

Special Specification 6030

ITS Specifications Material Submittal Requirements



1. DESCRIPTION

Furnish technical data sheets, material cut sheets, brochures, shop drawings, and working drawings.

2. SUBMITTAL REQUIREMENTS

Provide submittals within the number of days shown on the plans. Provide a cover letter with each submittal that includes the Department contract number, control-section-job number, bid item number, description code, and description. Provide 3 bound copies with original signatures and 1 electronic copy of the submittal, unless otherwise shown on the plans. Use compact disks to submit electronic data. Provide Microsoft Office compatible electronic data, including scanned images.

Provide original technical data sheets, material cut sheets, manuals, brochures, shop or working drawings, compliance matrix, test procedures, and training course outlines with individual submittal bid items clearly indicated with an arrow or circle. Poorly reproduced documents may be rejected. Incomplete submittals may be rejected.

The compliance matrix must indicate specification compliance on a paragraph by paragraph basis and utilizing the same numbering system. Include material or equipment exceptions in the matrix with reasonable justification. Exceptions not identified in the matrix may be marked incomplete.

2.1. **Material and Equipment.** Organize and provide material and equipment submittals in the order listed in the plans and specifications. For a particular bid item, include the material and equipment in a single submittal. Submit material duplicated in multiple bid items only once. For submittals utilizing duplicated material, refer to the previous submittal with the details of the duplicated material or equipment.

2.2. **Shop Drawings.** Indicate approximate weight and dead loads on shop drawings related to structures.

For Dynamic Message Sign (DMS) structures, show details of connections between signs and support structures. Provide shop drawings detailing the entire DMS and structure from a single fabricator or supplier. Submit these shop drawings to the Bridge Division, unless otherwise shown on the plans.

3. SUBMITTAL COMPONENTS

Provide submittals for each item listed below that is included in this project. Address in detail the components listed under each item and any additional requirements in accordance with the special specification.

3.1. **Closed Circuit Television (CCTV) Field Equipment.** Provide submittals that detail the following and in accordance with Special Specification, "CCTV Field Equipment."

- Video Camera Unit
- Camera Lens
- Camera Housing
- Pan-Tilt Unit
- Local Control Panel
- Control Receivers
- Source ID Generator
- Video Communication Junction Box

- Surge Protection
- Power Requirements
- Connections
- Environmental Parameters
- Test Procedures
- Training Information

3.2. **Communication Cable.** Provide submittals that detail the following and in accordance with Special Specification, "Communication Cable."

- Number of Pairs
- Wire gauge
- Shielding Thickness
- Core Configuration
- Environmental Parameters
- Test Procedures

3.3. **Dial-Up Modem.** Provide submittals that detail the following and in accordance with Special Specification, "Dial-Up Modem."

- Modem Data Rate
- Applicable Data Rate Standards
- Command Sets
- Error Correction
- Front Panel Indicators
- Connectors and Interfaces
- Power Supply and Accessories
- Environmental Parameters

3.4. **Digital Card Rack Inductive Loop Detector Assembly.** Provide submittals that detail the following and in accordance with Special Specification, "Digital Card Rack Inductive Loop Detector Assembly."

- Detector Panel
- Detector Unit
- Detector Card Rack
- Power Supply
- Environmental Parameters
- Test Procedures

3.5. **Fiber Optic Cable.** Provide submittals that detail the following and in accordance with Special Specification, "Fiber Optic Cable."

- Number of Strands
- Optical Requirements
- Mechanical Requirements
- Termination Parameters
- Environmental Parameters
- Test Procedures

3.6. **Fiber Optic Dynamic Message Sign System.** Provide submittals that detail the following and in accordance with Special Specification, "Fiber Optic Dynamic Message Sign System."

- Shop Drawings for sign and supports
- Dynamic Message Sign
 - Physical Characteristics

- Optical and Electrical Characteristics
- Characters Displayed
- Environmental Parameters
- Sign Controller
 - Sign Controller Cabinet
 - Sign Controller Functions
 - Modes of Operation
 - Safety of Operation
- DMS Power Requirements
- References
- Training
- Test Procedures

- Communication with DMS Master Controller
 - Description of Various Commands

- DMS Remote and Maintenance Terminal Software
 - Environmental Parameters

3.7. **ISDN Compressed Video Equipment.** Provide submittals that detail the following and in accordance with Special Specification, "ISDN Compressed Video Equipment."

- CVE Field
- CVE Equipment
- Interface Requirements
- Operational Requirements
- Installation Requirements
- Power Requirements
- Environmental Parameters
- Mechanical Requirements
- Test Procedures
- Training

3.8. **ISDN Network Termination Unit.** Provide submittals that detail the following and in accordance with Special Specification, "ISDN Network Termination Unit."

- Functional Requirements
- Functional requirements Central Unit
- Environmental Parameters
- Test Procedures
- Training

3.9. **ITS Field Equipment Cabinet.** Provide submittals that detail the following and in accordance with Special Specification, "ITS Field Equipment Cabinet."

- Shop Drawing
- Cabinet Layout for each cabinet type
- Electrical Requirements
- Mechanical Requirements
- Surge Protection
- Environmental Parameters
- Test Procedures

- 3.10. **ITS System Support Equipment.** Provide submittals that detail the information required in the parent special specification, the requirements of this Item, or as shown on the plans.
- 3.11. **Lane Control Signal Equipment.** Provide submittals that detail the following and in accordance with Special Specification, "Lane Control Signal Equipment."
- Lane Control Signal Head
 - Lane Control Signal Controller
 - Functional Requirements
 - Electrical Requirements
 - Mechanical Requirements
 - Environmental Parameters
 - Test Procedures
 - Training
- 3.12. **LED Dynamic Message Sign System.** Provide submittals that detail the following and in accordance with Special Specification, "LED Dynamic Message Sign System."
- Shop Drawings for sign and supports
 - Dynamic Message Sign
 - Physical Characteristics
 - Optical and Electrical Characteristics
 - Characters Displayed
 - Environmental Parameters
 - Sign Controller
 - Display System Hardware
 - Ground Control Box
 - DMS Power Requirements
 - References
 - Experience Requirements
 - Training
 - Test Procedures

 - Sign Controller Communication Interface
 - Sign Controller Functions
 - Modes of Operation
 - Safety of Operation

 - Communication with DMS Master Controller
 - Description of Various Commands

 - DMS Remote and Maintenance Terminal Software
 - Environmental Parameters
- 3.13. **Limited Distance Modem.** Provide submittals that detail the following and in accordance with Special Specification, "Limited Distance Modem."
- Asynchronous Modem Data Rate
 - Stand Alone or Rack Mount
 - Multi Drop Parameters
 - Front Panel Indicators
 - Connectors and Interfaces
 - Power Supply and Accessories

- Environmental Parameters.
 - Test Procedures
- 3.14. **Local Control Unit.** Provide submittals that detail the following and in accordance with Special Specification, "Local Control Unit."
- General Requirements
 - Enclosure
 - Front Panel Mounted Components
 - STD Bus Printed Circuit Boards
 - Internal Wiring and Cable Assembly
 - Environmental Parameters
 - Test Procedures
- 3.15. **Local Control Unit (LCU) Interface to Field Equipment.** Provide submittals that detail the following and in accordance with Special Specification, "Local Control Unit (LCU) Interface to Field Equipment."
- Local Control Unit Power Cables
 - Local Control Unit Signal Cables
 - Local Lighting Protection Module
 - Local Communication Internal Panel
 - Cabinet Backpanel
 - Voice Powered Communication Headset
 - EIA RS-232C Serial Cables
 - Shielded Null Modems
 - System Detector Panel
 - Door Switch
 - Test Procedures
- 3.16. **Multi-Duct Conduit System.** Provide submittals that detail the following and in accordance with Special Specification, "Multi-duct Conduit System."
- Material Requirements
 - Outer Ducts
 - Inner Ducts
 - Coupling Body
 - Test Procedures
 - References
- 3.17. **Preparation of Existing Conduits, Ground Boxes, or Manholes.** Provide submittals that detail the following and in accordance with Special Specification, "Preparation of Existing Conduits, Ground Boxes, or Manholes."
- Junction Box Parameters
 - Pull Cord Tensile Strength
 - Cable Rack Parameters
 - Cover Parameters
- 3.18. **Rack Mounted Electronic Equipment Cabinet.** Provide submittals that detail the following and in accordance with Special Specification, "Rack Mounted Electronic Equipment Cabinet."
- Cabinet Material
 - Equipment Rails
 - Dimensions
 - Ventilation

- Exterior Finish
- Casters
- Doors
- Electrical Requirements
- Electrical Tap Strips
- Wiring
- Environmental Parameters
- Test Procedures

3.19. **Surveillance System Loop Detector.** Provide submittals that detail the following and in accordance with Special Specification, "Surveillance System Loop Detector."

- Loop Detector Parameters
- Preformed Loop Parameters
- Loop Wire Sealant
- Environmental Parameters
- Test Procedures

3.20. **Testing, Training, Documentation, Final Acceptance, and Warranty.** Provide submittals that detail the following and in accordance with Special Specification, "Testing, Training, Documentation, Final Acceptance, and Warranty."

3.20.1. **Testing.** Submit the test procedures and data forms for each type of test required by the plans, specifications, or as directed. Include a step-by-step sequence of test procedures for conducting the tests. Design the test data forms to record the results of each step.

3.20.2. **Training.** Submit the course outline or agenda, training material, instructor qualifications, and training location for each course required by the plans, specifications, or as directed.

3.20.3. **Documentation.** Provide documentation required by the plans, specifications, or as directed.

3.21. **Uninterruptible Power Supply.** Provide submittals that detail the following and in accordance with Special Specification, "Uninterruptible Power Supply."

- Input Voltage
- Output Rating
- Output Voltage
- Output Voltage Regulation
- Output Wave Shape
- Output Frequency
- Overload Capacity
- Backup Power
- Backup Battery
- Efficiency
- Line Noise Rejection
- Audible Noise
- Operating Temperature Range
- Alarm Provision
- Front Panel Controls
- Front Panel Displays
- Size
- Environmental Parameters
- Test Procedures

4. SUBMITTAL REVIEW

The Engineer will mark the date the submittal was received and will review submittals within 30 working days unless additional time is necessary. The Engineer will notify the Contractor in writing within 10 working days if additional time is necessary. Provide corrected submittals or submit additional information as directed. When required, resubmit 3 bound copies and 1 electronic copy in accordance with Article 2., "Submittal Requirements," within 30 calendar days unless otherwise approved in writing.

5. SUBMITTAL APPROVAL

Upon approval of the submittals, material or equipment may be used. Once submittals are approved, no changes in materials or equipment will be allowed.

Until the submittals are approved, material or equipment delivery will not be accepted nor payment made. Approval does not relieve the Contractor of the responsibility for complying with the plans and specifications.

Two copies of submittal information will be returned to the Contractor marked as described below:

- **Approved for Use.** Submittals which are clear, substantially complete, and demonstrate that the material or equipment submitted meet the specifications.
- **Approved as Noted.** Submittals which are not absolutely clear, somewhat incomplete, but can reasonably be expected to meet the specifications.
- **Incomplete.** Submittals which are unclear, substantially incomplete, or does not demonstrate that the material or equipment clearly meet the specifications.
- **Rejected.** Submittals which are incomplete, or do not meet the specifications.

Fabricate or order material or equipment for "Approved for Use" or "Approved as Noted" submittals, provided notations are addressed. A follow-up letter or final documentation may address notations.

Supply additional information as required for those submittals marked "Incomplete" before material or equipment is approved for fabrication or used. Resubmitted "Incomplete" submittals which do not address the noted items may be returned and marked "Rejected." No additional compensation, including time, will be granted as a result of incomplete or rejected submittals.

6. MEASUREMENT AND PAYMENT

The work performed, materials furnished, equipment, labor, tools, and incidentals will not be measured or paid for directly, but are subsidiary to the pertinent Items.