

Issue Paper

Florida's Intelligent Transportation System

Overview of Intelligent Transportation System Specifications Development

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Version 3



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List of Acronyms

| | |
|---------------------|--|
| APL..... | Approved Products List |
| CMB..... | Change Management Board |
| DMS..... | Dynamic Message Sign |
| EOR..... | Engineer of Record |
| FBPE..... | Florida Board of Professional Engineers |
| FDOT..... | Florida Department of Transportation |
| FTBA..... | Florida Transportation Builders' Association |
| HAR..... | Highway Advisory Radio |
| ITS..... | Intelligent Transportation System |
| <i>MSTCSD</i> | <i>Minimum Specifications for Traffic Control Signal Devices</i> |
| RWIS..... | Road Weather Information System |
| TEOO..... | Traffic Engineering and Operations Office |
| TERL..... | Traffic Engineering Research Laboratory |
| TMC..... | Transportation Management Center |

1. General Overview

The intelligent transportation system (ITS) specifications are a group of technical documents that define the requirements for 15 major ITS equipment components. The 15 components include:

- Acoustic detection systems;
- Video image detection (VID) systems;
- Microwave vehicle detection systems;
- Managed field Ethernet® switches;
- Noninvasive magnetic traffic detection systems;
- Road weather information systems;
- Surveillance systems;
- Highway advisory radio (HAR);
- Fiber optic cable infrastructure;
- Equipment shelters;
- Digital video encoders/digital video decoder (DVEs/DVDs);
- Dynamic message sign (DMS) systems;
- Device servers;
- Grounding and Suppression; and
- Central video wall displays.

These specifications were developed for the general purpose of:

- Standardizing equipment deployments;
- Reducing specification package development costs for ITS projects;
- Achieving interoperability between deployments; and
- Reducing the costs for transportation management center (TMC) software development.

2. History

The process of writing specifications for statewide use began in 2003 and has followed the procedure described in the work plan approved by the ITS Section of the Florida Department of Transportation (FDOT) Traffic Engineering and Operations Office (TEOO). The devices/equipment to be specified were listed as video display walls; video surveillance equipment; dynamic message signs (DMSs); highway advisory radio (HAR); road weather information systems (RWIS); vehicle detection systems; fiber optic cable and network devices; communication hubs and buildings, and transient surge arresters.

The following steps were taken during the development process:

- All applicable design, construction, communications, field device, and testing specifications were obtained from the FDOT Districts, Florida's Turnpike Enterprise, the expressway authorities, the Traffic Engineering Research Laboratory (TERL), and certain other states such as Georgia, Alabama, Texas, Michigan, Minnesota, Wisconsin, and Virginia;
- A meeting was held with the FDOT Estimates Office (M. Hollis, G. Davis), Specifications Office (D. Brautigam), Roadway Design Office (B. Blanchard, J. Mills, C. Henson, C. Scott), and Utilities Office (K. Weldon) on July 14, 2003, to gain input for coordination with existing FDOT manuals and procedures;
- Several manufacturer design engineers were contacted for installation recommendations that would ensure the best possible accuracy and reliability from their equipment;
- Two issue papers were published that detail the installation parameters learned and that provide explanation for why some requirements were included in the specifications;
- "Strawman" specifications were created based on the information gathered, then published on the Web site along with a request for District comments;
- Comments and responses were entered in a spreadsheet. Based on the submission of comments, the specifications were revised and republished on the Web site, with a request for additional comments;
- A notice was sent to the ITS Florida chairman requesting him to advise interested parties that the specifications were available for review and comment; and

- After a discussion with Duane Brautigam, a meeting was held with the Florida Transportation Builders' Association (FTBA) and copies of the specifications were distributed to the members.

From time to time, additional comments are still being received from a variety of sources. All comments are entered in the tracking spreadsheet and responses are prepared after consultation with all concerned parties.

3. Current Status

The ITS specifications are “guidelines” that the Districts should follow when developing ITS deployment specification packages. While this status gives the FDOT the flexibility to alter the ITS specifications on an as-needed basis, it does not give the Districts the ability to use the specifications in the manner intended. Since the engineer of record (EOR) is required to sign and seal the specification packages, the ITS specifications can only be used as a framework, with the EOR altering them as appropriate in his/her engineering judgment. It can be considered a violation of the Florida Board of Professional Engineers’ (FBPE) rules and regulations to ask an EOR not to modify the specifications while they are considered “guidelines.”

With the current “guideline” status of the ITS specifications, the development of an Approved Products List (APL) for tested and approved ITS devices would be futile. The FDOT cannot guarantee with any significant level of assurance that an EOR has not changed the ITS specifications and significantly altered the ITS devices procured for a particular project.

4. Suggested Status

In order to address the above concerns, the status of the ITS specifications should be altered as follows:

- Another review process utilizing the current drafts of the specifications should occur, with the review schedule to be determined;
- The ITS specifications should be categorized as “developmental specifications,” with the TEOO’s ITS Section being the originator. This will allow the ITS specifications to be used as statewide specifications, but will not require them to be placed in the *FDOT Standard Specifications for Road and Bridge Construction*. It will provide the flexibility to alter the ITS specifications on an as-needed basis until “final” specifications are achieved. This will also allow the development of an APL without concerns about final deployments not meeting the APL standard;
- Coordination with the Telecommunications General Consultant, State Traffic Incident Management Team, TERL, and the SunGuideSM Software System should be ensured; and
- Once “final” specifications have been produced, they should be included in the *Minimum Specifications for Traffic Control Signal Devices (MSTCSD)* and changes should be allowed through the Change Management Board (CMB) process in conjunction with the update process that the TERL established for the *MSTCSD*.

5. Conclusion

The current status of the ITS specifications does not allow them to achieve their intended purpose. For the ITS specifications to be effective, a change in how the FDOT views them must occur. The ITS specifications continue to receive numerous comments and are still being updated. The “developmental” status of the specifications allows this process to continue, while also allowing the specifications to be used for their intended purpose. Once the specifications reach their final form, their inclusion in the *MSTSCD* will formalize them as official FDOT equipment requirements for use in ITS projects throughout Florida.