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

Baseline Document Change Announcement

Intelligent Transportation Systems

BDC10S-08

December 29, 2010

SUBJECT: Revision to ITS related Subsections of the *2007 Standard Specifications*

Subsections 105.05, 106.04, 108.09, 159.03, 159.04, 512.04, 701.03, 701.04, 704.02, 704.03, 704.04, 918.01, 1001.04 and 1001.05 of the 2007 Standard Specifications and Standard Input have been revised to update installation of Dynamic Message System (DMS) Signs for construction contracts and other ITS related changes.

The following revisions have been incorporated in Standard Input, SI2007 as of December 29, 2010.

105.05 WORKING DRAWINGS
THE FOLLOWING ITEMS ARE ADDED INTO TABLE 105.05-1, UNDER THE "CERTIFIED" COLUMN:

DMS Sign Support Structure
DMS Standard Ground Mounted

106.04 MATERIALS QUESTIONNAIRE
THE LAST SENTENCE OF THE FIRST PARAGRAPH IS REPLACED BY THE FOLLOWING:

For ITS systems as specified in Section 704, obtain approval of system working drawings including individual components and Electrical material instead of submitting a materials questionnaire.

108.09 MAINTENANCE WITHIN THE PROJECT LIMITS
THE FOLLOWING IS ADDED TO THE FIRST PARAGRAPH:

6. Access to ITS devices and their respective controllers and meter cabinets is maintained throughout the duration of the project.

159.03.02 Traffic Control Devices

2. Construction Barrier Curb.
THE LAST PARAGRAPH IS CHANGED TO:

Provide top and side mounted flexible delineators on the construction barrier curb. For delineators located on the right side when facing in the direction of traffic, ensure that the retroreflective sheeting is white. For delineators located on the left side when facing in the direction of traffic, ensure that the retroreflective sheeting is yellow. Attach flexible delineators according to the manufacturer's recommendations.

Starting at the beginning of the construction barrier curb section mount top delineators at 100-foot intervals on tangent sections, curves of radii greater than 1,910 feet, and at 50-foot intervals on curves of radii of 1,910 feet or less.

Mount side delineators at the lead end of each barrier segment with the top of the delineator 3 inches from the top of the barrier.

6. Traffic Control Truck with Mounted Crash Cushions.

THE LAST SENTENCE IS CHANGED TO:

Submit drawings to the RE detailing the manner of securing the ballast, signed and sealed by a Professional Engineer, certifying that it is capable of withstanding the impact forces for which the impact attenuator is rated.

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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.

3**********3

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.

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Provide a broadband cellular telephone service plan with data service on an IP based packet network for the intended uninterrupted 24/7 operational and functional requirements of the PVMSRC. Ensure that the PVMSRC has remote operation capability from the specified TOC using the Department's current DMS control software at the time of deployment.

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.

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), and viewable over the internet through a password protected website. Provide for internet access through the website hosted by EarthCam for Department cameras. No substitution is permitted. Provide broadband communication service and On-Site Camera Configuration for remote operation and control from the web site to the field site. Provide continuous viewable image at a minimum of 320H x 240V resolution and 1 frame per sec (fps) through the web site. If required 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 or 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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DESIGNERS MUST CHECK WITH TRAFFIC OPERATIONS TO CONFIRM IF REAL TIME WORK ZONE SYSTEM (RTWZS) IS REQUIRED. ONCE CONFIRMED AND IF RTWZS IS REQUESTED BY TRAFFIC OPERATIONS, THEN REQUEST ITS ENGIEERING TO PROVIDE RTWZS SPECIFICATIONS. MODIFICATION TO THESE SPECIFICATIONS WILL BE REQUIRED BY THE DESIGNER TO INCLUDE THE NUMBER OF PVMS REQUIRED WITH LOCATIONS AND ANY OTHER ADDITIONAL REQUIREMENTS SPECIFIC TO A PROJECT.

SME CONTACT – TRAFFIC OPERATIONS & ITS ENGINEERING

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159.04 MEASUREMENT AND PAYMENT

THE FOLLOWING ITEMS ARE ADDED:

Item	*Pay Unit*
PORTABLE VARIABLE MESSAGE SIGN WITH REMOTE COMMUNICATION	UNIT.
PORTABLE TRAILER MOUNTED CCTV CAMERA ASSEMBLY	UNIT.

2**********2

AFTER CHECKING WITH TRAFFIC OPERATIONS INCLUDE THE FOLLOWING PAYMENT CRITERIA FOR PVMSRC AND PTMCCA. NOTE THAT WHEN REAL TIME WORK ZONE SYSTEM (RTWZS) IS ALSO SPECIFIED IN A PROJECT INCLUDE SEPARATE SPECIFIC PAYMENT CRITERIA BASED ON PERFORMANCE OF RTWZS.

SME CONTACT – TRAFFIC OPERATIONS & ITS ENGINEERING

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THE FOLLOWING IS ADDED

If after being notified by the Department that the PORTABLE VARIABLE MESSAGE SIGN WITH REMOTE COMMUNICATION or PORTABLE TRAILER MOUNTED CCTV CAMERA ASSEMBLY has failed to function and the equipment has not been restored to good working order within 48 hours, the Department will make payment reductions as follows:

For each occasion the equipment was not restored within 48 hours the Department will assess a liquidated damage of $250 for every 48 hours period the equipment is not functioning.

SECTION 512 – SIGN SUPPORT STRUCTURES

512.04 MEASUREMENT AND PAYMENT

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INCLUDE THE FOLLOWING WHEN SUPPORT STRUCTURES FOR DYNAMIC MESSAGE SIGN (DMS) (OTHER THAN GROUND MOUNTED DMS) ARE PROPOSED.

THE FOLLOWING ITEMS ARE ADDED:

Item	*Pay Unit*
CANTILEVER SIGN SUPPORT, DMS STRUCTURE NO. ____	UNIT.
BUTTERFLY SIGN SUPPORT, DMS STRUCTURE NO. ____	UNIT.

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INCLUDE THE FOLLOWING WHEN DRILLED SHAFT FOUNDATION IS PROPOSED.

THE FOLLOWING IS ADDED:

The Department will make payment for drilled shaft foundations for sign supports under DRILLED SHAFT FOR SIGN STRUCTURE FOUNDATION as specified in 51X.04.

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701.03.01 Existing Systems

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PROVIDE THE LOCATION TO DELIVER AND UNLOAD SALVAGED MATERIALS. DIFFERENT LOCATIONS MAY BE SPECIFIED FOR ELECTRICAL AND/OR ITS MATERIALS.

SME CONTACT – TRAFFIC SIGNAL AND SAFETY ENGINEERING
AND/OR
TRAFFIC OPERATIONS CENTERS

Deliver and unload salvaged materials to:

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INCLUDE THE FOLLOWING WHEN EXISTING CONDUIT SYSTEMS ARE PROPOSED TO BE USED FOR PULLING ELECTRICAL CONDUCTORS OR FIBER OPTIC CABLES.

SME CONTACT – TRAFFIC SIGNAL AND SAFETY ENGINEERING
AND/OR
ITS ENGINEERING

THE FOLLOWING IS ADDED:

If new cable or wire is designated to be installed into existing conduit systems, clean and swab the conduit system prior to installing the cable or wire. After cleaning, test each conduit by pulling through a metal ball with a diameter at least 85 percent of the nominal inside diameter of the conduit to ensure the conduit is free of any obstruction or foreign material. If the ball fails to pass through the conduit, repair or replace the defective conduit as directed by the RE. Restore disturbed areas to original condition.

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701.03.07 Flexible Nonmetallic Conduit

B. Installation.

THE SECOND PARAGRAPH IS CHANGED TO:

Terminate flexible nonmetallic conduit according to manufacturer's recommendations.

THE LAST PARAGRAPH IS CHANGED TO:

Install true tape marked in 1-foot increments for the length of the flexible non-metallic conduit. Install a tracer wire continuously for the entire run of conduit, including through the junction boxes, mounting it on the wall. Splice the tracer wire only in the junction box. Seal the ends of flexible nonmetallic conduit carrying the tracer wire. If wire or cable is not scheduled to be installed within 6 months of conduit installation, cap and seal the other conduits leaving the true tape inside. Install marking tape in the trench above the conduit.

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.

2**********2

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 – ITS ENGINEERING

THE FOLLOWING IS ADDED TO THE FOURTH PARAGRAPH:

At Substantial Completion 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 Substantial Completion or as directed by the RE.

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

SME CONTACT – ITS ENGINEERING

For transfer of utility services involved with ITS system devices, successful ITS system testing is also required to be completed as specified in Section 704.

2**********2

701.04 MEASUREMENT AND PAYMENT

THE FOLLOWING IS ADDED:

If restoration of disturbed areas includes pavement, curb, sidewalk, driveway or island, the Department will make payment for such work as specified in 104.03.03.

When an existing conduit is found to be defective, the RE may direct the Contractor to install a new conduit or may direct the Contractor to repair the existing defective conduit. When the RE directs the installation of a new conduit or a repair to the defective conduit, the Department will make payment for this work as specified in 104.03.03.

When the RE directs the Contractor to install a tracer wire in existing conduit, the Department will make payment for this work as specified in 104.03.03.

SECTION 704 – INTELLIGENT TRANSPORTATION SYSTEMS (ITS)

1**********1

PRIOR TO FINAL DESIGN SUBMISSION CONFIRM WITH THE RESPECTIVE TRAFFIC OPERATIONS CENTER IF ANY OF THE PROPOSED ITS SYSTEMS HAVE TO BE COMPLETED EARLY IN THE PROJECT THAT ARE REQUIRED TO BE AVAILABLE TO USE FOR TRAFFIC MITIGATION DURING CONSTRUCTION. INCLUDE RESPECTIVE INTERIM COMPLETION DATES IN SUBSECTION 108.10 AND CONFIRM WITH ITS ENGINEERING ON THE REQUIREMENTS FOR INTERIM COMMUNICATION AND POWER CONNECTIONS.

IF PROJECT INCLUDES CONNECTION TO NJTA NETWORK, INCLUDING DIRECT FIBER OR WIRELESS, CONFIRM WITH ITS ENGINEERING ON COORDINATION REQUIREMENTS WITH NJTA.

SME CONTACTS – TRAFFIC OPERATIONS & ITS ENGINEERING

1**********1

704.02.01 Materials

FIFTH PARAGRAPH IS CHANGED TO:

Submit catalog cut sheets of the ITS and electrical material specified components along with 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;.Electrical material catalog cut sheets, Certified Structural Details & Calculations. All components must be approved in the system working drawings before use on the Contract. Submit structural components 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 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 SystemTesting against any imperfections in workmanship, components and materials.

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UNTIL ITS MATERIAL SPECIFICATIONS ARE AVAILABLE ON THE DEPARTMENT'S WEBSITE AND A QPL OF PREQUALIFIED MATERIALS IS POSTED, OBTAIN THE REQUIRED SPECIFICATIONS FROM THE DEPARTMENT 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 – ITS ENGINEERING

2**********2

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 put the equipment into operation.

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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 CENTER

The Department will allow existing system shutdowns for work at the _____ Center from _____. For each half hour the work extends beyond those time frames, the Department will assess liquidated damages of $500 per half hour.

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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. A ground rod is only required for locations where electrically conductive material is present. 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 – ITS ENGINEERING

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.

6. Control Center System.

THE FOLLOWING IS ADDED:

DESIGNERS MUST 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.

SME CONTACT – ITS ENGINEERING

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.

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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 ITS ENGINEERING 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 DETAILS FOR ITS CONDUIT TYPE A INCLUDES THREE 2" FNMC. INCLUDE THIS DETAIL IN THE SET OF CONSTRUCTION PLANS UNTIL THE STANDARD DETAIL IS OFFICIALLY ISSUED VIA BDC. IF THE PROJECT SPECIFIC CONSTRUCTION REQUIREMENTS NEED DIFFERENT SIZE CONDUITS, MODIFY THE DETAILS TO INCORPORATE THE PROPOSED CHANGES BEFORE INCLUDING IT IN THE SET OF PLANS REFLECTING THE CORRECT SIZE AND TYPE OF CONDUITS.

SME CONTACT – ITS ENGINEERING

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.

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8. Fiberoptic 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, model, and CLEI number. Install a Fiberoptic 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.

2**********2

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.

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's software.

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.

E. Final Documentation.

THE FOLLOWING IS ADDED AT THE END OF FIRST PARAGRAPH:

Place one set of all manuals of each device in the respective controller cabinet installed in the field, and provide a set to the RE. Also, send an electronic set to the RE. Provide all documentation listed under this section at or prior to Substantial Completion of the project.

THE FOLLOWING IS ADDED TO THE FOURTH PARAGRAPH:

10. Certification of successful deployment of ITS components from the respective equipment manufacturers with complete details of any repair work performed under warranty.

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THE FOLLOWING IS ADDED:

G. Warranty. In addition to the provisions set forth in Section 108.21, document all repairs made by the manufacturer or its designated representative to the device under warranty during construction. Include an explanation of the exact repairs made and identification of parts replaced by part number and circuit number. Provide all necessary equipment for safe access to the installed device along with traffic control promptly upon request by the manufacturer to perform the repairs under warranty during this period. Provide the Department with a complete record of the repairs made to each device as part of the Final Documentation. Ensure that a minimum two year warranty certificate by the manufacturer is provided and transferred to the Department with documentation as set forth in Section 704.02.01 for any repairs to be performed by the manufacturer after substantial completion.

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704.03.02 Camera Surveillance System (CSS)

B. Installation.

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 CENTER

The Department will allow existing camera system shutdowns from _____. For each half hour the work extends beyond those time frames, the Department will assess liquidated damages of $500 per half hour.

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.

F. Equipment Training.

2**********2

PROVIDE RECOMMENDATION PRIOR TO FINAL DESIGN SUBMISSION FOR ANY SPECIAL TRAINING, AND/OR IF MORE THAN 10 PERSONNEL REQUIRE THE TRAINING.

SME CONTACT – ITS ENGINEERING

2**********2

2**********2

THE FOLLOWING IS ADDED:

G. Warranty. Perform repairs under warranty and provide documentation as specified in 704.03.01.G.

2**********2

704.03.03 Fiber Optic Cable

B. Installation.

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 CENTER

The Department will allow existing system shutdowns on the fiber network from _____. For each half hour the work extends beyond those time frames, the Department will assess liquidated damages of $500 per half hour.

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.

C. Testing

2**********2

BDC08S-02 DATED FEB 17, 2009

THE LAST PARAGRAPH IS CHANGED TO:

After completion of Level 1 and 2 tests, perform network communication system testing and demonstrate that the communication system is fully operational to meet the material specifications and project requirements. Complete the testing as specified on the Department provided forms and instructions.

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F. Equipment Training.

2**********2

PROVIDE RECOMMENDATION PRIOR TO FINAL DESIGN SUBMISSION FOR ANY SPECIAL TRAINING, AND/OR IF MORE THAN 10 PERSONNEL REQUIRE THE TRAINING.

SME CONTACT – ITS ENGINEERING

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704.03.04 Controlled Traffic Signal System (CTSS)

THE FOLLOWING IS ADDED:

G. Warranty. Perform repairs under warranty and provide documentation as specified in 704.03.01.G.

704.03.05 Travel Time Systems (TTS)

THE FOLLOWING IS ADDED:

G. Warranty. Perform repairs under warranty and provide documentation as specified in 704.03.01.G.

704.03.06 Road Weather Information System (RWIS)

THE FOLLOWING IS ADDED:

G. Warranty. Perform repairs under warranty and provide documentation as specified in 704.03.01.G.

704.03.07 Dynamic Message System (DMS)

B. Installation.

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 CENTER

The Department will allow existing DMS system shutdowns from _____. For each half hour the work extends beyond those time frames, the Department will assess liquidated damages of $500 per half hour.

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2**********2

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 –ITS ENGINEERING

THE FOLLOWING IS ADDED TO THE FIRST PARAGRAPH:

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

2**********2

2**********2

1. Foundation DMS.

THIS SUBPART HEADING AND TEXT ARE CHANGED TO:

1. Foundation DMS Ground Mounted. Construct the foundation as specified in701.03.12 and 51X.03.

WHEN GROUND MOUNDTED 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**********2

2. DMS Standard.

UNTIL GROUND MOUNTED DMS STANDARD DETAILS ARE ISSUED, DESIGNERS MUST CONTACT ITS ENGINEERING 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 – ITS ENGINEERING

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 504.02.D. Cure concrete as specified in 504.03.02.F.

Erect posts as specified in 512.03.01.G

2**********2

2**********2

3. DMS Sign.

THIS ITEM IS FOR FRONT ACCESS (FA) DMS SIGNS OF VARIOUS SIZES WHEN PROPOSED TO BE PROVIDED AND INSTALLED BY THE CONTRACTOR. INCLUDE THE MAKE AND MODEL NUMBER OF FA DMS SIGN IN SECTION 918 AND IN THE ITS PLANS. CONTACT ITS ENGINEERING 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 – ITS ENGINEERING

2**********2

2**********2

4. DMS Sign with Controller.

THIS ITEM IS FOR WALK-IN TYPE (WI) DMS SIGNS WHEN PROPOSED TO BE PROVIDED AND INSTALLED BY THE CONTRACTOR. INCLUDE THE MAKE AND MODEL NUMBER OF WI DMS SIGN IN SECTION 918 AND IN THE ITS PLANS. CONTACT ITS ENGINEERING FOR FURTHER DETAILS.

SME CONTACT – ITS ENGINEERING

2**********2

2**********2

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

INCLUDE THE FOLLOWING 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 ITS ENGINEERING 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.

SME CONTACT – ITS ENGINEERING

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.

2**********2

C. Testing.

2**********2

BDC08S-02 DATED FEB 17, 2009

THE FOLLOWING IS ADDED:

For DMS specified for integration in Traffic Operations Center South, both Level B and Level C Testing will be done with integration into the Vanguard control software system.

2**********2

F. Equipment Training.

2**********2

PROVIDE RECOMMENDATION PRIOR TO FINAL DESIGN SUBMISSION FOR ANY SPECIAL TRAINING, AND/OR IF MORE THAN 10 PERSONNEL REQUIRE THE TRAINING.

SME CONTACT – ITS ENGINEERING

2**********2

2**********2

THE FOLLOWING IS ADDED:

G. Warranty. Perform repairs under warranty and provide documentation as specified in 704.03.01.G.

2**********2

704.03.08 Weigh in Motion System (WIMS)

B. Installation.

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 – TRANSPORTATION DATA DEVELOPMENT

The Department will allow existing WIMS system shutdowns from _____. For each hour the work extends beyond those time frames, the Department will assess liquidated damages of $1000 per hour.

2**********2

F. Equipment Training.

2**********2

PROVIDE RECOMMENDATION PRIOR TO FINAL DESIGN SUBMISSION FOR ANY SPECIAL TRAINING, AND/OR IF MORE THAN 10 PERSONNEL REQUIRE THE TRAINING.

SME CONTACT – TRANSPORTATION DATA DEVELOPMENT

2**********2

2**********2

THE FOLLOWING IS ADDED:

G. Warranty. Perform repairs under warranty and provide documentation as specified in 704.03.01.G.
WHEN INSTALLING DEPARTMENT FURNISHED DMS SIGNS. REQUEST BUFFER WARRANTY REQUIREMENTS UNTIL SUBSTANTIAL COMPLETION BY CONTACTING ITS ENGINEERING AND REPLACE THE ABOVE SENTENCE WITH THE PROVIDED REQUIREMENTS.

SME CONTACT – ITS ENGINEERING

2**********2

704.03.09 Traffic Volume System (TVS)

B. Installation.

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 – TRANSPORTATION DATA DEVELOPMENT

The Department will allow existing TVS system shutdowns from _____. For each hour the work extends beyond those time frames, the Department will assess liquidated damages of $1000 per hour.

2**********2

F. Equipment Training.

2**********2

PROVIDE RECOMMENDATION PRIOR TO FINAL DESIGN SUBMISSION FOR ANY SPECIAL TRAINING, AND/OR IF MORE THAN 10 PERSONNEL REQUIRE THE TRAINING.

SME CONTACT – TRANSPORTATION DATA DEVELOPMENT

2**********2

2**********2

THE FOLLOWING IS ADDED:

G. Warranty. Perform repairs under warranty and provide documentation as specified in 704.03.01.G.

2**********2

704.04 MEASUREMENT AND PAYMENT

OBTAIN THE LATEST REVISED STANDARD DETAIL SHEETS THAT ARE AVAILABLE FROM NJDOT ITS ENGINEERING FOR INCLUSION IN THE CONTRACT PLANS UNTIL THEY ARE ISSUED VIA BDC

SME CONTACT – ITS ENGINEERING

THE FOLLOWING ITEMS ARE ADDED:

Item	*Pay Unit*
DMS STANDARD GROUND MOUNTED	UNIT
FIBER CROSS CONNECT CABINET	UNIT
ITS CONDUITS, TYPE _____	LINEAR FOOT
METER CABINET ITS	UNIT
FOUNDATION CSS	UNIT
FOUNDATION DMS GROUND MOUNTED	UNIT
JUNCTION BOX ITS, RELOCATION	UNIT

THE FOLLOWING ITEMS ARE DELETED:

Item	*Pay Unit*
DMS STANDARD TYPE _____	UNIT
FOUNDATION CSS TYPE_____	UNIT
FOUNDATION DMS TYPE_____	UNIT

THE FOLLOWING IS ADDED AFTER THE FIRST PARAGRAPH:

The Department will consider ITS CONDUITS, TYPE ____ as a single conduit comprised of multiple individual conduits as shown in details and will make payment as one unit.

The Department will accept either drilled shaft foundation method or alternate spread footing method for the installation of ground mounted DMS sign structures and will make payment under FOUNDATION DMS GROUND MOUNTED.

THE TABLE UNDER SECOND PARAGRAPH IS REVISED TO:

Work Completed	**Payment**
Installing the Item	60% of Total Contract Price
Successful completion of Level A testing	10% of Total Contract Price
Successful completion of Level B testing	10% of Total Contract Price
Successful completion of Level C testing	10% of Total Contract Price
Successful completion of Project testing	10% of Total Contract Price

918.01 CONDUIT AND FITTINGS

4. Flexible Nonmetallic Conduit.

THE FOLLOWING IS ADDED:

For colored conduits (other than black and natural) ensure the "X" designation as part of the Cell Classification under Section 6.2 of ASTM D 3350 is "E".

For ITS Conduit Type __, one of the conduits that is designated for electrical use is to be extruded integrally colored red to indicate its use for Electrical wiring.

SECTION 1001 – TRAFFIC CONTROL EQUIPMENT

1**********1

INCLUDE THE FOLLOWING SUBSECTIONS IF ANY OF THESE ITEMS ARE REQUESTED BY TRAFFIC OPERATIONS

SME CONTACT – TRAFFIC OPERATIONS

THE FOLLOWING SUBSECTION IS ADDED:

1001.04 PORTABLE VARIABLE MESSAGE SIGN W/REMOTE COMMUNICATION

Provide a NTCIP compliant portable variable message sign as described under 1001.02 equipped with broadband cellular modem.

2**********2

CONFIRM WITH TOC IF THE SIGN IS TO BE USED FOR POSTING TRAVEL TIMES AND REPLACE THE ABOVE SENTENCE WITH THE FOLLOWING PARAGRAPHS ONCE CONFIRMED:

SME CONTACT – TRAFFIC OPERATIONS

THE FOLLOWING IS ADDED:

Provide a NTCIP compliant portable variable message sign as described under 1001.02 with the exceptions noted below and each equipped with broadband cellular modem.

Ensure that the sign panel is capable of displaying three lines of text with variable size characters.

Ensure nine characters are displayed per line for posting travel times. For this nine character requirement, smaller size characters may be allowed that meets MUTCD guidelines.

Ensure that the panel is also capable of displaying eight (8) characters per line with a minimum character height of eighteen (18) inches.

2**********2

1001.05 PORTABLE TRAILER MOUNTED CCTV CAMERA ASSEMBLY

2**********2

THESE SPECIFICATIONS ARE FOR PORTABLE CAMERAS FOR USE BY TOC. IF CONSTRUCTION MANAGEMENT REQUESTS A CAMERA FOR CONSTRUCTION USE SPECIFICALLY DOCUMENT THEIR REQUIREMENT AND REVISE THE SPECIFICATIONS TO MEET THEIR REQUIREMENT (WHETHER STREAMING VIDEO ARCHIVING OR HIGH MP SNAP SHOTS ARCHIVING IS REQUIRED). WHEN BOTH TOC AND CONSTRUCTION MANAGEMENT REQUESTS THIS ITEM IN THE SAME PROJECT INCLUDE TWO SEPARATE PAY ITEMS AND LIST THE DIFFERENCES IN THE TWO PAY ITEMS. IN THAT CASE, THE STANDARD PAY ITEM IS TO BE USED FOR BOTH ITEMS WITH THE DESCRIPTION ENDING WITH "TOC USE" OR "CONSTRUCTION USE".

SME CONTACTS – TRAFFIC OPERATIONS, ITS & BUREAU OF CONSTRUCTION MANAGEMENT

Provide a Portable Trailer Mounted CCTV Camera Assembly (PTMCCA) with the following:

A. Trailer Platform

1. Maximum size, including tongue, 14 feet long by 7 feet wide by 8 feet high.
2. NJDOT approved lighting package to include electrical brake and marker lights with wire connections.
3. Primed and painted with powder coated orange color.
4. Fitted with manual telescoping outriggers with adjustable jacks sized to counter full mast extension.
5. Four 3500 pounds, drop leg, top wind screw jacks.
6. All equipment secured to prevent theft or separation from platform.
7. 24/7 operation in all weather conditions.

8. One locking NEMA-4 equipment box for operational controls.
9. Removable wheels (with wheel locks) when trailer is in deployed position.
10. Operation manual with a copy placed in the storage bin.

B. Mast

1. 150 pounds payload capacity.
2. 29 feet to 32 feet of extension with capability to mount antenna at 20 feet, 25 feet or at the top, 10 feet maximum nested length of mast - 3 to 9 sections.
3. Un –guyed.
4. Driven by galvanized steel cable.
5. Spiral conduit for cables.
6. Compactly retractable when nested into storage container at the bottom & foldable for easy transport.
7. Operated by a power winch with a safety brake.
8. Capable of being raised or lowered during sustained wind speeds of 30 miles per hour.

C. Power Source

Equip the PTMCCA with either a diesel charged or a solar charged battery system. Ensure that the PTMCCA is also capable of operating on 120-volt AC electrical service. The Department may require a solar charged battery system in noise sensitive areas. Provide the power with a battery back up system capable of providing continuous operation when the primary power source fails. Ensure that the power source meets the following requirements:

1. Diesel. Ensure that the fuel tank is capable of operating the sign for a period of 72 hours without refueling. Equip with an exhaust muffler and a United States Department of Forestry approved spark arrester. Ensure that the engine is shock mounted to reduce vibration and locked in a ventilated enclosure.
2. Solar. Provide solar panels capable of recharging the batteries at a rate of 4 hours of sun for 24 hours of camera usage. Ensure that the battery capacity is capable of operating the sign for a period of 18 days without sunlight.

D. Electronics

1. Cellular (CDMA), microwave, or 802.11 bandwidth option.
2. Work lights in all cabinets.
3. Remote trailer diagnostics (battery level, charging output, etc.).

E. Camera and Software

Ensure that the camera has the following characteristics:

1. Dome Camera in a heavy duty plastic dome or with a weather resistant case.
2. Impact resistant viewing window.
3. Minimum resolution of NTSC 704 (H) x 480 (V).
4. Backlight compensation.
5. Image stabilization.
6. Light Sensitivity 0.02 lux NIR Mode.
7. Auto Focus with Manual Focus capability.
8. Auto White Balance with Manual White Balance capability.
9. Motorized Zoom up to 16x optical, 10x digital.
10. Motorized Pan-Tilt, pan 360°, tilt 180°.

11. Thermostatically controlled heater and defroster -50° to 140°F operating range.
12. Windshield wiper.
13. 24/7 operation in all weather conditions.
14. Time and date stamp.

Ensure the software provides the following functionality:

1. Remote control of pan, tilt and zoom.
2. Display of streaming video in MPEG format, motion-JPEG, and single snapshot JPEG images, remotely interchangeable by using central software.
3. Preset controls of pan/tilt/zoom combinations. Ensure all presets are accessible from a drop-down menu with descriptive name of preset. Set first 8 presets with quick- launch icons with graphical representation of the preset views.
4. Display of all the project's web cams in a single view screen.
5. Display of local time and weather conditions including temperature and humidity.
6. Saving images and sending e-mail images.

3**********3

CONFIRM WITH TOC IF PROJECT SPECIFIC ARCHIVING IS REQUIRED OR NOT AND REVISE # 7 ACCORDINGLY.MEETING THEIR REQUIREMENT.

SME CONTACT – TRAFFIC OPERATIONS

7. Viewing archived images via a graphical calendar control and storing archived images at least every five minutes.

3**********3

8. Three levels of password protection: admininstrator, user, and guest, individual user accounts.
9. Monitoring and controlling the cameras using web access.

2**********2

1**********

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

Walter McGrosky
Director,
Capital Program Support

Approved By:

ORIGINAL SIGNED

Richard T. Hammer
Assistant Commissioner,
Capital Program Management

WM: KS: HP
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