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

April 12, 2021

SUBJECT: Various Routes
Section D4 ITS System 2021
Various Counties
Contract No. 68G19
Item No. 185, April 23, 2021 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 the Recurring Special Provisions check sheet.
3. Revised page i of the Table of Contents to the Special Provisions.
4. Revised pages 1, 2, 4-13, 18, 19, and 28 of the Special Provisions.
5. Revised sheets 2-11, and 15 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

RECURRING SPECIAL PROVISIONS

The following RECURRING SPECIAL PROVISIONS indicated by an "X" are applicable to this contract and are included by reference:

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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 Various Routes, Section D4 ITS 2021, Various Counties, Contract No. 68G19 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 at various intersections in Fulton, Knox, Marshall, McDonough, Peoria and Woodford Counties.

DESCRIPTION OF PROJECT

This project consists of installing
traffic signal controllers, traffic signal cabinets, video detection systems, CCTV cameras, and all related collateral work necessary to complete the improvements on the project.

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LOCATION OF UNDERGROUND STATE MAINTAINED FACILITIES

Effective: August 3, 2007 Revised: July 31, 2009

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: February 3, 2021

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	701301	701601
701602	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.

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.

TRAFFIC SIGNAL CONSTRUCTION STAGING

The Contractor will be allowed to place the intersection into all-red flash mode to facilitate the installation of the proposed traffic signal controllers, cabinets, electrical cable, and other components.

- The Contractor shall furnish and install a minimum of two stop signs per approach when the intersection is operating in all-red flash mode. The traffic signals may be placed into all-red flash mode between the hours of 8:30AM and 3:00PM only.

- The Contractor shall restore the traffic signal to normal operation at all other times, unless specifically directed otherwise by the Engineer.

- The Contractor will be allowed to place the intersection into flash for a maximum of five days.

All costs (labor, materials, and equipment) associated with these requirements shall be included in the contract bid price. There will be no additional compensation for items requirement to implement staging, included but not limited to, temporary cable splices, temporary traffic posts, and premium time hours.

WIRELESS ETHERNET RADIO

The Contractor shall furnish a wireless ethernet radio system and install it on an existing traffic signal mast arm or mast arm strain pole at the locations shown in the plans.

The Contractor shall furnish and install the wireless radio, CAT6E power cables, surge arrestors, mounting brackets, hardware, and all other items required for installation.

The Contractor shall install the radios in accordance with the manufacturer's recommendations and aim the radio antennas to ensure optimal signal strength and connectivity.

The wireless ethernet radio shall be an Ubiquiti Networks airFiber 60 GHz/5 GHz radio or approved equal that meets or exceeds the following minimum specifications:

Features:

- 60 GHz radio with 5 GHz radio backup
- Low-interference 60 Ghz spectrum
- Long range, up to 2 km
- Up to 1 Gbps with low latency
- Integrated GPS
- Full and half bandwidth support

Dimension:	413 x 413 x 320 mm (16.26 x 16.26 x 12.60")
Weight:	1.4 kg (3.09 lb) Without Mount, 1.8 kg (3.97 lb) With Mount
Enclosure:	Aluminum, UV-stabilized Polycarbonate
Antenna Gain:	5 GHz – 11 dBi, 60 GHz - 38 dBi
Networking Interface:	(1) 10/100/1000 Mbps Ethernet Port
Max. Power:	11W
Power Method:	Passive PoE, Pins 4, 5+ and 7, 8-
Power Supply:	24VDC, 0.5A Gigabit PoE Adapter (Included)
Voltage Range:	+22 to +26VDC
LEDs:	Power/Ethernet/5G/60G/GPS
Mounting:	Pole Mount (Included)
Wind Loading:	420 N @ 200 km/h (94.4 lbf @ 125 mph)
Wind Survivability:	200 km/h (125 mph)

ESD/EMP Protection:	± 24kV Contact/Air
Operating Temperature:	-40 to 60° C (-40 to 140° F)
Operating Humidity:	5 to 95% Noncondensing
Certifications:	FCC, IC, CE

System

Maximum Throughput:	1.8 Gbps
Maximum Range:	2+ km
Encryption:	WPA2-PSK (AES)/WPA2 Enterprise
OS"	airOS GP

Radio

Max. Conducted TX Power:	25 dBm
Channel Bandwidth:	60 GHz – 2160 MHz, 5 GHz - 20/40/80 MHz

Operating Frequency (Mhz)

US/CA, U-NII-1, U-NII-3:	5150 – 5250, 5725 – 5850, 57,000 – 66,000
Worldwide:	5180 – 5875, 57,000 - 66,000

Management Radio (MHz)

Worldwide:	2412 – 2472
US/CA:	2412 – 2462

Installation: The Contractor shall ensure that there is a clear line of sight between radios. The Contractor shall furnish and install outdoor, shielded Category 6 (or above) cabling and shielded RJ45 connectors. The Contractor shall furnish two Ethernet Surge Protectors (model ETH-SP-G2) and install one at each end of the cabling. The Contractor shall test all CAT6 cables after installation. The Department will program and configure the radios.

The Contractor shall install the stabilizer arms on the antennas and aim them towards the receiving antenna. The Contractor shall make adjustments to the antenna aiming to ensure optimal signal strength and radio link connectivity. The Contractor shall furnish all hardware and brackets required to install the radio antennas on the existing mast arm or strain pole.

Basis of Payment: This work will be paid for at the contract unit price per Each for WIRELESS ETHERNET RADIO which price shall be payment in full for all labor, materials, and equipment required to furnish the wireless ethernet radio and install it on an existing traffic signal mast arm or strain pole at the locations shown in the plans.

COMPUTER WORKSTATION

The Contractor shall furnish a computer workstation (material only) and deliver it to the Department. The workstation shall be a HP EliteDesk 600 G6 Desktop Mini PC equipped with Wall Mounting bracket and Accessories listed below or approved equal that meets or exceeds the following minimum specifications:

Base Model:	HP ProDesk 600 G6 35 W Desktop Mini PC
Operating system:	Windows 10 Pro
Processor:	Intel® Core™ i7-10700T Processor (2.0 GHz, up to 4.5 w/Boost, 16 MB cache, 8 core, 35W) + Intel® UHD Graphics 630
Memory:	16 GB (2 x 8 GB) DDR4-2933 SODIMM Memory
Internal storage:	500 GB 7200 RPM 2.5" HDD
ENERGY STAR:	ENERGY STAR Qualified Configuration
Chassis:	65 Watt External Power Adapter External Power Supply
Intel® Optane™ memory:	16 GB Intel® Optane™ Memory
Additional bay options:	35 W SATA Drive Bracket
Out-of-Band management:	Intel® vPro™ Technology Upgrade
Additional networking:	Intel® Wi-Fi 6 AX201 (2x2) + Bluetooth® 5.1 (vPro™)
Flexible port options:	DisplayPort Port (v2)
Additional flexible port:	2 x Type-A USB 2.0 I/O Port Option
Display cable:	HP DisplayPort Cable
Keyboard:	HP Wireless Keyboard and Mouse Business Slim Keyboard
Stand:	Vertical Chassis Stand
Electronic TCO Certified:	Electronic TCO Certified Label
Technical:	OS Localization
Accessories:	HP Desktop Mini Security Dual VESA Sleeve v3
Warranty:	Three-year (3/3/3) limited warranty
Packaging:	Single Unit (DM) Expansion Packaging

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Country kit: HP ProOne 600 G6 DM Country Kit

Label processor: Intel® Core™ i7 vPro™ Label - CFL-R

Basis of Payment: This work will be paid for at the contract unit price per Each for COMPUTER WORKSTATION which price shall be payment in full for all labor, materials, and equipment required to furnish the computer workstation and accessories described above and deliver it to the Department.

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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.

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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 not be paid for separately but shall be included in the bid price for the proposed items.

CLOSED-CIRCUIT TELEVISION DOME CAMERA, HD

Description. This work shall consist of furnishing and installing an integrated Closed-Circuit Television (CCTV) Dome Camera Assembly, camera bracket, 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 Q6075-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.

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Cable will not be paid for separately but shall be included in the cost of this pay item.

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, HD including all equipment, material, testing, documentation, and labor detailed in the contract documents for this bid item.

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:

Basis of Payment: This work will not be paid for separately but shall be included in the cost of the pay items for VIDEO VEHICLE DETECTION SYSTEM and CLOSED-CIRCUIT TELEVISION DOME CAMERA, HD **and WIRELESS ETHERNET RADIO.**

FULL ACTUATED CONTROLLER AND TYPE IV CABINET, SPECIAL

This work shall be in accordance with Sections 857, 1073, and 1074 of the Standard Specifications except as modified herein.

The Contractor shall remove existing photocell relays, DIN rail mounted communications equipment, traffic signal interconnect equipment, and fiber optic enclosures from existing traffic signal controller cabinets and install the equipment in the proposed controller cabinets at each location.

The Contractor shall relocate battery backup system cabinets and components from the existing traffic signal controller cabinets to the proposed controller cabinets.

The controller and cabinet shall be compliant with NEMA TS-2 standards and NTCIP standards 1201 and 1202. The controller shall be an Econolite Cobalt C-Series controller that is equipped with basic display, data key, and latest firmware. The controller shall be compatible with Econolite Centracs central system software.

The traffic signal cabinet shall have a NEMA TS-2 back panel. The cabinet shall include a malfunction management unit to allow enhanced fault monitoring capabilities. The malfunction management unit shall support flashing yellow arrow operation and be a Reno A&E model MMU-1600G equipped with a graphical display and Ethernet port.

The controller shall be a NEMA TS-2 Type 2 controller equipped with an Ethernet ports, USB ports, and data key.

The malfunction management unit shall be equipped with the latest software and firmware revisions. The cabinet shall be equipped with a plexi-glass shield that covers the power panel which houses the mercury bus relay, line filter, circuit breakers, and other electrical components.

The cabinet shall be equipped with a plexi-glass shield that covers the thermostat and a LED lighting assembly that turns on when the door is opened. The lighting assembly shall be mounted in a location that will not interfere with cabinet maintenance.

The traffic signal cabinet shall be equipped with a sixteen-load switch back panel to accommodate future expansion.

The cabinet shall be equipped with a cabinet riser that raises the cabinet approximately twelve inches above the concrete foundation. The riser shall bolt directly to the existing foundation anchor bolts and the riser shall be attached to the cabinet using galvanized steel hardware.

The riser shall be fabricated from 0.125-inch (3 mm) sheet aluminum with flanges on the top and bottom to provide rigidity. The riser shall be equipped with mounting flanges as required to connect with the controller cabinet and foundation anchor bolts. The outside surface of the riser shall have a smooth, uniform, natural finish.