Illinois Department of Transportation
2300 South Dirksen Parkway / Springfield, Illinois / 62764

June 6, 2023

SUBJECT Various Routes
Section D7 Electrical Repairs 2023-1
Various Counties
Contract No. 74C18

Item No. 246, June 16th, 2023 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 Schedule of Prices.
2. Revised page i of the Table of Contents of the Special Provisions.
3. Revised pages 2, 4-9, and 14-16 of the Special Provisions.
4. Revised Sheets 3-5 of 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,

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

MTS

TABLE OF CONTENTS

Revised 5-24-2023

TRAFFIC CONTROL PLAN

This work shall include furnishing, installing, maintaining, relocating, and removing all traffic control devices used for the purpose of regulating, warning, or directing traffic during Contractor operations.

Traffic control shall be in accordance with the applicable sections of the current 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 Articles 107.09 and 107.14 and Section 701 of the Standard Specifications for Road and Bridge Construction and the following highway standards relating to traffic control and the listed Supplemental Specifications and Recurring Special Provisions.

Highway Standards

701001	701006	701011	701101	701106	701201	701206	701301	701400
701401	701406	701411	701421	701426	701427	701428	701456	701501
701502	701601	701602	701606	701611	701701	701801	701901	

Conformance to these traffic control and protection standards and this Traffic Control Plan special provision will not be paid for separately but rather the cost shall be considered included in the various contract items.

It is the intention of the Department that the various routes be kept open to traffic at all times during the construction of this section. A single lane closure will be permitted in the immediate work areas during construction. At all other times, no lane closures are allowed.

The Contractor shall utilize the proper traffic control and protection procedures required by the applicable highway standards listed above, to properly protect its workmen and the motoring public, when work is being performed on or near the roadway

The traffic control standard recommended is based on the Department's estimate of the nature of work, duration, and equipment required to perform the repairs.

Any deviation must remain in compliance with the Standard Specifications for Road and Bridge Construction, Standard Specifications for Traffic Control Items and the Manual of Uniform Traffic Control Devices, most recent edition, and prior approval by the Department is required.

All lanes shall be open to traffic during the 20224 Solar Eclipse from 7:00 AM on Saturday April 6, 2024, through 10:00 PM on Monday April 8, 2024.

1

Revised 5-24-2023

This work shall consist of an apprentice electrician's labor, tools, equipment, and other incidentals necessary or convenient to the successful completion of work orders and the carrying out of all duties and obligations imposed by the contract unless already provided by the journeyman electrician.

Labor will be measured to the nearest 0.25 hour for each apprentice electrician approved for use on the applicable work order. Labor rates for apprentice electrician shall be inclusive of (but not limited to) all regular and premium time, insurance, benefits, overheard, and profit.

This work will be paid for at the contract unit price per HOUR for APPRENTICE ELECTRICIAN.

ASSIGNMENT OF WORK

Nothing in this contract shall be construed to provide the Contractor the exclusive right to service the Department's electrical facilities in District 7. The Department reserves the right to perform any and all work on these electrical devices with its own forces or to assign another Contractor to work within District 7.

BORROW AREAS, USE AREAS, AND/OR WASTE AREAS

In addition to the provisions contained in Article 107.22 of the Standard Specifications, the Contractor shall submit all required documents to the District electronically. All photos shall be in color.

~~CLOSED CIRCUIT TELEVISION COME CAMERA, HD~~ 1

~~Description. This work shall consist of furnishing and installing an integrated closed-circuit television (CCTV-HD) 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 by the Engineer.~~

~~Materials.~~ ~~**The CCTV-HD camera shall be an Axis Model Q6075-E or an approved equal dome camera assembly for integration into the existing District 7 ITS system.**~~

~~The Contractor shall provide all materials required to install the proposed camera on the proposed sign structure camera mast as directed by the Engineer. 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°, and 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, and backlight compensation~~
	~~Wide Dynamic Range (WDR): up to 120 dB depending on scene and highlight compensation~~

NETWORK

SECURITY:	Password protection, IP address filtering, HTTPSa encryption, IEEE 802.1Xa network access control, digest authentication, user access log, and 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, and 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, and 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; and 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 free~~
~~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 3-year warranty and AXIS extended warranty option~~

Revised 5-24-2023

~~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 approved 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 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. The heater shall turn off when the temperature exceeds 60°F. 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 T91L61 (Part Number 5801-721) or an approved equal for camera installation on traffic signal mast arms and CCTV camera poles as well as 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 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 and after termination.~~

~~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 CCTV 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 per EACH for CLOSED CIRCUIT TELEVISION DOME CAMERA, HD including all equipment, material, testing, documentation, and labor detailed in the contract documents for this bid item.~~

CONFINED SPACE ENTRY

The enclosed areas of bridge structures and pylons are considered to be confined spaces. The Contractor shall comply with all OSHA requirements relative to confined space entry. An oxygen deficient, toxic, explosive, or flammable atmosphere may exist within this confined space. Atmosphere testing shall be conducted prior to entry and continuously while employees are working within a confined space. The Contractor shall inform the Department of who will serve as the rescue responder in an emergency and what system will be used to notify the responder that an emergency exists.

CONTRACTOR'S REPRESENTATIVE

The Contractor shall designate a service representative to serve as the key contact person for the Department in the execution of this contract. The service representative shall monitor the daily activities of the contract and be available to discuss and respond to any problems that may arise. The services of this person shall be included in the contract, and no additional compensation shall be allowed.

resistance of the loop and its lead-in shall be a minimum of 100 megohms above ground under any conditions of weather or moisture. The resistance tests and all electronic tests shall be performed in the presence of the Engineer for any number of times as specified by the Engineer. The loop and loop lead-in shall have an inductance between 100 microhenries and 350 microhenries. The continuity test of the loop and loop lead-in shall not indicate a resistance greater than 2 ohms. The Contractor shall conduct all testing in the presence of the Engineer, and all readings will be recorded by the Engineer. Testing shall be done with an approved loop tester.

Method of Measurement: The detector loop measurement shall be the length of sawcut in the pavement which contains loop wire. The actual length of wire used in the sawcut shall not be considered in any measurement.

Basis of Payment: This item will be paid at the contract unit price per FOOT for DETECTOR LOOP, TYPE I.

1 ~~**IDOT INSTALLATION INSTRUCTIONS FOR THE ROADTRAX BL TRAFFIC SENSORS (OR APPROVED EQUIVALENT)**~~

~~Equipment Required~~

~~The sensors should be supplied with sufficient lengths of lead-in cable to avoid splicing. NO SPLICES are allowed in the cable. The lead-in cable length should not exceed 300 feet without consulting the manufacturer. Installation brackets are included when the sensors are shipped from the manufacturer. If splicing is required, only similar grades of RG-58 cable should be used. Splices must be soldered, and an approved splice kit used to waterproof the splice.~~

~~Personnel from the Illinois Department of Transportation Data Management Lab must be present to supervise installation of the axle sensors.~~

~~The following tools and accessories are required for sensor installation:~~

- ~~A heavy duty (at least 35 horsepower) self-propelled concrete cutting saw equipped with a 3/4" diamond blade. If a blade of this width is not available, multiple blades can be used to form a dado.~~
- ~~A water supply for blade cooling and slot washing.~~
- ~~A ½-inch electric or air hammer drill, ½-inch masonry bit, hand sledgehammer, and 1 inch chisel.~~
- ~~Air compressor with hose and nozzle for cleaning and drying the slot and to power any air tools used.~~
- ~~Straight edge, chalk line, minimum 1/8" diameter cord or rope for laying out the lines, upside down pavement fluorescent spray paint, wax crayon, measuring tape to mark locations of saw cuts to be made for sensor(s), and lead-in wire.~~
- ~~One half inch variable speed drill and industrial grade mixing paddles (one for mixing sensor grout & hardener and one for mixing loop sealant & hardener). Do not cross contaminate sensor grout and loop sealant by using the same mixing paddles.~~
- ~~Wire strippers, knife type blade strippers, pliers and diagonal cutters.~~
- ~~Disk grinder or heavy duty sander to remove high spots of epoxy after installation and curing.~~

- ~~Wire brush to remove any remaining debris from the sawed slot and to rough up the sides of the slot after the saw cuts are completed.~~
- ~~Broom to keep work area clear of debris.~~
- ~~Clean rags and isopropyl alcohol to clean and prime concrete surface of the sawed slots.~~
- ~~Plumbers putty or duct seal to form dams at the end of the sensor slot to contain the resin (grout).~~
- ~~PU 200 Resin (or approved equal) for encapsulating the sensors (one can for every six feet of sensor)~~
- ~~Two part cold mix loop sealant for encapsulating the loop and lead wire(s). Hot tar is not acceptable.~~
- ~~Duct tape (2" minimum width) to protect the pavement edge from excess resin end loop sealant along edges of sawed slots during installation of sensors and lead wire.~~
- ~~Putty knives (3" to 4") to remove excess epoxy or work epoxy around sensor and small point trowel for putting resin (grout) into the slot if necessary.~~
- ~~The Contractor must provide a generator suitable for any power tools since AC power is not available at most traffic count stations.~~
- ~~One hundred foot fish tape.~~
- ~~Heavy duty extension cord.~~
- ~~Chemical proof rubber work gloves, heavy duty work gloves, dust filter mask, and goggles & safety glasses for eye protection.~~
- ~~Trenching equipment as required to bury conduit.~~
- ~~Cleaning materials for hands and equipment.~~
- ~~All necessary instructions.~~
- ~~All necessary safety data (MSDS, etc)~~

ELECTRONIC MAIL AND FACSIMILE MACHINE

The Contractor shall have electronic mail receiving and sending capabilities and a facsimile (fax) machine available. The Department will utilize these communication mediums to reduce errors in communications, to send/receive work orders, receive daily contract work activity sheets, various drawings, and estimate sheets as needed. This requirement shall be included in the contract, and no additional compensation shall be allowed.

EXPENSES

Unless otherwise agreed upon and stated herein, this Contract does not allow for reimbursement of any expense incurred by the Contractor including, but not limited to, telephone or other communications devices, postage, copying, travel, transportation, lodging, food, and per diem.

1 ~~**FLASHING BEACON ASSEMBLY**~~

~~This item shall consist of furnishing and installing a one section, bracket mounted flashing beacon assembly and LED signal head as specified in the work order in accordance to the applicable portions of Section 880 and Section 1078 of the Standard Specifications. The flashing beacon assembly item will be measured for payment by the number of flashing beacon assemblies furnished, installed, activated, tested, and accepted.~~

~~This work will be paid for at the contract unit price per EACH for FLASHING BEACON ASSEMBLY of the type specified.~~

JOURNEYMAN ELECTRICIAN

This work shall consist of a journeyman electrician's labor, tools, equipment, and other incidentals necessary or convenient to the successful completion of work orders and the carrying out of all duties and obligations imposed by the contract. Also, the journeyman electrician shall be required to carry a cellular telephone to facilitate communications with work crews and to verify operation conditions of essential Intelligent Transportations System facilities. The Department reserves the rights to use the cellular telephone to contact the journeyman electrician for his or her location and to request a report on the status of a work order.

This work will be measured to the nearest 0.25 hour for each journeyman electrician approved for use on the applicable work order. Labor rates for journeyman electrician shall be inclusive of (but not limited to) all regular and premium time, insurance, benefits, overheard, and profit.

This work will be paid for at the contract unit price per HOUR for JOURNEYMAN ELECTRICIAN.

KNOCKDOWN DOCUMENTATION

The Contractor shall provide the Department with photographs of all onsite knockdown debris to document the damage for third party claims. The photographs shall be digital images and should have the number of views necessary to properly detail the motorist causing damage. Three or more photographs are required for adequate documentation. Identifying information should be included in the photographs as much as possible.

This requirement shall be considered included with this contract, and no additional compensation shall be allowed.