

SunGuide Disseminator

FDOT's Monthly ITS Newsletter

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April 2002

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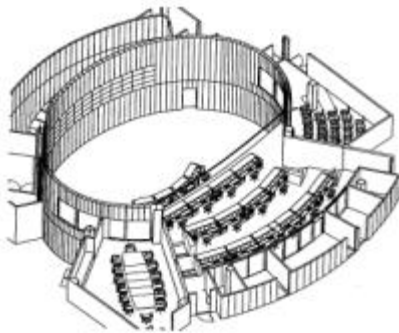
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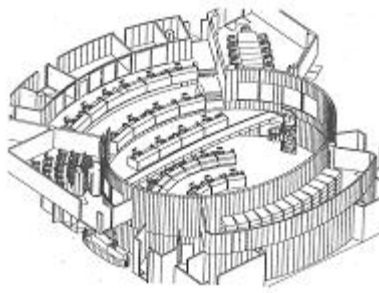
SunGuide ITS Transportation Management Center

The SunGuide ITS Transportation Management Center (TMC) is located near the interchange of the Dolphin Expressway (SR-836) and the Homestead Extension of Florida's Turnpike (HEFT) at the western end of Miami-Dade County, and adjacent to the Florida Highway Patrol Station. The 32,000 square foot facility is under construction with the expected completion date sometime in the spring of 2003.

The building was designed to sustain the impact of a major hurricane and will have a diesel emergency generator and an uninterruptible power system supported with batteries for continuous operation during power outages.

The goal of the SunGuide ITS TMC is to provide for the operation of a Freeway Traffic Management System on a "24/7" basis in order to provide early detection and accurate verification of incidents and traffic congestion, and to formulate the appropriate response to minimize delay to the motorist. This goal will be achieved by the use of electronic message signs, closed circuit television (CCTV) cameras, detection equipment and voice/data communications with responding agencies to restore traffic flow to normal conditions.

The floor plan of the SunGuide ITS TMC building is dominated by an oval shaped Traffic Operations Room (TOR), where operators at work stations



will have a view of the video wall display similar to the view patrons in a theater would have of the movie screen. The TOR consists of two levels where the operators from the Florida Department of Transportation (FDOT) and dispatchers from the Florida Highway Patrol (FHP) and other agencies share traffic information on major freeways and expressways going through Miami-Dade and Monroe Counties. The first level of the TOR will be occupied by FDOT operators with additional space surrounding the TOR, allocated for computer equipment and engineering offices. Security will also be located on the first level. The mezzanine level of the TOR will be occupied by the FHP dispatchers, supervisors and other law enforcement personnel, as part of the Joint Dispatch Initiative. The Emergency Management Conference Room, a theater style viewing room, and special equipment rooms are also located on this level.

The FDOT's space in the TOR will accommodate up to eight operators sitting at ergonomically designed console style desks or workstations, housing several computer monitors displaying current highway conditions. Operators will be able to view three-rear projection video wall assemblies that will provide large image displays to help visualize traffic conditions on major freeway and expressway facilities in the area. The center video wall assembly shall consist of a matrix of video cubes to display an active map of Miami-Dade County. In the background, FDOT operators shall have the capability of observing different levels of congestion on the freeways/expressways by established color-coding and superimposing several live image displays of incidents over the county map. The two peripheral video wall assemblies shall consist of a matrix of video cubes, which may be squarely divided such that up to 32 CCTV cameras may be displayed on each side of the center video wall assembly simultaneously. The center and peripheral video walls are homogeneous to give the appearance of a single video wall display structure.

To monitor traffic flow, video image detectors and remote traffic microwave detectors are located adjacent to the highway. These detectors provide the means for the computer system at the TOR to calculate average vehicle speeds and to determine congestion levels. To verify roadway conditions, CCTV cameras have been installed at strategic locations on the highways. These CCTV cameras have a visual range of up to one mile and have features such as pan, tilt and zoom that allow operators to manipulate the images being displayed on the video wall display or on their console monitors. Dynamic Message Signs (DMS) positioned at strategic locations near freeway exits are used by operators to provide advance warning to motorists of incidents ahead or events causing lane closures and delays. The DMS are used to display text messages offering motorists an alternate route or to provide information about a particular event affecting traffic flow.

The FHP's space in the TOR will accommodate up to eighteen dispatchers from FHP and other agencies sitting at ergonomically designed workstations housing several computer monitors, which display information regarding incidents, as well as other agency related functions. The mezzanine level will also have a separate room behind glass, where FHP supervisors can oversee the operations performed by various dispatchers. A secured elevated walkway will connect the mezzanine level of the SunGuide ITS TMC to the second floor of the FHP building.

The SunGuide ITS TMC will be a secured facility with CCTV cameras set up to view the building's exterior as well as inside hallways and restricted areas (card entry access to sensitive rooms). An ID badge system will be provided with separate control for the FDOT and FHP personnel.

Based on the current schedule, FDOT expects to move into the new facility in the fall of 2003. However, before the FDOT can move into the facility, the new specialty equipment, such as the video wall display, and associated workstation furniture and security system, have to be installed and integrated with the existing SunGuide ITS.

For further information, please contact Mr. Jesus Martinez, ITS Administrator, at the FDOT District 6 Office, (305) 470-5341.

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ITS Integration Guidebook

District 7 Planning Programs Manager, Jerry Karp, is leading a research project to develop an *ITS Integration Guidebook*. The Center for Urban Transportation Research (CUTR) at the University of South Florida in Tampa is conducting the research for the Guidebook. The project is nearing completion with a Final Draft and a Pilot Training Session expected to be released at the end of April 2002. The Guidebook features the following topics:

- ITS Integration Context
- Consistency with National ITS Policies
- Florida's ITS Integration Initiatives
- Case Studies in ITS Integration
- Process Towards ITS Integration
- Relationship Integration Models for ITS Implementers

The Guidebook is expected to provide integration guidelines for ITS implementers at the national, state, regional and local levels. In the context of ITS integration, **key implementers** discussed in the Guidebook are:

- State DOTs (Headquarters and Field Offices)
- County/City Public Works- Transportation Division
- Toll Road Authorities
- Public Safety agencies (Law enforcement, EMS, Fire and Rescue)
- Metropolitan Planning Organizations (MPO)
- Private Sector

For each implementer the Guidebook addresses ITS integration encompassing the following **focus areas**:

- ITS Strategic Plan
- Architectural Framework for Integration
- ITS Project Integration
- Components Integration for Metropolitan ITS
- Integration Evaluation
- Standardization of Integration Tracking and Reporting

A *relationship integration model* will show several levels of integrations, where each level is linked with specific responsibilities and actions to be undertaken by the implementers. The *relationship integration model* consists of the following **levels**:

- Level 1 (L1) - Intra-agency Local Integration (ILI)
- Level 2 (L2) - Intra-agency Central Integration (ICI)
- Level 3 (L3) - Inter-agency Regional Integration (IRI)
- Level 4 (L4) - Inter-agency Statewide Integration (ISI)
- Level 5 (L5) - Inter-agency Multi-State Integration (IMI)
- Level 7 (L7) - ITS Nationwide Integration (INI)

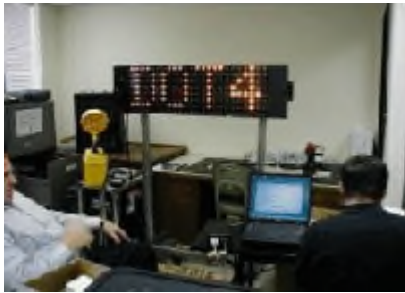
The *relationship integration model* provides a framework of "focus areas and levels" in which to systematically consider ITS integration. The ultimate goal of the integration relationship model is to provide the ITS

implementer with a conceptualization of how to reach a stage of optimal ITS integration, one that applies across jurisdictions, agencies, geographic boundaries, and modes.

For further information, please contact Mr. Jerry Karp, Planning Programs Manager, at the FDOT District 7 Office, (813) 975-6413.

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Florida ITS Standards and Specifications

The ITS Office and Traffic Operations Office had two meetings regarding the coordination of ITS Standards and Specifications efforts. Following are the results of the discussions:

Task	Responsible Office
<ul style="list-style-type: none"> Establish Standards library which includes National ITS Standards and other state ITS Standards and Specifications. It is proposed to locate this library and verification station in a vacant room within the ITS Office in Tallahassee. 	ITS Office
<ul style="list-style-type: none"> Access to FHWA Peer to Peer programs about other states' ITS standards development. 	ITS Office
<ul style="list-style-type: none"> Identify specific needs of Florida ITS Standards and Specifications. 	ITS Office
<ul style="list-style-type: none"> Develop ITS specifications for Florida Department of Transportation Standard Specifications. 	Traffic Operations with the ITS Office assistance
<ul style="list-style-type: none"> Develop ITS Index of Standard Drawings for ITS design build project 	ITS Office with assistance from the Roadway Design Office and the Traffic Plan Office
<ul style="list-style-type: none"> Develop information for Roadway Plans Preparation Manual. 	ITS Office with the assistance of the Roadway Design Office
<ul style="list-style-type: none"> Simulate National, Florida Standards, Specifications with NTCIP Exerciser software and ITS devices for education & training. 	ITS Office
<ul style="list-style-type: none"> Coordinate with Traffic Engineering Research Lab about ITS Standards, Specifications tests and development. 	ITS Office and Traffic Operations Office
<ul style="list-style-type: none"> Coordinate the ITS Standards Migration Plan. 	ITS Office and Traffic Operations Office

- Coordinate and provide statewide ITS Standards Training programs. **ITS Office and Traffic Operations Office**
- Incorporate ITS devices in FDOT Approved Products List. **ITS Office and Traffic Operations Office**
- Inquire or verify District 2, 4, 5, & 6 ITS Offices to gain first hand information about District ITS Standards requirements and priority. **ITS Office and Traffic Operations Office**

For additional information, please contact Mr. Liang Hsia, ITS Engineer Administrator, at the FDOT ITS Office in Tallahassee, (850) 410-5615.

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Communications

The ITS Office has taken delivery of eight new radio "repeaters" from Midland Radio Corporation of North Kansas City, MO, the successful bidder on a multi-year contract to supply as many as 50 repeaters. The repeaters will be located at base stations in Districts 1, 4 and 6 and will allow FDOT vehicles to talk from vehicle to vehicle throughout the service range of the each station. These first repeaters will improve operations in South Florida and will expand into Central and North Florida in Fiscal Year 2002-2003.

Repeaters receive radio transmissions from vehicles on one frequency and retransmit, or repeat, the messages on a different frequency. They will be located at FDOT's taller towers to improve operating range and ensure that each FDOT facility will be able to communicate over its assigned area.

FDOT radio shop employees Roy Beymer and Gerald Brush (D1), Julio Nasco and Milton Roberts (D4), and Alexis Lobaina (D6) met at the Davie radio shop to receive training on the new equipment from Midland employees David Kingsolver, Chris Thompson and Clyde Keith. Also attending the training session were J.N. (Nick) Adams, the ITS Office Telecommunications Coordinator, and Roger Madden of PB Farradyne, FDOT's Telecommunications General Consultant.

For additional information, please contact Mr. Nick Adams, ITS Telecommunications Consultant Coordinator, at the FDOT ITS Office in Tallahassee, (850) 410-5608.

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I-Forward: The Central Data Warehouse of Florida

Dr. Haitham Al-Deek, P.E., Professor of Engineering and Associate Director for ITS Programs of the Center for Advanced Transportation Systems



Simulation (CATSS) at the University of Central Florida, has developed a model for a traffic information data warehouse. Using data collected on traffic speeds and volumes on I-4, CATSS is able to provide real-time information on traffic conditions and predictive traffic information for public and private agencies. An added benefit of the model is that people who travel I-4 can access this information over the Internet to get point-to-point travel time over a 39-mile section of I-4 that extends from Disney World to Lake Mary.

Besides providing travel time information on I-4, the model provides state-of-the-art conceptual design of the Florida traffic information data warehouse. The model and data analyzed can be expanded by the UCF ITS lab statewide to other limited access corridors in Florida, which will expand the data warehouse concept. The I-4 data warehouse is an historical database (1993-present). It includes archived traffic speeds, vehicle counts, lane detector occupancy, and incident data. It is the largest traffic and incident database on I-4 available to date and provides travel time calculations between any two points on a 39-mile segment (Orlando Metropolitan Area) of I-4 for date and time of your choice.

By having real time and predictive traffic information, travelers can make better decisions on route selection, departure time and mode selection.

Other potential uses of the model include work zone management strategies and evacuation strategies during emergencies (e.g., hurricane, fire man-made disasters).

For additional information, please contact Mr. Haitham Al-Deek, Ph.D., P.E., Associate Professor and Director of Transportation Systems Institute at the University of Central Florida in Orlando, (407) 823-2988, or visit the CATSS website at www.catss.ucf.edu.

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Editorial Corner

"An Open Invitation"

It is my honor to offer this inaugural editorial for the FDOT Monthly ITS Newsletter. We will have many interesting guest editorialists in the editorial corner in the coming months conjecturing and hypothesizing about the various ITS issues of the day. But for now, I simply want to welcome you to our newsletter as a reader.

I would like to use the remainder of this message to unhesitatingly promote our FDOT ITS program. The Department's ITS Office and the Districts have taken great strides to build one of the best ITS programs in the country. I know this because sister DOTs ask us how they can emulate our program. They ask for, and we send them, information about our organization, our architectures, our studies and our research. How does that saying go? "...imitation is the highest form of flattery." Contractors tell us "... we have the hottest ITS program in the country." I know this is no accident. Our ITS program has received strong support from FDOT management, the Florida Transportation Commission and others. This strong support has resulted in a commitment of over \$1.2 billion in ITS deployments in the years to come. Interest in, and attendance at, our ITS Working Group Meetings is consistently high. Perhaps most importantly, these meetings are fostering timely networking opportunities for our Department, academic, consultant and contractor attendees -

networking opportunities that will bring together the critical public-private partnerships we will need to deploy our program.

There are many other outstanding attributes about our ITS program that I would like to share with you, but rather than continue on here, let me extend an invitation to you to participate in our ITS program, one of the most fascinating and fast-moving areas of the Department. Come by our office in Tallahassee to visit with our staff, or get on the agenda of our next ITS Working Group Meeting (July 22) to share your ideas with us. To be sure, the months ahead will be challenging as we transition from our planning/designing activities to our procuring/installing activities. I hope you will join with us in making Florida's roads and bridges an outstanding showcase of intelligent transportation systems.

Regards,



For additional information, please contact Chester H. Chandler III, P.E., FDOT ITS Office Manager, in Tallahassee, (850) 410-5600.

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Announcements

We need your help in naming this newsletter to reflect its evolving content and distribution. **April 26th will be the last day to file your name suggestion.**

A short list of name suggestions will appear in the June edition of this newsletter. You will be able to cast a vote for your favorite name until June 14th. The votes will be tallied and the name with the most votes will be used for all future newsletters.

Please send your suggestions to Karen.England@dot.state.fl.us.

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This is your newsletter!

We need your input for future articles. If you have an article you would like to share, please submit it to us for future publication.

We would like FDOT's Monthly ITS Newsletter to be the source for all ITS happenings in Florida.

Please send your articles to Karen.England@dot.state.fl.us.

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