FDOT's Annual ITS Working Group Meeting

Florida's Turnpike Enterprise
Smart Highways Program
March 15, 2006

Topics

- Program Background and Objectives
- ITS Orange Book™ – Smart Highways
- Key Smart Highways criteria
- Collaborative Network
- Evaluation of early winners
- Future Smart Highway Operations Center (FutureSHOC)
- Longer term focus

Program Background

- Enterprise's vision for the Sawgrass Expressway (SR 869): to become "the prototype user financed highway of the 21st century"
  - The conversion of SR 869 to Open Road Tolling (*ORT*) is one part of meeting this vision
  - Maturation of SR 869 to a smart highway is essential to achieving this vision
- To fulfill the vision the Enterprise has:
  - Sponsored an ITS Orange Book™ on the topic of smart highways to capture the state of the art and look into the future
  - Launched an Enterprise Smart Highways Program

Program Objectives

- Develop a strategic vision for smart highways
- Establish information and knowledge exchange between leading smart highway practitioners (*a Smart Highways Network*)
- Determine shared objectives and requirements for the development and operation of a smart highway
- Identify appropriate actions and elements for Sawgrass deployment and beyond

Program Objectives

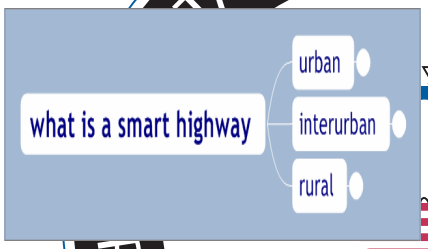
- Explore possibilities for collaborative research and deployment, within Florida and nationally
  - Dialogue with FDOT central office and other Florida transportation districts
- Integration of relevant industry and federal initiatives and standards
  - From sources such as VII, VIIC and OmniAir,

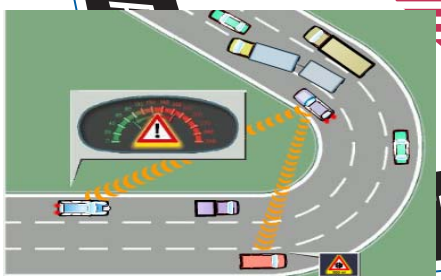
ITS Orange Book™ – Smart Highways

- Input from over 40 diverse experts
- Captures the state of the art and practice
- Presents a future vision
- Defines needs and issues of key stakeholders
- Explores potential impacts and benefits
- Stimulates discussion
- Sets the scene for deployment
- Distribution: over 9,000 via web, CD and hard copy

http://www.pbsj.com/itsorangebook/

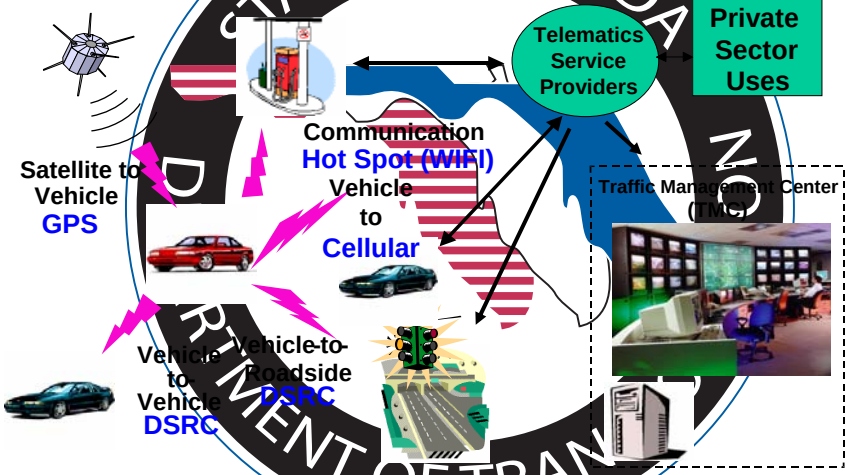
What Is a Smart Highway?





- Smart infrastructure
- Intelligent vehicles
- Telecommunications
- Information services
  - Turning data into decision quality information
- Both low-tech and high-tech solutions
- Management solutions
  - Objectives driven

What is a Smart Highway?



Objectives driven process, supported by technology

Key Smart Highway Criteria

- Does it improve safety?
  - Reduction in accidents and fatalities
- Does it improve mobility?
  - Sawgrass specific applications must be considered with ORT in mind
- Does it support or enhance the SunPass brand?
- Is there a potential revenue stream?
  - Evaluation of applications for future revenue streams

World Business Review

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Topic: Smart Highways

The Smart Highways Network

A collaborative network based on information sharing and mutual learning

- Florida's Turnpike Enterprise
  - Smart Highways program & ITS Orange Book™ sponsor
  - Active involvement in OmniAir and VIIC
- California Department of Transportation (Caltrans)
  - Innovative PATH research program
  - State with highest automobile population
  - Leader in VII effort including test-bed activities
- Michigan Department of Transportation
  - Leader in VII effort including test-bed activities
  - Automotive industry connections

Smart Highways Network

- Delphi Survey Results - Trends in Automotive Market Related to Smart Highways
  - *Dr. Steve Underwood, Center for Automotive Research (CAR)*
- Role of the Network Manager in a Smart Highway
  - *Mark Hallenback, TRAC Program - University of Washington*
- Section Control - A New Approach to Speed Control
  - *Rene Korevaar, Test Center for Traffic Systems, Rijkswaterstat*
- Santiago Urban Concessions
  - *Miguel Jáuregui, IEYC - Santiago, Chile*

Evaluation of Early Winners

- Focus on near-term value added applications including but not limited to:
  - Mobile IP
  - Traffic Alerts
  - Smart work zones
  - Lane keeping
  - Customer communication in an ORT environment

FutureSHOC

- The key to success to any Smart Highway implementation is the conversion of data to decision quality information:
  - Across the transportation enterprise (e.g. providing key operational and maintenance information)
  - To the end customer (the driver).
- Smart roadside infrastructure is only of limited use unless there is a source of central intelligence that optimizes data collected by sensors and turns it into meaningful information.

FutureSHOC

- The FutureSHOC development process will look at key elements required for an optimal back office, such as
  - Defining end-user services (e.g. traffic management, traveler information & customer relationship management)
  - Defining the data necessary to deliver those services
  - Optimal organizational structure and business processes
  - Performance criteria
  - Data collection system design
  - Use of simulated as well as live data for developing and refining data tools and models
- Florida International University will be a key partner in FutureSHOC development and analysis

Longer Term Focus

- Integration of Smart Highways throughout the enterprise
  - Effective transition to a "data rich" environment
  - Engage non-traditional yet essential partners
  - Optimal dissemination of data across the enterprise
  - Understand new roles and responsibilities key to harnessing a smart highway's potential
  - Providing decision quality information to Turnpike customers

Comments . . . Questions?

Thanks for your attention