Session 24

Gene Glotzbach

FDOT Traffic Operations - ITS Program

Development of Specifications and Design Standards for Intelligent Transportation Sytems (ITS) field devices & Transportation Management

Topic Description

The ITS Program has developed Specifications to support the deployment of ITS field devices and transportation management center equipment to assure uniformity in the deployment of equipment and to assure a minimum acceptable level of quality in the equipment being deployed. This presentation will discuss the dcevelopment process and provide information on the specifications that have been approved and talk about additional specifications that will be going through the Department's specification development process.

Speaker Biography

Graduate of the University of Florida in 1975 with a BSCE. Served three years in the military after graduation. Have been with the Florida Department of Transportation for 27 years beginning in 1979. Worked in the Department's Systems Planning Office for 11 years prior to moving to the Traffic Engineering office. Was a charter member of the ITS Office when it was formed in 2000 with oversight of the ITS Deployment Program.

Session 24

Ron Meyer

FL. Dept. of Transportation ITS Section

Development of Specifications and Design Standards for Intelligent Transportation Sytems (ITS) field devices & Transportation Management

Topic Description

This session will provide an overview of the Specifications Development project undertaken by FDOT to create statewide specifications and standards for ITS devices.

Speaker Biography

Mr. Meyer is an ITS specialist in the Florida Department of Transportation Central Office Intelligent Transportation Systems (ITS) section. In this capacity his responsibilities include advanced traffic management system (ATMS) planning and development, specification development, fiber optic and wireless communication network design, video/audio/data system design, and other technical areas related to ITS hardware and software. Mr. Meyer has been involved in the development and deployment of ITS projects in the United States, Europe, and Asia since 1995 and was a member of the team responsible for the recent development and release of statewide ITS standards and specifications for the state of Florida.

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Specifications and Standards for Intelligent Transportation Systems

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History and Evolution

- The roads traveled to date…
  - Project-oriented approach
  - Design/Build Template approach
  - SSRBC approach

History and Evolution

- In the beginning…
  - Project-oriented approach
    - Reliance on TSPs
    - Low-bid procurement method
    - Duplication of effort
    - Problems with substandard equipment
    - Inconsistent content
    - Inconsistent use of pay items
      - Traffic signal pay items
      - Inability to track ITS costs accurately

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History and Evolution

- Phase II…
  - Design/Build Template approach
    - SSEP – Standards, Specifications and Estimates Processor
    - Guidelines vs. requirements
    - Paved the way with initial content development and internal processes for consensus building

History and Evolution

- Ultimate outcome…
  - SSRBC approach
    - "Mainstreaming" ITS into:
      - Standard Specifications for Road and Bridge Construction
      - Design Standards
      - PPM
      - BOE
    - Collaborative effort with many participants
      - CO and District ITS Offices
      - State Specification Office
      - Roadway Design Office

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1.1 Description

- Spec. Development and Refinement
  - Requirements Definition
    - Focus on function, consistency, uniformity, acceptable level of quality and performance, interoperability, interchangeability
  - Course set to develop and define specifications for SSRBC inclusion
    - Identification of prime candidates
    - Prioritization of devices/types
    - Development of guiding principles

1.2 Materials

- Identification/Prioritization
  - Commonly deployed devices
    - DMS, CCTV, FOC, MFES, DVE, DVD,TVSS
  - Ultimately grouped into functional categories
    - Flexibility for additional content
    - Section number conservation
    - Reduction of repetition

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Development and Refinement

- Guiding Principles
  - Set goals and criteria to foster consistency
  - Focus on function, not form
  - Establish a basic level of performance
  - Consider “life-cycle” cost of device
  - Demand that devices meet accepted industry standards (EIA, UL, NEMA)
  - Foster competition
  - Have quantifiable, measurable and defendable requirements
  - Compatibility with SunGuide software

Development and Refinement

- Research
  - Assessment of current deployments
  - Review of existing documents
    - FDOT Minimum Specifications, TSPs, etc.
  - Market research
    - Activities of other state DOTs
    - Test reports (FHWA, ITE, universities)
    - Latest studies
    - Manufacturers' specifications

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Development and Refinement

- Draft Creation
  - Style to match SSRBC
    - Grammatical considerations (active voice, etc.)
    - Collaboration with Specifications Office
  - Vision toward product approval processes
    - APL Language, FS 316.0745
    - Awareness of need to test and evaluate products to specifications

Development and Refinement

- Review
  - Distribution of Drafts and Solicitation of Comments
    - Multiple rounds
    - FDOT users, FTBA, ITS industry, FHWA
    - Maintain comment database that captures feedback and resulting action
  - ITS Section Specification Review Committee
    - FDOT board with technical advisors from different disciplines
  - Specifications Office review process

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Results

- Release and Implementation
  - July 2006 Workbook
  - “780” Series is Intelligent Transportation Systems

Results

- Section 780 – General Requirements
  - Equipment and Materials
  - Installation
  - Grounding and Surge Suppression
  - Testing
- Section 781 – Motorist Information Systems
  - Dynamic Message Sign
  - Highway Advisory Radio

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Results

- Section 782 – Video Equipment
  - CCTV Camera
  - Video Display Equipment
- Section 783 – Fiber Optic Cable and Interconnect
  - Fiber Optic Cable System
  - Conduit and Locate System
  - Pull Box and Splice Box

Results

- Section 784 – Network Devices
  - Managed Field Ethernet Switch
  - Device Server
  - Digital Video Encoder and Decoder
- Section 785 – Infrastructure
  - Grounding and Transient Voltage Surge Suppression
  - Pole and Lowering Device

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Results

- Section 786 – Vehicle Detection & Data Collection (scheduled for January 2007)
  - Microwave Vehicle Detection System
  - Video Vehicle Detection System
  - Magnetic Traffic Detection System
  - Acoustic Vehicle Detection System

Results

- Scheduled for July 2007 Workbook
  - Section 781: Road Weather Information System
  - Section 785: ITS Field Cabinet Equipment Shelter

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Results

- And don't forget…
  - Pay Items/BOE Content
  - PPM support
  - Design Standards

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Pay Items and BOE

- ITS Pay Items on IT sheets
- Project usage and pay items for specialized applications

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PPM Content

- Chapter 7.5
  - Introduction to ITS design
  - Criteria for effective systems
  - ITS device approval, compatibility
  - Design notes by device type
    - **DMS**
    - **CCTV**
    - **HAR**

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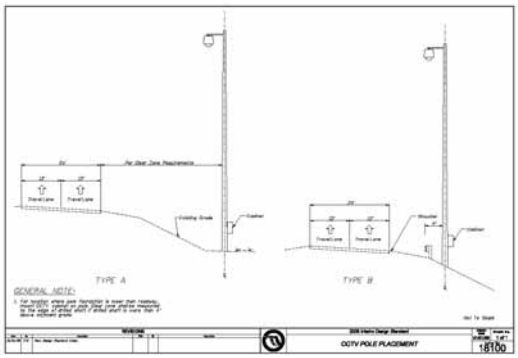
Design Standards

- Interim Standards of the FDOT 2006 Design Standards
  http://www.dot.state.fl.us/rddesign/Design%20Standards/Standards.htm
- 18000 Series



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Where to find them

- ITS Specifications
  Workbook of Implemented Modifications to the Standard Specifications for Road and Bridge Construction
  http://www.dot.state.fl.us/specificationsoffice/July06WB/July2006WB.htm
- Standard Drawings
  http://www.dot.state.fl.us/rddesign/rd/2006%20Interims/2006%20Interims.htm
- Basis of Estimates Handbook, Chapter 17
  http://www.dot.state.fl.us/estimates/BOE/06BOEonline.htm
- Plans Preparation Manual
  http://www.dot.state.fl.us/rddesign/PPM%20Manual/2006/ppm2006.htm