



Illinois Department of Transportation

2300 South Dirksen Parkway / Springfield, Illinois / 62764

June 1, 2020

SUBJECT: FAI Route 74 (I-74)
Project NHPP-WCGE(975)
Section (90-14HB-1)BR1
Tazewell County
Contract No. 68894
Item No. 44, June 12, 2020 Letting
Addendum A

NOTICE TO PROSPECTIVE BIDDERS:

Attached is an addendum to the plans or proposal. This addendum involves revised and/or added material.

1. Revised the Schedule of Prices.
2. Revised page iv of the Table of Contents to the Special Provisions.
3. Revised pages 61-64 of the Special Provisions.
4. Added pages 190-193 to the Special Provisions.
5. Revised sheets 1, 2, 16, 17, 29, 63, and 76 to the Plans.
6. Added sheets 76A-76E to the Plans.

Prime contractors must utilize the enclosed material when preparing their bid and must include any changes to the Schedule of Prices in their bid.

Very truly yours,

A handwritten signature in black ink, appearing to read 'Jack A. Elston'.

Jack A. Elston, P.E.
Bureau Chief, Design and Environment

PORTLAND CEMENT CONCRETE (BDE) 146
 PORTLAND CEMENT CONCRETE BRIDGE DECK CURING (BDE)..... 147
 RECLAIMED ASPHALT PAVEMENT AND RECLAIMED ASPHALT SHINGLES (BDE)..... 148
 SILT FENCE, INLET FILTERS, GROUND STABILIZATION AND RIPRAP FILTER FABRIC
 (BDE)..... 156
 SPEED DISPLAY TRAILER (BDE) 162
 STEEL COST ADJUSTMENT (BDE) 163
 STEEL PLATE BEAM GUARDRAIL MANUFACTURING (BDE) 165
 SUBCONTRACTOR AND DBE PAYMENT REPORTING (BDE) 166
 SUBCONTRACTOR MOBILIZATION PAYMENTS (BDE)..... 166
 TEMPORARY PAVEMENT MARKING (BDE)..... 167
 TRAFFIC BARRIER TERMINAL, TYPE 1 SPECIAL (BDE)..... 169
 TRAFFIC CONTROL DEVICES - CONES (BDE)..... 170
 TRAFFIC SPOTTERS (BDE) 170
 TRAVERSABLE PIPE GRATE FOR CONCRETE END SECTIONS (BDE) 171
 WARM MIX ASPHALT (BDE) 172
 WEEKLY DBE TRUCKING REPORTS (BDE)..... 174
 WORK ZONE TRAFFIC CONTROL DEVICES (BDE)..... 174
 TRAINING SPECIAL PROVISIONS (BDE) 177
 IDOT TRAINING PROGRAM GRADUATE ON-THE-JOB TRAINING SPECIAL PROVISION. 180
 SWPPP..... 182
 CONSTRUCTION LAYOUT EQUIPMENT 190
 SMART TRAFFIC MONITORING SYSTEM..... 190
 TEMPORARY RAMP, SPECIAL 193

Warranty

The Contractor shall warranty all materials and workmanship including labor for a period of two years after the completion and acceptance of the installation, unless other warranty requirements prevail. The warranty period shall begin when the Contractor completes all construction obligations related to this item and when the components for this item have been accepted, which shall be documented as the completion date in the construction status report. This warranty shall include repair and/or replacement of all failed components via a factory authorized depot repair service. All items sent to the depot for repair shall be returned within two weeks of the date of receipt at the facility. The depot location shall be in the United States. Repairs shall not require more than two weeks from date of receipt and the provider of the warranty shall be responsible for all return shipping costs. The depot maintainer designated for each component shall be authorized by the original manufacturer to supply this service. A warranty certificate shall be supplied for each component from the designated depot repair site indicating the start and end dates of the warranty. The certificate shall be supplied at the conclusion of the system acceptance test and shall be for a minimum of two years after that point. The certificate shall name the Department as the recipient of the service. The Department shall have the right to transfer this service to other private parties who may be contracted to perform overall maintenance of the facility.

Method of Measurement. The microwave detector special will be measured for payment by the actual number of sites furnished, installed, tested, and accepted including all necessary hardware and software components.

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

BLUETOOTH DETECTOR

Description. This work shall consist of furnishing and installing a Bluetooth travel time detector on an existing or proposed camera pole, mast arm, or light pole and all items required for installation including but not limited to cabling, brackets, and hardware.

The Bluetooth detector shall continuously monitor and timestamps the presence of Bluetooth devices within the range of the receiver. This data will be transmitted to the vendors cloud based application.

The proposed Bluetooth detector shall be installed perpendicular to the roadway.

Equipment and component parts furnished shall be new, be of the latest design and manufacture, and be in an operable condition at the time of delivery and installation. All parts shall be of high-quality workmanship, and no part or attachment shall be substituted or applied contrary to the manufacturer's recommendations and standard practices. The Contractor shall be responsible for providing all materials (Mounting brackets, connectors, cabling, software and hardware) to install and place into operation, a complete and operational system.

Revised June 1, 2020

All cabling shall be rated shielded and rated for outdoor use and shall be installed in accordance with the manufacturer's recommendations.

The detector shall consist of the Bluetooth sensor equipped with Ethernet, POE power injector, processor, and antennas integrated into a NEMA 4 enclosure with no penetrations to the enclosure except for the antenna. All devices must comply with FCC regulations governing Bluetooth and Cellular emissions. The enclosure shall be self-contained, with provision for mounting to light poles, sign trusses, and other structures using stainless steel straps.

The Bluetooth sub assembly shall have the highest allowed transceiver power. The internal microprocessor should be capable of up to 1 GB storage.

The Bluetooth sensor shall contain advanced features designed to allow the unit to operate efficiently in a remote environment. Diagnostic heartbeat information such as voltage and temperature monitoring, as well as software stability information should be periodically sent along with the MAC addresses. The system is to be designed to be able to automatically reboot if a condition is detected that requires such action. In the case when a total system recovery is required, the sensor is to be designed to automatically re-image the system memory.

In addition, the sensor should have the ability to download software patches and upgrades over the air without the need to physically visit the unit. These patches and upgrades shall be included in this pay item at no additional cost to the Department.

The Bluetooth detector shall be a TrafficCast Bluetooth Spectra Ethernet detector or approved equal that meets or exceeds the following specifications:

Power Specifications:

- Power over Ethernet (PoE)
- IEEE 802.3af standard
- PoE Voltage: 48 VDC
- 110/230 VAC supply to injector

DC Power:

- DC Supply Current:
- @ 12V - Typical 150 mA
- @ 12V - Maximum 250 mA
- DC Supply Voltage: Minimum – 9.5 voe
- Maximum – 50 voe

AC Power:

- 100/230 VAC 50 Hz to 60 Hz

Operating Range:

- -40°C to + 85°C

Revised June 1, 2020

Processor:

- Real Time Microcontroller
- 8GB Removable microSD Card

Connectivity:

- PoE – Ethernet 10 BASE-T / 100 BASE-T
- Static or DHCP IP Addressing (Only one Ethernet connection needed per unit)

Bluetooth:

- Non-Discoverable 2.4 GHz Demodulator
- Discoverable CSR Bluecore 4 Class 1
- Minimum Detection Range: 300 in all directions

Bluetooth Radio (adjustable) Transmit Power Range:

- -90 dBm to +20 dBm

Antennae:

- Bluetooth: (2) - 2 dBi Omni

NEMA 4X Enclosure:

- 10" in. x 3.0" in. x 3.0" in.
- Weight: < 5 lbs.

Software Subscription:

Each sensor shall include a two-year subscription to the TrafficCast cloud based BlueARGUS travel time-based performance software. The Department will program each Bluetooth detector to report to the cloud-based application server.

Installation:

The Contractor, shall install the detectors at the locations shown on the plans. It shall be the Contractor's responsibility to verify each location's viability and make any alternate site recommendations to the Department.

If needed, the Contractor shall perform a site survey and the cost of the site survey shall be incidental to the cost of the roadside detector pay item.

The manufacturer shall provide guidance and assistance during site survey and installation.

The Bluetooth Detectors shall be mounted on poles and oriented perpendicular to the roadway. The recommended mounting height for the Bluetooth sensor is 12' – 15' feet above the travelled lane (or as recommended by the manufacturer).

Revised June 1, 2020

Warranty: The Bluetooth manufacturer shall provide a five-year warranty, to IDOT and its Agents, on parts, labor and postage, for all detectors, hardware and software. The warranty shall also include five years of software patches and updates. Software licenses shall not expire.

Basis of Payment: This work will be paid for at the contract unit price of Each for BLUETOOTH DETECTOR, which shall be payment in full for all labor, equipment, and materials required to furnish and install the Bluetooth detector and two-year subscription to the cloud based application server as described above, complete.

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

Revised June 1, 2020

CONSTRUCTION LAYOUT EQUIPMENT

Effective: April 26, 2015 Revised: November 6, 2015

General. The Contractor shall furnish articles of survey equipment to be used by the Department for independent monitoring and verification of construction layout stakes, reference points, and any other horizontal and vertical control set by the Contractor. All equipment will be for the exclusive use of the Department throughout the duration of the contract and will be returned to the Contractor at the end of the contract.

Equipment. The equipment to be furnished by the Contractor shall consist of one precision GNSS rover and a secondary GPS handheld controller. The precision GNSS rover must meet or exceed the capabilities of and be compatible with the Contractor's equipment and meet the approval of the Engineer. The second GPS handheld controller shall also meet or exceed the capabilities of, and be compatible with the Contractor's equipment and meet the approval of the Engineer. The equipment provided shall include all software, data and any additional equipment (base station, repeaters, etc.) necessary to find any point on the project in station, offset and elevation with precision. The project data included in the equipment will be consistent with the data used by the Contractor for layout and grading. Any data revisions or software updates to the Contractor's equipment will also be applied to the Department's equipment by the Contractor.

The Contractor will be responsible for providing training for three members of the Department's staff on use of the equipment and software.

Basis of Payment. This work will not be measured separately but shall be included in the contract Lump Sum price for CONSTRUCTION LAYOUT.

SMART TRAFFIC MONITORING SYSTEM

Description: This item shall consist of furnishing, installing, maintaining, relocating, removing, reinstalling, and programming various components of an automated Smart Traffic Monitoring System (STMS) for I-74 mainline. This work shall be completed according to Article 701 of the Standard Specifications, as detailed in the plans, and as described herein.

The STMS shall be in operation 24 hours a day and seven (7) days per week when traffic is reduced to one lane (for any portion of a day) in the direction for two (2) or more consecutive days, unless otherwise directed by the Engineer. The system shall be temporarily removed from the roadway when there are more than three (3) days between scheduled lane closures. Sign posts may remain in place until the final removal of the system.

A STMS shall consist of, at a minimum:

- Static warning signs with flashers as shown in the plans. The Contractor may elect to use portable changeable message signs instead of the static warning signs with flashers. No additional compensation shall be allowed if the Contractor elects to use portable changeable message signs.
- Smart Traffic Monitoring Devices (STMDs, paid for separately)

Added June 1, 2020

- Remote communication hardware and software and controllers capable of activating flashing beacons.
- One Smart Traffic Monitoring Device Control Central Base Unit equipped with appropriate hardware, software and dedicated network connection.

The exact locations of all devices shall be determined as part of an on-site communications analysis with the Contractor.

The STMS shall meet the following specifications:

- The STMS shall be a proven system that has been successfully deployed and operated in actual work zone and congestion areas.
- The STMS shall be capable of identifying stopped/slowed traffic conditions. The system shall self-test for communication or sensor failures.
- The STMS shall be of a type whose accuracy is not degraded by inclement weather or degraded visibility conditions including, but not limited to precipitation, fog, darkness, excessive dust and road debris.
- The STMS shall be capable of acquiring traffic data for a minimum of two (2) lanes of traffic in the same direction.
- STMS shall sequentially activate the flashers as the queue extends and be capable of only activating specific flashers.
- The STMS shall be capable of activating a message board.
- The STMS shall utilize static signs with flashing lights. Each sign shall be equipped with two amber wigwag LED flashing lights with a minimum lens size of 12" inches. The flash pattern and flash sequence shall comply with the Manual on Uniform Traffic Control Devices (MUTCD), Chapter 4L. The flashers shall be equipped with communications fully compatible with the STMS and shall wirelessly communicate with the STMS and control software. The flashers shall only activate when slowed or stopped traffic is detected to convey real-time traffic condition information to motorists. The flashers shall activate whenever the average traffic speeds fall below 40 m.p.h. and turn off when the average speed returns to above 55 m.p.h. These speed thresholds shall be capable of being changed based on actual field trials and the location of the sensor. If the portable changeable message sign option is used, a message determined by the Engineer shall be displayed when activated by the system. When not activated by the system, the message board display will be as directed by the Engineer.
- The STMS shall have a reliable communication system and provide warnings to the system manager and the Resident Engineer when communication or device failures are detected.
- The STMS shall be capable of notifying the Resident Engineer and District Four Operations/Traffic Communications Center when the flashing beacons are activated.

Added June 1, 2020

- The STMS and flashers shall have a reliable power source.
- The STMS shall allow authorized users remotely to manually override the system during apparent system failures.
- Critical system operator control functions shall be password protected.
- The STMS shall have reporting features to a secure website. The website shall, at a minimum, show the current speeds at each detector location and whether the warning flashers are activated. The website shall provide access to archival data for the duration of the project. This data shall be printable.
- The STMS shall provide data logging the system events and key detection data. The data is to include the dates and times that the system was activated, which signs were activated, duration of the activation, and average speeds at each detections device. The data shall be provided to the Resident Engineer at the close of the project in Microsoft Excel®, latest format.
- The STMDs shall be relocated as the taper is relocated.

System Performance: After the STMS is in place and operational, knowledgeable Contractor personnel shall be available for one work week after the lane closures are in place to ensure that the system is functioning properly. The responsible individual shall be capable of responding within two hours during the first week and shall have sufficient resources to correct any issues with the STMS at that time.

Additional Smart Traffic Monitoring Devices installed as directed by the Engineer after the initial deployment of the system shall be in operation and accepted by the Engineer within seven (7) calendar days after the Contractor receives written notification of changes from the Engineer. If the Contractor fails to update the STMS to full operation within the time limits specified above, the Engineer will impose a daily monetary Traffic Control Deficiency Deduction for each calendar day (or portion thereof) the deficiency exists, as described in Article 105.03 of the Standard Specifications.

A traffic control deficiency deduction will be made for each individual component of the STMS that is not functioning correctly. Individual components of the STMS are Smart Traffic Monitoring Devices, central base station, and signs with flashers.

Method of Measurement: This work will be measured for payment as follows.

Smart Traffic Monitoring System will be measured on a calendar day basis, which shall consist of furnishing, installing, maintaining, relocating, removing, reinstalling, and programming various hardware, software, website and network components including the central base unit necessary to run the Smart Traffic Monitoring System. The Smart Traffic Monitoring System will only be measured on days when there is a lane closure and the system is in operation in accordance with this special provision and as directed by the Engineer for that lane closure. A partial day will be measured as an entire day.

Added June 1, 2020

Smart Traffic Monitoring Devices will be measured on a calendar day basis per device, which shall include any necessary hardware and software to communicate with the STMS. The Smart Traffic Monitoring Devices will only be measured on days when there is a lane closure and the devices are a component of an operating Smart Traffic Monitoring System for that lane closure. A partial day will be measured as an entire day.

Basis of Payment: This work will be paid for as follows:

Smart Traffic Monitoring System will be paid for at the contract unit price per Calendar Day for SMART TRAFFIC MONITORING SYSTEM.

Smart Traffic Monitoring Devices will be paid for at the contract unit price per Calendar Day for SMART TRAFFIC MONITORING DEVICE.

TEMPORARY RAMP, SPECIAL

This item shall consist of furnishing, installing, maintaining, and removing temporary ramps in accordance with Section 406 of the Standard Specifications and as stated herein.

The ramps shall be constructed with hot-mix asphalt. The Contractor shall use one of the hot-mix asphalt mixes specified for hot-mix asphalt shoulders in the plans or other mix approved by the Engineer. The hot-mix asphalt shall be placed in lifts and compacted as approved by the Engineer.

The limits of the temporary ramp shall be as directed by the Engineer. The temporary ramps will transition from the proposed Pinecrest Stage I pavement to the existing interstate ramp pavement to allow interstate traffic to be detoured onto the ramps at night as specified in the Staging Overview and Working Restrictions in the plans.

Temporary Ramp, Special will be measured for payment in place and the area computed in square yards.

Temporary Ramp, Special will be paid for at the contract unit price per square yard for TEMPORARY RAMP, SPECIAL.