INSIDE THIS ISSUE

The *SunGuide Disseminator* is a publication of:

April 2006 Edition

Florida Department of Transportation (FDOT)
Traffic Engineering and Operations Office
605 Suwannee Street, M.S. 36
Tallahassee, Florida 32399-0450
(850) 410-5600
www.dot.state.fl.us.com

Link to Florida's Statewide ITS
General Consultant

Cell Phone Location Systems State of the Practice

Due to the high cost of installing and maintaining traditional ITS data collection systems, several companies and state DOTs have explored the idea of using cell phone systems to provide traffic information. These

systems take location data that the cell phone companies (such as Verizon, Sprint, and Cingular) already have, refine the data using various algorithms, and output traffic information (such as link speeds or travel times).

Cell Phone Location Companies and Their Technology

The following companies are generally considered to be the market leaders:

- AirSage
- Applied Generics
- Cellint
- IntelliOne
- ITIS Holdings

While they all have somewhat different approaches, they generate traffic information from location data using one or both of the following approaches:

- **Hand-off Method:** As cell phones move, they are transferred from one cell tower to another. By monitoring these hand-offs from tower to tower over time, it is possible to determine the phone's location at various time-points. This data can then be analyzed to determine whether the phone is on a roadway; if it is, then its speed can be determined as well.

- **Other Location Data:** In addition to hand-off data, cell phone companies collect other data that provides information about the location of individual phones. While this data is potentially more accurate than hand-off information, it generally requires that equipment be installed at the cell phone company's switching center, and also only provides information for phones that are in use.

All of the companies listed here use these techniques, either alone or in combination.

For those who remember the first wave of cell phone location companies in the early 2000s, the new technology seems to be much more accurate than the first generation. At the same time, however, questions remain about whether these methods are able to reliably generate accurate traffic data.

U.S. Deployments

The following table shows the location of deployments of cell phone location systems in the U.S., the company involved, and the evaluation status, if known:

Location	Company	Evaluation Status
Norfolk, VA	AirSage	Evaluation under way by Virginia Transportation Research Council

Atlanta, GA	AirSage	Unknown
Tampa, FL	IntelliOne	Unknown
Baltimore, MD	ITIS Holdings	Unknown
Missouri	ITIS Holdings	Phase I of deployment underway; MoDOT to have results by early March
Florida	Various—Study underway at Florida International University	Comparison of various companies' data to existing sensor data underway

Pros and Cons of Cell Phone Location Systems

The key advantage of cell phone location systems is that they require no road-side infrastructure or communications. This can allow for rapid deployment with none of the problems associated with installation. It is this promise that has fueled interest in these systems—if successful, cell phone location systems can collect traffic data over a much wider area and range of facilities than has been feasible with point-based sensors.

The advantages, however, must be weighed against the current unknowns. As of this writing, there have been no published, independent evaluations of cell phone location systems that demonstrate their ability to collect accurate traffic data over a wide area and different classifications of roadways. This is not to say that the systems are unable to do so, but only that no independent evaluation showing this has been published. In addition, these systems all require data from the cell phone companies themselves, and it is unclear at this point what the costs of those arrangements would be.

What Does This Mean for Florida?

Cell phone location technology has the potential to improve how we collect traffic data and should be considered as we move forward on various projects. At the same time, the jury is still out on key aspects of the approach, including over-all accuracy as well as the viability of the business model. Evaluations of the existing projects should help alleviate some of these concerns.

This article was provided by Michael Berman, PBS&J. For more information, please contact Mr. Berman at (510) 350-0827 or email MichaelBerman@pbsj.com.

* * * *

Return to top

FDOT's Annual ITS Working Group Meeting—Another Success

The FDOT Traffic Engineering and Operations Office ITS Program held its Annual ITS Working Group Meeting under the new once a year format March 14 - 15 at the Radisson Riverwalk Hotel in Jacksonville. The Annual ITS Working Group Meeting returned to the Jacksonville area for only the second time since meeting in Ponte Vedra Beach on February 14, 2001. This second Annual ITS Working Group Meeting was another resounding success with more than 174 registered participants attending one or more of the 28 presentations. As with any meeting, there were a number of registrants that did not attend, but the number of no-shows was minor and more than offset by on-site registrations.

Once again, the format of the meeting included an "Exhibitor's Showcase." Nineteen exhibitors set up shop in the Commerce/Dockside/Anchor rooms. Exhibitors are the stalwarts of the ITS industry and were from the private sector as well as the public sector, including academia. To encourage attendance in the Exhibit Hall, two extended breaks were programmed into the Annual ITS Working Group Meeting to allow for ample time to mingle and network with those involved with the deployment of ITS, not only in Florida, but throughout the nation.

All About the Annual ITS Working Group Meeting

One of the main purposes of FDOT's Annual ITS Working Group Meetings is to provide information on active ITS projects and what FDOT will be planning for the future. This provides a chance for each District to learn from what other Districts are doing, and for the industry to better plan those projects in which they wish to participate. Project updates were provided by each District, including Florida's Turnpike Enterprise and FDOT Central Office as well as the Orlando-Orange County Expressway Authority and the Miami-Dade Expressway Authority.

I-95 Corridor Coalition (Coalition) representatives were in attendance and made three presentations regarding four current Coalition projects; they also participated in the Exhibitor's Showcase by providing additional information on current Coalition projects. The projects discussed by the Coalition were the Regional Evacuation Project, the Integrated Corridor Analysis Tool (ICAT), Information Systems Network (ISN), and the Baltimore Region Multimodal Traveler Information System, particularly the cell phone data collection effort of the Baltimore project.

Presentations were also made regarding ITS Florida (update), Florida's 511 outreach and marketing, national incident management performance measures, Florida's contraflow workshop, ITS WAN for center-to-center communications, results of the Florida systems engineering reviews, Florida Turnpike Enterprise's Smart Highway Program, and the results of the license plate reader probe field test. A special presentation was made by the Inspector General's Office and District Four concerning contract crime and ethical conduct awareness.

The presentations may be viewed at
www.dot.state.fl.us/trafficoperations/ITS/Projects_Deploy/WGM.htm.

Other Events During the Week

The ITS Program's Annual Meeting was not the only event scheduled during the week of March 13. On the morning of the 14th, the Telecommunications Section kicked-off the week with a workshop to discuss fiber management systems where a number of venders came in to present their systems. After lunch, the Florida 511 Working Group met to get updates on the state's current 511 systems and to discuss future plans. On Thursday and Friday, ITS Standards training conducted. This multi-day training program was the beginning, and additional standards training sessions will be scheduled in the future. As time and dates for these future standards training courses become final, they will be posted in the *Disseminator*.

Next Annual Meeting

Details of the next Annual ITS Working Group Meeting have not yet been developed. However, preliminary plans are to have the next meeting again in the March timeframe. Final dates and location will be determined. Stay tuned.

This article was provided by Gene Glotzbach, FDOT Traffic Engineering and Operations Office. For more information, please contact Mr. Glotzbach at (850) 410-5616 or email Gene.Glotzbach@dot.state.fl.us.

* * * *

Return to top

Tallahassee Dynamic Message Sign Project

During the month of July 2004, FDOT applied for a grant to support the Amber Alert process. The grant was made available to implement enhancements to notification and communications systems along highways in order to assist in the recovery of abducted children. As reported in the November 2004 Disseminator article, FDOT did receive the grant in the amount of $400,000 which required a $100,000 match from FDOT. An additional $100,000 was provided by the ITS Program, bringing the available project funds to $600,000. The initial plan to utilize the grant funds was to deploy two dynamic message signs (DMSs) across I-10 in the Tallahassee area to provide the capabilities to alert motorists of any child abductions.

Sign placement in the Tallahassee area makes sense because, in addition to being able to alert motorists about child abductions, I-10 will be undergoing widening and the signs were also envisioned to assist in the maintenance of traffic along a stretch of I-10 that has no signage.

Preliminary estimates on the cost to deploy two DMSs indicated that there should be excess funds available to expand the project to add an additional sign along a selected arterial and possibly some cameras for surveillance along I-10. Several arterial locations were explored and US 27 North was selected for the arterial sign placement. The arterial sign will be placed on US 27 North at a point where traffic could divert to parallel facilities. US 27 is

Tallahassee's primary parade route and the DMS on US 27 would prove to be invaluable in warning motorists and rerouting traffic around parades as well as providing information regarding incidents. This, of course, is in addition to alerting motorists about child abductions along one of Tallahassee's most heavily traveled routes.

The sign structures for the interstate installations will be full span trusses across one direction of travel. The full span truss was preferred over the cantilevered structure. The cantilevered structure would not allow for placement of the DMS over the center of the roadway for maximum view ability. The weight of the sign and the location of the foundation made it impractical to mount the DMS over the center of the roadway. The full span truss structure allows optimum placement of the sign over the roadway as well as flexibility to reposition the sign over the new roadway section when the interstate is widened to six lanes. The arterial sign will be mounted on a cantilevered structure.

More detailed cost estimates through the FDOT's cost estimating process indicated that the costs would be much higher than initial cost estimates showed. These new cost projections were indicating that there would not be enough budget available to install three signs even if the signs were all mounted on cantilevered structures. Eliminating the arterial sign would have brought the cost down to budgeted amounts, but the desire was to find a way to keep the arterial sign. To resolve the budget problem, District Three was able to add funds to the project by diverting funds from a future deployment project. It was Districts Three's desire to mount the signs on the interstate on full span trusses and enough funds were diverted to allow for the installation of the DMSs in such a manner. Because of the funding issues, consideration regarding the addition of cameras to the project was dropped. Total budget for the project topped out at $800,000 with $400,000 being provided by the Federal government.

Communications to the signs will be via phone drop to minimize initial costs. A future project funded out of the Work Program will provide additional signs along I-10 as well as cameras. This project will also install fiber for communications and the two signs provided through the Amber Alert grant will be connected to the fiber at that time.

Kudos are in order for the City of Tallahassee for agreeing to operate the DMSs. The signs will be operated by the City of Tallahassee's Traffic Engineering staff out of their control room located in City Hall.

Plans have been submitted and the project is scheduled to be let in June 2006.

This article was provided by Gene Glotzbach, FDOT Traffic Engineering and Operations Office. For more information, please contact Mr. Glotzbach at (850) 410-5616 or email Gene.Glotzbach@dot.state.fl.us.

*** * * * ***

Return to top

No Mickey Mouse Operation!

Portable ITS Keeps Travelers Informed

I-4 is the main roadway between Florida's Gulf and Atlantic coasts with Walt Disney World in between. A heavily traveled rural segment of I-4 is being expanded by one lane in each direction at a cost of $224 million. This project includes a portable ITS (PITS) designed to monitor traffic, reduce congestion, and improve safety.

Deployment of ITS in rural areas has been limited by a lack of sufficient communications infrastructure, existence of comprehensive software, the availability of staff to monitor and operate a transportation operations center, and the lack of staff and budget to properly maintain/service ITS devices. In this project, these challenges have been addressed in the following ways:

- Dependable wireless communications along I-4 was in place when the project began.
- Operations center software was used to integrate all ITS devices deployed on the project.
- Center operation was outsourced to an experienced provider.
- Maintenance/service of ITS devices was outsourced to an experienced provider.

Construction on this project began in September 2003. Ten Smart Zones® are set up along the 29.5-mile construction zone. Data and images from Smart Zone cameras are fed to the I-4 Web site (www.i4polk.com) and the virtual transportation operations center (VTOC). The project integrated several elements for a seamless solution:

- Smart Zone portable traffic management systems
- LED solar portable changeable message signs (PCMSs)
- Mobile microwave sensors
- Wireless video, and data collection and transmission
- Highway advisory radios (HARs)
- VTOC
- Web-based traveler information

Three sources are used to alert travelers to traffic conditions:

1. A network of portable messaging signs in the construction zone;
2. The "Current Conditions" section of the I-4 Web site; and
3. HARs.

The Web site for this I-4 improvement project is an integral component of the overall communications effort undertaken by the FDOT's Public Information Office. Powell, Fragala and Associates, of Lakeland, designed the site and provided public information services under contract to the engineering firm of Dyer, Riddle, Mills, & Precourt, Inc. (DRMP).

Travelers use the Web site to view traffic congestion along their route and plan accordingly. PCMSs kept travelers up to speed on lane closures, variable speed limits, and current conditions.

The flexibility and dependability of PITS are the keys to its effectiveness. The flexibility of the Smart Zone allows it to follow crews and provide real-time data as construction moves along the route. In fact, workers who commute daily to Disney World came to depend on the Web site to plan alternative routes based on information they saw before leaving for work.

Internet-based software provides full networking capabilities of all ITS devices and systems. VTOC operators monitor and operate all system devices from a central location allowing full control without the expense of establishing and maintaining traditional TOC facilities and staffing. With the project manager based out of the VTOC, close proximity to the work zone ensures quick response when maintenance and service of the devices is needed.

The success of the I-4 project demonstrates that PITS can be outsourced to control implementation and operation costs. In addition, it demonstrates that a rural ITS can be used to monitor traffic and inform travelers of work zone conditions using three different sources. Combining flexible communication systems, an Internet-based TOC software network, and expertise with PITS equipment offers rural areas a cost-effective, flexible means to address construction congestion and safety concerns.

This article was provided by Michael Klatt, ADDCO. For more information, please contact Mr. Klatt at (919) 387-4856 or email MPKlatt@addco.com.

For more information on ITS Florida, please check the ITS Florida Web site at www.itsflorida.org or contact Diana Carsey, Executive Director, at (727) 409-5415 or email CarseyD@verizon.net.

If you wish to contribute an article to the *SunGuide Disseminator* on behalf of ITS Florida, please contact Erika Ridlehoover at (813) 376-0036, or email Erika.Ridlehoover@transcore.com.

★ ★ ★ ★

Return to top

Editorial Corner—Connectivity – An Expected Way of Life

In the past two decades, we have seen the mobile phone transform from something that took up the entire space of a car trunk to something that is the size of a credit card and weighs no more than a few ounces. We have seen the functionality of mobile devices grow from being

capable of just receiving text messages to being voice-enabled—to, today where they can perform all the duties of a desktop computer. Wireless has not just enhanced our lives, it has changed the way we live forever.

Connectivity is now an expected way of life. Cellular technology providers focus their efforts on providing their customer base with the ability to make that call while balancing their financial investment. Emergency services (fire, rescue, and police) now receive far more 911 calls via cellular services than the conventional telephone. State, county, and local officials often rely on cellular-based systems to provide their ability to communicate with staff. Reliability of the wireless system is expected in our day-to-day routines, often causing frustration when a call is dropped or the signal is lost.

Following the past two devastating hurricane seasons, restoration of public safety communications systems in the impacted areas has been paramount. Cellular-based technologies utilized the existing telephone companies' infrastructures (telephone cable) to provide their connectivity between cell towers. Often misunderstood by the public, is that the loss of an area's telephone system due to a disaster often includes the cellular provider's network. Expectations for an immediate restoration of the cellular provider should not be expected. Reports of the number of customers without phone service in an impacted area refers to the number of customers without telephone service based on that provider's customer base.

Florida's citizens and visitors expect their state and local government representatives to be prepared in providing emergency services and/or restoration after a disaster. Having the ability to communicate with our personnel is critical in meeting these expectations. Public safety communications systems are designed to provide the highest level of reliability, the ability for immediate restoration, and are proprietary in the number of users. This is not the case with cellular-based systems. With the upcoming hurricane season rapidly approaching, I encourage our District officials to review this issue. As the Telecommunications Administrator for FDOT, it would be my pleasure to discuss and/or assist your District.

This editorial was provided by Randy Pierce, FDOT Traffic Engineering and Operations Office. For more information, please contact Mr. Pierce at (850) 410-5608 or e-mail Randy.Pierce@dot.state.fl.us.

*** * * * ***

Return to top

FDOT Equipment Certification

The FDOT Traffic Engineering and Operations Office, through the Traffic Engineering Research Laboratory (TERL), is responsible for approving all traffic control signal devices. Approved devices are kept on the FDOT Approved Products List (APL), a listing of devices that may be relied upon as meeting FDOT specifications, standards, or other criteria.

The APL is a means for the FDOT to meet *Florida Statute 316.0745, Uniform Signals and Devices*, which states, "All official traffic control signals or official traffic control devices purchased and installed in this state by any public body or official shall conform with the

manual and specifications published by the Department of Transportation pursuant to subsection (2)."

More information on the FDOT APL may be viewed at www.dot.state.fl.us.TrafficOperations/ TERL/APL.htm. Specific approved products in the FDOT APL may be searched at rite.eng.fsu.edu/iapl/page1.php.

For more information, please contact Carl Morse, FDOT Traffic Engineering and Operations Office, at (850) 410-5417 or email Carl.Morse@dot.state.fl.us.

<div align="center">*** * * ***</div>

<div align="right">***Return to top***</div>

Announcements

ITS America 2006 Annual Meeting and Exposition
FDOT will once again team up with ITS Florida to exhibit at the ITS America 2006 Annual Meeting and Exposition in Philadelphia, Pennsylvania, from May 7-9, 2006.

A booth partnership was put together to feature Florida's live center-to-center transportation management center demonstration. The booth partnership is comprised of FDOT Central Office's ITS Program, FDOT District 4, FDOT District 6, Florida's Turnpike Enterprise, the Miami-Dade Expressway Authority (MDX), ITS Florida, and TEAMFL.

Stop by to see the demonstration. FDOT will be at Booth 700.

<div align="center">*** * * ***</div>

Florida Shortlisted for ITS America's Best of ITS Awards
Florida has once again been short-listed by ITS America under their Best of ITS Awards Program—two projects were shortlisted for FDOT and ITS Florida was once again selected as a finalist for the Outstanding State Chapter category.

The FDOT ITS Program's SunGuide^{SM} Software project was selected for the category dealing with Return on Investment, and District Four's ITS Public Outreach was selected for Marketing/Outreach category.

<div align="center">*** * * ***</div>

Congratulations Russell!
Join us in congratulating Russell Allen in the birth of his baby son, Landon Russell Allen. Landon was born March 27 at 2:06 p.m. Landon is 20.25 inches long and weighs 7lb - 10 oz. Russell works for RCC on the Telecommunications General Consulting contracting.

<div align="center">*** * * ***</div>

Return to top

FDOT Contacts

District 1
L.K. Nandam, DTOE
Chris Birosak, ITS
FDOT District 1 Traffic Operations
PO Box 1249
Bartow, FL 33831
(863) 519-2490

District 2
Jim Scott, DTOE
Peter Vega, ITS
FDOT District 2 Traffic Operations
2250 Irene Street, MS 2815
Jacksonville, FL 32204-2619
(904) 360-5630

District 3
June Coates, DTOE
Chad Williams, ITS
FDOT District 3 Traffic Operations
1074 Highway 90 East
Chipley, FL 32428-0607
(850) 638-0250

District 4
Mark Plass, DTOE
Dong Chen, ITS
FDOT District 4 Traffic Operations
2300 W. Commercial Blvd.
Ft. Lauderdale, FL 33309
(954) 777-4350

District 5
Richard Morrow, DTOE
Jerry Woods, ITS
FDOT District 5 Traffic Operations
719 S. Woodland Blvd., MS 3-562
DeLand, FL 32720-6834
(386) 943-5310

District 6
Rory Santana, DTOE
Jesus Martinez, ITS
FDOT District 6 Traffic Operations
1000 NW 111th Avenue, MS 6203
Miami, FL 33172
(305) 470-5336

District 7
Gary Thompson, DTOE
Bill Wilshire, ITS
FDOT District 7 Traffic Operations
11201 N. McKinley Drive
Tampa, FL 33612
(813) 975-4216

Florida's Turnpike Enterprise
John Easterling, ITS
Florida's Turnpike Enterprise
PO Box 9828
Ft. Lauderdale, FL 33310-9828
(954) 975-4855

Lap Hoang
State Traffic Engineer
(850) 410-5600

Elizabeth Birriel
Deputy State Traffic Engineer - ITS
(850) 410-5606

Liang Hsia
Deputy State Traffic Engineer - Systems
(850) 410-5615

Mike Akridge
Deputy State Traffic Engineer - Incident
Management and
Commercial Vehicle Operations
(850) 410-5607

Mark Wilson
Deputy State Traffic Engineer - Operations
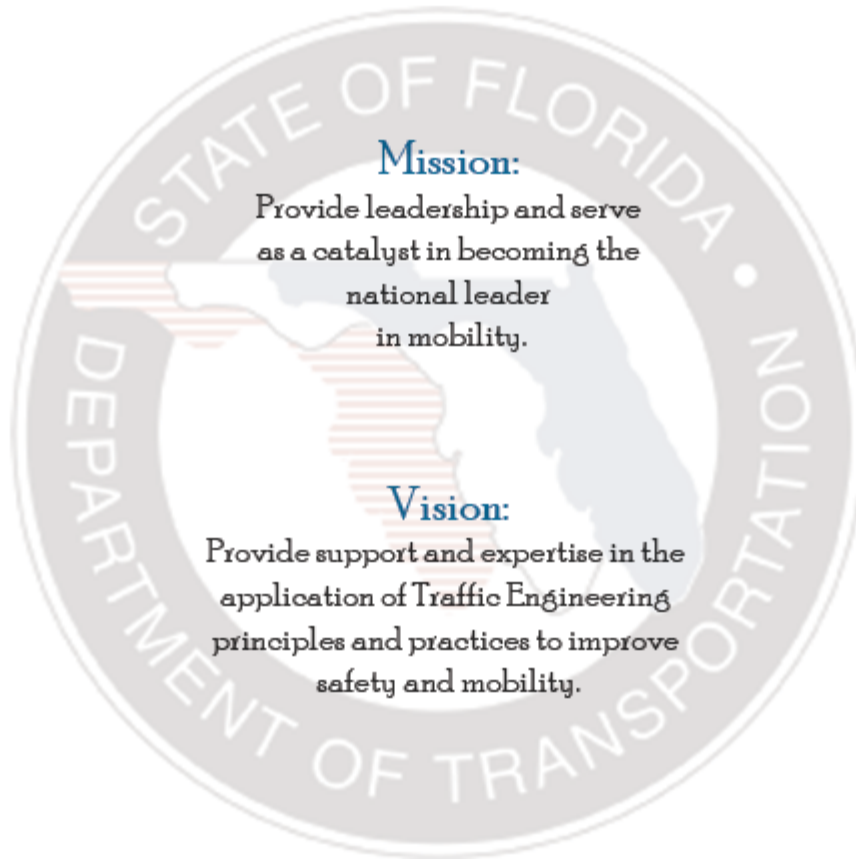(850) 410-5419

Physical Address
Rhyne Building
2740 Centerview Dr.
Suite 3-B
Tallahassee, FL
32301

Mailing Address
Burns Building
605 Suwannee St.
M.S. 36
Tallahassee, FL
32399

* * * *

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.

Return to top

SunGuide Disseminator   ***April 2006***

PBS&J QCAP Document Control Panel	
Created by:	England
Reviewed by:	England, Kuca
Date:	April 2006