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August 4, 2017 Letting

Notice to Bidders, Specifications and Proposal

Springfield, Illinois 62764

Contract No. 68D66
PEORIA-KNOX Counties
Section D4 ITS 2017
Route FAI 74
District 4 Construction Funds

Prepared by

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Checked by

(Printed by authority of the State of Illinois)

Illinois Department of Transportation

NOTICE TO BIDDERS

1. **TIME AND PLACE OF OPENING BIDS.** Electronic bids are to be submitted to the electronic bidding system (iCX-Integrated Contractors Exchange). All bids must be submitted to the iCX system prior to 10:00 a.m. August 4, 2017 prevailing time at which time the bids will be publicly opened from the iCX SecureVault.

2. **DESCRIPTION OF WORK**. The proposed improvement is identified and advertised for bids in the Invitation for Bids as:

   Contract No. 68D66
   PEORIA-KNOX Counties
   Section D4 ITS 2017
   Route FAI 74
   District 4 Construction Funds

Installation of CCTV cameras, ITS equipment cabinets, camera poles, communication vaults, and other hardware and software for D4 ATMS (Advanced Traffic Management Software) in Peoria and Knox Counties.

3. **INSTRUCTIONS TO BIDDERS**. (a) This Notice, the invitation for bids, proposal and letter of award shall, together with all other documents in accordance with Article 101.09 of the Standard Specifications for Road and Bridge Construction, become part of the contract. Bidders are cautioned to read and examine carefully all documents, to make all required inspections, and to inquire or seek explanation of the same prior to submission of a bid.

   (b) State law, and, if the work is to be paid wholly or in part with Federal-aid funds, Federal law requires the bidder to make various certifications as a part of the proposal and contract. By execution and submission of the proposal, the bidder makes the certification contained therein. A false or fraudulent certification shall, in addition to all other remedies provided by law, be a breach of contract and may result in termination of the contract.

4. **AWARD CRITERIA AND REJECTION OF BIDS**. This contract will be awarded to the lowest responsive and responsible bidder considering conformity with the terms and conditions established by the Department in the rules, Invitation for Bids and contract documents. The issuance of plans and proposal forms for bidding based upon a prequalification rating shall not be the sole determinant of responsibility. The Department reserves the right to determine responsibility at the time of award, to reject any or all proposals, to readvertise the proposed improvement, and to waive technicalities.

By Order of the
Illinois Department of Transportation

Randall S. Blankenhorn,
Secretary

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FOR
SUPPLEMENTAL SPECIFICATIONS
AND RECURRING SPECIAL PROVISIONS

Adopted January 1, 2017

This index contains a listing of SUPPLEMENTAL SPECIFICATIONS and frequently used RECURRING SPECIAL PROVISIONS.

ERRATA Standard Specifications for Road and Bridge Construction (Adopted 4-1-16) (Revised 1-1-17)

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STATE OF ILLINOIS

SPECIAL PROVISIONS

The following Special Provisions supplement the "Standard Specifications for Road and Bridge Construction," adopted April 1, 2016, the latest edition of the "Manual on Uniform Traffic Control Devices for Streets and Highways," and the "Manual of Test Procedures for Materials" in effect on the date of invitation for bids, and the Supplemental Specifications and Recurring Special Provisions indicated on the Check Sheet included herein which apply to and govern the construction of FAI Route 74 (I-74), Section D4 ITS 2017, Knox and Peoria Counties, Contract No. 68D66 and in case of conflict with any part or parts of said Specifications, the said Special Provisions shall take precedence and shall govern.

LOCATION OF PROJECT

This project is located along various routes in Knox and Peoria Counties.

DESCRIPTION OF PROJECT

This project consists of installing conduit, communication vaults, fiber optic cable, CCTV cameras, equipment cabinets, and all related collateral work necessary to complete the improvements on the project.

DATE OF COMPLETION

All work on this contract shall be completed by September 30, 2018.

FAILURE TO COMPLETE THE WORK ON TIME

Should the Contractor fail to complete the work on or before any of the dates specified in these Special Provisions, or within such extended time allowed by the Department, the Contractor shall be liable to the Department in the amount specified in Article 108.09 of the Standard Specifications. The amount is not a penalty but is for liquidated and ascertained damages for each calendar day beyond the date of completion or extended time as may be allowed. Such damages may be deducted by the Department from any monies due the Contractor.

In fixing the damages as set out herein, the desire is to establish a certain mode of calculation for the work because the Department's actual loss, in the event of delay, cannot be predetermined, would be difficult of ascertainment, and a matter of argument and unprofitable litigation. This mode is an equitable rule for measurement of the Department's actual loss and fairly takes into account the loss of use of the ITS system if the project is delayed in completion. The Department shall not be required to prove any actual losses to recover these liquidated damages provided herein, as these damages are very difficult to ascertain. Furthermore, no provision of this clause shall be construed as a penalty, as such is not the intention of the parties.

A calendar day is every day on the calendar and starts at twelve midnight (12:00 A.M.) and ends at the following twelve midnight (12:00 A.M.), twenty-four hours (24 hrs.) later. No payment will be paid for any day less than twenty-four hours.

LOCATION OF UNDERGROUND STATE MAINTAINED FACILITIES

The Contractor shall be responsible for locating existing and proposed IDOT electrical facilities (traffic signal, overhead lighting, Intelligent Transportation System, etc.) prior to performing any work at his/her own expense if required. The Contractor shall also be liable for any damage to IDOT facilities resulting from inaccurate locating.

The Contractor may obtain, on request, plans for existing electrical facilities from the Department.

The Contractor shall also be responsible for locating and providing protection for IDOT facilities during all phases of construction. If at any time the facilities are damaged, the Contractor shall immediately notify the Department and make all necessary arrangements for repair to the satisfaction of the Engineer. This work will not be paid for separately, but shall be included in the contract bid price.

TRAFFIC CONTROL PLAN
Effective: March 31, 2017

Traffic control shall be in accordance with the applicable sections of the "Standard Specifications for Road and Bridge Construction," the applicable guidelines contained in the "Illinois Manual on Uniform Traffic Control Devices for Streets and Highways," these Special Provisions, and any special details and Highway Standards contained herein and in the plans.

Special attention is called to Section 701 and Articles 107.09 and 107.14 of the "Standard Specifications for Road and Bridge Construction" and the following Highway Standards relating to traffic control:

701001	701006	701101	701106	701201	701400
701406	701411	701601	701701	701801	701901

All traffic control devices shall be furnished, erected, maintained, and removed by the Contractor in accordance with the Standard Specifications. Where possible, all post-mounted signs shall be placed a minimum of two feet (2') (0.6 m) beyond the curb or edge of shoulder. Proposed sign spacing may be modified as approved by the Engineer in order to meet existing field conditions or to prevent obstruction of the motorist's view of permanent signing and lane restrictions at all times.

Traffic shall be maintained on the associated roadways at all times during construction. All lane closures shall be made during off-peak traffic hours, defined as time periods from 8:30 A.M. to 3:00 P.M. and 5:30 P.M. to 7:00 A.M. The Contractor shall notify the Engineer forty-eight (48) hours before the time of a planned closure. The exact time and duration of all lane closures, however, shall be as determined by the Engineer.

Method of Measurement: Traffic Control and Protection will be measured by the unit "Lump Sum", complete.

Basis of Payment: This work shall be paid for at the contract unit price per Lump Sum for TRAFFIC CONTROL AND PROTECTION, (SPECIAL), which shall be payment in full for all labor, materials, and equipment required to furnish, install, and remove the traffic control with the Highway Standards listed above.

SPEED DISPLAY TRAILER

A Speed Display Trailer shall be utilized on freeways and expressways as part of Highway Standard 701400. The trailer shall be placed on the right hand side of the roadway adjacent to, or within 100 ft. (30 m) beyond, the first work zone speed limit sign.

Whenever the speed display trailer is not in use, it shall be considered non-operating equipment and shall be stored according to Article 701.11 of the Standard Specifications.

The speed display trailer shall consist of a LED speed indicator display with self-contained, one-direction radar mounted on an orange see-through trailer. The height of the display and radar shall be such that it will function and be visible when located behind concrete barrier.

The speed measurement shall be by radar and provide a minimum detection distance of 1,000 ft. (300 m). The radar shall have an accuracy of ±1 mile-per-hour.

The speed indicator display shall face approaching traffic and shall have a sign legend of "YOUR SPEED" immediately above or below the speed display. The digital speed display shall show two digits (00 to 99) in mph. The color of the changeable message legend shall be a yellow legend on a black background. The minimum height of the numerals shall be 18 in. (450 mm), and the nominal legibility distance shall be at least 750 ft. (250 m).

The speed indicator display shall be equipped with a violation alert that flashes the displayed detected speed when the posted limit is exceeded. The speed indicator shall have a maximum speed cutoff. The display shall include automatic dimming for nighttime operation.

The speed indicator measurement and display functions shall be equipped with the power supply capable of providing 24 hours of uninterrupted service.

Basis of Payment: This work will not be paid for separately, but shall be included in the contract bid price for TRAFFIC CONTROL AND PROTECTION, (SPECIAL).

SYSTEM IMPLEMENTATION, EQUIPMENT INTEGRATION AND SUPPORT

The Contractor shall install the CCTV cameras at the locations indicated on the plans.

The CCTV camera along with all related components shall be subject to a 30 day burn-in period. During the "burn-in" period, all components shall perform continuously, without any interruption of operation, for a period of thirty days. In the event that there are operational problems during the burn-in period, the burn-in period shall reset back to day one.

The ATMS software upgrade shall be subject to a 60 day burn-in period as described in the special provision for ATMS SOFTWARE UPGRADE.

After the successful completion of the burn-in period, the system will have completed final acceptance.

The Department will program the cameras and integrate them into the existing ITS system.

The Contractor shall be responsible for installing the proposed CCTV cameras in accordance with the plans, specifications, and manufacturers recommended practices.

This work will not be paid for separately, but shall be included in the contract bid price.

CONTRACT GUARANTEE

The Contractor shall guarantee all electrical equipment, apparatus, materials, and workmanship provided under the contract for a period of six (6) months after the date of final inspection according to Article 801.14.

All instruction sheets required to be furnished by the manufacturer for materials and supplies and for operations shall be delivered to the Engineer prior to the acceptance of the project, with the following warranties and guarantees:

1. The manufacturer's standard written warranty for each piece of electrical equipment or apparatus furnished under the contract.

2. The Contractor's written guarantee that, for a period of six (6) months after the date of final inspection of the project, all necessary repairs to or replacement of said warranted equipment, or apparatus shall be made by the Contractor at no cost to the Department.

3. The Contractor's written guarantee for satisfactory operation of all electrical systems furnished and constructed under the contract for a period of 6 months after final inspection of the project.

POT-HOLING FOR LOCATION OF EXISTING UNDERGROUND UTILITIES

Potholing to locate existing underground utilities shall be included in the contract bid price for the conduit pay items.

Removal and replacement of existing sidewalk, pavement, and islands only for utility locating purposes will not be paid for separately, but shall be included in the contract bid price for the conduit pay items.

CONSTRUCTION PERMITS

The Contractor shall be responsible for obtaining all required permits from counties, municipalities, and other entities prior to beginning work. The Contractor shall pay all costs associated with obtaining the permits.

Basis of Payment. This work will not be paid for separately, but shall be included in the contract bid price.

AS-BUILT DOCUMENTATION

The Contractor shall locate all proposed conduit, communication vaults, and camera poles every 100 feet using a GIS locating device that is accurate to the nearest foot.

The Contractor shall provide a GIS based map of the conduit route and a complete listing of all of map coordinates in an electronic format (Google Earth KML or KMZ shape file).

Basis of Payment. This work will not be paid for separately, but shall be included in the contract bid price.

SPLICING OF PROPOSED FIBER OPTIC CABLE INTO EXISTING ICN NETWORK FIBER OPTIC CABLE

All lateral splicing of proposed fiber optic cable into the existing Illinois Century Network (ICN) fiber optic cable plant shall be performed by the ICN Fiber Maintenance Contractor.

The Contractor shall install the proposed fiber optic cable into the communication vaults that are installed adjacent to the existing ICN communication vaults.

The Contractor shall adjust the amount of slack cable in the proposed vaults as needed to provide 50 ft. of fiber optic cable for splicing.

Charges incurred by the Department for splicing into the existing fiber optic cable plant at the locations specified on the plan sheets will be paid for in accordance with Article 109.05 of the Standard Specifications.

The Contractor shall coordinate with the ICN maintenance contractor as needed to facilitate fiber optic cable splicing.

The Contractor shall pay all charges directly either to the Illinois Century Network or to the ICN fiber maintenance contractor. The Contractor shall receive as administrative costs an amount equal to five percent of the first $10,000 and one percent of any amount over $10,000 of the total actual amount paid per bill with the minimum payment being $100.

SEEDING, MINOR AREAS
Effective July 1, 1990 Revised January 1, 2007

Seeding, fertilizing, and mulching shall be done in accordance with Article 250 of the Standard Specifications except for the following revisions:

All areas disturbed by the work performed shall be seeded, fertilized, and mulched in accordance with Article 251.03(a). The materials may be purchased locally and placed as directed by the engineer.

The estimated area is approximately .01 acre. The seed mixture shall be applied at 100 pounds/acre (110 kg/ha). The mixture shall be one that contains a high percentage of Kentucky Blue Grass. All seeds shall meet the purity and noxious weed requirements of Article 1081.04 of the Standard Specifications, and be approved by the engineer.

The fertilizer nutrients shall be applied at a rate of 270 lbs. (300 kg) of actual nutrients per acre (hectare). The fertilizer furnished shall be ready mixed material having a ratio of (1-1-1).

The contractor shall provide the engineer with the test results from the seed container and the chemical analysis of the fertilizer nutrients.

Basis of payment: The seed, fertilizer, and mulch will not be measured for payment but shall be included in the contract bid price for the pay item for UNDERGROUND CONDUIT of the size specified.

FIBER OPTIC CABLE 12 FIBERS, SINGLE MODE
FIBER OPTIC CABLE 48 FIBERS, SINGLE MODE

This work shall be in accordance with Sections 801, 864, 871, and 1076 of the Standard Specifications except as modified herein.

Each cable shall be clearly labeled in each cabinet utilizing a durable computer generated label. The label shall contain information in regards to the location where the cable is going to or coming from, buffer tube, and fiber color. The Contractor shall provide numerical foot marking data at each handhole, vault, and cabinet to the Department.

The fibers shall be spliced and terminated as shown on the fiber termination diagram on the plan sheets. All terminated fibers shall be clearly labeled.

Fibers not being used shall be labeled "spare", and fibers not attached to a distribution enclosure shall be capped and sealed.

All ancillary components, required to complete the fiber optic cable plant, including but not limited to, moisture and water sealants, cable caps, fan-out kits, weather-proof splice kits, boots, cable trays, splice enclosures, termination panels, etc., shall be supplied under this pay item and will not be paid for separately. These items shall be submitted to the Department for approval.

The fiber optic cable shall be clearly marked in each handhole, communication vault, and cabinet with a brightly colored (orange or yellow) weather resistant label securely attached to the cable.

The Contractor shall provide and install a 12 Ga., stranded (EPR-TYPE RHW or THHN), insulated tracer cable in all conduits that contain fiber optic cable and do not contain an existing tracer wire. This work shall be done at the same time the fiber optic cable is pulled. There will be no additional compensation for this work.

Materials. The single-mode, fiber optic cable shall incorporate a loose, buffer-tube design. The cable shall conform to the requirements of RUS 7 CFR1755.900 (PE-90) for a single sheathed, non-armored cable, and shall be new, unused and of current design and manufacture. The number of fibers in each cable shall be as specified on the plans.

Construction Requirements:

Experience Requirements.

Personnel involved in the installation, splicing and testing of the fiber optic cables shall meet the following requirements:

A minimum of three (3) years experience in the installation of fiber optic cables, including splicing, terminating and testing single mode fibers.

Install two systems where fiber optic cables are outdoors in conduit and where the systems have been in continuous satisfactory operation for at least two years. The Contractor shall submit as proof, photographs or other supporting documents, and the names, addresses and telephone numbers of the operating personnel who can be contacted regarding the installed fiber optic systems.

One fiber optic cable system (which may be one of the two in the preceding paragraph), which the Contractor can arrange for demonstration to the Department representatives and the Engineer.

Installers shall be familiar with the cable manufacturer's recommended procedures for installing the cable. This shall include knowledge of splicing procedures for and equipment being used on this project and knowledge of all hardware such as breakout (furcation) kits and splice closures. The Contractor shall submit documented procedures to the Engineer for approval and to be used by Construction inspectors.

Personnel involved in testing shall have been trained by the manufacturer of the fiber optic cable test equipment to be used, in fiber optic cable testing procedures. Proof of this training shall be submitted to the Engineer for approval. In addition, the Contractor shall submit documentation of the testing procedures for approval by the Engineer.

Installation in Conduit.

During cable pulling operations, the Contractor shall ensure that the minimum bending of the cable is maintained during the unreeling and pulling operations. Entry guide chutes shall be used to guide the cable into the handhole conduit ports. Lubricating compound shall be used to minimize friction. Corner rollers (wheels), if used, shall not have radii less than the minimum installation-bending radius of the cable. A series array of smaller wheels can be used for accomplishing the bend if the cable manufacturers specifically approve the array.

The pulling tension shall be continuously measured and shall not be allowed to exceed the maximum tension specified by the manufacturer of the cable. Fuse links and breaks can be used to ensure that the cable tensile strength is not exceeded. The pulling system shall have an audible alarm that sounds whenever a pre-selected tension level is reached. Tension levels shall be recorded continuously and shall be given to the Engineer upon request.

The cable shall be pulled into the conduit as a single component, absorbing the pulling force in all tension elements. The central strength member and Aramid yarn shall be attached directly to the pulling eye during cable pulling. "Basket grip" or "Chinese-finger type" attachments, which only attach to the cable's outer jacket, shall not be permitted. A breakaway swivel, rated at 95% of the cable manufacturer's approved maximum tensile loading, shall be used on all pulls. When simultaneously pulling fiber optic cable with other cables, separate grooved rollers shall be used for each cable.

Splicing Requirements:

Splices shall be made at locations shown on the Plans. Any other splices shall be permitted only with the approval of the Engineer. The Contractor shall submit a splicing plan to the Department for approval.

Operation and Maintenance Documentation:

After the fiber optic cable plant has been installed, two (2) complete sets of Operation and Maintenance Documentation shall be provided. The documentation shall, as a minimum, include the following:

- Complete and accurate as-built diagrams showing the entire fiber optic cable plant including locations of all splices.
- Final copies of all approved test procedures.
- Complete performance data of the cable plant showing the losses at each terminal connector.
- Complete parts list including names of vendors.
- Electronic Testing Files (OTDR traces, power meter data, etc.)

Testing Requirements:

Testing shall be in accordance with Article 801.13 except where modified by this special provision.

The Contractor shall submit detailed test procedures for approval by the Engineer. All continuous fiber runs shall be tested bi-directionally at both 1310 nm and 1550 nm with a power meter and optical source and OTDR. For testing, intermediate breakout fibers may be concatenated and tested end-to-end. Any discrepancies between the measured results and these specifications will be resolved to the satisfaction of the Engineer.

The Contractor shall provide the date, time and location of any tests required by this specification to the Engineer at least 5 days before performing the test. Upon completion of the cable installation, splicing, and termination, the Contractor shall test all fibers in each link for continuity and attenuation. The test procedure shall be as follows:

A Certified Technician utilizing an Optical Source/Power Meter and OTDR shall conduct the testing. The Technician is directed to conduct the test using the standard operating procedures defined by the manufacturer of the test equipment. All fibers installed shall be tested in both directions.

At the completion of the test, the Contractor shall provide two copies of documentation of the test results to the Engineer. The test documentation shall be bound and shall include the following:

Cable & Fiber Identification:

Cable ID
Cable Location - beginning and end point
Fiber ID, including tube and fiber color
Operator Name
Date & Time
Setup Parameters
Wavelength
Pulse width (OTDR)
Refractory index (OTDR)
Range (OTDR)
Scale (OTDR)
Setup Option chosen to pass OTDR "dead zone"

Test Results:

Optical Source/Power Meter

Total Attenuation
Attenuation (dB/km)

These results shall be provided in tabular form. The following shall be the criteria for the acceptance of the cable:

The test results shall show that the dB/km loss does not exceed +3% of the factory test or 1% of the cable's published production loss. However, no event shall exceed 0.10 dB. If any event is detected above 0.10 dB, the Contractor shall replace or repair the proposed fiber and/or fusion splice and connector including that event point.

The total dB loss of the cable, less events, shall not exceed the manufacturer's production specifications as follows: 0.5 dB/km at both 1310 and 1550 nm.

If the total loss exceeds these specifications, the Contractor shall replace or repair that cable run at the Contractor's expense, both labor and materials. Elevated attenuation due to exceeding the pulling tension during installation shall require the replacement of the cable run at the Contractor's expense, including labor and materials.

The Contractor shall label the destination of each trunk cable onto the cable in each handhole and termination panel.

Slack Storage of Fiber Optic Cables.

A part of this pay item, slack fiber shall be supplied as necessary to allow splicing the fiber optic cables in a controlled environment, such as a splicing van or tent. After splicing has been completed, the slack fiber shall be stored underground in handholes and in the traffic controller cabinets.

The amount of slack cable listed in Article 873.03 shall be revised as follows:

Location	Length of Slack Cable (Ft.)
Communications Vault	30.0
Double Handhole	30.0
Handhole	10.0
CCTV or Signal Cabinet	10.0
Junction Box	10.0
Equipment Cabinet	3.0

Basis of Payment: This work will be paid for at the contract unit price per foot for FIBER OPTIC CABLE 12 FIBERS, SINGLE MODE or FIBER OPTIC CABLE 48 FIBERS, SINGLE MODE and shall be payment in full for all labor, equipment, and materials required to provide, install, terminate, splice, and test the fiber optic cable described above, complete.

FUSION SPLICING OF FIBER OPTIC CABLES

Description. The Contractor will splice optical fibers from different cable sheaths and protect them with a splice closure at the locations shown on the Plans. Fiber splicing consists of in-line fusion splices for all fibers described in the cable plan at the particular location.

Two types of splices are identified. A mainline splice includes selected fibers from each cable run as shown in the plan sheets. In a lateral splice, the buffer tubes in the mainline cable are dressed out and those fibers identified on the plans are accessed in and spliced to lateral cables.

Materials.

Splice Closures:

Splice closures shall be designed for use under the most severe conditions such as moisture, vibration, impact, cable stress and flex temperature extremes as demonstrated by successfully passing the factory test procedures and minimum specifications listed below:

Physical Requirements:

The closures shall provide ingress for up to four cables in a butt configuration.

The closure shall prevent the intrusion of water without the use of encapsulates.

The closure shall be capable of accommodating splice organizer trays that accept mechanical, or fusion splices. The splice closure shall have provisions for storing fiber splices in an orderly manner, mountings for splice organizer assemblies, and space for excess or un-spliced fiber. Splice organizers shall be re-enterable. The splice case shall be UL rated.

Closure re-entry and subsequent reassembly shall not require specialized tools or equipment. Further, these operations shall not require the use of additional parts.

The splice closure shall have provisions for controlling the bend radius of individual fibers to a minimum of 1.5 in (38 mm).

Factory Testing of Splice Closures:

Compression Test: The closure shall not deform more than 10% in its largest cross-sectional dimension when subjected to a uniformly distributed load of 1335 N at a temperature of 0°F and 100°F (-18ºC and 38ºC). The test shall be performed after stabilizing at the required temperature for a minimum of two hours. It shall consist of placing an assembled closure between two flat parallel surfaces, with the longest closure dimension parallel to the surfaces. The weight shall be placed on the upper surface for a minimum of 15 minutes. The measurement shall then be taken with weight in place.

Impact Test: The assembled closure shall be capable of withstanding an impact of 28 N-M at temperatures of 0°F and 100°F (-18ºC and 38ºC). The test shall be performed after stabilizing the closure at the required temperature for a minimum of 2 hours. The test fixture shall consist of 20 lb (9 kg) cylindrical steel impacting head with a 2 in (5 cm) spherical radius at the point where it contacts the closure. It shall be dropped from a height of 12 in (30 cm). The closure shall not exhibit any cracks or fractures to the housing that would preclude it from passing the water immersion test. There shall be no permanent deformation to the original diameter or characteristic vertical dimension by more than 5%.

Cable Gripping and Sealing Testing: The cable gripping and sealing hardware shall not cause an increase in fiber attenuation in excess of 0.05 dB/fiber @ 1550 nm when attached to the cables and the closure assembly. The test shall consist of measurements from six fibers, one from each buffer tube or channel, or randomly selected in the case of a single fiber bundle. The measurements shall be taken from the test fibers before and after assembly to determine the effects of the cable gripping and sealing hardware on the optical transmission of the fibers.

Vibration Test: The splice organizers shall securely hold the fiber splices and store the excess fiber. The fiber splice organizers and splice retaining hardware shall be tested per EIA Standard FOTP-II, Test Condition I. The individual fibers shall not show an increase in attenuation in excess of 0.1 dB/fiber.

Water Immersion Test: The closure shall be capable of preventing a 10 ft. (3 m) water head from intruding into the splice compartment for a period of 7 days. Testing of the splice closure is to be accomplished by the placing of the closure into a pressure vessel and filling the vessel with tap water to cover the closure. Apply continuous pressure to the vessel to maintain a hydrostatic head equivalent to 10 ft. (3 m) on the closure and cable. This process shall be continued for 30 days. Remove the closure and open to check for the presence of water. Any intrusion of water in the compartment containing the splices constitutes a failure.

Certification: It is the responsibility of the Contractor to insure that either the manufacturer, or an independent testing laboratory has performed all of the above tests, and the appropriate documentation has been submitted to the Department. Manufacturer certification is required for the model(s) of closure supplied. It is not necessary to subject each supplied closure to the actual tests described herein.

Construction Requirements.

The closure shall be installed according to the manufacturer's recommended guidelines. For all splices, the cables shall be fusion spliced.

The Contractor shall prepare the cables and fibers in accordance with the closure and cable manufacturers' installation practices. A copy of these practices shall be provided to the Engineer 21 days prior to splicing operations.

Using a fusion splicer, the Contractor shall optimize the alignment of the fibers and fuse them together. The Contractor shall recoat the fused fibers and install mechanical protection over them.

Upon completing all splicing operations for a cable span, the Contractor shall measure the mean bi-directional loss at each splice using an Optical Time Domain Reflectometer. This loss shall not exceed 0.1 dB.

The Contractor shall measure the end-to-end attenuation of each fiber optic link, from connector to connector, using an optical power meter and source. This loss shall be measured from both directions and shall not exceed 0.5 dB per installed kilometer of single mode cable. Measurements shall be made at both 1300 and 1550 nm for single mode cable. For multimode cable, power meter measurements shall be made at 850 and 1300 nm. The end-to-end attenuation shall not exceed 3.8 dB/installed kilometers at 850nm or 1.8 dB per installed kilometer at 1300nm for multimode fibers.

As directed by the Engineer, the Contractor at no additional cost to the Department shall replace any cable splice not satisfying the required objectives.

The Contractor shall secure the Splice Closure to the side of the splice facility using cable support brackets. All cables shall be properly dressed and secured to rails or racks within the handhole or traffic signal cabinet. No cables or enclosures will be permitted to lie on the floor of the splice facility. Cables that are spliced inside a building will be secured to the equipment racks or walls as appropriate and indicated on the Plans.

Basis of Payment. This work will not be paid for separately, but shall be included in the bid price for the fiber optic cable pay items.

TERMINATION OF FIBER OPTIC CABLES WITH FUSION SPLICED ST CONNECTORS

Description. The Contractor shall terminate a single mode fiber by fusion splicing a factory-formed ST connector (from a pre-formed fiber optic pigtail) onto a field fiber at the locations shown on the Plans.

Materials. The Contractor shall be responsible for ensuring that the pre-formed pigtail fiber is compatible with the field fiber that it will be fusion splice to.

The splice shall be protected with a protection sleeve/enclosure that will secure both cables and prevent cable movement.

The fiber optic patch cords shall meet or exceed the following specifications:

- High-quality 125um fiber optics
- 900um tight buffer construction
- Aramid yarn individually protected
- Duplex construction
- Stress relief boots color coded (Tx/Rx)
- ST connectors with high-grade zirconia ferrule
- Insertion Loss < 0.2 dB @ 1310 / 1550 nm
- Return Loss < -58 dB @ 1310 / 1550 nm
- Compliant with ANSI/TIA/EIA 568-B.3
- TIA/EIA-604, FOCIS-2

The Contractor shall submit a shop drawing of all proposed components to the Engineer for approval prior to commencing construction.

Construction Requirements.

The Contractor shall prepare the cables and fibers in accordance with the cable manufacturers' installation practices. A copy of these practices shall be provided to the Engineer 21 days prior to splicing operations.

Using a fusion splicer, the Contractor shall optimize the alignment of the fibers and fuse them together. The Contractor shall recoat the fused fibers and install mechanical protection over them.

Upon completing all splicing operations for a cable span, the Contractor shall measure the mean bi-directional loss at each connector using an Optical Time Domain Reflectometer. This loss shall not exceed the loss of the fusion splice (0.1 dB) plus the loss of the connector (typically 0.75 dB).

As directed by the Engineer, the Contractor at no additional cost to the Department shall replace any cable splice and/or connector not satisfying the required objectives.

Basis of Payment: This work will not be paid for separately, but shall be included in the bid price for the fiber optic cable pay items.

GROUNDING OF ITS STRUCTURES

This work shall be in accordance with the applicable articles of Sections 807, 817 and 1066 of the Standard Specifications with the following modifications:

This work shall consist of furnishing and installing a grounding wire to connect all proposed ITS cabinets and camera poles in accordance with NEC requirements.

The proposed ground wire shall be an insulated #6 XLP green copper conductor. This wire shall be bonded to all items and their associated ground rods utilizing mechanical lugs and bolts. This wire may be made continuous by splicing in the adjacent handholes with compression lugs. Split bolts will not be allowed.

The grounding wire shall be bonded to the grounded conductor at the service disconnect per the NEC.

All clamps, hardware, and other materials required shall be included.

Basis of Payment: This work will be paid for at the contract unit price per Foot for ELECTRIC CABLE IN CONDUIT, 600V (XLP-TYPE USE) 1/C NO. 6 which price shall be payment in full for all labor, materials, and equipment required to furnish and install the grounding wire described above.

CLOSED-CIRCUIT TELEVISION DOME CAMERA, IP BASED

Description. This work shall consist of furnishing and installing an integrated Closed-Circuit Television (CCTV) Dome Camera Assembly, camera brackets, and all other items required for installation and operation. This assembly shall contain all components identified in the Materials Section and shall be configured as indicated on the plan sheets.

Materials.

The CCTV camera shall be an Axis Model Q6055-E Dome Camera Assembly for integration into the existing District 4 ITS system.

The Contractor shall provide all materials required to install the proposed camera on the proposed sign structure camera mast as shown on the plan sheets.

The Contractor shall submit catalog cut sheets to the Department for all items (mounting brackets, hardware, etc.) that will be utilized for review prior to commencing work.

The Department will program the cameras.

The camera shall meet or exceed the following specifications:

CAMERA

VIDEO:	60 Hz (NTSC), 50 Hz (PAL)
IMAGE SENSOR:	1/2.8" progressive scan CMOS
LENS:	4.44–142.6 mm, F1.6–4.41 Horizontal angle of view: 62.8°–2.23° Vertical angle of view: 36.8°–1.3° Autofocus, auto-iris
DAY AND NIGHT:	Automatically removable infrared-cut filter
MINIMUM ILLUMINATION:	Color: 0.3 lux at 30 IRE F1.6 B/W: 0.03 lux at 30 IRE F1.6 Color: 0.5 lux at 50 IRE F1.6 B/W: 0.04 lux at 50 IRE F1.6
SHUTTER TIME: NTSC:	1/33000 s to 1/3 s with 50 Hz 1/33000 s to 1/4 s with 60 Hz
PAN/TILT/ZOOM:	Pan: 360° endless, 0.05° - 450°/s Tilt: 220°, 0.05°-450°/s 32x optical zoom and 12x digital zoom, total 384x zoom E-flip, 256 preset positions, Tour recording, Guard tour, Control queue, On-screen directional indicator, Set new pan 0°, Adjustable zoom speed

VIDEO

VIDEO COMPRESSION:	H.264 (MPEG-4 Part 10/AVC), Motion JPEG
RESOLUTIONS:	HDTV 1080p 1920x1080 to 320x180 HDTV 720p 1280x720 to 320x180
FRAME RATE (H.264):	Up to 60/50 fps (60/50 Hz) in HDTV 720p Up to 30/25 fps (60/50 Hz) in HDTV 1080p
VIDEO STREAMING:	Multiple, individually configurable streams in H.264 and Motion JPEG, Axis' Zipstream technology, Controllable frame rate and bandwidth, VBR/MBR H.264

IMAGE SETTING:	Manual shutter time, compression, color, brightness, sharpness, white balance, exposure control, exposure zones, fine tuning of behavior at low light, rotation: 0°, 180°, text and image overlay, 32 individual 3D privacy masks, image freeze on PTZ, automatic defog, backlight compensation Wide Dynamic Range (WDR): Up to 120 dB depending on scene, highlight compensation

NETWORK

SECURITY:	Password protection, IP address filtering, HTTPSa encryption, IEEE 802.1Xa network access control, Digest authentication, User access log, Centralized Certificate Management
PROTOCOLS:	IPv4/v6, HTTP, HTTPSa, SSL/TLSa, QoS Layer 3 DiffServ, FTP, CIFS/SMB, SMTP, Bonjour, UPnPTM, SNMP v1/v2c/v3 (MIB-II), DNS, DynDNS, NTP, RTSP, RTP, SFTP, TCP, UDP, IGMP, RTCP, ICMP,DHCP, ARP, SOCKS, SSH, NTCIP

SYSTEM INTEGRATION

APPLICATION PROG INTERFACE:	Open API for software integration, including VAPIX® and AXIS Camera Application Platform; specifications at www.axis.com, AXIS Video Hosting System (AVHS) with One-Click Connection, ONVIF Profile S, specification at www.onvif.org
ANALYTICS:	Video motion detection, Autotracking, Active Gatekeeper Basic Analytics (not to be compared with third-party analytics): Object removed, Enter/Exit detector, Fence detector, Object Counter, Highlight compensation, Support for AXIS Camera Application Platform enabling installation of third-party applications, see www.axis.com/acap
EVENT TRIGGERS:	Detectors: Live stream accessed, Video motion detection, Shock Detection, Object removed, Enter/Exit detector, Fence detector, Object counter; Hardware: Fan, Network, Temperature, Casing Open; PTZ: Autotracking, Error, Moving, Ready, Preset Reached; Storage: Disruption, Recording; System: System Ready; Time: Recurrence, Use Schedule; Input signal: Manual trigger, Virtual input
EVENT ACTIONS:	Day/night mode, overlay text, video recording to edge storage, pre- and post-alarm video buffering, send SNMP trap PTZ: PTZ preset, start/stop guard tour File upload via FTP, SFTP, HTTP, HTTPS network share and Email; Notification via email, HTTP, HTTPS and TCP

DATA STREAMING	Event data
BUILT IN INSTALLATION AIDS	Pixel Counter

GENERAL

CASING:	IP66-, NEMA 4X- and IK10-rated Metal casing (aluminum), polycarbonate (PC) clear dome, sunshield (PC/ASA)
SUSTAINABILITY:	PVC Ffree
MEMORY:	512 MB RAM, 128 MB Flash
POWER CAMERA:	Axis High PoE midspan 1–port: 100–240 V AC, max 74 W Camera consumption: typical 16 W, max 60 W
CONNECTORS:	RJ45 10BASE-T/100BASE-TX PoE, RJ45 Push-pull Connector (IP66) included
EDGE STORAGE:	Support for SD/SDHC/SDXC card Support for recording to dedicated network-attached storage (NAS); For SD card and NAS recommendations see www.axis.com
OPERATING CONDITIONS:	With 30 W midspan: -20 °C to 50 °C (-4 °F to 122 °F) With 60 W midspan: -50 °C to 50 °C (-58 °F to 122 °F) Maximum temperature (intermittent): 60 °C (140 °F) Arctic Temperature Control: Start-up as low as -40 °C (-40 °F) Humidity 10–100% RH (condensing)
APPROVALS:	EMC: EN 55022 Class A, EN 61000-3-2, EN 61000-3-3, EN 61000-6-1, EN 61000-6-2, EN 55024, FCC Part 15 Subpart B Class A, ICES-003 Class A, VCCI Class A, RCM AS/NZS CISPR 22 Class A, KCC KN32 Class A, KN35 Safety: IEC/EN/UL 60950-1, IEC/EN/UL 60950-22 Environment: EN 50121-4, IEC 62236-4, IEC 60068-2-1, IEC 60068-2-2, IEC 60068-2-6, IEC 60068-2-14, IEC 60068-2-27, IEC 60721-4-3, NEMA 250 Type 4X, IEC 60068-2-30, IEC 60068-2-60, IEC 60068-2-78, IEC/EN 60529 IP66, NEMA TS-2-2003 v02.06, Subsection 2.2.7, 2.2.8, 2.2.9; IEC 62262 IK10, ISO 4892-2 Midspan: EN 60950-1, GS, UL, cUL, CE, FCC, VCCI, CB, KCC, UL-AR

WEIGHT:	3.7 kg (8.2 lb.)
INCLUDED ACCESSORIES:	Axis High PoE 60 W midspan 1-port, RJ45 Push-pull Connector (IP66), Sunshield, Installation Guide, Windows decoder 1-user license
VIDEO MANAGEMENT SOFTWARE:	AXIS Camera Companion, AXIS Camera Station, Video management software from Axis' Application Development Partners available on www.axis.com/techsup/software
WARRANTY:	Axis Three-Year Warranty and AXIS Extended Warranty option

Environmental Enclosure/Housing

The environmental enclosure shall be designed to physically protect the integrated camera from the outdoor environment and moisture via a sealed enclosure. If the option exists in the standard product line of the manufacturer, the assembly shall be supplied with an integral sun shield. The enclosure shall be fully water and weather resistant with a NEMA 4 rating or better.

The camera dome shall be constructed of distortion free acrylic or equivalent material that must not degrade from environmental conditions. The environmental housing shall include a camera-mounting bracket. In addition, the environmental housing shall include a heater, blower, and power surge protector. An integral fitting compatible with a standard 1-1/2 in (38.1 mm) NPT pipe, suitable for outdoor pendant mounting shall also be provided.

The enclosure shall be equipped with a heater controlled by a thermostat. The heater shall turn on when the temperature within the enclosure falls below 40° F (4.4°C). The heater shall turn off when the temperature exceeds 60°F (15.6°C). The heater will minimize internal fogging of the dome faceplate when the assembly is operated in cold weather.

In addition, a fan shall be provided as part of the enclosure. The fan will provide airflow to ensure effective heating and to minimize condensation.

The enclosure shall be equipped with a hermetically sealed, weatherproof connector, located near the top for external interface with power, video, and control feeds.

CCTV Dome Camera Mounting Supports

The Contractor shall furnish and install an Axis Pole Mount Bracket T91A67 (Part Number 5017-671) for camera installation on traffic signal mast arms and CCTV camera poles and stainless steel banding as required.

Mounting supports shall be configured as shown on the camera support detail plans and as approved by the Engineer. Mount shall be of aluminum construction with enamel or polyester powder coat finish. Braces, supports, and hardware shall be stainless steel. Wind load rating shall be designed for sustained gusts up to 90 mph (145 km/hr), with a 30% gust factor. Load rating shall be designed to support up to 75 lb (334 N). For roof or structural post/light pole mounting, mount shall have the ability to swivel inward for servicing. The mounting flange shall use standard 1-1/2 inch (38.1 mm) NPT pipe thread.

Connecting Cables

The Contractor shall furnish and install outdoor rated, shielded CAT 5E cable. The cable shall be terminated using the IP66 rated RJ-45 connector on the camera end and a shielded RJ-45 connector in the cabinet. The Contractor shall test the cable prior after termination.

Cable will be paid for separately under the pay item CAT 5 ETHERNET CABLE.

Construction Requirements.

General

The Contractor shall prepare a shop drawing detailing the complete CCTV Dome Camera Assembly and installation of all components to be supplied for approval of the Engineer. Particular emphasis shall be given to the cabling and the interconnection of all of the components.

The Contractor shall install the CCTV dome camera assembly at the locations indicated in the Plans. The CCTV Dome Camera Assembly shall be mounted on a pole, wall, or other structure.

Testing

The Contractor shall test each installed CCTV Dome Camera Assembly. The test shall be conducted from the field cabinet using the standard communication protocol and a laptop computer. The Contractor shall verify that the camera can be fully exercised and moved through the entire limits of Pan, Tilt, Zoom, Focus and Iris adjustments, using both the manual control and presets. The Contractor shall maintain a log of all testing and the results. A representative of the Contractor and a representative of the Engineer shall sign the log as witnessing the results. Records of all tests shall be submitted to the Engineer prior to accepting the installation.

Method of Measurement. The closed circuit television dome camera bid item will be measured for payment by the actual number of CCTV dome camera assemblies furnished, installed, tested, and accepted.

Basis of Payment. Payment will be made at the contract unit price for Each CLOSED CIRCUIT TELEVISION DOME CAMERA, IP BASED including all equipment, material, testing, documentation, and labor detailed in the contract documents for this bid item.

CAT 5 ETHERNET CABLE

This work shall be in accordance with Sections 873, 1076, and 1088 of the Standard Specifications except as modified herein.

This work shall consist of furnishing and installing an outdoor rated CAT5E cable in conduits, handholes, and poles.

The cable shall be rated for outdoor use and conform to the following specifications:

- Outdoor CMX Rated Jacket (climate/oil resistant jacket)
- UV Resistant Outer Jacket Material (PVC-UV, UV Stabilized)
- Outer Jacket Ripcord
- Designed For Outdoor Above- Ground or Conduit Duct applications
- Cat5E rated to 350MHz (great for 10/100 or even 1000mbps Gigabit Ethernet)
- Meets TIA/EIA 568b.2 Standard
- Shielded Twist Pair
- 4 Pairs, 8 Conductors
- 24AWG, Solid Core Copper
- UL 444 ANSI TIA/EIA-568.2 ISO/IEC 11801
- RoHS Compliant
- Water Blocking Gel

Basis of Payment: This work will be paid for at the contract unit price per Foot for CAT 5 ETHERNET CABLE, which shall be payment in full for all labor, equipment, and materials required to provide and install the cable described above, complete.

COMMUNICATIONS VAULT

This work shall be in accordance with Sections 814 and 1088 of the Standard Specifications except as modified herein.

This work shall consist of furnishing and installing a communications vault constructed of polymer concrete.

The following items are approved for use in District 4: Hubbel, Quazite, Part Numbers: PG2436HA00 (Cover) and PG2436BA30 (Box).

The communications vault and lid shall conform to the following specifications:

Cover:
Material: Polymer Concrete
Nominal Dimensions: 24” W x 36 L”
Gasketed, Heavy Duty Lid with 2 Bolts
Design/Test Load: 15,000/22,500 lbs.
ANSI Tier: 15
Gasketed

Box
Material: Polymer Concrete
Nominal Dimensions: 24" W x 36" L x 30" D
Open Bottom
Design/Test Load: 22,500/33,750 lbs.
ANSI Tier: 22

The location of the handhole shall be excavated so that the top of the handhole is set flush with the sidewalk or paved surface. When installed in earth shoulder away from the pavement edge, the top surface of the handhole shall be 1 in. (25 mm) above the finished grade. The excavation shall be deep enough to accommodate the depth of the box and french drain.

The french drain shall be constructed underneath the proposed handhole according to Article 601.06 and in accordance with Highway Standard 814006.

The conduits shall enter the vault at between 24" and 30" and the Contractor shall install six inches of CA 5 or CA 7 in the bottom of the vault.

The Contractor shall submit testing reports to verify that the communications vaults and lids meet the requirements of ANSI Tier 15 and ANSI Tier 22 loading.

The locating cable shall be continuous and accessible on the outside of each communication vault. The Contractor shall utilize appropriate corrosion resistant hardware (stainless steel) and connections to the locating wire. The Contractor shall submit material and installation methods to the Department for review.

Basis of Payment: This work will be paid for at the contract unit price of Each for COMMUNICATIONS VAULT, which shall be payment in full for all labor, equipment, and materials required to provide and install the equipment described above, complete.

FIBER OPTIC ETHERNET DROP AND REPEAT SWITCH

The Contractor shall furnish a fiber optic drop and repeat switch (material only) complete with the accessories specified below and deliver it to the Department.

The fiber optic drop and repeat switch shall meet or exceed the following minimum specifications:

Approved Models: Antaira (Aaxeon) Technologies Model LNX-0702C-SFP-T (7-Port (5-port 10/100T + 2 10/100/1000T SFP ports Industrial Ethernet Switch, Wide Operating Temperature) or approved equal.

Features:	• 5-Port 10/100TX + 2-Port 10/100/1000T/Mini-GBIC Combo • Store-and-Forward Switching Architecture • 10Gbps Back-Plane (Switching Fabric) • 1 Mbits Memory Buffer • 8K MAC Address Table • Wide-Range Redundant Power Design • Power Polarity Reserve Protect • Provides EFT Protection 3000 VDC for Power Line • Supports 6000 VDC Ethernet ESD Protection • IP30 Rugged Aluminum Case Design • Five-Year Warranty
Standard:	• IEEE 802.3 10BaseT Ethernet • IEEE 802.3u 100BaseTX Fast Ethernet • IEEE 802.z Gigabit Fiber • IEEE 802.3x Flow Control and Back-Pressure
Protocol:	• CSMA/CD
Switch Architecture:	• Back-Plane (Switching Fabric): 10Gbps
Transfer Rate:	• 14,880pps for Ethernet Port • 148,800pps for Fast Ethernet Port • 1,488,000pps for Gigabit Fiber Ethernet Port
MAC Address:	• 8K MAC Address Table
Memory Buffer:	• 7,926 pps (default)
LED:	• Unit: Power 1, Power 2, Fault • 10/100 TX: Link/Activity, Full Duplex/Collision • Gigabit Copper: Link/Activity, Speed • SFP: Link/Activity

Connector:	• 10/100T: 5 x RJ-45 • 100/1000T: 2 x 100/1000 SFP Sockets
Network Cable:	• 10BaseT: 2-pair UTP/STP Cat. 3, 4, 5 cable EIA/TIA-568 100-ohm (100m) • 100BaseTX: 2-pair UTP/STP Cat. 5 cable EIA/TIA-568 100-ohm (100m)
Power Supply:	• DC 12 ~ 48V, Redundant Power with Polarity Reverse Protect Function and Removable Terminal Block
Power Consumption:	• 6 Watts
Reverse Polarity Protection:	• Present
Overload Current Protection:	• Present
Mechanical:	• Casing: IP30 Metal Case • Dimension (W x H x D): 30 x 99 x 142 mm • Installation: DIN-Rail/Wall Mountable
Weight:	• Unit Weight: 1.3 lbs. • Shipping Weight: 1.7 lbs.
Operation Temperature:	• Wide Operating Temperature: -40° C to 75° C (-40° F to 176° F)
Operation Humidity:	• 5% to 95% (Non-condensing)
Storage Temperature:	• -40° C to 85° C
EMI:	• FCC Class A • CE EN6100-4-2/EN6100-4-3/EN6100-4-4/EN6100-4-5/EN6100-4-6 • /EN6100-4-8/EN6100-4-11/EN6100-4-12/EN6100-6-2/EN6100-6-4
Stability Testing:	• Shock: IEC60068-2-27 • Free Fall: IEC60068-2-32 • Vibration: IEC60068-2-6
Warranty:	• Five-Year Warranty

The following items shall also be included with each switch:

- SFP Fiber Optic Module – Qty. 2 (Aaxeon SFP-S20-T, 1.25Gbps Ethernet SFP Transceiver, Single Mode 20KM / LC / 1310nm, -40ºC~85ºC)

- Fiber Optic Patch Cables – Qty. 2 (single mode fiber, 1 meter length, duplex, LC/ST connectors)

Basis of Payment: This work will be paid for at the contract unit price per Each for FIBER OPTIC ETHERNET DROP AND REPEAT SWITCH which price shall be payment in full for all labor, materials, and equipment required to provide the fiber optic Ethernet drop and repeat switch and associated equipment and deliver it to the Department.

CLOSED CIRCUIT TELEVISION CABINET

Description. This work consists of furnishing and installing a pole mounted equipment cabinet and peripheral equipment at locations indicated in the Plans. These cabinets will be utilized to house critical electrical, optical, and communications equipment as defined in other contract pay items.
Materials. Materials shall be in accordance to the following specifications.

General. The equipment cabinet shall conform to the details shown on the plan sheet. Equipment cabinets shall be mounted and anchored on the poles and structures at locations indicated in the Plans. In addition, all mounting hardware and brackets required to install the equipment cabinet on the pole shall be stainless steel and provided by the Contractor. The mounting heights and pole diameters shall be as specified by the Engineer.

The cabinet shall be a NEMA 3R Single Door Enclosure, constructed from .125" thick aluminum, with nominal outside dimensions of 24" (H) x 14" (W) x 10" (D). The cabinet shall have a natural finish.

The cabinet shall be furnished with a slam lock, neoprene door gasket, vent slots, continuous stainless steel door hinge, and all stainless steel hardware. The cabinet shall also have a Corbin #2 dead bolt lock or skeleton key. The key shall be removable in the lock position only. Two keys shall be supplied for each lock, and all equipment cabinet locks shall be keyed the same. All cables shall be labeled utilizing marking tags.

The cabinet shall be equipped with a main power panel as shown on the cabinet plan detail sheet. The power panel shall include one 15A main breaker, power terminal blocks, and one six outlet power strip with integral surge protection. The power panel shall include a plexi-glass safety shield that covers the power panel.

Power Strip

The cabinet power strip shall have a minimum of six outlets and integral surge suppression that meets or exceeds the following minimum specifications:

- Let Through Voltage: <85 Volts
- Operating Voltage: 120VAC, 50/60H
- UL Suppressed Voltage Rating: 330V
- Energy Rating: 320J
- Peak Current NM/CM: 13k Amps NM, 13k Amps CM
- EMI/RFI Noise Filtration: >25-60dB

The power strip shall be wired directly to the protected power terminals on the cabinet surge arrestor.

Construction Requirements.

The Contractor shall prepare and submit shop drawings that detail all of the components to be supplied, along with associated mounting hardware for the pole mounted equipment cabinet. The shop drawings must be approved by the Engineer prior installation of the completed cabinet in the field.

The Engineer reserves the right to inspect and/or factory test any completed cabinet assemblies prior to shipment of the material to the project site. Any deviances from these specifications that are identified during such testing shall be corrected prior to delivery of the assembly to the project site.

The Contractor shall install the cabinet to an existing or proposed light pole at the locations show on the plan sheets.

The AC power service to be run to the equipment cabinet shall be terminated. In addition, the cabinet shall be connected to an adequate ground following the Standard Specifications.

The Contractor shall terminate any inbound and outbound fiber optic, CAT5E cables, or wireless antenna leads in the equipment cabinet as shown in the Plans. The Contractor shall terminate any twisted pair communication cable on the termination panel in the equipment cabinet as shown in the Plans. Lugs shall be installed at the end of each conductor suitable for connection to the barrier terminal blocks.

The cabinets located at I-474 @ Airport Road and I-74 @ Brimfield Road RWIS site shall be pedestal mounted. These cabinets shall be equipped with cast aluminum breakaway bases, aluminum posts, bottom stiffener plates in accordance with the applicable sections of Article 1068.01, and a steel helix screw in foundation in accordance with Article 1070.01.

Method of Measurement. This item shall be measured for payment by Each pole mounted equipment cabinet in-place.

Basis of Payment. This work shall be paid for at the contract unit price Each for CLOSED CIRCUIT TELEVISION CABINET, and shall include all equipment, material and labor required to furnish the cabinet and install it as described above, complete.

CIRCUIT BREAKER, 1-POLE, 20 AMP, 120V IN EXISTING CABINET

This work shall consist of furnishing a single pole, rated 20 A circuit breaker that is mounted on an aluminum plate and is installed in a small panel board in an existing cabinet or on the wall of a building at the locations shown on the Plans or as designated by the Engineer. All circuit breakers shall have a molded case. This work shall be in accordance with the requirements set forth under Section 805 and 1086 and Article 1068.01(e)(3) in particular of the Standard Specifications.

Wall mounted breakers shall include an enclosure to house the breaker.

Basis of Payment: This work will be paid for at the contract unit price of Each for CIRCUIT BREAKER, 1-POLE, 20 AMP, 120V IN EXISTING CABINET, which shall be payment in full for all labor, equipment, and materials required to provide the circuit breaker installation described above, complete.

UNINTERRUPTABLE POWER SUPPLY, SPECIAL

The Contractor shall furnish an uninterruptable power supply and install it on the outside of a proposed CCTV cabinet or existing Type IV traffic signal cabinet at the locations shown on the plan sheets.

The uninterruptible power supply shall be an outdoor rated UPS and shall be an Alpha Technologies Micro Secure 100 equipped with a SNMP card or approved equal that meets or exceeds the following specifications:

Features:

- Integrated, compact rugged UPS featuring all weather protection with durable outdoor NEMA 3R rated plastic enclosure
- Enhanced battery life with wide-range Automatic Voltage Regulation
- Local monitoring and control through RS-232 port or remotely via SNMP Ethernet interface
- Independently programmable relays allow tracking and controlling of key functions
- Simplified troubleshooting through event and alarm logging with time and date stamping
- Maximum mounting flexibility for accommodation of space requirements
- Magnetic input and battery breakers for additional protection

Electrical:

- Battery String Voltage: 24VDC
- Typical transfer time: 3-5ms
- **Audible noise @ 1M=m: ,40dBA**
- **Operating temperature range:** -40°C to 55°C (-40°F to 122°F)
- **Battery String Voltage: 24Vdc**
- **Nominal Voltage: 120VAC**
- **Nominal Frequency: 60Hz**
- **Current: 2.0A**
- **Voltage Range: 85 to 150VAC**
- **Voltage Waveform: Sine wave**
- Output Current: 4.2A @ 24VAC

Mechanical:

- Dimensions: 11.5H x 15W x 6D (Inches), 292H x 381W x 152D (mm)
- Weight (with 4 x 9Ah Batteries): 45lbs, 20.4kg

Environmental:

- Operating Temperature Range: -40°C to -50°C (-40°F to 122°F)
- Audible Noise @ 25C: 45dBa @ 1 meter (39 in)

Agency Compliance:

- Electrical Safety: UL1778, CSA C22.2 No. 107.3; EN62040-1
- Marks: CCSAUS , CE**
- EMC: CFR47, Part 15 Subpart B, Class A; CES-003 Class A; EN62040-2

Performance:

- Run Time: 2hrs 15 mins @ full load

Basis of Payment: This work will be paid for at the contract unit price per Each for UNINTERRUPTABLE POWER SUPPLY, SPECIAL which price shall be payment in full for all labor, materials, and equipment required to furnish the uninterruptible power supply and install it on a proposed CCTV cabinet or existing traffic signal cabinet as described above, complete.

LIGHT POLE, GALVANIZED STEEL, 45 FT. M.H., TENON MOUNT

This work shall be in accordance with Section 830 and 1069 of the Standard Specifications except as modified herein.

The Contractor shall pick up two metal light pole foundations from the IDOT Warehouse located at 6511 West US Route 150, Edwards, Illinois and deliver them to the job sites Interstate 74 at US Route 150 (East Main) and US Route 34 and IL Route 41/IL Route 164 in Galesburg for installation.

The Contractor shall install the metal foundations in accordance with Articles 836, 1003, and 1070 of the Standard Specifications.

The proposed light poles will be utilized for installing CCTV cameras. The Contractor shall cover the tenon mount with a weatherproof cap to prevent water intrusion.

Identification labels will not be required.

Basis of Payment: This work will be paid for at the contract unit price Each for LIGHT POLE, GALVANIZED STEEL, 45 FT. M.H., TENON MOUNT and shall be payment in full for all labor, materials, and equipment required to deliver the IDOT furnished metal foundations to the job sites and install the light pole and foundations as described above, complete.

PCC QC/QA ELECTRONIC REPORT SUBMITTAL
Effective April 26, 2013

The Contractor's QC personnel shall be responsible for electronically submitting PRO and IND MI 654 Air, Slump, Quantity and PRO MI 655 PCC Strength Reports to the Department. The format for the electronic submittals will be the PCC QC/QA reporting program, which will be provided by the Department. Microsoft Office 2007 or newer is required for this program which must be provided by the Contractor.

PCC AUTOMATIC BATCHING EQUIPMENT
Effective April 23, 2010 Revised November 8, 2013

Portland cement concrete provided shall be produced from batch plants that conform to the requirements of Article 1103.03 (a) and (b) of the Standard Specifications for Road and Bridge Construction. Semi-automatic batching will not be allowed.

In addition, the batching plant shall be a computerized plant interfaced with a printer and shall print actual batch weights, added water, tempering water, mixing time, and amount of Each additive per batch. At the discretion of the Engineer, archived electronic versions of batch proportions will be acceptable. Truck delivery tickets will still be required as per Article 1020.11 (a)(7).

JUNCTION BOX (SPECIAL)

This work shall be in accordance with Sections 815 and 1088 of the Standard Specifications except as modified herein.

This work shall consist of furnishing and installing a junction box constructed of polymer concrete.

The junction box shall conform to the following specifications:

Cover:

Material: Polymer Concrete
Nominal Dimensions: 11" W x 20 L"
Gasketed, Heavy Duty Lid with 2 Bolts
Design/Test Load: 15,000/22,500 lbs.
ANSI Tier: 15
Gasketed

Box:

Material: Polymer Concrete
Nominal Dimensions: 11" W x 20" L x 24" D
Open Bottom
Design/Test Load: 22,500/33,750 lbs.
ANSI Tier: 22

The junction box shall be installed to match the proposed grade and shall be encased with a minimum of six inches of concrete around all sides.

The material surrounding the junction box shall be Class SI concrete in accordance with Section 1020 of the Standard Specifications.

The junction box and cover shall be a composite concrete according to Article 1088.07 of the Standard Specifications.

Basis of Payment: This work will be paid for at the contract unit price Each for JUNCTION BOX (SPECIAL) and shall be payment in full for all labor, materials, and equipment required to furnish and install the junction box described above, complete.

APPLICATION SERVER

The Contractor shall furnish a computer server complete with accessories (material only) and deliver it to the IDOT District 4 headquarters in Peoria

The computer shall be a HP ProLiant DL380 Gen 9 hot plug server, Dell PowerEdge R730 server, or approved equal that meets or exceeds the following minimum specifications:

- Operating System: Two Copies of Windows Server 2012 Standard Edition R2 (with latest service pack) licenses shall be furnished with each server

- Hard disk: Six 1 TB 6Gbps 2.5 SAS Dual Port 15,000 rpm Enterprise Hard Drives, Hot-swappable, RAID 5 drive set with P440ar Smart Array Controller with 2GB Flash Based Write Cache

- Motherboard: 2400 MHz FSB clock speed with minimum of 2 dedicated PCI –E slots. All slots shall support bus mastering.

- Two Intel Xeon E5-2660 v4 2.0 Ghz 14 Core processor (70 MB L3 Cache) with Hyper-Threading Technology and Intel Turbo Boost Technology 2 shall be provided.

- Embedded Serial ATA/300 controller

- The following ports shall be provided:
  Four LAN RJ-45 10/100/1000 NIC connector
  Two LAN 10 Gigabit Ethernet SFP+
  Five USB 3.0 ports (1 front, 2 rear, 2 internal)
  Two USB 2.0 ports (front)
  Two VGA display port (1 front, 1 rear)

- Expansion bays: 8 x 2.5” Drive Bay Hot-swappable Bays
-
- Expansion slots: 2 (total) / 0 (free) x CPU; 24 (total) / 20 (free) x DIMM 288-pin; 2 (total) / 2 (free) x PCIe 3.0 x16 - half-length, full-height (x8 mode); 2 (total) / 2 (free) x PCIe 3.0 x8 - half-length, full-height; 1 (total) / 1 (free) x microSD Card (internal); 2 (total) / 2 (free) x PCIe 3.0 x16 - full-length, full-height

- Memory: Minimum of 192 GB (6x32GB RDIMM) of PC4-17000 DDR4 SDRAM @ 2400MHz (Advanced ECC) memory (expandable to 768 GB). At least one memory bank shall remain open for future expansion. A total of six slots shall be provided.
- Graphics Controller: 16MB Shared DDR4 SDRAM (Resolutions up to 1600 x 1200 16bpp @ 75 Hz)
- Remote Management: The server shall be equipped with a remote management controller and remote management software
- Case: 2U Rack, Equipped with all brackets, hardware, and other items required for rack mounting
- Power Supply: Two Hot Swappable 800 Watt power supplies shall be furnished
- Pointing Device: A USB 3-button, optical wheel mouse shall be supplied.
- Keyboard: A USB standard Windows keyboard shall be supplied
- Network Interface: The server shall be supplied with four Integrated Network Interface Cards (NIC) supporting 10/100/1000 MB/s and using 32-bit PCI bus-mastering technology. The cards shall have UTP (RJ-45) connectors. The cards shall be compliant with PCI local bus specification 2.0 and IEEE 802.3 for Ethernet. The card shall also support Netflex-3 technology. The server shall be equipped with two SFP + ports.
- Optical Drive: SATA DVD RW Drive
- Warranty: Three-year on-site parts and labor (Next Business Day) including telephone technical support
- Recovery Media: Drivers, Application Software, and Operating System Installation and/or recovery media (CD or DVD) shall be included, Power Cord

The Contractor shall also furnish one rack mounted LCD console (material only). The LCD console shall be a Belkin 19-inch Widescreen LCD Rack Console (Part Number F1DC101H) or approved equal that meets or exceeds the following specifications:

GENERAL

Product Type:	• 19 inch LCD Rack Console Widescreen
Rail Type:	• Single-Rail Technology
Form Factor:	• 1U Rack-mountable
Material/Enclosure:	• High-Impact Plastic & Steel
Built-In KVM Switch:	• No
Weight:	• 23.8 lbs (10.8kg)
Dimensions:	• 19 x 29 x 1.75 in. (482.6 x 736.6 x 44.5 mm)
Users:	• 1
Keyboard Type:	• Laptop Style
Keyboard/Mouse Connection:	• PS/2, USB
Operating Life of Keys:	• 8 Million Cycles
Mouse Type:	• Touch Pad Style

DISPLAY

Display Type:	• 19" LCD Widesceen, TFT active matrix
Maximum Resolution:	• 1440 x 900 / 65 Hz
Display Connection:	• Analog VGA
Color Depth:	• 16.7 million colors
Aspect Ratio:	• 16:9
Pixel Pitch:	• 0.2835 mm

Response Time:	• 5 ms
Viewing Angle:	• 170 degrees vertical/178 degrees horizontal
Image Contrast Ratio	• 1000:1

POWER/ENVIRONMENT

Power Rating:	• Auto-Switching 100 to 240VAC, 50 to 60Hz, 48 Watt
Power Supply Type:	• Built-in
Operating Temperature:	• 32° to 104°F (0° to 40°C)
Storage Temperature:	• -4° to 140°F (-20° to 60°C)
Humidity:	• 0–80% RH, Non-Condensing

WARRANTY

Manufacturer's Warranty:	• Two years

Basis of Payment: This work will be paid for at the contract unit price per Each for APPLICATION SERVER which price shall be payment in full for all labor, materials, and equipment required to provide the application server, rack mount console, KVM switch, and accessories described above and deliver it to the Department.

WEB SERVER

The Contractor shall furnish a computer server complete with accessories (material only) and deliver it to the IDOT District 4 headquarters.

These servers will be utilized in the ATMS software upgrade as database servers.

The computer shall be a HP ProLiant DL380 Gen 9 hot plug server, Dell PowerEdge R730 server, or approved equal that meets or exceeds the following minimum specifications:

- Operating System: One copy of Windows Server 2012 Standard Edition R2 (with latest service pack) licenses shall be furnished with each server

- Hard disk: Six 1 TB 6Gbps 2.5 SAS Dual Port 15,000 rpm Enterprise Hard Drives, Hot-swappable, RAID 5 drive set with P440ar Smart Array Controller with 2GB Flash Based Write Cache

- Motherboard: 2400 MHz FSB clock speed with minimum of 2 dedicated PCI –E slots. All slots shall support bus mastering.

    - Two Intel Xeon E5-2650 v4 2.2 Ghz 12 Core processor (30 MB L3 Cache) with Hyper-Threading Technology and Intel Turbo Boost Technology 2 shall be provided.

    - Embedded Serial ATA/300 controller

    - The following ports shall be provided:
      Four LAN RJ-45 10/100/1000 NIC connector
      Two LAN 10 Gigabit Ethernet SFP+
      Five USB 3.0 ports (1 front, 2 rear, 2 internal)
      Two USB 2.0 ports (front)
      Two VGA display port (1 front, 1 rear)

    - Expansion bays: 8 x 2.5” Drive Bay Hot-swappable Bays

    - Expansion slots: 2 (total) / 0 (free) x CPU; 24 (total) / 20 (free) x DIMM 288-pin; 2 (total) / 2 (free) x PCIe 3.0 x16 - half-length, full-height (x8 mode); 2 (total) / 2 (free) x PCIe 3.0 x8 - half-length, full-height; 1 (total) / 1 (free) x microSD Card (internal); 2 (total) / 2 (free) x PCIe 3.0 x16 - full-length, full-height

- Memory: Minimum of 32 GB (2x16GB RDIMM) of PC4-17000 DDR4 SDRAM @ 2400MHz (Advanced ECC) memory (expandable to 768 GB). At least one memory bank shall remain open for future expansion. A total of six slots shall be provided.
- Graphics Controller: 16MB Shared DDR4 SDRAM (Resolutions up to 1600 x 1200 16bpp @ 75 Hz)
- Remote Management: The server shall be equipped with a remote management controller and remote management software
- Case: 2U Rack, Equipped with all brackets, hardware, and other items required for rack mounting
- Power Supply: Two Hot Swappable 800 Watt power supplies shall be furnished
- Pointing Device: A USB 3-button, optical wheel mouse shall be supplied.
- Keyboard: A USB standard Windows keyboard shall be supplied
- Network Interface: The server shall be supplied with four Integrated Network Interface Cards (NIC) supporting 10/100/1000 MB/s and using 32-bit PCI bus-mastering technology. The cards shall have UTP (RJ-45) connectors. The cards shall be compliant with PCI local bus specification 2.0 and IEEE 802.3 for Ethernet. The card shall also support Netflex-3 technology. The server shall be equipped with two SFP + ports.
- Optical Drive: SATA DVD RW Drive
- Warranty: Three-year on-site parts and labor (Next Business Day) including telephone technical support
- Recovery Media: Drivers, Application Software, and Operating System Installation and/or recovery media (CD or DVD) shall be included, Power Cord

Basis of Payment: This work will be paid for at the contract unit price per Each for WEB SERVER which price shall be payment in full for all labor, materials, and equipment required to provide the application server and accessories described above and deliver it to the Department.

NETWORK SECURITY APPLIANCE

The Contractor shall furnish a network security appliance and deliver it to the Department (material only).

> The firewall shall be a Juniper Networks SRX220 Services Gateway Model SRX220H2 (with 2 GB of DRAM, 2 GB flash memory, rack mounting kit (SRX220-RMK), and 3 Year Security Software Subscription which includes Sophos Antivirus, Enhanced Web Filtering, Sophos AS, AppSecure, and IDP Deep Inspection (SRX220-S-SMB4-CS-3) or approved equal.

The firewall shall be a rack mounted security appliance that meets or exceeds the following minimum specifications:

Features:

- Eight 10/100/1000 Ethernet LAN ports, Two SRX Series Mini-PIM slot, and 2 USB ports (support for 3G USB)
- Factory option of 4 dynamic Power over Ethernet (PoE) ports 802.3af
- Support for T1/E1, serial, ADSL/2/2+, VDSL, G.SHDSL, and Ethernet small form-factor pluggable transceiver (SFP)
- Content Security Accelerator hardware for faster performance of IPS and ExpressAV (with high memory version)
- Full UTM1; antivirus1, antispam1, enhanced Web filtering1, and content filtering
- Intrusion prevention system1, User role-based firewall, and AppSecure1
- 2 GB DRAM, 2 GB flash default

Maximum Performance and Capacity:

- Firewall throughput (large packets): 950 Mbps
- Firewall throughput (IMIX)(2): 300 Mbps
- Firewall packets per second (64 byte): 125 Kpps
- Firewall Performance (HTTP): 350 Mbps
- IPsec VPN Throughput (Large Packets): 100 Mbps
- IPSec VPN Tunnels: 512
- AppSecure Firewall Throughput: 300 Mbps
- IPS (Intrusion Prevention System): 80 Mbps
- Connections per second: 2,800
- Maximum concurrent sessions: 96,000
- New sessions/second: 2,800
- Maximum security policies: 2048
- Maximum users supported: Unrestricted
- DRAM: 2 GB

Network Connectivity:

- Fixed I/O: 8x10/100/1000
- Physical Interface Module (PIM) slots: 2
- Modular WAN/LAN interface options: (PIMs/uPIMs)

Protocols:

- IPv4, IPv6, ISO Connectionless Network Service (CLNS)

Routing and Multicast:

- Static routes, RIPv2 +v1, OSPF/OSPFv3, BGP, BGP Router Reflector1, IS-IS
- Multicast (Internet Group Management Protocol, (IGMPv1/2/3), PIM-SM/DM/SSM, Session Description Protocol (SDP), Distance Vector Multicast Routing Protocol (DVMRP), source-specific, Multicast inside IPsec tunnel), MSDP
- MPLS (RSVP, LDP, Circuit Cross-connect (CCC), Translational Cross-connect (TCC), Layer 2 VPN (VPLS), Layer 3 VPN, VPLS, NGMVPN)

IP Address Management:

- Static
- DHCP, PPPoE client
- Internal DHCP server, DHCP Relay

Address Translation:

- Source NAT with Port Address Translation (PAT)
- Static NAT
- Destination NAT with PAT
- Persistent NAT, NAT64

Encapsulations:

- Ethernet (MAC and VLAN tagged)
- Point-to-Point Protocol (PPP) (synchronous), Multilink Point-to-Point Protocol (MLPPP)
- Frame Relay, Multilink Frame Relay (MLFR) (FRF.15, FRF.16), FRF.12, LFI
- High-Level Data Link Control (HDLC)
- Serial (RS-232, RS-449, X.21, V.35, EIA-530)
- 802.1q VLAN support
- Point-to-Point Protocol over Ethernet (PPPoE)

L2 Switching:

- 802.1Q, 802.1D, RSTP, MSTP, 802.3ad (LACP)
- 802.1x, LLDP, 802.1ad (Q-in-Q), IGMP Snooping
- Layer 2 switching with high availability

Traffic Management Quality of Service (QoS):

- 802.1p, DSCP, EXP
- Marking, policing, and shaping
- Class-based queuing with prioritization
- Weighted random early detection (WRED)
- Queuing based on VLAN, data-link connection identifier (DLCI), interface, bundles, or multi-field (MF) filters
- Guaranteed bandwidth
- Maximum bandwidth
- Ingress traffic policing
- Priority-bandwidth utilization
- DiffServ marking
- Virtual channels

Security Firewall:

- Firewall, zones, screens, policies
- Stateful firewall, stateless filters
- Network attack detection
- Screens denial of service (DoS) and provides distributed denial of service (DDoS) protection (anomaly-based)
- Prevent replay attack; Anti-Replay
- Unified Access Control: TCP reassembly for fragmented packet protection, Brute force attack mitigation, SYN cookie protection, Zone-based IP spoofing, Malformed packet protection

NGFW/UTM3:

- Intrusion Prevention System (IPS): Protocol anomaly detection, Stateful protocol signatures, Intrusion prevention system (IPS) attack pattern obfuscation, User role-based policies
- Customer signatures creation
- Multiple times a week and emergency updates
- AppSecure: AppTrack (application visibility and tracking), AppFirewall (policy enforcement by application name), Custom signatures, AppQoS (network traffic prioritization and bandwidth management), Dynamic signature updates, User-based application policy enforcement
- Antivirus: Express AV
- File-based antivirus: Signature database, Antispyware, Anti-adware Antikeylogger
- Cloud-based antivirus
- Antispam
- Integrated enhanced Web filtering: Category granularity (90+ categories), Real time threat score
- Redirect Web filtering
- Content Security Accelerator in SRX210 high memory, SRX220, SRX240, SRX550, and SRX6504
- ExpressAV option in SRX210 high memory, SRX220 high memory, SRX240, SRX550, and SRX6504
- Content filtering: Based on MIME type, file extension, and protocol commands

VPN:

- Auto VPN (Zero Touch Hub)
- Tunnels (GRE, IP-IP, IPsec)
- IPsec, Data Encryption Standard (DES) (56-bit), triple Data Encryption Standard (3DES) (168-bit), Advanced Encryption Standard (AES) (128-bit+) encryption
- Message Digest 5 (MD5),SHA-1 , SHA-128, SHA-256 authentication
- Junos Pulse Dynamic VPN client; browser-based remote access feature requiring a license
- IPv4 and IPv6 VPN
- Multi-Proxy ID for site-to-site VPN

Multimedia Transport:

- Compressed Real-Time Transport Protocol (CRTP)

High Availability:

- VRRP
- JSRP
- Stateful failover and dual box clustering
- Backup link via 3G/4G LTE wireless or other WAN
- Active/active—L3 mode5
- Active/passive—L3 mode5
- Configuration synchronization5
- Session synchronization for firewall and VPN5
- Session failover for routing change5
- Device failure detection5
- Link failure detection5
- IP Monitoring with route and interface failover

IPv6:

- OSPFv3
- RIPng
- IPv6 Multicast Listener Discovery (MLD)
- BGP
- ISIS

Wireless:

- CX111 Cellular 3G/4G/LTE Broadband Data Bridge supported on all branch SRX Series devices
- 3G USB modem support for SRX100, SRX110, and SRX210

SLA, Measurement, and Monitoring:

- Real-time performance monitoring (RPM)
- Sessions, packets, and bandwidth usage
- Juniper J-Flow monitoring and accounting services
- IP Monitoring

Logging:

- Syslog
- Traceroute
- Extensive control- and data-plane structured and unstructured syslog

Administration:

- Juniper Networks Network and Security Manager support (NSM)
- Juniper Networks Junos Space Security Director support
- Juniper Networks STRM Series Security Threat Response Managers support
- Juniper Networks Advanced Insight Solutions support
- External administrator database (RADIUS, LDAP, SecureID)
- Auto-configuration
- Configuration rollback
- Rescue configuration with button
- Commit confirm for changes
- Auto-record for diagnostics
- Software upgrades (USB upgrade option)
- Juniper Networks J-Web
- Command-line interface
- Smart image download

Additional Software Options to be Furnished with Firewall:

Three year security subscription for enterprise (ncludes Sophos AV, enhanced WF, Sophos AS, AppSecure and IDP on SRX220) (SRX220-S-SMB4-CS-3)

Basis of Payment: This work will be paid for at the contract unit price per each for NETWORK SECURITY APPLIANCE which price shall be payment in full for all labor, materials, and equipment required to furnish the network security appliance and accessories described above and deliver it to the Department.

ATMS SOFTWARE (CORE MODULE)

The Contractor shall furnish and install a system software upgrade for the District 4 Advanced Traffic Management System.

The ATMS software upgrade shall be furnished and installed by Q-Free (formerly Open Roads Consulting) for integration into the existing ITS system.

The existing ATMS software shall be upgraded from OpenTMS Enterprise version 7 to the latest version of OpenTMS Enterprise (currently version 8).

Additional information on OpenTMS Enterprise version 8 can be viewed at http://www.openroadsconsulting.com/content/wp-content/uploads/2013/06/OpenTMS-Modules_web.pdf

No hardware shall be furnished as part of this pay item. All hardware shall be paid for separately as specified in the pay items for APPLICATION SERVER and WEB SERVER.

The existing ATMS software shall remain in operation until the upgraded software has been thoroughly tested, configured, deployed and is ready for use.

The ATMS software upgrade shall maintain all current functionality that is available with the existing software. As part of the software upgrade, the following items shall be provided:

The Contractor will not be required to provide the following items as part of the software upgrade.

- Additional software functionality or features that are not supported in the current software deployment.
- Integration of the existing public web site (www.gettingaroundpeoria.com) and existing web functionality.
- Automated Incident Response rules and plans.
- Integration of existing video wall capabilities.
- Integration of additional hardware, software and ITS components that are not supported in the current deployment.
- Software maintenance plan for upgrades and technical support.

As part of the software upgrade, the following items shall be provided:

Open TMS Base System. The Contractor shall furnish, configure, and deploy the following components:

- Map GUI: The map GUI shall be upgraded to utilize Google Maps. The Department shall furnish current GIS data for migration into the map GUI

  The Contractor will not be responsible for any deficiencies in the data that affects the performance of the application (including IRP execution).
- Security Module
- Administration Portal

OpenTMS is a fully web-enabled application that performs in all standard browsers on both desktop and mobile devices. The graphical user interface (GUI) provides the user the ability to view configured devices on a map with their latest status, click on devices from the map to view device specific data, and access modules, along with their devices from a menu and/or lists.

The base system includes the following features:

- The graphical user interface consists of a GIS map, mapping tools, management of map layers, legend of icons, and menus that are accessed via desktop or tablet
- Customizable desktop with multiple windows and/or tabs in order to better perform duties or multitask
- Integrated components to view the status of covered roadways, control ITS devices, and manage critical data

ATMS Software Modules. The Contractor shall furnish, configure and deploy the following software modules:

- Dynamic Message Sign Module

  The Message Sign module enables TMC operators to post messages that offer travelers timely and pertinent information regarding current traffic conditions, alternate routes, and travel time. The Message Sign module provides functionality to post messages, create and manage message libraries, monitor the status of the signs, and capture all interactions.

  The Message Sign module includes the following features:

  - Immediate confirmation of when a sent message is displayed on the sign
  - Robust message libraries with keyword search, ability to add, copy, edit, delete, or preview library messages
  - Full and common control of many different brands of both fixed and portable sign boards
  - Dynamically move mobile sign icons on map and new location displays on all workstations.
  - Device testing and diagnostics
  - Graphic message integration

  The existing OpenTMS deployment currently supports NTCIP communications with the following Dymanic Message Signs: Daktronics, Skyline, LedStar, and National Signal. The existing software also supports flashing beacon activation for Skyline and Daktronics signs.

- Traffic Sensor Station Module

  The Traffic Detector module collects and distributes traffic conditions and vehicle classification data. OpenTMS supports a wide variety of manufacturers including Peek, Siemens, Wavetronix, EIS, and Econolite.

The Traffic Sensor Station Module includes the following features:

- Enables users to monitor traffic flow across the network by graphically displaying volume, flow, occupancy, and speed for each sensor station
- Views can be set up for individual zones or for the entire sensor station by direction
- Enables users to perform comparisons with historical readings of the sensor stations
- Real-time tabular display of the last polled values by lane; realtime comparison of historical vs. real-time values; and realtime, color-coded congestion/occupancy and speed maps with tool tips

The existing OpenTMS deployment currently supports the following traffic sensors: EIS radar traffic counters, Wavetronix radar traffic counters, and Siemens Tempo software running on 2070 controllers for control of in pavement detector loop traffic counters.

- Environmental Sensor (RWIS) Module

The Environmental Sensors module delivers a view of weather and road conditions based on sensor data obtained from roadside weather stations. Alarms are issued when preset sensor thresholds are crossed and warn the operator of hazardous weather conditions that could warrant action. Operators view video from cameras mounted at the weather station to confirm conditions such as fog, rain, snow, or ice.

The Environmental Sensor (RWIS) module includes the following features:

- Monitor weather sensor readings, battery voltage, status, and health of deployed stations
- Tabular display of most recent sensor readings
- Graphical display of sensor readings at six operator selected time intervals
- Alerts sent to preconfigured pager and email addresses when a configured threshold is crossed
- Real-time map display of the weather stations within the system, with standard tool tips

The existing OpenTMS deployment currently supports the following RWIS systems: Vaisala RWIS stations.

A CSV formatted data file (ASCII text) is currently being sent to the OpenTMS server via FTP from Vaisala.

- CCTV Camera Module

  The Camera module includes the unique capability to control and manipulate common TMC video walls directly from an operator workstation. It features a simple-to-use, "click-and-drag" graphical user interface (GUI) for the pan, tilt, zoom, focus, and iris control of each CCTV camera. Additionally, OpenTMS offers multiple options for mass distribution of CCTV video to Features public websites, and local media outlets.

  The CCTV Camera module includes the following features:

  - Allows streaming video to be viewed via the web browser
  - Powerful video content analysis for detecting moving or stopped objects
  - Full PTZ control
  - Create and manage camera presets and tours
  - Recording and archiving
  - VBS (Video Broadcast Server) for Vicads stream replication

  The existing OpenTMS deployment currently supports the following CCTV cameras: Axis Q6032-E, Axis Q6042-E, Axis Q6045-E, Axis Q6052-E, and Axis Q6055-E systems (All cameras support Axis VAPIX). The Current deployment consists of 175 Axis PTZ cameras and 100 Axis Video Encoders.

- Alerts Module:

  The alerts module collects alerts from various systems and ITS devices and disseminates them to the operators via alert notification dialogue boxes, audible alerts, text messages, and emails.

  The module shall process all alerts from the existing highway-rail interface, Peoria County CAD system, and Tazewell County CAD system and disseminate them to the end user.

  The Contractor shall fully integrate the existing CAD connections with Peoria and Tazewell County and the existing highway-rail crossing interface into the proposed software.

  CSV formatted data file (ASCII text) are currently being sent to the OpenTMS server via FTP from the Peoria county and Tazewell County CAD systems.

- Incident Management Module:

  The Incident Management (IM) module enables operators to manage the full lifecycle of incidents from verification through response and closing. An intuitive workflow makes it easy to quickly enter data and disseminate information to key stakeholders and the traveling public. Response plans also include automated notifications which can be configured to identify and notify key stakeholders via email, pager, and subscription services.

The Incident Management module includes the following features:

- OpenTMS supports both manual and automated detection of incidents
- Graphical incident timeline
- Analysis and performance monitoring tools

The proposed software upgrade shall incorporate only the existing software incident management functionality.

- Planned Events Module

  The Planned Events module enables agencies to schedule and manage events. Activities are managed as a hierarchical relationship of projects, events, and closures, allowing users to easily manage both large complex construction activities and simple one-time events.

  The Planned Events module includes the following features:

  - Manage ITS device plans
  - Automatic event scheduling (Time-of-day, Recurring, One-time)
  - User initiated on-demand activation

- OpenVideo (VICADS) Video Management Module

  The ATMS software provider shall upgrade VICADS to the latest version.

  - OpenVideo is a video management solution integrated with OpenTMS to enable more functionality. OpenVideo is a stand-alone client that is installed on each workstation and offers more extensive video processing. OpenVideo plays video directly from the cameras unlike many commercial systems that require the video to go through an intermediate device for recording and/or transcoding before delivery to the client. The module includes functionality to block cameras for both internal users and public distribution and a VBS (Video Broadcast Server) for Vicads stream replication.

MILESTONES FOR COMPLETION OF ATMS SOFTWARE UPGRADE

The installation of the ATMS software upgrade under the provisions of this contract requires that the Contractor meet several specific milestones to ensure that the software can be successfully deployed and integrated into the existing Intelligent Transportation System.

The milestones and their associated dates of completion are as follows:

Milestone 1

Initial document submittal: The Contractor shall submit all required documentation as outlined in the section titled “Initial Documentation Submittal.”

The Contractor shall meet this milestone within 45 calendar days of contract award.

Milestone 2

Initial hardware and software deployment: The Contractor shall install and configure the proposed servers and associated hardware for operation with the ATMS. All virtual servers shall be created and operational. The Contractor shall have OpenTMS version 8 installed and operational and shall be able to demonstrate that the software has at least fifty (50%) percent of the required functionality of the existing ATMS software. The Contractor shall also demonstrate that the ATMS software is capable of partial integration into the existing ITS system.

The Contractor shall meet this milestone within 90 calendar days of contract award.

Milestone 3

System acceptance and testing plan submittal: The Contractor shall submit a detailed system deployment, acceptance, and testing plan. The plan shall provide information on all processes including methods for defining, documenting, and addressing issues that arise during deployment and the operational testing period.

The Contractor shall meet this milestone within 120 calendar days of contract award.

Milestone 4

ATMS software deployment and operational testing: The Contractor shall deploy the ATMS software in all locations for use by the ATMS operators. The software shall be fully operational and have all of the required functionality. The software will begin the 60-day operational test. The Contractor shall also deploy the ATMS external web interface for operational testing as part of this milestone.

The Contractor shall meet this milestone within 150 calendar days of contract award.

Milestone 5

Completion of outstanding issues: The Contractor shall correct all outstanding issues with the ATMS software to the satisfaction of the Department after the completion of the operational test period.

The Contractor shall meet this milestone within sixty (60) calendar days of receiving the list of outstanding issues from the Department.

Milestone 6

Completion of training: The Contractor shall complete all training for the ATMS software to the satisfaction of the Department after the completion of Milestone 5.

The Contractor shall meet this milestone within thirty (30) calendar days of receiving the list of outstanding issues from the Department.

The Contractor shall have all required equipment and materials installed, tested and operational within the time frames specified below, unless directed otherwise by the Engineer:

INITIAL DOCUMENTATION SUBMITTAL

Within forty-five (45) calendar days upon award of the project, the Contractor shall submit the following items to the Department for approval:

- Proposed work plan for ATMS software upgrade, testing, and deployment. The work plan shall contain detailed schedules that coincide with the milestones for review and approval by the Department. This schedule shall include the anticipated delivery, installation, and testing schedule for all equipment and components. It is desired to have this schedule depicted in a critical path format with the controlling item identified.

- Detailed system drawings that depict system processes and software architecture. The Contractor shall submit schematics showing all interconnections included in the system, including those between the existing equipment and the proposed system and locations of proposed equipment.

- Shop drawings for all hardware, software, and other items that will be used in this contract.

After the initial documentation submittal, the Contractor shall meet with the Department via teleconference to discuss the review and subsequent approval and/or revisions of these items.

PROJECT MANAGEMENT

The Contractor shall provide project management, administration, and internal coordination activities required for a successful project, including, but not limited to the following:

- Monthly progress reports summarizing, per subtask, the work conducted during the reporting period

- Regular coordination and communications with the Department and any other parties associated with the deployment of the ATMS software; and

- Minutes of meetings held with the Department and any other parties associated with the deployment of the ATMS software.

EXISTING ITS SYSTEM COMPONENTS

The existing system components are configured and comprise a fully operational system.

Upon request, the Department will provide the Contractor with information on the existing ITS system configuration.
The Department shall furnish information on the existing hardware and software (vendors, models, documentation, configuration, network parameters, etc.) to the Contractor upon request.

The Department shall promptly deliver all requested information to the Contractor within five business days.

The Contractor shall use the existing infrastructure to the greatest extent. The Contractor shall provide the Department with documentation detailing the specific hardware specifications for approval prior to procurement and deployment.

PROPOSED ITS SYSTEM HARDWARE

The Contractor shall be responsible for configuring, installing, testing, and integrating all proposed hardware (paid for separately under pay items for DATABASE SERVER and APPLICATION server) that is required for the software upgrade into the existing ITS system.

In the event that the proposed ATMS system requires additional hardware and software, the Contractor shall provide the software and/or hardware to the Department as his or her expense. The Contractor shall submit catalog cut sheets for each item along with a description of the item and its required functionality within the system to the Department for review and approval prior to procurement. The Contractor shall furnish, configure, install, test, and integrate the additional components into the system to provide a fully functional and operational system.

ATMS SOFTWARE LICENSING

The ATMS software upgrade shall maintain the existing licensing. The software shall be licensed for unlimited use within the State of Illinois and IDOT Districts 1 through 9 with unlimited device and unlimited user licenses for deployment in the districts and statewide.

The Contractor shall create and maintain documentation for the software in accordance with the best industry standards including the creation and/or subsequent revisions of the application programming interface, software architecture/design documentation, and technical documentation including source code and specific interface documentation.

In the event that the Contractor or its assigned agent is no longer able to provide support for the ATMS software and there is no upgrade path offered for the software, the Contractor shall make this documentation available to the Department upon request.

In the event that the software upgrade incorporates software that is licensed to other governmental entities, the Contractor shall secure all licensing rights prior to commencing work on this contract. The licensing documentation shall be submitted with the initial documentation submittal.

ATMS SOFTWARE DEPLOYMENT

As part of the deployment, the Contractor shall perform the following:

- Integrate the proposed ATMS software with the existing infrastructure.

- Install and configure all hardware required to provide the system functionality as specified.

- Submit detailed schematics showing all interconnections required for the ATMS software including those between the existing equipment and the proposed system and locations of proposed equipment. The existing system drawing CAD files will be made available to the Contractor upon request.

- Submit a detailed System Acceptance Test Plan for review and approval by the Department. This System Acceptance Test Plan shall include two tests: the System Configuration Test and the System Operational Test. The System Configuration Test will validate the system and demonstrate that the ATMS software is configured correctly and works with the existing equipment. The System Operational Test is a sixty day operational test that will demonstrate that the ATMS software is fully functional and meets all of the requirements. Upon approval of the System Acceptance Test Plan by the Department, the Contractor shall carry out the System Acceptance Tests within the time frame required to meet the milestone dates.

  The 60-day operational test will be suspended in the event of serious issues including, but not limited to, system instability, system crashes, excessive system reboots, system lockups, and system non-performance. The 60-day operational test will not be restarted until the Contractor has corrected the issues to the satisfaction of the Department.

  At the end of the sixty-day (60-day) operational test period, the Department will provide the Contractor with a list of any outstanding issues that will need to be corrected by the Contractor prior to final acceptance of the ATMS software. The Contractor shall address and correct these issues to the satisfaction of the Department within a sixty-day (60-day) time period.

ATMS SOFTWARE SUPPORT AND WARRANTY

The Contractor shall provide the following:

- The Contractor shall warranty the ATMS software for a one year period. The warranty shall include parts, labor, and materials and shall begin after final acceptance by the Department.

- During the warranty period, the Contractor shall provide corrective maintenance to address and repair any issues that arise with the proposed implementation of the upgraded ATMS software. Corrective maintenance does not include upgrades, preventive maintenance, scheduled maintenance, replacement of equipment, enhancements, or consulting support.

- All ATMS system software shall be supported through a twenty-four (24) hours per day, seven (7) days per week contact list with a two-hour response time during normal working hours Monday through Friday and an eight hour response time during weekends and holidays for callback to initiate support.

Warranty and maintenance requirements:

- Failed hardware components shall be replaced within one (1) business day or less from the receipt of the telephone call.

- One complete set of manuals, in electronic format, shall be supplied on a CD or DVD for all systems and hardware provided as part of the contract.

- All instruction sheets and other documentation required to be furnished by the manufacturer for materials and supplies and for operations shall be delivered to the Engineer prior to the acceptance of the project, with the following warranties and guarantees:

    - The manufacturer's standard written warranty for each piece of equipment furnished under the contract.

    - The Contractor's written guarantee that, for a period of two years after the date of final acceptance of the project, all necessary repairs to or replacement of said warranted equipment, or apparatus shall be made by the Contractor at no cost to the Department.

    - The Contractor's written guarantee for satisfactory operation of software furnished and constructed under the contract for a period of two years after final acceptance of the project.

The Contractor will not be responsible for components that are not provided under this contract.

REMOTE ACCESS CAPABILITIES

The Department will provide remote access capabilities into the Intelligent Transportation System to provide the Contractor with the ability to perform work remotely for the initial deployment of the ATMS software upgrade and for maintenance purposes.

SYSTEM IMPLEMENTATION, EQUIPMENT INTEGRATION AND SUPPORT

The Contractor shall ensure that all components meet the minimum specifications, are compatible with one another, and are integrated to enable the system to perform all functions to the satisfaction of the Engineer.

All other work (labor, equipment, and materials) required for the implementation of this contract, including but not limited to, misc. software and hardware, reconfiguration of existing components, programming, licenses, etc. will not be paid for separately.

ATMS SOFTWARE TRAINING

As part of the deployment, the Contractor shall provide on-site training for technicians and operators of the system and equipment. This training will address normal operations of the system, routine system maintenance, provisioning and system setup, and fault diagnosis and system repair.

The Contractor shall provide the following training:

- (2) 8-hour ATMS operations training sessions with capacity for twelve (12) participants for IDOT District Four operators.

- One (1) 8-hour ATMS maintenance training session with capacity for four (4) participants for IDOT District Four ATMS system administrators. Maintenance training sessions may be performed remotely at the discretion of the Department.

All training sessions shall be held at the IDOT District Four Communication Center or partner agency locations. Training shall be hands-on with ample time for questions. The Contractor shall submit a training outline to the Department for approval prior to commencing training. The Contractor shall furnish training manuals that contain a course outline, ATMS software operation information, hands-on training exercises, and any other pertinent items for each participant.

ATMS SOFTWARE (CORE MODULE)

Payment Schedule: The payment schedule for this pay item is listed below:

- Initial documentation submittal (10%)
- Initial hardware and software deployment (15%)
- System acceptance test plan submittal and approval by the Department. (15%)
- System acceptance test initiation. The acceptance test is comprised of two parts: a system configuration test to verify that system is configured correctly and that it works with the existing equipment, and a 60-day operational test to demonstrate that the system is functional and meets the requirements. The 60-day operational test will be stopped in the event of serious issues including, but not limited to, system instability, system crashes, excessive system reboots, system lockups, and system non-performance. The 60-day operational test will not be restarted until the Contractor has corrected the issues to the satisfaction of the Department. (30%)
- Successful completion of system acceptance test and completion of all outstanding issues. (20%)
- System documentation delivery. (5%)
- System training completion. (5%)

Basis of Payment: This work will be paid for at the contract unit price per Lump Sum for ATMS SOFTWARE (CORE MODULE) which price shall be payment in full for all labor, materials, and equipment required to furnish and install the upgrade to the ATMS software that meets all of the requirements described above with deployment, integration, and testing as specified in this document, complete.

MISCELLANEOUS ELECTRICAL WORK

The Contractor shall perform the following items:

Fiber Splicing and Termination in East Peoria

There is existing IDOT fiber optic cable that runs from the East Peoria Public Safety Building located at 201 West Washington Street to the East Peoria Public Works Building located at 2232 East Washington Street.

The Contractor shall re-terminate and re-splice the fiber as follows:

- East Peoria Public Safety Building: The Contractor shall furnish and install a new rack mounted 48 fiber termination enclosure in the existing rack inside ITS cabinet. The Contractor shall terminate 24 fibers with ST connectors.

- IL 116 (Main) & IL 8 (Camp): The Contractor shall furnish and install a new 96 fiber enclosure in the existing cabinet and terminate 24 fibers from each cable end with ST connectors. The remaining fibers shall be fusion spliced to create a continuous link from the East Peoria Public Safety Building to the East Peoria Public Works Building.

- East Peoria Public Works Building: The Contractor shall furnish and install a new rack mounted 48 fiber termination enclosure in the existing equipment rack. The Contractor shall terminate 24 fibers with ST connectors.

- The Contractor shall identify and label the existing fiber optic cable and label each terminated fiber with the fiber number, fiber color, and buffer tube color.

- The Contractor shall test the fiber optic cable with an OTDR and power meter and source in accordance with the plan requirements for the proposed fiber optic cable.

Fiber Splicing and Termination in Peoria

There is existing 24 fiber cable (12 multimode and 12 single mode fibers) that is installed along US 150 from Adams Street to Dries Lane.

- US 150 (War Memorial Dr.) & Wisconsin/Boulevard: The Contractor shall furnish and install a new wall mounted fiber interconnect inside the existing traffic signal cabinet. The Contractor shall terminate 12 multimode fibers from each cable end with ST connectors and fusion splice all single mode cables to create a continuous fiber link.

- The Contractor shall identify and label the existing fiber optic cable and label each terminated fiber with the fiber number, fiber color, and buffer tube color.

- The Contractor shall test the fiber optic cable with an OTDR and power meter and source in accordance with the plan requirements for the proposed fiber optic cable.

The Contractor shall furnish all materials required to complete this work.

The Contractor shall submit shop drawings for all items for approval prior to ordering any materials.

The Contractor shall verify all field conditions prior to bidding. There will be no additional compensation for this work.

Basis of Payment: This work will be paid for at the contract unit price per Lump Sum for MISCELLANEOUS ELECTRICAL WORK and shall be payment in full for all labor, materials, and equipment required to terminate and splice the fiber optic cable described above, complete.

COMPENSABLE DELAY COSTS (BDE)
Effective: June 2, 2017

Revise Article 107.40(b) of the Standard Specifications to read:

"(b) Compensation. Compensation will not be allowed for delays, inconveniences, or damages sustained by the Contractor from conflicts with facilities not meeting the above definition; or if a conflict with a utility in an unanticipated location does not cause a shutdown of the work or a documentable reduction in the rate of progress exceeding the limits set herein. The provisions of Article 104.03 notwithstanding, compensation for delays caused by a utility in an unanticipated location will be paid according to the provisions of this Article governing minor and major delays or reduced rate of production which are defined as follows.

(1) Minor Delay. A minor delay occurs when the work in conflict with the utility in an unanticipated location is completely stopped for more than two hours, but not to exceed two weeks.

(2) Major Delay. A major delay occurs when the work in conflict with the utility in an unanticipated location is completely stopped for more than two weeks.

(3) Reduced Rate of Production Delay. A reduced rate of production delay occurs when the rate of production on the work in conflict with the utility in an unanticipated location decreases by more than 25 percent and lasts longer than seven calendar days."

Revise Article 107.40(c) of the Standard Specifications to read:

"(c) Payment. Payment for Minor, Major, and Reduced Rate of Production Delays will be made as follows.

(1) Minor Delay. Labor idled which cannot be used on other work will be paid for according to Article 109.04(b)(1) and (2) for the time between start of the delay and the minimum remaining hours in the work shift required by the prevailing practice in the area.

Equipment idled which cannot be used on other work, and which is authorized to standby on the project site by the Engineer, will be paid for according to Article 109.04(b)(4).

(2) Major Delay. Labor will be the same as for a minor delay.

Equipment will be the same as for a minor delay, except Contractor-owned equipment will be limited to two weeks plus the cost of move-out to either the Contractor's yard or another job and the cost to re-mobilize, whichever is less. Rental equipment may be paid for longer than two weeks provided the Contractor presents adequate support to the Department (including lease agreement) to show retaining equipment on the job is the most economical course to follow and in the public interest.

(3) Reduced Rate of Production Delay. The Contractor will be compensated for the reduced productivity for labor and equipment time in excess of the 25 percent threshold for that portion of the delay in excess of seven calendar days. Determination of compensation will be in accordance with Article 104.02, except labor and material additives will not be permitted.

Payment for escalated material costs, escalated labor costs, extended project overhead, and extended traffic control will be determined according to Article 109.13."

Revise Article 108.04(b) of the Standard Specifications to read:

"(b) No working day will be charged under the following conditions.

(1) When adverse weather prevents work on the controlling item.

(2) When job conditions due to recent weather prevent work on the controlling item.

(3) When conduct or lack of conduct by the Department or its consultants, representatives, officers, agents, or employees; delay by the Department in making the site available; or delay in furnishing any items required to be furnished to the Contractor by the Department prevents work on the controlling item.

(4) When delays caused by utility or railroad adjustments prevent work on the controlling item.

(5) When strikes, lock-outs, extraordinary delays in transportation, or inability to procure critical materials prevent work on the controlling item, as long as these delays are not due to any fault of the Contractor.

(6) When any condition over which the Contractor has no control prevents work on the controlling item."

Revise Article 109.09(f) of the Standard Specifications to read:

"(f) Basis of Payment. After resolution of a claim in favor of the Contractor, any adjustment in time required for the work will be made according to Section 108. Any adjustment in the costs to be paid will be made for direct labor, direct materials, direct equipment, direct jobsite overhead, direct offsite overhead, and other direct costs allowed by the resolution. Adjustments in costs will not be made for interest charges, loss of anticipated profit, undocumented loss of efficiency, home office overhead and unabsorbed overhead other than as allowed by Article 109.13, lost opportunity, preparation of claim expenses and other consequential indirect costs regardless of method of calculation.

The above Basis of Payment is an essential element of the contract and the claim cost recovery of the Contractor shall be so limited."

Add the following to Section 109 of the Standard Specifications.

"**109.13 Payment for Contract Delay.** Compensation for escalated material costs, escalated labor costs, extended project overhead, and extended traffic control will be allowed when such costs result from a delay meeting the criteria in the following table.

Contract Type	Cause of Delay	Length of Delay
Working Days	Article 108.04(b)(3) or Article 108.04(b)(4)	No working days have been charged for two consecutive weeks.
Completion Date	Article 108.08(b)(1) or Article 108.08(b)(7)	The Contractor has been granted a minimum two week extension of contract time, according to Article 108.08.

Payment for each of the various costs will be according to the following.

(a) Escalated Material and/or Labor Costs. When the delay causes work, which would have otherwise been completed, to be done after material and/or labor costs have increased, such increases will be paid. Payment for escalated material costs will be limited to the increased costs substantiated by documentation furnished by the Contractor. Payment for escalated labor costs will be limited to those items in Article 109.04(b)(1) and (2), except the 35 percent and 10 percent additives will not be permitted.

(b) Extended Project Overhead. For the duration of the delay, payment for extended project overhead will be paid as follows.

(1) Direct Jobsite and Offsite Overhead. Payment for documented direct jobsite overhead and documented direct offsite overhead, including onsite supervisory and administrative personnel, will be allowed according to the following table.

Original Contract Amount	Supervisory and Administrative Personnel
Up to $5,000,000	One Project Superintendent
Over $ 5,000,000 - up to $25,000,000	One Project Manager, One Project Superintendent or Engineer, and One Clerk
Over $25,000,000 - up to $50,000,000	One Project Manager, One Project Superintendent, One Engineer, and One Clerk
Over $50,000,000	One Project Manager, Two Project Superintendents, One Engineer, and One Clerk

(2) Home Office and Unabsorbed Overhead. Payment for home office and unabsorbed overhead will be calculated as 8 percent of the total delay cost.

(c) Extended Traffic Control. Traffic control required for an extended period of time due to the delay will be paid. For working day contracts the payment will be made according to Article 109.04. For completion date contracts, an adjustment will be determined as follows.

Extended Traffic Control occurs between April 1 and November 30:

ETCP Adjustment ($) = TE x (%/100 x CUP / OCT)

Extended Traffic Control occurs between December 1 and March 31:

ETCP Adjustment ($) = TE x 1.5 (%/100 x CUP / OCT)

Where: TE = Duration of approved time extension in calendar days.
% = Percent maintenance for the traffic control, % (see table below).
CUP = Contract unit price for the traffic control pay item in place during the delay.
OCT = Original contract time in calendar days.

Original Contract Amount	Percent Maintenance
Up to $2,000,000	65%
$2,000,000 to $10,000,000	75%
$10,000,000 to $20,000,000	85%
Over $20,000,000	90%

When an ETCP adjustment is paid under this provision, an adjusted unit price as provided for in Article 701.20(a) for increase or decrease in the value of work by more than ten percent will not be paid.

Upon payment for a contract delay under this provision, the Contractor shall assign subrogation rights to the Department for the Department's efforts of recovery from any other party for monies paid by the Department as a result of any claim under this provision. The Contractor shall fully cooperate with the Department in its efforts to recover from another party any money paid to the Contractor for delay damages under this provision."

DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION (BDE)
Effective: September 1, 2000 Revised: July 2, 2016

FEDERAL OBLIGATION. The Department of Transportation, as a recipient of federal financial assistance, is required to take all necessary and reasonable steps to ensure nondiscrimination in the award and administration of contracts. Consequently, the federal regulatory provisions of 49 CFR Part 26 apply to this contract concerning the utilization of disadvantaged business enterprises. For the purposes of this Special Provision, a disadvantaged business enterprise (DBE) means a business certified by the Department in accordance with the requirements of 49 CFR Part 26 and listed in the Illinois Unified Certification Program (IL UCP) DBE Directory.

STATE OBLIGATION. This Special Provision will also be used by the Department to satisfy the requirements of the Business Enterprise for Minorities, Females, and Persons with Disabilities Act, 30 ILCS 575. When this Special Provision is used to satisfy state law requirements on 100 percent state-funded contracts, the federal government has no involvement in such contracts (not a federal-aid contract) and no responsibility to oversee the implementation of this Special Provision by the Department on those contracts. DBE participation on 100 percent state-funded contracts will not be credited toward fulfilling the Department's annual overall DBE goal required by the US Department of Transportation to comply with the federal DBE program requirements.

CONTRACTOR ASSURANCE. The Contractor makes the following assurance and agrees to include the assurance in each subcontract that the Contractor signs with a subcontractor.

The Contractor, subrecipient, or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The Contractor shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of contracts funded in whole or in part with federal or state funds. Failure by the Contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the recipient deems appropriate, which may include, but is not limited to:

(a) Withholding progress payments;

(b) Assessing sanctions;

(c) Liquidated damages; and/or

(d) Disqualifying the Contractor from future bidding as non-responsible.

OVERALL GOAL SET FOR THE DEPARTMENT. As a requirement of compliance with 49 CFR Part 26, the Department has set an overall goal for DBE participation in its federally assisted contracts. That goal applies to all federal-aid funds the Department will expend in its federally assisted contracts for the subject reporting fiscal year. The Department is required to make a good faith effort to achieve the overall goal. The dollar amount paid to all approved DBE companies performing work called for in this contract is eligible to be credited toward fulfillment of the Department's overall goal.

CONTRACT GOAL TO BE ACHIEVED BY THE CONTRACTOR. This contract includes a specific DBE utilization goal established by the Department. The goal has been included because the Department has determined that the work of this contract has subcontracting opportunities that may be suitable for performance by DBE companies. The determination is based on an assessment of the type of work, the location of the work, and the availability of DBE companies to do a part of the work. The assessment indicates that, in the absence of unlawful discrimination, and in an arena of fair and open competition, DBE companies can be expected to perform **0.00**% of the work. This percentage is set as the DBE participation goal for this contract. Consequently, in addition to the other award criteria established for this contract, the Department will only award this contract to a bidder who makes a good faith effort to meet this goal of DBE participation in the performance of the work. A bidder makes a good faith effort for award consideration if either of the following is done in accordance with the procedures set for in this Special Provision:

(a) The bidder documents that enough DBE participation has been obtained to meet the goal or,

(b) The bidder documents that a good faith effort has been made to meet the goal, even though the effort did not succeed in obtaining enough DBE participation to meet the goal.

DBE LOCATOR REFERENCES. Bidders shall consult the IL UCP DBE Directory as a reference source for DBE-certified companies. In addition, the Department maintains a letting and item specific DBE locator information system whereby DBE companies can register their interest in providing quotes on particular bid items advertised for letting. Information concerning DBE companies willing to quote work for particular contracts may be obtained by contacting the Department's Bureau of Small Business Enterprises at telephone number (217) 785-4611, or by visiting the Department's website at:
http://www.idot.illinois.gov/doing-business/certifications/disadvantaged-business-enterprise-certification/il-ucp-directory/index.

BIDDING PROCEDURES. Compliance with this Special Provision is required prior to the award of the contract and the failure of the low bidder to comply will render the bid not responsive.

In order to assure the timely award of the contract, the low bidder shall submit:

(a) The bidder shall submit a DBE Utilization Plan on completed Department forms SBE 2025 and 2026.

(1) The final Utilization Plan must be submitted within five calendar days after the date of the letting in accordance with subsection (a)(2) of Bidding Procedures herein.

(2) To meet the five day requirement, the bidder may send the Utilization Plan electronically by scanning and sending to **DOT.DBE.UP@illinois.gov** or faxing to (217) 785-1524. The subject line must include the bid Item Number and the Letting date. The Utilization Plan should be sent as one .pdf file, rather than multiple files and emails for the same Item Number. It is the responsibility of the bidder to obtain confirmation of email or fax delivery.

Alternatively, the Utilization Plan may be sent by certified mail or delivery service within the five calendar day period. If a question arises concerning the mailing date of a Utilization Plan, the mailing date will be established by the U.S. Postal Service postmark on the certified mail receipt from the U.S. Postal Service or the receipt issued by a delivery service when the Utilization Plan is received by the Department. It is the responsibility of the bidder to ensure the postmark or receipt date is affixed within the five days if the bidder intends to rely upon mailing or delivery to satisfy the submission day requirement. The Utilization Plan is to be submitted to:

Illinois Department of Transportation
Bureau of Small Business Enterprises
Contract Compliance Section
2300 South Dirksen Parkway, Room 319
Springfield, Illinois 62764

The Department will not accept a Utilization Plan if it does not meet the five day submittal requirement and the bid will be declared not responsive. In the event the bid is declared not responsive due to a failure to submit a Utilization Plan or failure to comply with the bidding procedures set forth herein, the Department may elect to cause the forfeiture of the penal sum of the bidder's proposal guaranty, and may deny authorization to bid the project if re-advertised for bids. The Department reserves the right to invite any other bidder to submit a Utilization Plan at any time for award consideration.

(b) The Utilization Plan shall indicate that the bidder either has obtained sufficient DBE participation commitments to meet the contract goal or has not obtained enough DBE participation commitments in spite of a good faith effort to meet the goal. The Utilization Plan shall further provide the name, telephone number, and telefax number of a responsible official of the bidder designated for purposes of notification of Utilization Plan approval or disapproval under the procedures of this Special Provision.

(c) The Utilization Plan shall include a DBE Participation Commitment Statement, Department form SBE 2025, for each DBE proposed for the performance of work to achieve the contract goal. For bidding purposes, submission of the completed SBE 2025 forms, signed by the DBEs and scanned or faxed to the bidder will be acceptable as long as the original is available and provided upon request. All elements of information indicated on the said form shall be provided, including but not limited to the following:

(1) The names and addresses of DBE firms that will participate in the contract;

(2) A description, including pay item numbers, of the work each DBE will perform;

(3) The dollar amount of the participation of each DBE firm participating. The dollar amount of participation for identified work shall specifically state the quantity, unit price, and total subcontract price for the work to be completed by the DBE. If partial pay items are to be performed by the DBE, indicate the portion of each item, a unit price where appropriate and the subcontract price amount;

(4) DBE Participation Commitment Statements, form SBE 2025, signed by the bidder and each participating DBE firm documenting the commitment to use the DBE subcontractors whose participation is submitted to meet the contract goal;

(5) If the bidder is a joint venture comprised of DBE companies and non-DBE companies, the Utilization Plan must also include a clear identification of the portion of the work to be performed by the DBE partner(s); and,

(6) If the contract goal is not met, evidence of good faith efforts; the documentation of good faith efforts must include copies of each DBE and non-DBE subcontractor quote submitted to the bidder when a non-DBE subcontractor is selected over a DBE for work on the contract.

GOOD FAITH EFFORT PROCEDURES. The contract will not be awarded until the Utilization Plan submitted by the apparent successful bidder is approved. All information submitted by the bidder must be complete, accurate and adequately document that enough DBE participation has been obtained or document that good faith efforts of the bidder, in the event enough DBE participation has not been obtained, before the Department will commit to the performance of the contract by the bidder. The Utilization Plan will be approved by the Department if the Utilization Plan documents sufficient commercially useful DBE work to meet the contract goal or the bidder submits sufficient documentation of a good faith effort to meet the contract goal pursuant to 49 CFR Part 26, Appendix A. The Utilization Plan will not be approved by the Department if the Utilization Plan does not document sufficient DBE participation to meet the contract goal unless the apparent successful bidder documented in the Utilization Plan that it made a good faith effort to meet the goal. This means that the bidder must show that all necessary and reasonable steps were taken to achieve the contract goal. Necessary and reasonable steps are those which, by their scope, intensity and appropriateness to the objective, could reasonably be expected to obtain sufficient DBE participation, even if they were not successful. The Department will consider the quality, quantity, and intensity of the kinds of efforts that the bidder has made. Mere *pro forma* efforts, in other words, efforts done as a matter of form, are not good faith efforts; rather, the bidder is expected to have taken genuine efforts that would be reasonably expected of a bidder actively and aggressively trying to obtain DBE participation sufficient to meet the contract goal.

(a) The following is a list of types of action that the Department will consider as part of the evaluation of the bidder's good faith efforts to obtain participation. These listed factors are not intended to be a mandatory checklist and are not intended to be exhaustive. Other factors or efforts brought to the attention of the Department may be relevant in appropriate cases, and will be considered by the Department.

(1) Soliciting through all reasonable and available means (e.g. attendance at pre-bid meetings, advertising and/or written notices) the interest of all certified DBE companies that have the capability to perform the work of the contract. The bidder must solicit this interest within sufficient time to allow the DBE companies to respond to the solicitation. The bidder must determine with certainty if the DBE companies are interested by taking appropriate steps to follow up initial solicitations.

(2) Selecting portions of the work to be performed by DBE companies in order to increase the likelihood that the DBE goals will be achieved. This includes, where appropriate, breaking out contract work items into economically feasible units to facilitate DBE participation, even when the prime Contractor might otherwise prefer to perform these work items with its own forces.

(3) Providing interested DBE companies with adequate information about the plans, specifications, and requirements of the contract in a timely manner to assist them in responding to a solicitation.

(4) a. Negotiating in good faith with interested DBE companies. It is the bidder's responsibility to make a portion of the work available to DBE subcontractors and suppliers and to select those portions of the work or material needs consistent with the available DBE subcontractors and suppliers, so as to facilitate DBE participation. Evidence of such negotiation includes the names, addresses, and telephone numbers of DBE companies that were considered; a description of the information provided regarding the plans and specifications for the work selected for subcontracting; and evidence as to why additional agreements could not be reached for DBE companies to perform the work.

b. A bidder using good business judgment would consider a number of factors in negotiating with subcontractors, including DBE subcontractors, and would take a firm's price and capabilities as well as contract goals into consideration. However, the fact that there may be some additional costs involved in finding and using DBE companies is not in itself sufficient reason for a bidder's failure to meet the contract DBE goal, as long as such costs are reasonable. Also the ability or desire of a bidder to perform the work of a contract with its own organization does not relieve the bidder of the responsibility to make good faith efforts. Bidders are not, however, required to accept higher quotes from DBE companies if the price difference is excessive or unreasonable. In accordance with subsection (c)(6) of the above Bidding Procedures, the documentation of good faith efforts must include copies of each DBE and non-DBE subcontractor quote submitted to the bidder when a non-DBE subcontractor was selected over a DBE for work on the contract.

(5) Not rejecting DBE companies as being unqualified without sound reasons based on a thorough investigation of their capabilities. The bidder's standing within its industry, membership in specific groups, organizations, or associations and political or social affiliations (for example union vs. non-union employee status) are not legitimate causes for the rejection or non-solicitation of bids in the bidder's efforts to meet the project goal.

(6) Making efforts to assist interested DBE companies in obtaining bonding, lines of credit, or insurance as required by the recipient or Contractor.

(7) Making efforts to assist interested DBE companies in obtaining necessary equipment, supplies, materials, or related assistance or services.

(8) Effectively using the services of available minority/women community organizations; minority/women contractors' groups; local, state, and federal minority/women business assistance offices; and other organizations as allowed on a case-by-case basis to provide assistance in the recruitment and placement of DBE companies.

(b) If the Department determines that the apparent successful bidder has made a good faith effort to secure the work commitment of DBE companies to meet the contract goal, the Department will award the contract provided that it is otherwise eligible for award. If the Department determines that the bidder has failed to meet the requirements of this Special Provision or that a good faith effort has not been made, the Department will notify the responsible company official designated in the Utilization Plan that the bid is not responsive. The notification shall include a statement of reasons for the determination. If the Utilization Plan is not approved because it is deficient as a technical matter, unless waived by the Department, the bidder will be notified and will be allowed no more than a five calendar day period in order to cure the deficiency.

(c) The bidder may request administrative reconsideration of a determination adverse to the bidder within the five working days after the receipt of the notification date of the determination by delivering the request to the Department of Transportation, Bureau of Small Business Enterprises, Contract Compliance Section, 2300 South Dirksen Parkway, Room 319, Springfield, Illinois 62764 (Telefax: (217) 785-1524). Deposit of the request in the United States mail on or before the fifth business day shall not be deemed delivery. The determination shall become final if a request is not made and delivered. A request may provide additional written documentation or argument concerning the issues raised in the determination statement of reasons, provided the documentation and arguments address efforts made prior to submitting the bid. The request will be forwarded to the Department's Reconsideration Officer. The Reconsideration Officer will extend an opportunity to the bidder to meet in person in order to consider all issues of documentation and whether the bidder made a good faith effort to meet the goal. After the review by the Reconsideration Officer, the bidder will be sent a written decision within ten working days after receipt of the request for consideration, explaining the basis for finding that the bidder did or did not meet the goal or make adequate good faith efforts to do so. A final decision by the Reconsideration Officer that a good faith effort was made shall approve the Utilization Plan submitted by the bidder and shall clear the contract for award. A final decision that a good faith effort was not made shall render the bid not responsive.

CALCULATING DBE PARTICIPATION. The Utilization Plan values represent work anticipated to be performed and paid for upon satisfactory completion. The Department is only able to count toward the achievement of the overall goal and the contract goal the value of payments made for the work actually performed by DBE companies. In addition, a DBE must perform a commercially useful function on the contract to be counted. A commercially useful function is generally performed when the DBE is responsible for the work and is carrying out its responsibilities by actually performing, managing, and supervising the work involved. The Department and Contractor are governed by the provisions of 49 CFR Part 26.55(c) on questions of commercially useful functions as it affects the work. Specific counting guidelines are provided in 49 CFR Part 26.55, the provisions of which govern over the summary contained herein.

(a) DBE as the Contractor: 100 percent goal credit for that portion of the work performed by the DBE's own forces, including the cost of materials and supplies. Work that a DBE subcontracts to a non-DBE does not count toward the DBE goals.

(b) DBE as a joint venture Contractor: 100 percent goal credit for that portion of the total dollar value of the contract equal to the distinct, clearly defined portion of the work performed by the DBE's own forces.

(c) DBE as a subcontractor: 100 percent goal credit for the work of the subcontract performed by the DBE's own forces, including the cost of materials and supplies, excluding the purchase of materials and supplies or the lease of equipment by the DBE subcontractor from the prime Contractor or its affiliates. Work that a DBE subcontractor in turn subcontracts to a non-DBE does not count toward the DBE goal.

(d) DBE as a trucker: 100 percent goal credit for trucking participation provided the DBE is responsible for the management and supervision of the entire trucking operation for which it is responsible. At least one truck owned, operated, licensed, and insured by the DBE must be used on the contract. Credit will be given for the following:

(1) The DBE may lease trucks from another DBE firm, including an owner-operator who is certified as a DBE. The DBE who leases trucks from another DBE receives credit for the total value of the transportation services the lessee DBE provides on the contract.

(2) The DBE may also lease trucks from a non-DBE firm, including from an owner-operator. The DBE who leases trucks from a non-DBE is entitled to credit only for the fee or commission is receives as a result of the lease arrangement.

(e) DBE as a material supplier:

(1) 60 percent goal credit for the cost of the materials or supplies purchased from a DBE regular dealer.

(2) 100 percent goal credit for the cost of materials of supplies obtained from a DBE manufacturer.

(3) 100 percent credit for the value of reasonable fees and commissions for the procurement of materials and supplies if not a DBE regular dealer or DBE manufacturer.

CONTRACT COMPLIANCE. Compliance with this Special Provision is an essential part of the contract. The Department is prohibited by federal regulations from crediting the participation of a DBE included in the Utilization Plan toward either the contract goal or the Department's overall goal until the amount to be applied toward the goals has been paid to the DBE. The following administrative procedures and remedies govern the compliance by the Contractor with the contractual obligations established by the Utilization Plan. After approval of the Utilization Plan and award of the contract, the Utilization Plan and individual DBE Participation Statements become part of the contract. If the Contractor did not succeed in obtaining enough DBE participation to achieve the advertised contract goal, and the Utilization Plan was approved and contract awarded based upon a determination of good faith, the total dollar value of DBE work calculated in the approved Utilization Plan as a percentage of the awarded contract value shall become the amended contract goal. All work indicated for performance by an approved DBE shall be performed, managed, and supervised by the DBE executing the DBE Participation Commitment Statement.

(a) NO AMENDMENT. No amendment to the Utilization Plan may be made without prior written approval from the Department's Bureau of Small Business Enterprises. All requests for amendment to the Utilization Plan shall be submitted to the Department of Transportation, Bureau of Small Business Enterprises, Contract Compliance Section, 2300 South Dirksen Parkway, Room 319, Springfield, Illinois 62764. Telephone number (217) 785-4611. Telefax number (217) 785-1524.

(b) CHANGES TO WORK. Any deviation from the DBE condition-of-award or contract plans, specifications, or special provisions must be approved, in writing, by the Department as provided elsewhere in the Contract. The Contractor shall notify affected DBEs in writing of any changes in the scope of work which result in a reduction in the dollar amount condition-of-award to the contract. Where the revision includes work committed to a new DBE subcontractor, not previously involved in the project, then a Request for Approval of Subcontractor, Department form BC 260A or AER 260A, must be signed and submitted. If the commitment of work is in the form of additional tasks assigned to an existing subcontract, than a new Request for Approval of Subcontractor shall not be required. However, the Contractor must document efforts to assure that the existing DBE subcontractor is capable of performing the additional work and has agreed in writing to the change.

(c) SUBCONTRACT. The Contractor must provide DBE subcontracts to IDOT upon request. Subcontractors shall ensure that all lower tier subcontracts or agreements with DBEs to supply labor or materials be performed in accordance with this Special Provision.

(d) ALTERNATIVE WORK METHODS. In addition to the above requirements for reductions in the condition of award, additional requirements apply to the two cases of Contractor-initiated work substitution proposals. Where the contract allows alternate work methods which serve to delete or create underruns in condition of award DBE work, and the Contractor selects that alternate method or, where the Contractor proposes a substitute work method or material that serves to diminish or delete work committed to a DBE and replace it with other work, then the Contractor must demonstrate one of the following:

(1) That the replacement work will be performed by the same DBE (as long as the DBE is certified in the respective item of work) in a modification of the condition of award; or

(2) That the DBE is aware that its work will be deleted or will experience underruns and has agreed in writing to the change. If this occurs, the Contractor shall substitute other work of equivalent value to a certified DBE or provide documentation of good faith efforts to do so; or

(3) That the DBE is not capable of performing the replacement work or has declined to perform the work at a reasonable competitive price. If this occurs, the Contractor shall substitute other work of equivalent value to a certified DBE or provide documentation of good faith efforts to do so.

(e) TERMINATION AND REPLACEMENT PROCEDURES. The Contractor shall not terminate or replace a DBE listed on the approved Utilization Plan, or perform with other forces work designated for a listed DBE except as provided in this Special Provision. The Contractor shall utilize the specific DBEs listed to perform the work and supply the materials for which each is listed unless the Contractor obtains the Department's written consent as provided in subsection (a) of this part. Unless Department consent is provided for termination of a DBE subcontractor, the Contractor shall not be entitled to any payment for work or material unless it is performed or supplied by the DBE in the Utilization Plan.

As stated above, the Contractor shall not terminate or replace a DBE subcontractor listed in the approved Utilization Plan without prior written consent. This includes, but is not limited to, instances in which the Contractor seeks to perform work originally designated for a DBE subcontractor with its own forces or those of an affiliate, a non-DBE firm, or with another DBE firm. Written consent will be granted only if the Bureau of Small Business Enterprises agrees, for reasons stated in its concurrence document, that the Contractor has good cause to terminate or replace the DBE firm. Before transmitting to the Bureau of Small Business Enterprises any request to terminate and/or substitute a DBE subcontractor, the Contractor shall give notice in writing to the DBE subcontractor, with a copy to the Bureau, of its intent to request to terminate and/or substitute, and the reason for the request. The Contractor shall give the DBE five days to respond to the Contractor's notice. The DBE so notified shall advise the Bureau and the Contractor of the reasons, if any, why it objects to the proposed termination of its subcontract and why the Bureau should not approve the Contractor's action. If required in a particular case as a matter of public necessity, the Bureau may provide a response period shorter than five days.

For purposes of this paragraph, good cause includes the following circumstances:

(1) The listed DBE subcontractor fails or refuses to execute a written contract;

(2) The listed DBE subcontractor fails or refuses to perform the work of its subcontract in a way consistent with normal industry standards. Provided, however, that good cause does not exist if the failure or refusal of the DBE subcontractor to perform its work on the subcontract results from the bad faith or discriminatory action of the prime contractor;

(3) The listed DBE subcontractor fails or refuses to meet the prime Contractor's reasonable, nondiscriminatory bond requirements;

(4) The listed DBE subcontractor becomes bankrupt, insolvent, or exhibits credit unworthiness;

(5) The listed DBE subcontractor is ineligible to work on public works projects because of suspension and debarment proceedings pursuant 2 CFR Parts 180, 215 and 1200 or applicable state law.

(6) You have determined that the listed DBE subcontractor is not a responsible contractor;

(7) The listed DBE subcontractor voluntarily withdraws from the projects and provides to you written notice of its withdrawal;

(8) The listed DBE is ineligible to receive DBE credit for the type of work required;

(9) A DBE owner dies or becomes disabled with the result that the listed DBE subcontractor is unable to complete its work on the contract;

(10) Other documented good cause that compels the termination of the DBE subcontractor. Provided, that good cause does not exist if the prime Contractor seeks to terminate a DBE it relied upon to obtain the contract so that the prime Contractor can self-perform the work for which the DBE contractor was engaged or so that the prime Contractor can substitute another DBE or non-DBE contractor after contract award.

When a DBE is terminated, or fails to complete its work on the Contract for any reason the Contractor shall make a good faith effort to find another DBE to substitute for the original DBE to perform at least the same amount of work under the contract as the terminated DBE to the extent needed to meet the established Contract goal. The good faith efforts shall be documented by the Contractor. If the Department requests documentation under this provision, the Contractor shall submit the documentation within seven days, which may be extended for an additional seven days if necessary at the request of the Contractor. The Department shall provide a written determination to the Contractor stating whether or not good faith efforts have been demonstrated.

(f) PAYMENT RECORDS. The Contractor shall maintain a record of payments for work performed to the DBE participants. The records shall be made available to the Department for inspection upon request. After the performance of the final item of work or delivery of material by a DBE and final payment therefore to the DBE by the Contractor, but not later than thirty calendar days after payment has been made by the Department to the Contractor for such work or material, the Contractor shall submit a DBE Payment Agreement on Department form SBE 2115 to the Resident Engineer. If full and final payment has not been made to the DBE, the DBE Payment Agreement shall indicate whether a disagreement as to the payment required exists between the Contractor and the DBE or if the Contractor believes that the work has not been satisfactorily completed. If the Contractor does not have the full amount of work indicated in the Utilization Plan performed by the DBE companies indicated in the Utilization Plan and after good faith efforts are reviewed, the Department may deduct from contract payments to the Contractor the amount of the goal not achieved as liquidated and ascertained damages. The Contractor may request an administrative reconsideration of any amount deducted as damages pursuant to subsection (h) of this part.

(g) ENFORCEMENT. The Department reserves the right to withhold payment to the Contractor to enforce the provisions of this Special Provision. Final payment shall not be made on the contract until such time as the Contractor submits sufficient documentation demonstrating achievement of the goal in accordance with this Special Provision or after liquidated damages have been determined and collected.

(h) RECONSIDERATION. Notwithstanding any other provision of the contract, including but not limited to Article 109.09 of the Standard Specifications, the Contractor my request administrative reconsideration of a decision to deduct the amount of the goal not achieved as liquidated damages. A request to reconsider shall be delivered to the Contract Compliance Section and shall be handled and considered in the same manner as set forth in paragraph (c) of “Good Faith Effort Procedures” of this Special Provision, except a final decision that a good faith effort was not made during contract performance to achieve the goal agreed to in the Utilization Plan shall be the final administrative decision of the Department. The result of the reconsideration process is not administratively appealable to the U.S. Department of Transportation.

LIGHT POLES (BDE)
Effective: July 1, 2016

Revise the second paragraph of Article 1069.01 of the Standard Specifications to read:

"The detailed design and fabrication of the pole shaft, arms, tenons, and attachments shall be according to AASHTO "LRFD Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals" current at the time the project is advertised. Light poles shall be designed for ADT > 10,000 and Risk Category Typical. If Fatigue design is required, light poles shall be designed for Importance Category I."

Revise the fifth paragraph of Article 1069.01(a) of the Standard Specifications to read:

"Deflection of the pole top as caused by the combined effect of deadload referenced above and wind speed prescribed by AASHTO shall be as required by AASHTO. Pole deflection and loading compliance, certified by the manufacturer, shall be noted on the pole submittal."

PROGRESS PAYMENTS (BDE)
Effective: November 2, 2013

Revise Article 109.07(a) of the Standard Specifications to read:

"(a) Progress Payments. At least once each month, the Engineer will make a written estimate of the quantity of work performed in accordance with the contract, and the value thereof at the contract unit prices. The amount of the estimate approved as due for payment will be vouchered by the Department and presented to the State Comptroller for payment. No amount less than $1000.00 will be approved for payment other than the final payment.

Progress payments may be reduced by liens filed pursuant to Section 23(c) of the Mechanics' Lien Act, 770 ILCS 60/23(c).

If a Contractor or subcontractor has defaulted on a loan issued under the Department's Disadvantaged Business Revolving Loan Program (20 ILCS 2705/2705-610), progress payments may be reduced pursuant to the terms of that loan agreement. In such cases, the amount of the estimate related to the work performed by the Contractor or subcontractor, in default of the loan agreement, will be offset, in whole or in part, and vouchered by the Department to the Working Capital Revolving Fund or designated escrow account. Payment for the work shall be considered as issued and received by the Contractor or subcontractor on the date of the offset voucher. Further, the amount of the offset voucher shall be a credit against the Department's obligation to pay the Contractor, the Contractor's obligation to pay the subcontractor, and the Contractor's or subcontractor's total loan indebtedness to the Department. The offset shall continue until such time as the entire loan indebtedness is satisfied. The Department will notify the Contractor and Fund Control Agent in a timely manner of such offset. The Contractor or subcontractor shall not be entitled to additional payment in consideration of the offset.

The failure to perform any requirement, obligation, or term of the contract by the Contractor shall be reason for withholding any progress payments until the Department determines that compliance has been achieved."

TUBULAR MARKERS (BDE)
Effective: January 1, 2017

Revise Article 701.03(j) of the Standard Specifications to read:

"(j) Tubular Markers .....1106.02"

Revise Article 701.15(g) of the Standard Specifications to read:

"(g) Tubular Markers. Tubular markers are used to channelize traffic. They shall only be used when specified."

Revise the second paragraph of Article 701.18(f) of the Standard Specifications to read:

"Devices no greater than 24 in. (600 mm) wide, may be used in place of tubular markers when the two-way operation is to be in place four days or less."

Revise the second sentence of the second paragraph of Article 1106.02 of the Standard Specifications to read:

"These include cones, tubular markers, and plastic drums with no attachments."

Revise the third sentence of the seventh paragraph of Article 1106.02 of the Standard Specifications to read:

"Sheeting used on cones, drums, and tubular markers shall be reboundable as tested according to ASTM D 4956."

Revise Article 1106.02(f) of the Standard Specifications to read:

"(f) Tubular Markers. Tubular Markers shall be designed to bend under repeated impacts and return to an upright position without damage to the impacting vehicle or the markers. The markers shall be readily removable from the bases to permit field replacement.

The markers shall be orange in color having two white and two fluorescent orange bands."

WEEKLY DBE TRUCKING REPORTS (BDE)
Effective: June 2, 2012 Revised: April 2, 2015

The Contractor shall submit a weekly report of Disadvantaged Business Enterprise (DBE) trucks hired by the Contractor or subcontractors (i.e. not owned by the Contractor or subcontractors) that are used for DBE goal credit.

The report shall be submitted to the Engineer on Department form “SBE 723” within ten business days following the reporting period. The reporting period shall be Monday through Sunday for each week reportable trucking activities occur.

Any costs associated with providing weekly DBE trucking reports shall be considered as included in the contract unit prices bid for the various items of work involved and no additional compensation will be allowed.

REVISIONS TO THE ILLINOIS PREVAILING WAGE RATES

The Prevailing rates of wages are included in the Contract proposals which are subject to Check Sheet #5 of the Supplemental Specifications and Recurring Special Provisions. The rates have been ascertained and certified by the Illinois Department of Labor for the locality in which the work is to be performed and for each craft or type of work or mechanic needed to execute the work of the Contract. As required by Prevailing Wage Act (820 ILCS 130/0.01, et seq.) and Check Sheet #5 of the Contract, not less than the rates of wages ascertained by the Illinois Department of Labor and as revised during the performance of a Contract shall be paid to all laborers, workers and mechanics performing work under the Contract. Post the scale of wages in a prominent and easily accessible place at the site of work.

If the Illinois Department of Labor revises the prevailing rates of wages to be paid as listed in the specification of rates, the contractor shall post the revised rates of wages and shall pay not less than the revised rates of wages. Current wage rate information shall be obtained by visiting the Illinois Department of Labor web site at http://www.state.il.us/agency/idol/ or by calling 312-793-2814. It is the responsibility of the contractor to review the rates applicable to the work of the contract at regular intervals in order to insure the timely payment of current rates. Provision of this information to the contractor by means of the Illinois Department of Labor web site satisfies the notification of revisions by the Department to the contractor pursuant to the Act, and the contractor agrees that no additional notice is required. The contractor shall notify each of its subcontractors of the revised rates of wages.