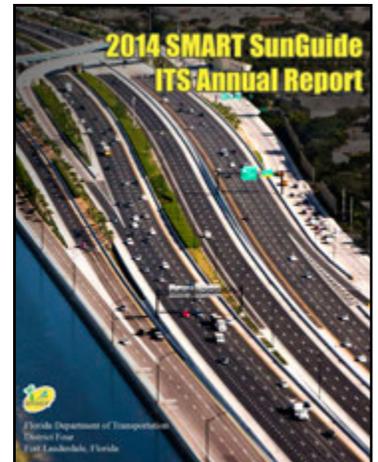
The change in the benefit-cost ratio in 2014 is a result of a six percent cost decrease attributable to lower costs for several of the ITS program's contracts. These costs are considerably less than those normally associated with expanding the highway and facilities. Reducing costs and increasing motorist benefits on the roadways has both a direct and financial benefit for South Florida motorists, substantially trimming the costs they must absorb.

A key performance measure of any ITS program is incident clearance time. For the first time, the ITS Unit experienced a two minute increase in incident duration from 2013 (53.4 minutes in 2013 and 55.4 minutes in 2014). The increase is primarily due to a 40 percent increase in the number of severe, level three incidents recorded in 2014 (open roads duration greater than 190 minutes). Level three incidents are those that impact the traveled roadway for more than two hours or when the roadway is fully closed in any single direction during which there is significant area-wide congestion.

Travel reliability is recognized as one of the most important service measures to travelers, and we will continue the work of implementing the technologies, initiatives, and processes that can advance our performance on behalf of our customers. We are proud to stand by that commitment, now and in the future.

For information, please contact Dong Chen at (954) 847-2785 or email to [Dong.Chen@dot.state.fl.us](mailto:Dong.Chen@dot.state.fl.us).

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# I-4 Ultimate to Transform the Footprint and Future of Central Florida

By Tracie Kendziora, Global-5

If you've driven on Interstate 4 (I-4) lately, you probably aren't surprised that Orlando is ranked number 14 in the country in terms of traffic congestion. I-4 sees more than 1.5 million daily trips, and the average commuter wastes approximately 45 hours stuck in traffic each year. All of this amounts to an annual congestion cost of \$984 per commuter traveling by automobile.

With the I-4 Ultimate project, the Florida Department of Transportation (FDOT) aims to increase the busy roadway's reliability and provide drivers with options — as well as improve the overall flow of the corridor in a radical way. The project includes rebuilding 21 miles of I-4 from west of Kirkman Road in Orange County to east of State Road 434 in Seminole County, adding two new dynamic tolled express lanes in each direction, replacing more than 140 bridges, reconfiguring 15 major interchanges, reconstructing the entire existing roadway, and increasing the posted speed limit to 55-60 mph.



*I-4 Ultimate will promote a more aesthetically pleasing design and an open-air feel to downtown Orlando, while creating the opportunity for art displays, street fairs, and a wider variety of events.*

increasingly attractive options for managing congestion, adding capacity to limited-access roads and providing choices to drivers. FDOT is working tirelessly to find ways to offer Florida drivers new and reliable mobility choices for a connected express lanes system, and I-4 Ultimate is just one piece of that puzzle.

Arguably among the most important projects for Central Florida, I-4 Ultimate is without a doubt the largest infrastructure project in Florida history. With a \$2.3 billion (year-of-expenditure dollars) price tag, I-4 Ultimate is not just another roadway project. FDOT's goal is to create not just a more functional roadway, but also a signature corridor that is unique to Central Florida — complete with a world-class signature bridge, accent lighting, fountain illumination, art sculptures and monuments, bold landscape design, and monumental wayfinding pylons.

The project team recognizes the vital nature of I-4 and aims to accommodate the millions of motorists who drive the roadway each year. The project will greatly enhance the convenient mobility of the labor force and increase access to the communities and businesses that make Central Florida a renowned place to live, work, and play. Thanks to a sophisticated maintenance of

The four new express lanes will be added in the center of the corridor to provide more reliable travel times for motorists. The express lanes will be separated from the general use lanes by a concrete barrier and will be dynamically priced, with the goal of maintaining a speed of 50 mph. The dynamic pricing means the cost of the tolls will be based on the number of motorists using the express lanes instead of the non-tolled general use lanes. Doing so will create more reliable travel options for all motorists, whether they choose to use the express lanes or not.

Express lanes, or managed lanes, are becoming



*Drivers and pedestrians alike will experience a true transformation as the bridges and spaces underneath I-4 are beautified with green space and lighting accents, as seen above at the State Road 408 interchange.*

traffic plan and a dedicated team committed to maintaining traffic flow, Central Florida and its visitors should notice minimal impacts to throughput while realizing significant benefits to the area's economy, community, and livability.

Additional project information, including a full list of lane and ramp closures, will be posted on [i4Ultimate.com](http://i4Ultimate.com). The web site will help keep travelers informed during construction. Everyone is encouraged to visit the site for such project-specific information as an interactive map, road closures and detours, and upcoming events like public meetings and job fairs.

The project team is also developing route-specific text and email alerts that will keep drivers informed about construction plans or traffic accidents directly impacting them. Signing up is free, easy, and will help you take control of your travel and make informed decisions about when and where to travel. These tools will help you know what to expect before hitting the road, which can help make driving through the work zone easier and less stressful.

After nearly two decades of planning, I-4 Ultimate is poised to transform the Central Florida region while connecting our communities, improving our economy, and enhancing livability for everyone.

For information, please contact Mr. Steve Olson at (386) 943-5479 or e-mail to [Steve.Olson@dot.state.fl.us](mailto:Steve.Olson@dot.state.fl.us).

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# District Six Discusses Multi-System Corridors at the Transportation Research Board's Annual Meeting

By Javier Rodriguez, FDOT District Six

The Florida Department of Transportation (FDOT) District Six Intelligent Transportation Systems (ITS) Office was invited to participate in the Transportation Research Board (TRB) 94th Annual Meeting in Washington D.C. earlier this year.

This meeting is one of the most highly regarded transportation events in the industry. It hosts various sessions, workshops, and panel discussions attracting some of the industry's foremost thinkers from around the world. The meeting's theme this year was "Corridors to the Future: Transportation and Technology." It attracted 12,000 participants and hosted 750 sessions and interactive workshops.



*Ramp signaling for I-95.*

Given the meeting's theme, District Six was asked to present its experience with transforming Interstate 95 (I-95) into a multi-system highway that has been meeting driver demand through the use of technology and its congestion management project – 95 Express. District Six was asked to present its efforts as a case study on how to successfully implement a multi-modal project in a way that not only complimented the existing network, but also improved operations and increased its sustainability for long-term mobility results. To illustrate this point more effectively, District Six discussed its experience implementing the ramp metering system, which was launched as a complimentary traffic management strategy a few months after 95 Express opened.

District staff spoke about the fine balance that is required to make all the components of a multi-system project work and

the planning that is involved. Staff noted the potential conflicts associated with these efforts and, more specifically, the interaction of ramp metering with arterial network operations and even congestion pricing itself on I-95.

The presentation highlighted the importance of identifying and coordinating with key agencies. District staff recounted experiences involving the Florida Highway Patrol and Miami-Dade County Traffic Signals Division to form meaningful agency partnerships and build a comprehensive level of community support. They also noted the steps taken in equipping staff with the resources needed to both launch the system and ensure its post-operational success. For instance, they highlighted their strategy of adding national experts, support consultants, and field observers to guide FDOT through this process. They also noted that part of their success was due to having an enforcement plan, a clear public information message, and the software to support operations.

The District's presentation proved that multi-system projects can work if the right combination of strategies are implemented correctly. The presentation was followed by an interactive workshop where participants discussed District Six's efforts and offered alternate modes of implementation. Participants analyzed the District's lessons learned and combined them with their own operational perspectives to offer suggestions. The exercise gave way for a stimulating workshop that promoted conversation behind the meeting's overall theme of enhancing corridors to meet future demands.

More information about the Transportation Research Board's 2015 Annual Meeting is available online at <http://www.trb.org/AnnualMeeting2015/AnnualMeeting2015.aspx>.

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

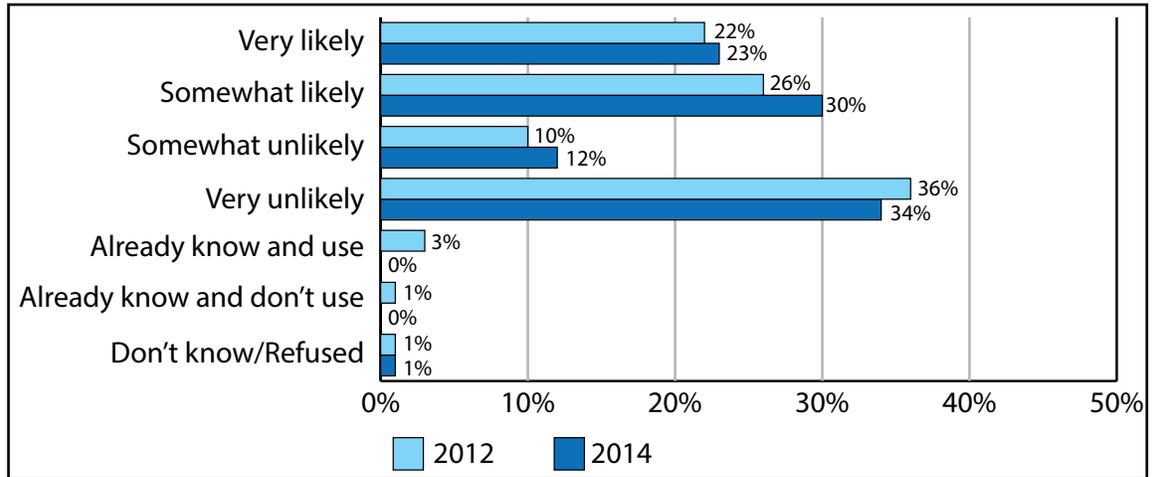
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# FL511 System Begins to See a Transition

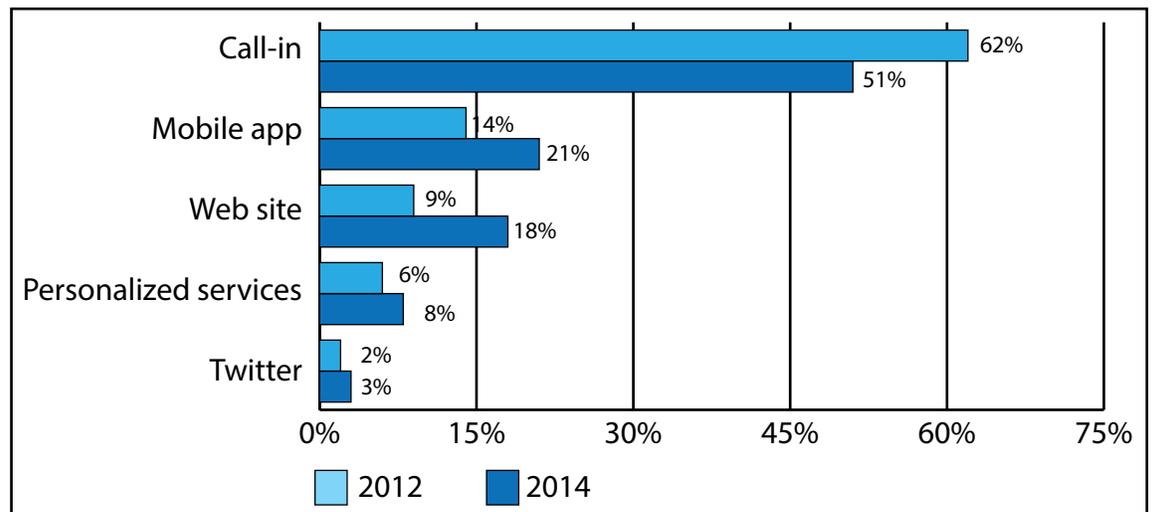
By Jo Ann Oerter, Atkins

Every two years, the Florida Department of Transportation (FDOT) commissions a Customer Satisfaction Tracking Survey to gauge attitudes and awareness for Florida's 511 traveler information system (FL511). In 2014, 300 Floridians were surveyed in each of FDOT's seven Districts, totaling 2,100 survey respondents. Results from the 2014 survey indicate that users do want traffic information and they are utilizing different mediums to access it. As mediums transition, FDOT also needs to shift its marketing effort to target the correct audience.

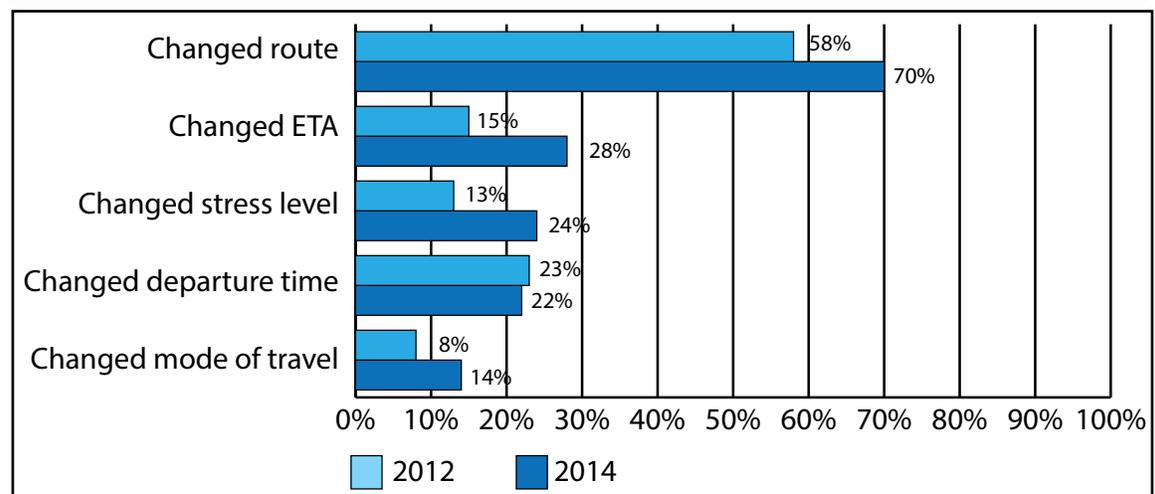
The survey asked participants how likely they would be to use a free service that provided traffic information (top chart). Fifty-three percent of the participants said they would use the service if available. This was only a 5 percent increase from 2012, the last year FDOT performed this survey.



The middle chart show the response when participants were then asked which mediums they use to access traffic information and also which FL511 services they use. Results indicated that the traditional means used to access traffic information – TV and radio – are on the decline. In past surveys, users were more apt to use these traditional mediums to access the travel information; however, with the increased availability of mobile devices and smart phones, those mediums are transitioning to more technological savvy tools such as Twitter, mobile web sites, and mobile applications. All mediums increased with the exception of the phone service; however, the phone service is still the highest utilized tool in the FL511 system.



The bottom chart shows that when asked about how they

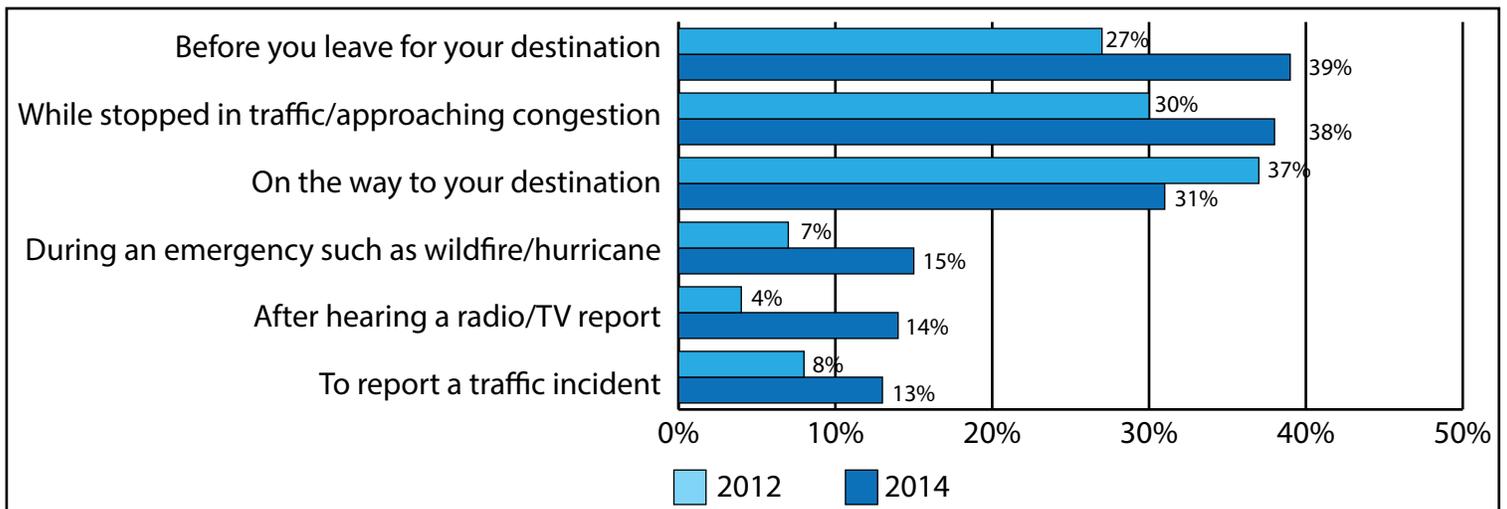


would use the information, the highest response provided by users was that they would change their route (70 percent), followed by changing their estimated time of arrival (28 percent). Twenty-four percent indicated that the information changed their stress level and 22 percent would change their departure time. Fourteen percent indicated that they would be willing to change their mode of travel.



As shown in the survey, having the information about traffic delays has an impact on the user and their trip. The only exception was changing the departure, which did not increase from the 2012 survey. Many areas almost doubled in the percentage of how the information would be used.

Also as expected, users are more prone to using the traffic information from FL511 during emergency situations as well as when they are approaching heavy congestion. Good news for FDOT is they are also using the traffic information before they depart on their trips. This increase can be attributed to FDOT's "Know Before you Go" motto, which encourages users to access the FL511 information prior to departure so they are not distracted while driving.



FDOT is excited that travelers want traffic information and that they are using the FL511 tools available to them to assist with their trips. However, FDOT also realizes that to provide viable, useful services, they need to change with the times as well as modify/increase efforts of marketing tools available to different markets. The transition from using traditional mediums to access traffic information has begun and FDOT is on board to offer the tools its users need.

For information, please contact Mr. Russell Allen at (850) 410-5626 or email to [Russell.Allen@dot.state.fl.us](mailto:Russell.Allen@dot.state.fl.us).

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# Florida's Transportation Showcase<sup>i3</sup> - Bringing Planning, Design, and Operations Together

By Sandra Beck, ITS Florida



The Florida Section of the Institute of Transportation Engineers, the Intelligent Transportation Society of Florida, and the Florida Section of the International Municipal Signal Association are proudly joining together for the first time in Florida's Transportation Showcase<sup>i3</sup>. This unique experience is your opportunity to be a part of bringing planning, design, and operations together in a one-of-a-kind meeting in a never before seen exciting new conference. The summit will be May 26 – 29, 2015, at the Omni Orlando Resort at Champions Gate. This meeting will combine topics of interest from each organization for all members. Registration information will be available soon at [www.floridasectionite.org](http://www.floridasectionite.org).

## Call for Speakers

Attention all manufacturers, technicians, planners, engineers, and vendors. You are invited to submit your unique experiences, operational improvements, or creative projects on any of the following topics:

- Safety and Security
- Transportation Systems Management and Operations
- Integrated Corridor Management
- Freeway and Arterial Operations
- Tolling Systems
- New ITS Technology and Deployments
- Asset Management
- Incident Management
- Mobility and Data
- Florida Department of Transportation's Approved Products List

Please send a short summary to Ken Jacobs at [KJacobs@pinellascounty.org](mailto:KJacobs@pinellascounty.org), Joe Molinaro at [JMolinaro@albeckgerken.com](mailto:JMolinaro@albeckgerken.com), or Sage Kamiya at [vicepresident@floridasectionite.org](mailto:vicepresident@floridasectionite.org) by March 13, 2015.

Product or service sales pitches will not be accepted. This is an opportunity to share important and innovative information for the transportation industry. Please see Exhibitors and Sponsorship information.

[www.floridasectionite.org](http://www.floridasectionite.org)

[www.florida.imsasafety.org](http://www.florida.imsasafety.org)

[www.itsflorida.org](http://www.itsflorida.org)

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# Editorial Corner: FTE Gains Clarity with High Definition Cameras

By Nick Sutrich and Joseph Stephenson, Jacobs Engineering

Over a decade ago, Florida's Turnpike Enterprise (FTE) undertook an extensive project to install cameras along every mile of Turnpike-operated roadways in order to more efficiently manage traffic from their transportation management centers (TMC). Since that time, a new video standard has debuted in the consumer world. High definition (HD) video brings a whole new level of clarity and usability. This level of clarity can easily be brought to the traffic community by replacing the older standard definition (SD) cameras with brand new HD cameras, which provide better clarity. The examples below show the immediate difference in clarity as well as the extra field of view the widescreen lens can provide.



HD resolution gives TMC operators a much clearer picture of what's going on, especially during periods of traffic congestion. At over six times the resolution of SD cameras, the new HD cameras pick up considerably more visual information than ever before. And, it's not just

about the raw resolution change, but an improved ability to zoom the camera. This is achieved through the enhanced optics on the camera itself as well as the resolution of the video. Zooming in with the old SD cameras often produced blurry images,

leaving operators guessing at what they were actually seeing. With the new HD cameras, operators can zoom in much further while still maintaining a clear picture. Zooming in more than a mile still produces a clear picture on the new HD cameras, as seen in the image to the right.



Night time viewing on the older SD cameras was often a difficult venture, as there was no specific night time mode on the camera other than turning the image to a grayscale color palette to try to reduce the amount of visual noise. The Axis HD cameras in use on Florida's Turnpike facility have a dedicated night mode that picks up more light than it would during the day,

giving operators a clear look at the road even when no headlights are illuminating the area. There's even full color reproduction at significantly lower light levels on the new cameras versus the old one, as seen in the image to the right.



Last but not least are the directional labels that can be placed on the on-screen display for the viewer. While each camera has a digital compass inside, the highway doesn't always run in the same direction as labeled. For instance, a highway may be posted as a north/south road, but there are plenty of sections that run east/west depending on the curvature of the road. Because of this issue, labels are critical for identifying direction or landmarks. Displaying "Northbound Side," or landmarks such as "Disney," and other important locations reduces confusion and assists new operators in learning the highway system. This type of labeling

allows for quicker recognition of the area and direction and, therefore, quicker dispatch of necessary resources and activation of intelligent transportation systems devices.

Over 200 cameras have been replaced to date, and the remaining cameras are scheduled for replacement by 2017.

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

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*Directional labels can be placed on the on-screen display for the viewer.*

## 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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