



Florida Department
of
Transportation

Intelligent
Transportation Systems
Office

Annual Report –
Fiscal Year 2002-2003





Florida Department of Transportation

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JOSE ABREU
SECRETARY

JFB BUSH
GOVERNOR

Dear Reader:

Fiscal Year '02/'03 proved to be another outstanding year for FDOT's ITS Program. The ITS Program evolved and advanced in many areas, notably becoming the most active smart transportation effort in the nation.

One of the big highlights this year was FDOT's approval of the *Ten-Year ITS Cost Feasible Plan (CFP)*. The CFP has bolstered FDOT's commitment to ITS as never before. Now, our plan is in place to deliver over \$700 million of ITS infrastructure and services to Florida's residents and visitors. Traveling through Florida in the year 2012 will really be something to experience!

The FDOT ITS Office was out front this year promoting the virtues of ITS at several high-visibility conferences, workshops, and working group meetings. FDOT produced another fine exhibition at ITS America's 13th Annual Meeting and Exposition. And, at ITS Florida's TRANSPO 2002, FDOT was recognized by the ITS Florida membership for its leadership in ITS, receiving the chapter's "Organizational Member of the Year" and "Best Exhibitor" awards. The FDOT ITS Office was also out fostering support for ITS at: the ITS Business Opportunity Forum, the FDOT ITS Working Group Meetings, the ITS Legislative Awareness Day, and the recently-convened Hurricane Evacuation Workshop.

FDOT's ITS horizon was considerably broadened this year by joining the I-95 Corridor Coalition. The Coalition is a multi-state alliance of eastern seaboard states established to promote ITS ideas and information to the traveling public and public sector transportation agencies. Florida will learn a great deal from the vast experiences of the Coalition and, in return, share our ITS knowledge base with them.

Much will be said in the coming years about the federal Surface Transportation Security and Reliability Information System Model Deployment grant awarded to FDOT this year. We simply call it *iFlorida*. This four-year project, funded with 10 million federal dollars and 8.5 million state and local dollars, integrates 24 discriminate safety and security initiatives to collect, fuse, and disseminate central Florida surface transportation information. With *iFlorida*, the national ITS spotlight is again on Florida. We look forward to this challenging opportunity to advance state-of-the-art technologies.

I hope you will take a few moments to "consume" our FDOT ITS Office Annual Report - Fiscal Year 2002/2003. Your thoughts on our ITS Program are always welcome.





Florida's Transportation Future

Growth

Over the past 20 years, transportation demand in Florida has grown at a rapid pace. It is anticipated that this growth will continue to accelerate.

Consider the following statistics from the 2000 U.S. Census:

Population

- Florida will soon become the third most populous state in the nation.
- Florida's population has grown to more than 16 million and is projected to increase to more than 21 million by 2020.

Tourism

- Florida is the leading national tourist destination for the entire United States and ranks third as an international tourist destination.
- More than 60 million visitors come to Florida each year and 80 million are projected by the year 2010.

Commerce

- Florida's economy is rapidly expanding.
- Florida has the fifth largest economy (by gross state product).

Vision

To ensure that Florida's transportation system meets future demands, the Florida Department of Transportation (FDOT) is working to achieve the following mission:

FDOT's Mission

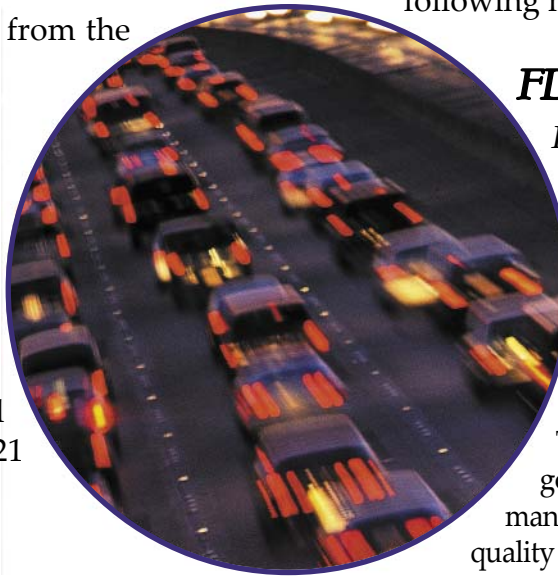
Provide and manage a safe transportation system that ensures the mobility of people and goods while enhancing economic competitiveness and the quality of our environment and communities.

To achieve this mission, four primary goals were established — safety, systems management, economic competitiveness, and quality of life.

FDOT established an Intelligent Transportation Systems (ITS) Office in July, 2000, to help achieve these goals and coordinate deployments statewide.

The ITS Office's Mission

To provide effective Intelligent Transportation Systems for Florida's travelers that enhance the safety and mobility of people and goods, economic competitiveness, and the quality of our environment and communities by serving commuters, tourists, commercial vehicles, and evacuees.





FDOT's Commitment to ITS

FDOT maintains a statewide system of more than 12,000 centerline miles of streets and highways. FDOT spends \$3.5 billion each year to support Florida's transportation needs. As part of its annual program, FDOT has made significant investments in ITS. From 1990 to 2002, FDOT invested \$1.1 billion in ITS, traffic management, electronic payment systems, service patrols, and weigh-in-motion technologies.

FDOT is committed to investing \$712 million in ITS between 2002 and 2012. This includes an initial \$496 million in a dedicated statewide ITS Program for new deployments.

Four ITS Program Areas organize FDOT's ITS Office:

- ITS Program Management/Deployments — *Gene Glotzbach, P.E., ITS Administrator;*
- ITS Architecture, ITS Standards, Software, Research, and Training — *Liang Hsia, P.E., ITS Administrator;*
- Commercial Vehicle Operations and Electronic Toll Collection — *Michael Akridge, ITS Administrator;* and
- Telecommunications Program Management — *Nick Adams, ITS Administrator.*

Major ITS Office Initiatives

FDOT's ITS Office

FDOT's ITS Program Areas



FDOT's ITS Office coordinates and promotes the deployment of ITS throughout Florida. The ITS Office is supported by 22 staff members, who are led by the ITS Office Manager, Chester H. Chandler, P.E.

ITS Program Management/Deployments

- Promote a corridor approach to ITS deployments on Florida's limited-access corridors and develop systems engineering solutions to support procurement and deployment of ITS;
- Deploy advanced traveler information systems and 511; and
- Provide technical support and assistance to FDOT's District Offices and other partners.

ITS Architectures, ITS Standards, Software, Research, and Training

- Continue development of statewide standards and specifications for ITS;
- Support ITS professional capacity building to provide a qualified work force for ITS deployments;





- Support deployment of a statewide data warehouse to enhance advanced traveler information systems and performance monitoring; and
- Develop statewide transportation management center software for freeway and incident management.

Commercial Vehicle Operations and Electronic Toll Collection

- Support deployment of information and communications technologies to serve commercial vehicles and promote electronic payment and credentialing systems;
- Guide deployment of Commercial Vehicle Information Systems and Networks infrastructure and infostructure to assist both state and motor carrier communities;
- Continue support of the Cooperative Vehicle Highway Automation System program; and
- Continue research in the use and deployment of transponders and other communications devices as probes for real-time traffic data and statistics for planning.

Telecommunications Program Management

- Guide deployment of a communications backbone to serve ITS on major corridors;
- Negotiate with private sector firms to provide a shared-resource telecommunications infrastructure.
- Manage maintenance program for the statewide motorist aid callbox system; and
- Manage Federal Communications Commission radio license database.

Accomplishments

Florida's accomplishments in ITS are numerous. The following is a list of recent major accomplishments for Fiscal Year 2002-2003.

ITS Program Management/ Deployments

- The FDOT Executive Committee officially adopted the *Ten-Year ITS Cost Feasible Plan* (CFP) on October 23, 2002. The ITS Office provided follow-up information to FDOT Management regarding the \$496 million CFP in order to facilitate a review by the FDOT Executive Committee. To foster integration and enhancement of ITS within large metropolitan areas, the FDOT Executive Committee recommended reallocating \$27 million from the CFP's rural project funding to the five major urbanized areas as discretionary monies.
- The ITS Office provided support to all District Traffic Operations and Work Program staffs to facilitate the programming of the Plan's projects in FDOT's Five-Year Work Program.
- In May 2003, a contract was executed between District 7 and Mobility Technologies to provide traffic information to motorists in the Tampa Bay area under the Federal Intelligent Transportation Infrastructure Program (ITIP).



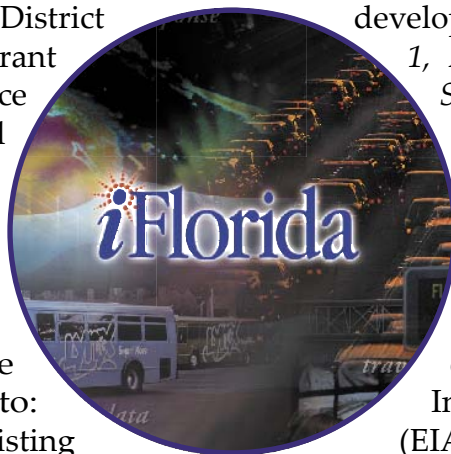
- The ITS Office coordinated with District 7 to develop a comprehensive Advanced Traveler Information System for the Tampa Bay area through an Invitation to Negotiate procurement process. The ITS Office provided





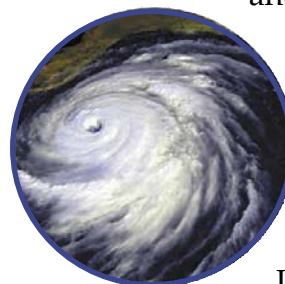
support for the development of solicitation documents as well as extensive assistance during the negotiations with the selected information service provider, Mobility Technologies.

- The ITS Office supported District 5 by authoring an FHWA grant application for the Surface Transportation Security and Reliability Information System Model Deployment Initiative, entitled iFlorida. On April 2, 2003, the state of Florida was chosen to receive this FHWA grant, which will provide FDOT with \$10 million to:
 - 1) expand and integrate existing data collection and monitoring systems;
 - 2) collect and share data;
 - 3) use data operationally to improve transportation systems security, safety, reliability, and performance; and
 - 4) distribute the data to the traveling public.
- The ITS Office assisted in the deployment of 511 telephone-based traveler information service in southeast Florida and the Orlando area. ITS Office staff provided research and coordination to conduct the conversion of the existing traveler information phone number to 511 in southeast Florida and establish 511 in the Orlando area.
- Legislation was passed to assign coordination of the 511 traveler information phone number to FDOT. This legislation provides for a controlled and coordinated statewide deployment of 511, which is essential to foster public confidence.
- The ITS Office developed a white paper, *Regional Transportation Management Center*



(RTMC) *Security, Version 3*, to address ITS security issues, primarily at RTMCs.

- The ITS Office completed Phase One of the Systems Engineering Master Plan with the development of *Technical Memorandum No. 1, A Process Review and Appraisal of the Systems Engineering Capability* for the FDOT. Technical Memorandum No. 1 provides a baseline for the status of the FDOT ITS Office's systems engineering capability and recommends an approach to improve the maturity of this capability by continuing to use the Electronic Industries Association Interim Standard (EIA/IS) 731-1, Systems Engineering Compatibility Model (SECM), and the EIA/IS 731-2, SECM Appraisal Method, as models and guidelines.



- The ITS Office and the Florida Division of Emergency Management, under a grant from the FHWA, developed a prototype Graphical User Interface (GUI) for the Florida Emergency Transportation Information System/Decision Support System and an abbreviated hurricane evacuation transportation model. This model was renamed the Hurricane Evacuation Analysis Decision Support Utility Program, or HEADS-UP. The HEADS-UP model provides information regarding evacuation times and volumes; and the GUI allows emergency managers to easily make queries of the model to obtain quick model results.

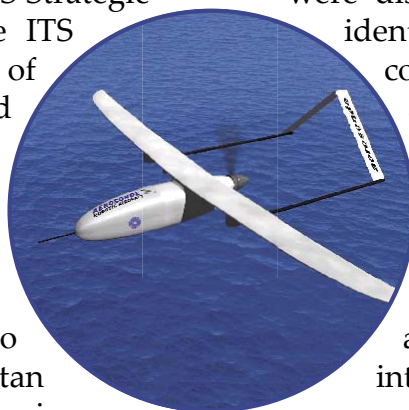




- The ITS Office assisted the FDOT Traffic Operations Office with the modification of Florida's Amber Alert Plan. The Amber Alert Plan will include the use of Dynamic Message Signs, Highway Advisory Radios, and 511 to disseminate information regarding child abductions in the state of Florida.



- Since the adoption of the Florida ITS Strategic Plan (Strategic Plan) in 1999, the ITS Office has implemented 96 percent of the recommended actions identified in the original Strategic Plan. The Strategic Plan is being updated to develop new core strategies to carry the ITS Office through the five-year planning horizon. The purpose of the Strategic Plan is to guide FDOT and Florida's Metropolitan Planning Organizations in the planning, programming, deployment, and integration of multi-modal ITS services.



Selection Committee identified statewide requirements; developed the Scope of Services; and negotiated with proposers regarding technical requirements, testing, scheduling, contractual terms, and costs for the STMCSLS. The STMCSLS will include software, hardware, and center-to-center interfaces throughout the state of Florida.

- A Rule 940 Working Group Meeting was convened October 2002, to guide the development of Florida's Rule 940 Statewide Implementation Strategy (Strategy). The impacts of Federal Rule 940 on existing transportation programs and processes were discussed as well as recommendations identified in the Strategy. The Strategy was converted to FDOT Rule 940 Guidelines as an update to Florida's ITS Planning Guidelines, as published by the FDOT Systems Planning Office in June 2000. The Strategy will document the impacts of Federal Rule 940 on Florida's Statewide ITS Architecture, and accomplish the integration of ITS into traditional transportation planning processes.

- The ITS Office sponsored and/or managed the following research projects for fiscal year 2002/2003: Airborne Traffic Surveillance Systems: Proof of Concept; Development of a Road Weather Information System for Florida's Intelligent Transportation Systems; Central Florida Data Warehouse; Toll Network Capacity Calculator Validation and Enhancement; Feasibility



ITS Architectures, ITS Standards, Software, Research, and Training

- The Statewide Transportation Management Center Software Library System (STMCSLS) Technical Evaluation Committee and Executive





Study for an Integrated Network of Data Sources; Linking Crash Patterns to ITS - Related Archived Data; Selecting the Most Effective ITS Applications to Improve Pedestrian Safety; and Commercial Vehicle Inspection Stations.

- The ITS Office convened the following training sessions for fiscal year 2002/2003: *ITS Standards Overview*, *ITS Standards: Center-to-Center Communications*; *ITS Standards: Dynamic Message Signs*; *ITS Standards: Actuated Traffic Signals*; *Negotiation Workshop*; and *Technical Writing and Editing Workshop*.

Commercial Vehicle Operations and Electronic Toll Collection

- A feasibility study, which combined the *Commercial Vehicle Electronic Credentialing Feasibility Study* and a *Commercial Vehicle Help Desk Study*, was completed and saved FDOT \$100,000 for fiscal year 2002/2003.



- In June 2002, the ITS Office assisted the Department of Agriculture and Consumer Services (DACS) and the Department of Revenue (DOR) with the development and deployment of a HELP/PrePass® electronic pre-clearance system on I-10, I-75, and I-95, and an electronic bill of lading submission program. Since these deployments in June 2002, DACS has bypassed some 300,000 vehicles past their inspection stations and DOR has collected an additional \$250,000 in state tax revenues on the first 50,000 bills of lading they have processed.

- The ITS Office assisted the Department of Highway Safety and Motor Vehicles (DHSMV) in the design and implementation of the International Registration Plan (IRP) Clearinghouse Project.



DHSMV employees have the ability to access carrier information over the Internet from 28 participating jurisdictions. The IRP Clearinghouse offers an electronic funds transfer component, which facilitates the electronic exchange and reconciliation of registration information

and applicable fees among the participating jurisdictions.



- The ITS Office participated in the recently completed *I-10 Freight Corridor Study*,

which studied the movement of freight from ports in Los Angeles and Long Beach in California to the Port of Jacksonville in Florida. This study looked at the impacts of freight on the economies of each state and how ITS can play a role in making freight move more efficiently through the I-10 Corridor.

- The ITS Office's CVO Administrator, Michael Akridge, was chosen to Chair ITS America's Commercial Vehicle and Freight Mobility Forum. This forum includes the areas of commercial vehicle operations, Commercial





Vehicle Information Systems and Networks, inter-modal freight, and homeland security. Additionally, as Chair, Mr. Akridge sits on ITS America's Coordinating Council, which assists each program area and makes recommendations to the ITS America Board of Directors.

Telecommunications Program Management

- The Telecommunications General Consultant convened Center-to-Center (C2C) Network Design Workshops with the FDOT Districts and Florida's Turnpike Enterprise to determine technical requirements for the C2C Network and develop a computer-generated model to assist with the C2C Network planning. The C2C Network will provide telecommunications links between all Regional Transportation Management Centers and regional partners of the Districts and Florida's Turnpike Enterprise.
- The ITS Office advertised a Request for Information (RFI) for Wireless Communications Solutions for ITS. Thirty-two responses were received from the telecommunications industry. Subsequently, the ITS Office conducted site visits with the top two respondents — Virginia Tech Transportation Institute and MeshNetworks, Inc. Assessment presentations were convened with 10 respondents who met some criteria



of the RFI. A Wireless Communications Solutions for ITS RFI final report was developed and distributed to all RFI respondents along with posting to the ITS Office Web site ([www11.myflorida.com/IntelligentTransportation Systems](http://www11.myflorida.com/IntelligentTransportationSystems)).

- Construction was completed on a tower along I-75, in the Collier County Rest Area at milepost 63.3. Under the FDOT/Lodestar Towers public/private partnership, 27 towers have been completed to date.
- The ITS Office coordinated with the University of North Florida and Florida State University for the installation of weather sensor packages and data network equipment for data transmission to the research center from microwave towers. The ITS Office continues to manage their research for the development of a state-of-the-art, real-time, Web-enabled Roadway Weather Information System.
- The Facilities Upgrade Project for the enhancement of the 47 MHz Radio System in the Florida Keys was completed. In addition, the equipment procurement for the 47 MHz Radio System upgrade to a repeater configuration was completed.





ITS Office Administration

- The ITS Office exhibited at TRANSCO 2002 in Orlando, Florida. The exhibit theme was "ITS Florida is Really Taking Off," and won the "Outstanding Exhibit" award for TRANSCO 2002.
- The ITS Office was awarded the "Organization of the Year" by ITS Florida at TRANSCO 2002. In addition, Mr. Chester Chandler, ITS Office Manager, was awarded the "ITS Florida Professional of the Year."



- In January 2003, Florida was the 14th state to join the I-95 Corridor Coalition.

- The ITS Office exhibited at the ITS Legislative Awareness Day on April 22, 2003. The ITS Legislative Awareness Day gave Florida legislators a chance to see ITS up close and view the future of ITS in Florida.

- The ITS Office convened three ITS Working Group Meetings in fiscal year 2002/2003: a Mid-Year ITS Working Group Meeting was held in St. Petersburg, Florida; a Business Opportunity Forum was held in lieu of the End-of-the-Year ITS Working Group Meeting at TRANSCO 2002 in Orlando, Florida; and a Beginning-of-the-Year ITS Working Group Meeting was held at Florida's Turnpike Enterprise Headquarters at the Turkey Lake Service Plaza in Orlando, Florida.



- The ITS Office, the seven FDOT Districts, and Florida's Turnpike Enterprise conducted a "presentations theater" as an exhibit at ITS America's 13th Annual Meeting and Exposition in Minneapolis, Minnesota in May 2003. The exhibit theme was **Florida ITS is Hot! Hot! Hot!**

- The ITS Office publishes the *SunGuideSM Disseminator*, a monthly ITS newsletter. The *SunGuideSM Disseminator* is a collection of articles reporting ITS-related matters happening within the state of Florida.





Partnerships

The key to successfully deploying ITS in a state as large and diverse as Florida is providing for ongoing participation of countless individuals, public agencies and organizations, and private companies in ITS planning and development. In addition to the professionals in FDOT's seven districts, Florida's Turnpike Enterprise, and the ITS Office, the following groups have fostered the cooperative spirit that advances Florida's vision for ITS:



- ITS Stakeholders
- ITS Working Group
- ITS Florida
- ITS Florida Advisory Committee
- Turnpike and Expressway Authority Members (TEAM) Florida
- Orlando Regional ITS Consortium
- Miami-Dade Regional Transit Organization
- CVO/CVISN Team

Public/Private Partnerships

- SunGuideSM ATIS Partnership in South Florida
- Tampa Bay SunGuideSM Traveler Information System
- Lodestar/Spectrasite Wireless Towers
- iFlorida



Florida ITS Benefits

To determine the effectiveness of the proposed ITS services for the Florida Intrastate Highway System facilities, the following ITS benefits were identified from studies around the country and were determined to be applicable to Florida's limited-access facilities:

- A 5 percent decrease in delay is anticipated as a result of incident management systems.
- A 15 percent reduction in injury-related accidents and fatalities is anticipated as a result of freeway management services (FMS).
- A 35 percent reduction in property-damage accidents is anticipated as a result of FMS.
- A 7:1 benefit-to-cost ratio is anticipated for some of the commercial vehicle operations that will be deployed in FDOT's Commercial Vehicle Information Systems and Networks program and the virtual weigh-in-motion pilot.
- Benefits associated with advanced traveler information systems (ATIS) include reductions in travel time and operating costs. Additional benefits are anticipated from congestion avoidance and improvement in the quality of driver convenience. However, the greatest benefits of ATIS are improved customer service and providing drivers with the opportunity to avoid congestion.
 - Benefits associated with smart work zones are anticipated to include reductions in travel time and operating costs, reductions of accident rates and the severity of accidents in work zones, and improvement in quality of driver information.

ITS projects in Florida will provide significant benefits by *saving lives, time, and money* for travelers and commercial vehicles!





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