

# Turnpike ITS Design Guidance

## ITS Device Infrastructure Guidance

### **Sole Source:**

- Coordinate with Turnpike ITS Design for potential sourcing of equipment and submission of Proprietary Product Certification (Form 110) prior to Phase II submittal.
- The following items are typically sole-sourced and require Proprietary Product Certification:
  - Managed Field Ethernet Switch (MSP 684)
  - Managed Hub Ethernet Switch (MSP 684)
  - CCTV Camera (MSP 682)
  - Traffic Data Detection System-Microwave (MSP 660)
  - Vehicle Detection system – Wrong Way (MSP 660)
  - Highlighted Sign, Including Wrong Way (MSP 700)
  - Vehicle Detection System – AVI (Automatic Vehicle Identification) (MSP 660)
- Upon District Design Engineer's approval of the Proprietary Product Certification, coordinate with the Turnpike Specification office to develop a Modified Special Provision (MSP) for each sole sourced product.

### **Dynamic Message Sign (DMS) and Arterial Dynamic Message Signs (ADMS):**

- Coordinate with Turnpike Specifications Office to develop a Modified Special Provision (MSP) with the following requirements:
  - For Walk-In (Mainline) DMS provide:
    - 18-inch font
    - Three lines
    - 21 characters per line
    - Full color
    - Full matrix
  - For Front Access (Arterial) ADMS provide:
    - 15 characters per line
    - Three lines
    - Full color
    - Full matrix
- For all types of DMS, provide a ground accessible cabinet to install uninterruptible power supply (UPS) head units and associated battery equipment. Make provisions to include transfer switch, auxiliary power, and generator connection for the cabinet.
- Show cone of vision for all A/DMS and ensure corresponding verification/IM CCTV is within the cone.

### **Closed-Circuit Television (CCTV) Systems:**

- Use dome PTZ, non-pressurized, IP-addressable, high-definition cameras for Incident Management CCTV.
- Use concrete poles for all CCTV installations unless project conditions demand otherwise.

### **Wrong Way Vehicle Detection System (WWVDS):**

- Ensure that the placement of WWVDS at locations, where emergency vehicles access ramps, is adjusted to prevent false alarms while still allowing for proper access.

### **Microwave Vehicle Detection System (MVDS):**

- In addition to locating MVDS devices along mainline spaced ½ mile or 1-mile per FDM, place MVDS devices in such a way that traffic entering and exiting the mainline corridor is also detected and monitored for volumes and speed.

### **Automatic Vehicle Identification (AVI) Systems:**

- Use Vehicle Detection System (VDS)-AVI based on Bluetooth technology for travel time data collection. Design VDS-AVI at each walk-in DMS and every interchange, with a maximum spacing of 3 to 5 miles.

### **Remote Power Management Unit (RPMU)**

- Ensure the RPMU provides a minimum of eight NEMA 5-15R receptacles, nominal 120 VAC.
  - Modified Special Provision (MSP) is needed (MSP 996)

### **ITS Cabinets**

- Ensure that maintenance vehicles can safely and directly reach ITS cabinets from the adjacent roadway or maintenance path. Coordinate cabinet locations early in the design process to preserve sufficient clearance between the cabinet and the sound wall(s).

### **Highway Advisory Radio (HAR)**

- Remove HAR sites from projects and provide notes to salvage equipment/components and return to ITS maintenance yard.

### **Emergency Generator Power Systems**

- When a project includes a permanent generator and SCADA, ensure to place a power monitoring cabinet to house the SCADA module next to the generator. Also, include UPS in the power monitoring cabinet.

### **Salvageable Items**

- Salvageable items must be dropped off at the ITS maintenance yard within 60 miles of Turkey Lake Service Plaza (MP 263) or Pompano Beach Service Plaza (MP 65) depending on project location. Document the make, model and serial number of each dropped off item, if applicable.