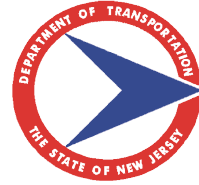


*New Jersey Department of Transportation*  
1035 Parkway Avenue, PO Box 600, Trenton, New Jersey 08625-0600



## *Baseline Document Change Announcement*

**ANNOUNCEMENT: BDC13S-04**

**DATE: June 10, 2013**

**SUBJECT: ITS**

**- Revision to Subparts 105.07.01, 159.03.02, 701.03.01, 701.03.15, 704.02.01, 704.03.01, 704.03.02, 704.03.03, 704.03.04, 704.03.05, 704.03.06, 704.03.07, 704.03.08, 704.03.09, and Subsection 918.01 of the 2007 Standard Specifications for Road and Bridge Construction.**

Subparts 105.07.01, 159.03.02, 701.03.01, 701.03.15, 704.02.01, 704.03.01, 704.03.02, 704.03.03, 704.03.04, 704.03.05, 704.03.06, 704.03.07, 704.03.08, 704.03.09, and Subsection 918.01 of the 2007 Standard Specifications have been revised to reflect the current requirements and processes along with the new names of the Departmental Bureaus involved.

**The following revisions have been incorporated into the Standard Input SI2007 as of June 10, 2013.**

### **SECTION 105 – CONTROL OF WORK**

#### **105.07.01 Working in the Vicinity of Utilities**

##### **B. Locating Existing Facilities.**

PART (2) IS CHANGED TO:

2. For the Department’s fiber optic network, Obtain and complete the fiber optic markout request form as specified in the Special Provisions. Submit a fiber optic markout request form to the Traffic Operations location specified in the Special Provisions for the markout. The Traffic Operations will complete the markout within 15 days of the receipt. Provide the RE a copy of the markout, and maintain the markout until construction operations in the vicinity of the Department’s fiber optic network are completed.

Fiber Optic Markout Form is available at:

<http://www.state.nj.us/transportation/eng/elec/ITS/requests.shtm>

- 3.

**2\*\*\*\*\*2  
SELECT THE APPROPRIATE TRAFFIC OPERATIONS OFFICE FROM #2 ABOVE, IN ADDITION, WHEN FACILITIES OTHER THAN FIBER OPTIC EXIST; SELECT OTHER ITS CONTACT FROM BELOW AS NECESSARY**

FOR WEIGH IN MOTION AND TRAFFIC VOLUME SYSTEMS CONTACT:

Bureau of Safety and Data Development – Technology Section  
PO Box 600  
Trenton, NJ 08625  
609-530-3508

FOR ROADWAY WEATHER INFORMATION SYSTEMS CONTACT:

Bureau of Maintenance Engineering & Support - Electrical Section  
PO Box 600  
Trenton, NJ 08625  
609-530-5728

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**C. Protection of Utilities.**

THE SECOND PARAGRAPH IS CHANGED TO:

Protect and support existing Department electrical and ITS facilities and ensure that there is no interruption of service. Use hand tools only while working within two feet of the fiber optic network. At least 30 days before beginning the work, submit a plan to the RE for approval showing the method of support and protection. When access to Traffic Operation Centers, communication hubs, ITS cabinets or any other ITS facilities is required to perform work, submit a request for access to ITS facilities. Ensure that the request for access is made at least five working days before any work is scheduled, using the online form as specified in the Special Provisions.

<http://www.state.nj.us/transportation/eng/elec/ITS/access.shtm>

**SECTION 159 – TRAFFIC CONTROL**

**159.03.02 Traffic Control Devices**

THE FOLLOWING IS ADDED TO THE SECOND PARAGRAPH:

- 8. Portable Variable Message Sign w/Remote Communication (PVMSRC).** Place the PVMSRC at the location directed by the RE. Ensure that a designated representative familiar with the operation and programming of the unit is available on the Project for On-Site Configuration. Only display messages authorized by the Department for the Project and make the signs available for use remotely from the Traffic Operation Center (TOC) specified in 105.07.01.B. If the PVMSRC fails to function, repair the equipment within 48 hours of receiving notice from the Department that the PVMSRC is not functioning.

**CONTACT TOC TO DETERMINE IF THESE SIGNS ARE INTENDED TO BE USED FOR POSTING TRAVEL TIME MESSAGES USING CENTRAL DMS SOFTWARE AND MODIFY THE ABOVE PARAGRAPH ACCORDINGLY TO ACCOMMODATE THEIR SPECIFIC REQUIREMENTS AND INCLUDE ANY INTEGRATION REQUIRED FOR POSTING TRAVEL TIMES.**

Provide for one week of testing by the TOC for remotely operating the PVMSRC before the start of construction operations that require lane or shoulder closures, or other impacts to traffic. At least 10 days before testing, submit to the RE for approval a plan for any work to be completed in the TOC. Submit a request to the RE at least 4 days in advance to access the TOC for any work.

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**IF THE PTMCCA IS REQUESTED BY CONSTRUCTION MANAGEMENT, REVISE THIS AND OTHER REQUIREMENTS WILL NEED TO BE INCLUDED.**

**SME CONTACT – MSE; TRAFFIC OPERATIONS**

- 9. **Portable Trailer Mounted CCTV Camera Assembly (PTMCCA).** Place the PTMCCA at the location directed by the RE. Ensure that a designated representative familiar with the operation and programming of the unit is available on the Project for initial installation. If the PTMCCA fails to function, repair the equipment within 48 hours of receiving notice from the Department that the PTMCCA is not functioning.

Provide a system that includes a robotic network camera remotely controllable, including Pan, Tilt and Zoom (PTZ). Provide broadband internet service connection and On-Site Camera Configuration for remote operation and control of the camera via the Department’s existing Head-End Camera Control System, Genetec. No other Head-End Camera Control System substitution is permitted. A Management user system is also to be provided for remote system programming to the camera sites. This includes a website that is to be provided and hosted by the vendor. This website is to have secure authentication and is to show the current devices with their location, status, and display links for each device. Provide continuous viewable image at a minimum of 320H x 240V resolution and 1 frame per sec (fps) through the web site. As directed by the Traffic Operation Center (TOC) specified in 105.07.01.B, establish password level designations, camera presets, and camera image displays. Provide all incidental equipment and material required for successful remote operation and communications.

Provide for one week of testing by the TOC for remotely operating the PTMCCA before the start of construction operations that require lane or shoulder closures, or other impacts to traffic.

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## DIVISION 700 – ELECTRICAL

### SECTION 701 – GENERAL ITEMS

#### 701.03.01 Existing Systems

THE FIFTH PARAGRAPH IS CHANGED TO:

If removal of existing above ground electrical material is required, deliver salvaged materials to the nearest Department electrical maintenance yard and unload the salvaged materials as directed. Dispose of salvaged materials rejected by the Department from the Project Limits as specified in 201.03.09.

#### 701.03.15 Cable and Wire

##### A. Installing.

THE FOLLOWING IS ADDED

Test the existing tracer wire in the conduit for continuity. If there is no existing tracer wire in any of the conduits in the same trench, then install a continuous tracer wire between the adjacent junction boxes without any splice when installing the cable and wire as directed by the RE.

##### C. Connection and Coordination with Utility Services.

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CONFIRM ON THE REQUIREMENTS FOR INTERIM COMMUNICATION AND POWER CONNECTIONS, AND CONNECTIONS TO NJTA NETWORK. ALSO, FOR ESTABLISHMENT OF IP ADDRESSES, INTERIM AND PERMANENT.

#### SME CONTACT – MSE

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INCLUDE THE FOLLOWING WHEN ITS FACILITIES ARE PROPOSED THAT REQUIRES ANY NEW UTILITY SERVICES.

**SME CONTACT – MSE**

THE FOLLOWING IS ADDED:

Obtain and provide for utility services required for testing and operation of ITS systems until interim acceptance of each system or device. Upon successful completion of level C testing and acceptance of any device, provide the RE with a letter requesting transfer of utility services providing the latest copy of the utility bill from each utility company. Such transfers are to be effective beginning the next monthly billing cycle after completion of successful ITS system testing as specified in Section 704 and interim acceptance of the device or as directed by the RE.

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**SECTION 704 – INTELLIGENT TRANSPORTATION SYSTEMS (ITS)**

**704.02.01 Materials**

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MOST COMMON ITS MATERIAL SPECIFICATIONS ARE AVAILABLE ON THE DEPARTMENT'S WEBSITE AND A QPL OF PREQUALIFIED MATERIALS IS POSTED, DOWNLOAD THE REQUIRED SPECIFICATIONS FROM THE DEPARTMENT'S WEBSITE AND LIST THEM HERE IN THE TABLE REFERRING TO THE APPROPRIATE SUB SECTION OF 918 SECTION AND INCLUDE THE SPECIFICATIONS IN THAT SECTION

**SME CONTACT – MSE**

FIFTH PARAGRAPH IS CHANGED TO:

Submit the system working drawings in a complete package for approval. The complete package of the system working drawings includes but is not limited to the ITS System Block Diagrams, Fiber Assignment Diagrams, and Rack/Cabinet Equipment Layout Diagrams; Certified Structural Details & Calculations. All components must be approved in the system working drawings before use on the Contract. List the ITS and EE approval numbers of each component in the equipment list on the system block diagram when a pre-approved product from the QPL is proposed to be used. For all components that are proposed without a pre-approved number, submit eight copies of catalog cut sheets along with the working drawings. Submit all structural components that are not listed on QPL separately for structural review and approval with the required certification and include a copy of all approvals when submitting the system working drawings to meet the complete package requirement.

THE SIXTH PARAGRAPH IS DELETED.

THE FIRST SENTENCE OF THE LAST PARAGRAPH IS CHANGED TO:

For materials furnished and installed, provide a minimum 2-year warranty from the latter date of Substantial Completion and Successful ITS System Testing against any imperfections in workmanship, components and materials.

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**704.03.01 General System (GS)**

**B. Installation.**

THE FOLLOWING IS ADDED TO THE FIRST PARAGRAPH:

When installing a new system or modifying an existing system, ensure the respective manufacturer certified field representative of ITS components and related equipment is on site to commission the equipment into operation. Restore the operation of the overall system to its original condition, the conditions specified in the Contract, or as directed by the RE.

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**COMPLETE AND INCLUDE THE FOLLOWING.**

INSERT THE EXISTING SYSTEM SHUTDOWN TIME FRAMES, INCLUDING DAYS OF THE WEEK, SPECIFIC DATES, AND/OR HOURS OF THE DAY(S).

**SME CONTACT – TRAFFIC OPERATIONS**

The Department will allow existing system shutdowns for work at the \_\_\_\_\_ Center from \_\_\_\_\_.  
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**1. Junction Box ITS.**

THE ENTIRE TEXT IS CHANGED TO:

- a. **Installation.** Excavate as specified in 202.03.02. Install junction boxes only in areas where the slope is not less than 22H: 1V. Place junction boxes on 10 inches of coarse aggregate No. 57. With each junction box, provide 6 coiling brackets, inserts and fasteners, and a ground rod and clamp. Backfill and compact using the directed method as specified in 203.03.02.D. Restore disturbed areas to the original conditions, the conditions specified in the Contract, or as directed by the RE.

IF REMOVAL OR RELOCATION OF ITS JUNCTION BOX IS NOT FEASIBLE IN A PROJECT THAT REQUIRES TRAFFIC TO BE SHIFTED IN THE AREA OVER THIS JUNCTION BOX DURING ANY STAGE OF CONSTRUCTION THEN IT MUST BE PROTECTED DURING CONSTRUCTION AND MUST INCLUDE DETAILS FOR PROTECTING THE ITS JUNCTION BOX.

**SME CONTACT – MSE**

- b. **Relocation.** Submit plans showing the proposed method of relocation of junction box including any provisions for maintaining network operation and/or cut-over during the process to the RE for approval. Remove existing ITS junction box by excavating around the junction box, cutting back conduits, pulling the cable slack equally to adjacent junction boxes and notching the portion of junction box below the conduits sufficient to slide the fiber optic cable. After removal of the junction box, re-couple the conduit(s), and terminate them using approved conduit repair kits and backfill with approved material and compact using the directed method as specified in 203.03.02.D. Install the Junction Box after approval by the RE. Ensure that the cut conduit ends are terminated at the entrance of the junction box wall using a manufacturer recommended kit depending upon the type of conduits. Ensure that the fiber optic cable is pulled back from the adjacent junction boxes in equal length to maintain the required slack for any immediate or future splicing. Ensure that a ground rod and clamp are installed.

**4. Controllor ITS.**

THE LAST SENTENCE OF THE FIRST PARAGRAPH IS CHANGED TO:

Identify each component by manufacturer and model number.

**5. Communication Hub.**

THE LAST SENTENCE OF THE FIRST PARAGRAPH IS CHANGED TO:

Identify each component by manufacturer and model number.

**6. Control Center System.**

THE LAST SENTENCE OF THE FIRST PARAGRAPH IS CHANGED TO:

Identify each component by manufacturer and model number.

THE FOLLOWING IS ADDED:

INCLUDE THE WORK TO BE PERFORMED AT EACH CONTROL CENTER (TOC, HUB OR ANY BUILDING/CABINET WITH A NETWORK NODE) CLEARLY AND REMOVE THE PORTION OF THE WORK THAT IS NOT APPLICABLE TO ANY PARTICULAR PROJECT AS THE BID PRICE FOR THIS ITEM WILL BE BASED ON THE WORK INVOLVED AT THE DESIGNATED CONTROL CENTER. THE DESIGNERS MUST INCLUDE SYSTEM BLOCK DIAGRAMS AND FIBER ASSIGNMENT DIAGRAMS IN THE SET OF CONSTRUCTION PLANS. THE CONTRACTOR WILL USE THESE AS WORKING DRAWINGS BY ADDING A LIST OF EQUIPMENT AND NETWORK IP ADDRESSES.

**SME CONTACT – MSE**

Ensure the ITS System Network working drawing is submitted in a format acceptable to the Department. Sample Working Drawings are available at:

<http://www.state.nj.us/transportation/eng/elec/ITS/pdf/sampledrawings.pdf>

Ensure the working drawing contains the following information:

1. Affected network nodes are shown in nodal format with Latitude/Longitude
2. Each node shows equipment type and the proposed communication links between them.
3. Distances between Ethernet switches and calculated dB loss between them.
4. A Communication Network Assignment Table specifying Equipment Location (Node, Site ID, Lat/Long, Plan sheet reference, Route, Mile Post), Equipment Information (Item No., Description, Function, VLAN No., Subnet Mask, and IP Address)

Supply and install equipment, software, software revisions, firmware, miscellaneous wiring and cabling, at the specified Control Centers to ensure the remote operation and control of all ITS field devices from the Traffic Operation Centers. Comply with building installation requirements, restrictions, access, and security requirements in the performance of work. The material and work required for the integration of the various ITS installations into the various existing operating systems or subsystems used by the Department includes, but is not limited to, the following:

1. At least 6 days in advance of requiring access to the designated Control Center, submit a written notice to the RE requesting access.
2. Ensure complete functionality with field devices. Coordinate with the Department for access, rack space, and LAN connections to Client Workstations, respectively.
3. Ensure CCTV encoders are compatible with approved camera system especially for PTZ and focus control and CCTV Controller Software.
4. Ensure CCTV Controller Software is updated by integrating new cameras installed and ensure video and control is available to all necessary Traffic Operations personnel.
5. Ensure DMS signs are integrated and remotely operable by the DMS Controller Software.
6. Ensure Transmit Devices are integrated and operational in accordance with Contract requirements. Develop the required travel time routes and the appropriate travel time sign messages as directed by the Department.
7. Ensure CTSS components are fully integrated and all the necessary functionality is demonstrated in the designated CTSS Controller Software.
8. Secure and provide all necessary Network configurations and assignments as directed by the Department.
9. Provide and install any other electronic equipment that may become necessary as a result of network protocol translation, electrical signal transmission degradation or communications media translation (fiber optic, coax, DSL interface, network interface, etc.)
10. Provide for software support to integrate new ITS devices into new and existing platforms for all workstations and servers utilized by DOT operators. This includes any required work from each of the software suppliers for workstations located remotely from the Traffic Operation Centers. The Department will provide information regarding the respective system, on particulars for authorized remote users.
11. Provide for the installation of network assignments for all field devices as well as enabling the network and device management protocols as directed by the Department.
12. Ensure that network support requests through the RE to the Department are made at least 60 days prior to the installation of any device to be included in the network.
13. For RWIS, integrate weather station(s) into the appropriate password protected website as directed by the Department.
14. For WIMS, integrate the system for live data retrieval by the designated staff with password protected web site as directed by the Department.

THE FOLLOWING IS ADDED:

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THIS INCLUDES A FNMC RESERVED FOR ELECTRICAL SERVICE CONDUCTORS THAT MAY REQUIRE SEPARATE JUNCTION BOXES AT SHORT INTERVALS. COORDINATE WITH MSE BEFORE PROCEEDING WITH THE DESIGN PLANS TO DETERMINE WHAT IS EXACTLY REQUIRED. IF A FIBER GLASS SLEEVE IS REQUIRED, SPECIFY IT AND INCLUDE WITH BRIDGE STRUCTURE ATTACHMENTS AND EXPANSION FITTINGS AS PER MANUFACTURER REQUIREMENTS. WHEN FIBERGLASS CONDUIT IS NOT PROPOSED ACROSS AN EXISTING STRUCTURE, BUILT-IN SLEEVES WITHIN THE PARAPET CAN BE UTILIZED IF EMPTY AND AVAILABLE.

STANDARD DETAIL FOR ITS CONDUIT TYPE A INCLUDES THREE 2" FNMC. IF THE PROJECT SPECIFIC CONSTRUCTION REQUIREMENTS NEED DIFFERENT SIZE CONDUITS, MODIFY THE STANDARD DETAIL TO INCORPORATE THE PROPOSED CHANGES AND INCLUDE IT IN THE SET OF PLANS REFLECTING THE CORRECT SIZE AND TYPE OF CONDUITS. ALSO, REVISE THE SPECIFICATIONS BELOW TO LIST ANY CHANGES NEEDED TO MATCH THE TYPE OF CONDUITS OTHER THAN FNMC.

**SME CONTACT – MSE**

- 7. **ITS Conduits.** Install Flexible Nonmetallic Conduits as specified in 701.03.07 with the following exceptions:
  - a. Do not install mechanical joints on conduit runs between junction boxes.
  - b. Obtain RE approval for fusion joints that may be permitted under special circumstances on conduit runs between junction boxes.
  - c. Provide an as-built list indicating the location of all joints to the RE.
  - d. Install a continuous tracer wire without any splice in the conduits and from junction box to a termination point in the field cabinet.
  - e. Ensure that all conduits and ducts entering a junction box, foundation, cabinet, hub, or building are terminated based on manufacturer’s recommendation and are rodent proofed and sealed around cables, or plugged if conduit is built for future use.
  - f. Ensure that the ITS Conduits facilitate the various means of cable and wire installations including but not limited to pulling, jetting, and blowing of Fiber optic cable and electrical wires.
  - g. When lateral ITS conduits are installed under a roadway, install a Schedule 80 rated protective sleeve around the group of conduits.
  - h. Install conduits simultaneously with any curb work and prior to any resurfacing base coats being applied.
  - i. Install true tape marked in 1-foot increments for the length of the ITS Conduit.
  - j. Install warning tape in the trench above the conduit.
  - k. Restore disturbed areas to the original conditions, the conditions specified in the Contract, or as directed by the RE.

3\*\*\*\*\*3

- 8. **Fiber Cross-Connect Cabinet.** Submit working drawings for approval that include a block wiring diagram illustrating the interconnection of the system components within the cabinet. Identify each component by manufacturer and model number. Install a Fiber Cross Connect Cabinet on Foundation ITS Type A with concrete pads on front and back of the cabinet. Ensure all fiber optic cables entering this cabinet are terminated into individual patch panels. Provide and install jumpers between multiple patch panels as required to complete the fiber network continuity.

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**C. Testing.**

THE FIRST PARAGRAPH IS CHANGED TO:

Perform wiring and cable testing, as specified in 701.03.15.D, before performing any other testing. Complete the device and system testing as specified on the Department provided forms and instructions. Provide trained

personnel to test the system and subsystems. This includes providing manufacturer certified representatives to ensure complete functionality of said systems and subsystems. The period of testing under this section and in the various testing forms available from the Department's website are in terms of business days. The test will be extended if there is any state holiday during the designated testing period. When a device fails during testing period, the testing period will be rescheduled to progress again after the problem is addressed for the testing time period specified.

**1. Device Testing.**

**b. Level B.**

THE FIRST SENTENCE IS CHANGED TO:

Demonstrate that each device is fully operational from the designated control center to the work site with the original equipment manufacturer software.

**c. Level C.**

THE FOLLOWING IS ADDED

Upon successful completion of level C testing of any device, the Department will accept the device on an interim basis and will pick up the cost of all associated utility services for that device as specified in section 701.03.15.

**2. Project Testing.**

THE FIRST SENTENCE OF THE SECOND PARAGRAPH IS CHANGED TO:

After the Contractor's verification test, the Department will conduct a 14-day observational and functional test period of all systems on the Project.

**D. Maintenance.**

**1. Regular Maintenance.**

THE FIRST SENTENCE IS CHANGED TO:

Perform regular maintenance and repairs as specified in 108.09 after interim acceptance of a device and/or project testing until acceptance of the project and as follows:

THE FOLLOWING IS ADDED:

**H. Networking Requirements.** Provide all ITS network devices as directed by both the Department and the State Office of Information Technology (OIT) to ensure the efficient operation, security and diagnostic capability of the ITS network being installed or modified. Provide trained personnel with the proper credentials (specifically with a Cisco Certified Network Professional certification) to properly interface and configure the ITS network to the State's network and to also interface with OIT and the Department's IT staff. The Cisco Certified Network Professional certification (CCNP) is to have at least three (3) years of related experience in size, complexity, and scope of this contract. Provide credentials of the CCNP to the Department for approval. Obtain a Virtual Private Network (VPN) into the Department's network to set up and monitor the network under construction by CCNP. This includes, but is not limited to the following:

- providing necessary Layer 3 configurations
- obtaining and installing network assignments
- security provisions
- multiple Virtual Local Area Network's (VLAN's) for IP switches, routers and ITS devices as directed
- enabling Rapid Spanning Tree protocols
- Internet Group Management Protocol (IGMP)
- setting up VPNs, White lists, and Black lists
- NATting, multicasting,
- configuring routers for broadband services
- other settings as deemed necessary by the Department
- other hardware configurations that are required at the behest of the Department and OIT



Ensure the correct Fiber Optic Transceiver is utilized for each switch and the correct transceiver power is used based on distance and dB loss

Ensure all Internetwork Operating System (IOS) and protocols for the network devices are compatible across the network.

Ensure that the default IP addresses and passwords set from the manufacturer are changed for all electronic devices where applicable and forward that information to the RE for each device. This includes but is not limited to ITS devices, IP switches, routers, modems and wireless equipment.

Provide an Ethernet Networking Block Diagram on an Excel spreadsheet that includes the networking devices plus the descriptions of device type, Network Assignment, and corresponding switch port and other requirements as it pertains to Ethernet networking.

**704.03.02 Camera Surveillance System (CSS)**

**B. Installation.**

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**COMPLETE AND INCLUDE THE FOLLOWING.  
INSERT THE EXISTING SYSTEM SHUTDOWN TIME FRAMES, INCLUDING DAYS OF THE WEEK,  
SPECIFIC DATES, AND/OR HOURS OF THE DAY(S).**

**SME CONTACT – TRAFFIC OPERATIONS**

The Department will allow existing camera system shutdowns from \_\_\_\_.

2\*\*\*\*\*2

THE FOLLOWING IS ADDED AFTER THE FIRST PARAGRAPH:

If directed by the RE, provide a bucket truck with safety equipment that can reach the height of the camera. Operate the bucket truck for the Department to use to determine the camera’s final location and orientation, and for testing.

**1. Foundation CSS.**

THE FOLLOWING IS ADDED:

Ensure that the anchor bolts are placed after verifying the orientation of the camera lowering system to minimize the obstruction of desired camera view by the Camera Standard.

**2. Camera Standard.**

THE FOLLOWING IS ADDED:

At least 30 days before beginning construction, submit working drawings for approval that include structural calculations meeting the specified criteria. Ensure the calculations are signed and sealed by a Professional Engineer.

**3. Camera**

THE FIRST PARAGRAPH IS CHANGED TO:

Mount the camera housing and camera according to the manufacturer’s recommendation. Ensure that the camera’s field of view is unobstructed. Perform tree trimming and site clearing to provide an unobstructed field of view as directed by the RE. Set up “On Screen Display” to indicate the quadrant views with directional titles (e.g. NB view, EB view, SB view, WB view) displayed in the bottom right corner of the screen for each camera. Leave the display blank for any quadrant not representing any highway view. For a camera with multiple highway views, include route and directional title (e.g. Rt 1 NB view). Also, establish a pan and tilt zones system and set up 4 presets for quick pan-tilt-zoom views prior to level B testing. At least 6 days prior to Level C testing, submit a request to the RE for the Department to integrate each camera into the designated control center CSS control software management system in use at the time of construction.

THE FOURTH PARAGRAPH IS CHANGE TO:

Provide a drill, a drill adaptor assembly and a manual crank assembly with handle for each impacted TOC when a CSS Type A or B standard is installed.

**4. Controller, Camera.**

THE LAST SENTENCE OF THE FIRST PARAGRAPH IS CHANGED TO:

Identify each component by manufacturer and model number.

THE FOLLOWING IS ADDED:

**H. Networking Requirements.** Comply with the networking requirements and perform work as specified in 704.03.01.H.

**704.03.03 Fiber Optic Cable**

**B. Installation.**

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**COMPLETE AND INCLUDE THE FOLLOWING.  
INSERT THE EXISTING SYSTEM SHUTDOWN TIME FRAMES, INCLUDING DAYS OF THE WEEK,  
SPECIFIC DATES, AND/OR HOURS OF THE DAY(S).**

**SME CONTACT – TRAFFIC OPERATIONS**

The Department will allow existing system shutdowns on the fiber network from \_\_\_\_\_.

2\*\*\*\*\*2

THE FOLLOWING IS ADDED TO THE SIXTH PARAGRAPH:

When installing fiber optic cable in existing conduits, install a tracer wire as specified in 701.03.15.A. Perform testing of existing tracer wires for continuity and perform splicing required to ensure access to the tracer wire from cabinet to cabinet.

THE FIRST SENTENCE OF THE LAST PARAGRAPH IS REVISED TO:

Splice a manufacturer recommended fiber optic breakout kit with connectors to each end of the strands for a cable that terminates at a device cabinet.

**704.03.04 Controlled Traffic Signal System (CTSS)**

**B. Installation.**

**2. CTSS Controller Unit.**

THE LAST SENTENCE OF THE FIRST PARAGRAPH IS CHANGED TO:

Identify each component by manufacturer and model number.

2\*\*\*\*\*2

**COMPLETE AND INCLUDE THE FOLLOWING.  
INSERT THE EXISTING SYSTEM SHUTDOWN TIME FRAMES, INCLUDING DAYS OF THE WEEK,  
SPECIFIC DATES, AND/OR HOURS OF THE DAY(S).**

**SME CONTACT – TRAFFIC OPERATIONS**

The Department will allow existing CTSS system shutdowns from \_\_\_\_\_.

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THE FOLLOWING IS ADDED:

**H. Networking Requirements.** Comply with the networking requirements and perform work as specified in 704.03.01.H.

**704.03.05 Travel Time Systems (TTS)**

**B. Installation.**

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COMPLETE AND INCLUDE THE FOLLOWING.  
INSERT THE EXISTING SYSTEM SHUTDOWN TIME FRAMES, INCLUDING DAYS OF THE WEEK,  
SPECIFIC DATES, AND/OR HOURS OF THE DAY(S).

**SME CONTACT – TRAFFIC OPERATIONS**

The Department will allow existing TTS system shutdowns from \_\_\_\_\_.

**3. Controller, TTS.**

THE LAST SENTENCE OF THE FIRST PARAGRAPH IS CHANGED TO:

Identify each component by manufacturer and model number.

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THE FOLLOWING IS ADDED:

**H. Networking Requirements.** Comply with the networking requirements and perform work as specified in 704.03.01.H.

**704.03.06 Road Weather Information System (RWIS)**

**B. Installation.**

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COMPLETE AND INCLUDE THE FOLLOWING.  
INSERT THE EXISTING SYSTEM SHUTDOWN TIME FRAMES, INCLUDING DAYS OF THE WEEK,  
SPECIFIC DATES, AND/OR HOURS OF THE DAY(S).

**SME CONTACT – MAINTENANCE ENGINEERING, ELECTRICAL SECTION**

The Department will allow existing RWIS system shutdowns from \_\_\_\_\_.

**1. Weather Station.**

THE LAST SENTENCE OF THE SECOND PARAGRAPH IS CHANGED TO:

Identify each component by manufacturer and model number.

1\*\*\*\*\*1

THE FOLLOWING IS ADDED:

**H. Networking Requirements.** Comply with the networking requirements and perform work as specified in 704.03.01.H.

**704.03.07 Dynamic Message System (DMS)**

**A. Components.**

THE FOLLOWING IS ADDED:

The following are the Model numbers for the various DMS to be provided and installed in this project:

2\*\*\*\*\*2  
DESIGNER IS REQUIRED TO FILL IN TABLE WITH THE APPROPRIATE INFORMATION FOR EACH DMS  
PROPOSED IN THE CONTRACT.

**SME CONTACT – MOBILITY & SYSTEMS ENGINEERING**

Location	Comm Type	DMS Type	Manufacturer/Model No.

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Ensure that all Controller, DMS are purchased with pre-installed controller, pre-wired with the equipment listed below along with specialized communications cables (minimum 120' Fiber Optic Cable with Connectors for each sign).

As part of the above model numbers, the DMS manufacturer is to supply the cabinet and controller for each DMS sign with pre-installed uninterruptable power supply (UPS), a media converter and a CDMA TCP/IP wireless modem compatible with the wireless provider. All other equipment not listed here but required for the remote operation of the DMS is to be provided by the contractor.

When called for in the contract, the contractor is required to obtain and ensure that the TCP/IP CDMA wireless service is compatible with the DMS controller software and DMS sign supplied by the manufacturer. Wireless service is required for temporary or interim use until final communications is installed so the TOC can use the DMS once it is operational.

For DMS sign that will be communicating over fiber optic communication media, provide and install an Ethernet Switch Type B and a fiber optic cable patch panel with interconnecting cables for each DMS controller.

**B. Installation.**

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**COMPLETE AND INCLUDE THE FOLLOWING.  
INSERT THE EXISTING SYSTEM SHUTDOWN TIME FRAMES, INCLUDING DAYS OF THE WEEK,  
SPECIFIC DATES, AND/OR HOURS OF THE DAY(S).**

**SME CONTACT – TRAFFIC OPERATIONS**

The Department will allow existing DMS system shutdowns from \_\_\_\_\_.

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**INCLUDE THE FOLLOWING WHEN INSTALLING DMS SIGNS ON STRUCTURES OTHER THAN  
GROUND MOUNTED DMS STRUCTURE THAT REQUIRES THE CONTRACTOR TO FOLLOW DIVISION  
500 SPECIFICATIONS FOR STRUCTURAL DETAILS AND OTHER REQUIREMENTS.**

**SME CONTACT –MSE**

THE FOLLOWING IS ADDED TO THE FIRST PARAGRAPH:

Construct the DMS sign mounting structure and foundation as specified in Division 500.

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**1. Foundation DMS.**

THIS SUBPART HEADING AND TEXT ARE CHANGED TO:

**1. Foundation DMS Ground Mounted.** Construct the foundation as specified in 701.03.12 and 51X.03.

**WHEN GROUND MOUNTED DMS SUPPORTS ARE PROPOSED, INCLUDE SECTION 51X - DRILLED  
SHAFT FOUNDATIONS FOR SIGN SUPPORT STRUCTURES. HOWEVER, THE MEASUREMENT AND  
PAYMENT WILL BE AS SPECIFIED UNDER SECTION 704.**

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**2. DMS Standard.**

**UNTIL GROUND MOUNTED DMS STANDARD DETAILS ARE ISSUED, DESIGNERS MUST CONTACT  
MSE PRIOR TO DESIGN ON REQUIREMENTS FOR ANY PROPOSED SITES. FOR PROPOSED SIGNS  
ON BUTTERFLY STRUCTURES, CANTILEVER STRUCTURES, OHSS AND BRIDGE SITES, THOSE  
STRUCTURES ARE STILL COVERED UNDER DIVISION 500.WITH THE DMS INTALLATION ITEM  
REMAINING IN SECTION 704**

**SME CONTACT – MSE**

THIS SUBPART HEADING AND TEXT ARE CHANGED TO:

- 2. **DMS Standard Ground Mounted.** At least 30 days before beginning work, submit working drawings for certification that include sign mounting and lifting calculations. Ensure the calculations are signed and sealed by a Professional Engineer.

Excavate as specified in 202.03.03.

Set anchor bolts into template to maintain alignment and elevation. Secure in position to prevent displacement while placing concrete. Place reinforcement steel as specified in 504.03.01 before placing the concrete. Ensure that concrete placement complies with the limitations as specified in 504.03.02.C. Place concrete as specified in 504.03.02.D. Cure concrete as specified in 504.03.02.F.

Erect posts as specified in 512.03.01.G

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- 3. **DMS Sign.**

THE FOLLOWING IS ADDED TO THE FIRST PARAGRAPH:

Securely bolt the controller to the foundation in a vertical position using stainless steel hardware. Seal the underground conduit entrance to the controller with a sealing compound. Install cables and wire connections between the sign and controller according to the manufacturer’s recommendations. Ensure that the conduit entry points are properly closed off with duct sealing compound. Provide sign manufacturer technician for commissioning the sign and coordinate with the sign manufacturer by providing access and support during commissioning and for any warranty work covered by the DMS manufacturer.

THIS ITEM IS FOR DMS SIGNS OF VARIOUS TYPES AND SIZES WHEN PROPOSED TO BE PROVIDED AND INSTALLED BY THE CONTRACTOR. INCLUDE THE MAKE AND MODEL NUMBER OF DMS SIGN IN SECTION 918 AND IN THE TABLE IN SECTION 704.03.07A. ALSO, INCLUDE IT IN THE ITS PLANS. CONTACT MSE FOR FURTHER DETAILS. WHEN THIS ITEM IS USED IN A PROJECT, “CONTROLLER DMS” AND “FOUNDATION ITS TYPE D” OR “FOUNDATION ITS TYPE D-MC” AS APPLICABLE WILL BE REQUIRED.

**SME CONTACT – MSE**

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- 4. **DMS Sign with Controller.**

THIS SUBPART HEADING AND TEXT ARE DELETED.

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- 5. **DMS Sign Install and DMS Sign With Controller Install.**

THIS SUBPART HEADING IS CHANGED TO:

- 5. **DMS Sign Install**

INCLUDE THIS ITEM ONLY WHEN INSTALLING DEPARTMENT FURNISHED DMS SIGNS. VERIFY AND REVISE IF NECESSARY, THE 6 MONTH DELIVERY TIME FROM NTP TO APPROPRIATE TIME FRAME BASED ON THE STAGING PLAN TO PREVENT EARLY DELIVERIES OF DMS SIGNS AND ASSOCIATED STORAGE REQUIREMENTS. PROVIDE THE MODEL NUMBER AND QUANTITY OF THE SIGNS TO BE ORDERED TO MSE WITH THE ESTIMATED TIME OF DELIVERY REQUIRED AND THE COST ESTIMATE OF THE SIGNS FOR INCLUSION IN THE PROJECT COST. OBTAIN AND INCLUDE ANY BUFFER WARRANTY REQUIREMENT SPECIFICATIONS UNTIL SUBSTANTIAL COMPLETION BY CONTACTING ITS ENGINEERING. ADDITIONAL PAY ITEMS LIKE “CONTROLLER DMS INSTALL” AND “FOUNDATION ITS TYPE D” OR “FOUNDATION ITS TYPE D-MC” AS APPLICABLE WILL BE REQUIRED.

**SME CONTACT – MSE**

THE FIRST PARAGRAPH IS CHANGED TO:

Submit working drawings that include sign mounting and lifting calculations, and controller installation requirements. Ensure the calculations are signed and sealed by a Professional Engineer. Within 25 days after receiving direction from the RE, provide the address of the location for the delivery of the specified DMS signs. Inspect and provide notice of acceptance as specified in 106.02. The Department will provide for delivery of the signs within 6 months of Notice to Proceed. Mount the sign on the DMS standard or sign support structure, and make all wire and cable connections to the DMS sign controller according to the sign manufacturer’s recommendations. When required by the type of sign, securely bolt the controller to the foundation in a vertical position using stainless steel hardware. Seal the underground conduit entrance to the controller with a sealing compound. Coordinate with the manufacturer, and provide access and support, for any warranty work covered by the DMS material.

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**6. Controller DMS.**

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THE LAST SENTENCE OF THE FIRST PARAGRAPH IS CHANGED TO:

Identify each component by manufacturer and model number.

THIS ITEM IS FOR DMS SIGNS WHEN PROPOSED TO BE PROVIDED AND INSTALLED BY THE CONTRACTOR. INCLUDE THE MAKE AND MODEL NUMBER OF DMS SIGN IN SECTION 918 AND IN THE TABLE IN SECTION 704.03.07A. ALSO INCLUDE IT IN THE ITS PLANS. CONTACT MSE FOR FURTHER DETAILS.

**SME CONTACT – MSE**

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THE FOLLOWING IS ADDED:

**H. Networking Requirements.** Comply with the networking requirements and perform work as specified in 704.03.01.H.

**704.03.08 Weigh in Motion System (WIMS)**

**B. Installation.**

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COMPLETE AND INCLUDE THE FOLLOWING.  
INSERT THE EXISTING SYSTEM SHUTDOWN TIME FRAMES, INCLUDING DAYS OF THE WEEK, SPECIFIC DATES, AND/OR HOURS OF THE DAY(S).

**SME CONTACT – SAFETY AND DATA DEVELOPMENT**

The Department will allow existing WIMS system shutdowns from \_\_\_\_\_.

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**1. Controller, WIMS.**

THE LAST SENTENCE OF THE FIRST PARAGRAPH IS CHANGED TO:

Identify each component by manufacturer and model number.

THE FOLLOWING IS ADDED:

**H. Networking Requirements.** Comply with the networking requirements and perform work as specified in 704.03.01.H.

**704.03.09 Traffic Volume System (TVS)**

**B. Installation.**

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COMPLETE AND INCLUDE THE FOLLOWING.

INSERT THE EXISTING SYSTEM SHUTDOWN TIME FRAMES, INCLUDING DAYS OF THE WEEK, SPECIFIC DATES, AND/OR HOURS OF THE DAY(S).

**SME CONTACT – SAFETY AND DATA DEVELOPMENT**

The Department will allow existing TVS system shutdowns from \_\_\_\_.

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**1. Controller, TVS.**

THE LAST SENTENCE OF THE FIRST PARAGRAPH IS CHANGED TO:

Identify each component by manufacturer and model number.

THE FOLLOWING IS ADDED:

**H. Networking Requirements.** Comply with the networking requirements and perform work as specified in 704.03.01.H.

**SECTION 918 – ELECTRICAL MATERIALS**

**918.01 CONDUIT AND FITTINGS**

**4. Flexible Nonmetallic Conduit.**

THIS PART IS CHANGED TO:

Use coil able HDPE conduit made from virgin HDPE resin as per the minimum standard of PE345440E according to ASTM D3350. Ensure conduit is circular and of uniform cross sectional area and dimensions in accordance with ASTM F2160. Ensure conduit is of continuous length containing no welds or joints coiled on a reel. Additionally, conduit’s inner and outer walls are to be smooth and the inner wall is to be lubricated with manufacturer’s recommended lubricant. Conduit colors are to be integrally extruded throughout the conduit in the manufacturing process. Ensure conduit is permanently marked with a laser ink imprinter or heat embossed white lettering showing the diameter, size, sequential length marks, owners name, ASTM, SDR, and/or Schedule rating. Additional markings of date-of-manufacture, time, and batch-of-resin are to be identified and referenced to certifications and quality control test results. Ensure manufacturer provides certification of the properties specified and mark/label the reels with purchase order, project name and/or other information for tracking and receiving. Applicable material standards are required based on the following applications:

- a. Direct Burial.** Use conduit material with a rating of Schedule 80 conforming to ASTM F2160, NEMA TC-7 EPEC-80 and certified for its intended use.
- b. Innerduct.** Use conduit material with a rating of Schedule 40 conforming to ASTM F2160, NEMA TC-7 EPEC-40.

ITS conduits used for the installation of Fiber Optic Cable including tracer wire, are to be extruded integrally colored orange to indicate its use for Communications.

ITS conduits designated for electrical use are to be extruded integrally colored red to indicate its use for Electrical wiring.

**Implementation Code R (ROUTINE)**

Changes must be implemented in all applicable Department projects scheduled for Final Design Submission at least one month after the date of the BDC announcement. This will allow designers to make necessary plan, specifications, and estimate/proposal changes without requiring the need for an addenda or postponement of advertisement or receipt of bids.

**Recommended By:**

ORIGINAL SIGNED

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Richard Jaffe  
Director,  
Capital Program Support

**Approved By:**

ORIGINAL SIGNED

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Richard T. Hammer  
Assistant Commissioner,  
Capital Program Management